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**EVALUATION OF THE EFFECTIVENESS OF IMPLEMENTATION OF
THE PRACTICAL APPROACH TO LUNG HEALTH (PALSA) IN
THE FREE STATE**

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A thesis submitted in accordance with the requirements for the Doctor of
Philosophy degree in the Faculty of Health Sciences, Department of Community
Health at the University of the Free State.

February 2005

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BOSIELO PHILLIP MAJARA

SUMMARY

Currently, respiratory diseases constitute about one third of patients that present to primary care clinics in under-resourced countries of the world. Communicable respiratory diseases such as tuberculosis, acute respiratory infections in adults and non-communicable respiratory diseases such as asthma, chronic obstructive pulmonary disease, lung cancer represent about one-fifth of the global burden of disease measured in disability adjusted life years (DALY). Opportunistic infections, other respiratory complications, and the widespread use of tobacco further increase the respiratory disease burden in high HIV prevalence settings. In developing countries clinic nurses with limited training and basic skills are entrusted to properly diagnose and treat respiratory patients from overloaded clinics. We developed an educational outreach intervention, Practical Approach to Lung Health in South Africa (PALSA) on integrated respiratory case management aimed at improving the quality of respiratory care in South African primary care clinics.

The intervention comprised 3 to 4 academic detailing training sessions of primary care nursing practitioners; dissemination of locally adapted PALSA guidelines and support materials; changes in prescribing provisions for primary care nurses, and doctors' sensitization about PALSA.

The impact of PALSA on the processes and outcomes of respiratory care was evaluated through a pragmatic cluster randomized controlled trial in the Free State province in 2003.

A total of 1000 patients in the intervention arm and 999 patients in the control arm presenting with respiratory conditions to the 40 largest primary care clinics of the Free State province were interviewed at the first post-intervention survey. The number of patients recruited ranged from 47 to 52 patients per clinic. The follow-

up rate was 92.9% for the intervention arm and 92.7% for the control arm. Twenty two patients died in the intervention clinics and twenty six died in the control clinics. During data analysis, four patients in each arm were deleted due to unavailability of the first post-intervention survey data and/or because they did not meet the inclusion criteria. Professional nurses in intervention clinics received a median of 2 training sessions while nurses in the control clinic received nothing.

First post-intervention survey characteristics of the intervention and control arms balanced as a result of randomization. Almost two thirds of the patients were females with the most frequent age group being 25-54 years. About 50% of patients had a smoking history, about 50% had primary education, close to 50% were unemployed, above 80% walked to get to the nearest clinic and 70% spent between 2 and 12 hours to travel to and from the clinic.

The inclusion criteria to the study were adults 15 years and older presenting with a cough or difficulty breathing on the day of the interview, recurrent cough or difficulty breathing in the last 6 months or cough for less than two weeks with any of the four severity markers. Rates of cough and difficulty breathing ranged between 70% and 90%. About 70% of the patients complained about chest symptoms interfering with their usual activities while around 36% had gone to the clinic for a check-up on recurrent respiratory problem.

Compared to control clinics, intervention clinics had a significant improvement in inhaled steroid prescription of 16.1% versus 10.3% (odds ratio 1.70; 95%CI 1.13 to 2.56), and an improvement in sending of sputa for tuberculosis testing of 16.7% versus 11.2% (odds ratio 1.60; 95%CI 1.00 to 2.54). There were also significant improvements seen on appropriate referral of patients that had one of the four severity makers of 10.6% versus 4.9% (odds ratio 2.56; 95%CI 1.06 to 6.17), and close to significant improvement of the tuberculosis detection rate of 3.0% versus 1.8% (odds ratio 1.67; 95%CI 0.92 to 3.02). There was a significant

increase in interference with usual activities due to chest symptoms of 68.0% versus 60.1% (odds ratio 1.44; 95%CI 1.13 to 1.85). There was no improvement on antibiotic prescription of 36.1% versus 38.0% (odds ratio 0.92; 95%CI 0.62 to 1.36) as well as cotrimoxazole prophylaxis of 12.6% versus 9.9% (odds ratio 1.52; 95%CI 0.60 to 3.89). Results of this study suggest that inhaled steroid prescription, tuberculosis case detection rate, and appropriate referral of patients with severe respiratory diseases can be improved in nurse staffed primary care clinics in developing countries and under-resourced settings.

This study exemplifies an evaluation of the effectiveness of an educational intervention in South African primary care. It shows how a carefully developed intervention, using a syndromic approach to diagnosis and treatment, can improve several aspects of clinical care after brief training of primary care nurses. It also illustrates opportunities for, and difficulties in, implementing such an intervention, and conducting a large scale trial in this setting. This study suggests that other international interventions based on dissemination of clinical guidelines, such as, for IMCI, STIs and HIV/AIDS should be developed and rigorously evaluated locally, given their potential impact on public health and on services.

OPSOMMING

Respiratoriese siektes is tans verantwoordelik vir ongeveer 'n derde van die pasiënte wat aanmeld by primêre sorg klinieke in hulpbron-arm lande van die wêreld. Oordraagbare respiratoriese siektes soos tuberkulose, akute respiratoriese infeksies in volwassenes en nie-oordraagbare respiratoriese siektes soos asma, chroniese obstruktiwe pulmonêre siekte, longkanker verteenwoordig een vyfde van die globale siektelas gemeet aan gestremde-aangepaste lewensjare. Opportunistiese infeksies, ander respiratoriese komplikasies, en die algemene gebruik van tabak verhoog die respiratoriese siektelas verder in omgewings met 'n hoë MIV voorkoms. In ontwikkelende lande word van kliniekverpleegkundiges met beperkte opleiding en basiese vaardighede verwag om respiratoriese pasiënte korrek te diagnoseer en te behandel in oorlaaide klinieke. Ons het 'n opvoedkundige uitreik intervensie, Practical Approach to Lung Health in South Africa (PALSA) ontwikkel, gemik op geïntegreerde respiratoriese gevalshantering om die kwaliteit van respiratoriese sorg in Suid-Afrikaanse primêre sorg klinieke te verbeter.

Die intervensie het bestaan uit 3 tot 4 opleidingsessies vir primêre sorg verpleegkundiges, verspreiding van plaaslik aangepaste PALSA riglyne en ondersteuningsmateriaal; veranderinge in voorskrifbepalings vir primêre sorg verpleegkundiges, en sensitisering van dokters aangaande PALSA.

Die impak van PALSA op die prosesse en uitkomst van respiratoriese sorg is geëvalueer deur 'n pragmatiese bundel gerandomiseerde gekontroleerde proef in die Vrystaat provinsie in 2003.

'n Totaal van 1000 pasiënte in die intervensie-arm en 999 pasiënte in die kontrole-arm wat met respiratoriese toestande presenteer by die 40 grootste primêre sorg klinieke in die Vrystaat, is tydens die eerste post-intervensie

opname ondervra. Die aantal pasiënte gewerf per kliniek het van 47 tot 52 pasiënte gewissel. Die opvolgkoerse was 92.9% in die intervensie-arm en 92.7% in die kontrole-arm. Twee-en-twintig pasiënte is in die intervensie-klinieke oorlede en ses-en-twintig in die kontrole-klinieke. Gedurende data-ontleding, is vier pasiënte in elke arm uitgesluit weens onbeskikbaarheid van aanvanklike post-intervensie data en/of omdat hulle nie aan die insluitingskriteria voldoen het nie. Professionele verpleegkundiges in die intervensie-klinieke het 'n mediaan van 2 opleidingsessies ontvang terwyl verpleegkundiges in die kontrole klinieke geen intervensie ontvang het nie.

Die aanvanklike post-intervensie eienskappe van die intervensie- en kontrole-arms was soortgelyk as gevolg van die randomisasie. Bykans twee derdes van die pasiënte was vroulik, met die mees algemene ouderdomsgroep 25-54 jaar. Ongeveer 50% van pasiënte het 'n rookgeskiedenis, ongeveer 50% het primêre skoolopleiding, ongeveer 50% was werkloos, meer as 80% het gestap om by die naaste kliniek te kom, en 70% bestee tussen 2 en 12 ure om na en van die kliniek te reis.

Die insluitingskriteria vir die studie was volwassenes 15 jaar en ouer wat presenteer met 'n hoes of moeilike asemhaling op die dag van die onderhoud, herhaalde hoes of moeilike asemhaling in die afgelope 6 maande of hoes van minder as twee weke met enige van die vier ernstige merkers. Koerse vir hoes en moeilike asemhaling het gevarieer tussen 70% en 90%. Ongeveer 70% van die pasiënte het gekla oor borssimptome wat inmeng met hulle gewone aktiwiteite terwyl ongeveer 36% na die kliniek gegaan het vir 'n ondersoek vir herhaalde respiratoriese probleme.

Vergeleke met kontrole-klinieke het intervensie-klinieke 'n betekenisvolle verbetering in die voorskryf van geïnhaleerde steroïede (16.1% versus 10.3%, kansverhouding 1.70, 95%VI 1.13 tot 2.56), en 'n verbetering in die stuur van

sputa vir tuberkulose toesting (16.7% versus 11.2%, kansverhouding 1.60, 95%VI 1.00 tot 2.54) getoon. Daar was ook betekenisvolle verbeterings in toepaslike verwysings van pasiënte met een of meer van die vier ernstige merkers (10.6% versus 4.9%, kansverhouding 2.56, 95%VI 1.06 tot 6.17), en na aan betekenisvol vir die tuberkulose-opsporing skoers (3.0% versus 1.8%, kansverhouding 1.67, 95%VI 0.92 tot 3.02). Daar was 'n betekenisvolle verhoging in die inmenging van borssimptome met gewone aktiwiteite (68.0% versus 60.1%, kansverhouding 1.44, 95%VI 1.13 tot 1.85). Daar was geen verbetering in antibiotika-voorskrifte nie (36.1% versus 38.0%, kansverhouding 0.92, 95%VI 0.62 tot 1.36) en ook nie vir cotrimoxazole profilakse nie (12.6% versus 9.9%, kansverhouding 1.52, 95%VI 0.60 tot 3.89). Resultate van hierdie studie dui daarop dat geïnhaleerde steroïedvoorskrifte, die tuberkulose gevalsopsporing skoers en die toepaslike verwysing van pasiënte met ernstige respiratoriese siektes verbeter kan word in primêre gesondheidsorgklinieke beman deur verpleegkundiges in ontwikkelende lande en hulpron-arm omgewings.

Hierdie studie dien as voorbeeld van 'n evaluering van die effektiwiteit van 'n opoedkundige intervensie in Suid-Afrikaanse primêre sorg. Dit wys hoe 'n deeglik ontwerpte intervensie wat gebruik maak van 'n sindromiese benadering tot diagnose en behandeling, na kort opleiding van primêre sorg verpleegkundiges verskeie aspekte van kliniese sorg kan verbeter. Dit toon ook die geleentheid vir en probleme verbonde aan die implementering van sodanige intervensie en die uitvoer van 'n grootskaalse proef in hierdie omgewing. Hierdie studie dui daarop dat ander internasionale intervensies gebaseer op die verspreiding van kliniese riglyne, soos IMCI, SOS en MIV/VIGS plaaslik ontwikkel moet word en noukeurig plaaslik ge-evalueer moet word gegewe hulle potensiële impak op publieke gesondheid en op dienste.

Key terms:

Academic detailing

Cluster randomized controlled trial

Effectiveness

Evaluation

Guidelines

Multifaceted intervention

Practical approach to lung health in South Africa (PALSA)

Primary respiratory care

Respiratory conditions

Tuberculosis

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List of acronyms and abbreviations

- AIDS-** Acquired immunodeficiency syndromes
- ALHI-** Adult lung health initiative
- ARV-** Antiretroviral drugs
- CAP-** Community acquired pneumonia
- COPD-** Chronic obstructive pulmonary disease
- DALY-** Disability adjusted life years
- DOH-** Department of Health
- DOTS-** Directly observed therapy- short course
- FS-** Free State province
- GOLD-** Global Initiative for Chronic Obstructive Pulmonary Disease
- HIV-** Human immunodeficiency virus
- IMCI-** Integrated management of childhood diseases
- IDRC-** International development and research centre- Canada
- IUATLD-** International Union against Tuberculosis and lung disease
- LRTI-** Lower respiratory tract infection
- MRC-** Medical Research Council
- PAL-** Practical approach to lung health
- PALSA-** Practical approach to lung health in South Africa
- PHC-** Primary Health Care
- RCT-** Randomised controlled trial
- RR-** Respiratory rate
- SA-** South Africa
- SADHS-** South African Demographic Health Survey
- STG/EDL-** Standard treatment guidelines/Essential drug list
- TB-** Tuberculosis
- UCT-** University of Cape Town
- UFS-** University of the Free State
- UK-** United Kingdom
- UNICEF-** United nation children fund

URTI- Upper respiratory tract infection

UWC- University of the Western Cape

VCCT/HIV- Voluntary counselling and consent to test for HIV

WHO- World Health Organisation

CHAPTER 1- INTRODUCTION

1.1 INTRODUCTION

This chapter will give an overview of the burden and primary care of respiratory conditions in general. A global picture followed by a South African one will follow. A more focused picture of the Free State, the South African province where the Practical Approach to Lung Health in South Africa (PALSA) project was implemented, will then be given.

The overview will be followed by an indication of how the PALSA initiative was developed in South Africa following the initiative of the World Health Organisation (WHO).

1.2 RESPIRATORY CONDITIONS

1.2.1 Global picture

1.2.1.1 Morbidity, mortality and trends

Globally, respiratory conditions impose a severe burden on society (Ait-Khaled *et al* 2001). According to the World Health Report 2000, the top five respiratory diseases account for 17.4% of all deaths and 13.3% of all Disability-Adjusted Life Years (DALYs) in the world (WHO 2000). Lower respiratory infections, including pneumonia, chronic obstructive pulmonary disease (COPD), tuberculosis and lung cancer are each among the leading 10 causes of death worldwide (WHO 2002). Asthma affects about 300 million people worldwide and is the most prevalent chronic disease in childhood (Beasley *et al* 2003).

Table 1.1 indicates that each year, globally, tuberculosis kills approximately 2 million people, some 3.8 million people die of respiratory infections and 2.7 million

die of chronic obstructive pulmonary diseases (WHO 2003 (a)). Lower respiratory disease, chronic obstructive pulmonary disease and tuberculosis together are responsible for 11% of all disability adjusted life years in the world (WHO 2003 (a)). It is estimated that around 300 million people in the world currently have asthma, resulting in 180 000 deaths per annum (Beasley *et al* 2003).

Table 1.1: Global burden and mortality rates due to respiratory conditions (Adapted from World Health Report 2003(a))

Type of Disease	Burden of disease ('1000) in (DALYs)	Deaths from Disease ('1000)
Respiratory infections	90 252	3 847
HIV/AIDS	86 072	2 821
Tuberculosis	35 361	1 605
COPD	27 708	2 746
Asthma	15 325	239

1.2.1.2 Future projections

As illustrated in Table 1.2 future projections of the global burden of disease predict that in developing countries respiratory diseases will occupy three of the top ten places by the year 2020 (Murray and Lopez 1996). These projections suggest that chronic obstructive pulmonary disease will be ranked fifth, lower respiratory tract infections sixth, tuberculosis seventh and HIV tenth as causes of the global burden of disease. In developing countries, particularly sub-Saharan Africa, additional problems such as the rise of HIV/AIDS, tuberculosis, tobacco use and indoor air pollution have significant social and economic implications. Add to this the contribution made by acute respiratory infections, and opportunistic infections in retroviral positive individuals, and it becomes evident that developing countries face a growing problem (Murray and Lopez 1996).

The deterioration in health service delivery, the spread of HIV/AIDS and the emergence of multi-drug resistant tuberculosis are contributing to the worsening

impact of the disease in developing countries (Ait-Khaled *et al* 2001, WHO 2003 (a)). It is estimated that between 2002 and 2020, approximately 100 million people will be newly infected, over 150 million people will get sick, and 31 million will die of tuberculosis if control is not further strengthened (Murray and Lopez 1996).

Table 1.2: Future projections of global respiratory and other diseases in developing countries (Adapted from Murray and Lopez 1996)

Disease/Injury	1990		2020	
	Rank	% total DALYs	Rank	% total DALYs
Lower respiratory infection	1	8.2	6	3.1
Tuberculosis	7	2.8	7	3.1
Chronic obstructive pulmonary disease	12	2.1	5	4.1
Trachea, bronchus, and lung cancers	28	0.6	15	1.8
Diarrhoeal diseases	2	7.2	9	2.7
Conditions arising during perinatal period	3	6.7	11	2.5
Unipolar major depression	4	3.7	2	5.7
Ischemic heart disease	5	3.4	1	5.9
Cerebrovascular disease	6	2.8	4	4.4
Measles	8	2.6	25	1.1
Road traffic accidents	9	2.5	3	5.1
Congenital anomalies	10	2.4	13	2.2
Malaria	11	2.3	24	1.1
Falls	13	1.9	19	1.5
Iron-deficiency anaemia	14	1.8	39	0.5
Protein-energy-malnutrition	15	1.5	37	0.6
War	16	1.5	8	3.0
Self-inflicted injuries	17	1.4	14	1.9
Violence	19	1.3	12	2.3
HIV	28	0.8	10	2.6

1.2.2 South African picture

1.2.2.1 Morbidity, mortality and trends

According to the WHO Regional Mortality stratum, South Africa falls within the AFR-E, which is the African region with high child and adult mortality (WHO 2002). Approximately 80% of tuberculosis cases in the world are found in 23 countries; the highest incidence rates are found in sub-Saharan Africa and Southeast Asia. The tuberculosis situation has worsened over the past two decades in Africa notably South Africa, as a result of the HIV/AIDS epidemic (WHO 2002, Bateman 2002, Raviglione *et al* 1997). In South Africa, an estimated 28% of all patients who present to Primary Health Care facilities have respiratory symptoms (Bateman 2002, Fairall *et al* 2001).

Table 1.3 indicates that in 2000, the top single cause of mortality burden in South Africa was HIV/AIDS followed by homicide, tuberculosis, road traffic accidents and diarrhoea (Reddy *et al* 2004). HIV/AIDS accounted for 38% of total year life lost (YLLs) while tuberculosis, lower respiratory tract infection, COPD and asthma were among the top 20 single causes of deaths in South Africa (Reddy *et al* 2004). South Africa is experiencing a quadruple burden of disease comprising the pre-transitional diseases, the emerging chronic diseases, injuries, and HIV/AIDS. Unless interventions that reduce morbidity and delay mortality due to HIV/AIDS become widely available, the burden can be expected to grow very rapidly in the next few years (Bradshaw *et al* 2003, Reddy *et al* 2004).

The "White Paper for the Transformation of the Health System in South Africa" states that among priority programmes in South Africa, HIV/AIDS and tuberculosis rank as high priorities (Department of Health 1998(a)). The 1998 South African Demographic Health Survey found that the smoking rate among adults in South Africa was 42% for male and 11% among female of 15 years and above. This high

rate aggravates high incidences of respiratory infections country-wide (Department of Health 1998(a)).

Table 1.3: Top 20 single causes of deaths and Years of Life Lost (YLLs), South Africa, 2000 (Adapted from Reddy *et al* 2004)

Single causes	Number of deaths	Rank	Single causes	YLLs	Rank
HIV/AIDS	165 859	1	HIV/AIDS	4 665 410	1
Tuberculosis	29 553	5	Tuberculosis	595 277	3
Lower respiratory infection	22 097	6	Lower respiratory infection	449 010	6
COPD	12 473	11	COPD	113 499	16
Trachea/bronchi/lung cancer	7 173	14	Asthma	94 069	18
Asthma	6 987	15	Bacterial meningitis	90 964	20
Ischemic heart disease	32 919	2	Homicide/violence	902 592	2
Homicide/violence	32 485	3	Road traffic accidents	163 544	4
Stroke	32 114	4	Diarrhoeal diseases	489 979	5
Road traffic accidents	18 446	7	Low birth weight	393 763	7
Diarrhoeal diseases	15 910	8	Stroke	318 083	8
Low birth weight	11 876	12	Ischemic heart disease	145 421	9
Nephritis/nephrosis	7 225	13	Protein-energy malnutrition	171 433	10
Suicide	6 370	16	Hypertensive heart disease	127 066	13
Septicaemia	6 047	17	Fires	123 400	14
Oesophageal	5 803	18	Septicaemia	115 247	15
Cirrhosis of liver	5 672	19	Neonatal infections	93 973	17
Protein-energy malnutrition	5 511	20	Nephritis/nephrosis	96 819	19

1.2.3 Free State picture

1.2.3.1 Morbidity, mortality and trends

Table 1.4 illustrates the Free State province's top ten causes of death in 2000 based on death certificates. Infectious and parasitic diseases were the highest while respiratory disorders ranked the third. In the case of deaths due to infectious and parasitic diseases, HIV/AIDS related infections and tuberculosis ranked the first and second respectively, as illustrated by Table 1.5. They accounted for about 40% and 35% respectively from a total of 2060 deaths in the province (Department of Health 2002(a)). According to the 2002 report on the prevalence of HIV/AIDS in South Africa, the Free State province currently stands in the third position at 28.8% of antenatal clinic attendees (Shishane and Simbayi 2002). In terms of the highest level of infection amongst all groups, that is, not only for antenatal clinic attendees, the Free State was ranked the highest in the country with 14.9% (Shishane and Simbayi 2002).

Table 1.4: Top 10 causes of death for Free State province in 2000 (Adapted from Department of Health 2002(a))

Disease	Total number of deaths (N=8500)	Percentage (%)
Infectious & parasitic	2060	24.2
Symptom & signs unclassified	1736	20.4
Respiratory	1516	17.8
Circulatory	1465	17.2
Neoplasm	462	5.4
External	406	4.8
Endocrine & nutrition	283	3.3
Pregnancy & childbearing	283	3.3
Genito-urinary system	159	1.9
Digestive system	130	1.5

Table 1.5: Deaths due to infectious and parasitic diseases in Free State Province in 2000
(adapted from Department of Health 2002(a))

Condition	Total number of deaths (N=2058)	Percentage (%)
HIV	823	40.0
Tuberculosis	716	34.8
Diarrhoea & Gastroenteritis	317	15.4
Septicaemia unspecified	107	5.2
Other viral enteritis	48	2.3
Acute amoebic dysentery	19	0.9
Hepatitis	10	0.5
Amoebic brain abscess	8	0.4
Acute poliomyelitis	7	0.3
Typhoid fever	1	0.05
Neurosyphilis unspecified	1	0.05
Cryptococcus unspecified	1	0.05

During 2000, as indicated in Table 1.6, the total number of deaths due to respiratory conditions was 1516, with pneumonia accounting for 76%, respiratory failure 9%, COPD 4% and asthma 3% and other lung disorders accounting for the remainder (Department of Health 2002(a)).

Table 1.6: Deaths due to respiratory disorders in Free State in 2000 (Adapted from Department of Health 2002(a))

Condition	Total number of deaths (N=1516)	Percentage (%)
Pneumonia	1145	75.5
Respiratory failure	137	9.0
COPD unspecified	59	3.9
Asthma	42	2.8
Other disorders of the lungs	39	2.6
Pulmonary oedema	27	1.8
Diseases of upper respiratory tract infections unspecified	24	1.6
Unspecified chronic bronchitis	20	1.3
Pleural effusion	8	0.5
Bronchitis unspecified	7	0.5
Other intestinal pulmonary diseases with fibrosis	4	0.3
Lower respiratory tract infections	2	0.13
Common cold	1	0.07
Acute laryngitis	1	0.07

1.3 THE EFFECTIVENESS OF TREATMENT FOR MAJOR RESPIRATORY CONDITIONS AT PRIMARY CARE LEVEL

There have been several systematic reviews and trials on available treatments at primary health care level aimed at addressing the abovementioned diseases. Below is a summary of the systematic reviews of 5 primary health care priority respiratory diseases, namely pneumonia, upper respiratory infections, asthma, chronic obstructive pulmonary disease and tuberculosis.

1.3.1 Pneumonia

In evaluating the effects of different oral antibiotics to treat patients with community acquired pneumonia (CAP) in outpatient settings, one systematic review looked at 9 randomized controlled trials involving 1164 people (Pomilla and Brown 1994). Antibiotics evaluated were amoxicillin, with and without clavulanate, macrolides, cephalosporins, and quinolones. The review reported clinical cure or improvement in over 90% of the people regardless of which antibiotics was taken (Pomilla and Brown 1994). This review indicates that the use of antibiotics for treatment of community acquired pneumonia can be effective at primary care level.

Regarding evaluation of the effectiveness of clinical guidelines on treatment of community acquired pneumonia, one systematic review looked at 3 randomised controlled trials and 7 cohort studies comparing guidelines that incorporated early switch from intravenous to oral antibiotics and early discharge strategies (or both) versus usual care (Rhew *et al* 2001). The study found no significant difference in clinical outcomes and mean length of hospital stay (Rhew *et al* 2001). Early discharge and early switch to oral medication are thus effective for the treatment of community acquired pneumonia at primary care level.

1.3.2 Upper respiratory tract infection

In evaluating the effectiveness of use of antibiotics for treating upper respiratory tract infection one systematic review looked at 26 randomised controlled trials involving 2669 people with sore throat. The review established that compared with placebo, antibiotics slightly but significantly reduced the proportion of people with symptoms of sore throat at 6-8 days and shortened symptom duration by a mean of about 24 hours at day 3 (Del mar *et al* 2004). The review also established that antibiotics significantly reduced the proportion of people who developed rheumatic fever at 2 months compared with placebo (Del mar *et al* 2004). Smucny and colleagues reviewed nine randomised trials involving over 750 patients comparing

antibiotic therapy with placebo in acute bronchitis or acute productive cough. The researchers established that patients receiving antibiotics had better outcomes than those receiving placebo (Smucny *et al* 2004).

In South Africa, Meyers and colleagues conducted a study to assess the effect of a prescribing training intervention for primary health care nurses in the Lowveld Region of the Northern Province of South Africa (Meyers *et al* 2001). The intervention in this case was a generic training-of-trainers course of a 4-day effective prescribing course which was presented to 24 provincial trainers who in turn conducted effective prescribing workshops for 20 primary health care nurses per workshop. In 1997, 457 prescribers were trained by this method in project sites. The study investigated the impact of the training on prescribing practices for two target conditions, in a control and a study group of 11 clinics each, 1 month after and 3 months after the intervention. Changed behaviour was not only seen in prescribing for upper respiratory tract infections, used as an example condition, but also for diarrhoea and/or vomiting, a common condition in the region, which was not included in the training programme. These results showed that prescribers not only retained the knowledge gained, but were also able to apply their new skills to other conditions. The change in the study group was maintained for 3 months after training, while there were no significant improvements in prescribing in the control group (Meyers *et al* 2001).

The above two reviews and one study suggest that use of antibiotics for treatment of upper respiratory infections and training of nurses on the use of guidelines for prescribing are effective for treatment of upper respiratory tract infections.

1.3.3 Asthma

To evaluate the effectiveness of antibiotics prescribed to patients in the treatment of acute asthma, a systematic review looked at two randomised controlled trials involving 97 patients (Graham *et al* 2004). The review revealed that currently the

role of antibiotics in the treatment of acute asthma is difficult to assess, therefore further research is still required (Graham *et al* 2004).

To evaluate the effectiveness of regular versus as needed inhaled short acting beta-2 agonist in adults with mild or moderate asthma, one systematic review looked at 22 cross-over randomised controlled trials, 8 parallel group randomised controlled trial and one subsequent randomised controlled trial (Walters and Walters 2001). The review established no significant difference between regular and as needed inhaled short acting beta-2 agonists for clinically important outcomes (Walters and Walters 2001).

In evaluating the effectiveness of inhaled long acting beta-2 agonists in people with stable chronic asthma, 85 randomised studies comparing a long acting inhaled beta-agonist with placebo were reviewed (Walters *et al* 2004). The review established significant advantages of long acting beta-2 agonist treatment, compared to placebo, for a variety of measurements of airway calibre (including morning and evening peak flows), fewer symptoms, less use of rescue medication and higher quality of life (Walters *et al* 2004).

In evaluating the effectiveness of low dose inhaled corticosteroids versus placebo in people with mild, persistent asthma, one systematic review looked at 52 randomised controlled trials involving 3459 people (Adams *et al* 2004(a)). The review established that a low dose inhaled corticosteroid, beclomethasone dipropionate (BDP) versus placebo significantly improved lung function and symptoms, and reduced the need for short acting bronchodilators (Adams *et al* 2004(a)). Another systematic review looked at 5 randomised controlled trials involving 141 adults with mild persistent asthma, comparing inhaled corticosteroids versus placebo and versus beta-2 agonist respectively. The review found that regular inhaled corticosteroids versus regular beta-2 agonist or placebo significantly improved lung function (Nathan *et al* 2001).

Mash and colleagues also conducted a systematic review to establish the effectiveness of inhaled versus oral steroids for adults with chronic asthma (Mash *et al* 2004). The study looked at 10 randomised controlled trials involving 269 adult patients and revealed that a daily dose of an oral steroid (prednisone 7.5-10 mg/day) appears to be equivalent to moderate-high dose inhaled corticosteroids (Mash *et al* 2004).

Nolan and White conducted a study to determine the relationship between asthma morbidity and the attendance of and prescribing for symptomatic asthma patients in primary care in England (Nolan and White 2002). Results of the study showed that asthma management of the majority of the patients was active with high levels of steroid prescribing. There appeared to be room to increase steroid prescribing and to improve the structure of care (Nolan and White 2002).

There is thus agreement among the above reviews that use of inhalers steroids for treatment of asthma has been shown to be effective. There is however a growing concern that beta agonists ("relievers") tend to be overused compared to inhaled steroids ("preventers") (Diette *et al* 1999).

Many third world countries, notably South Africa have endeavoured to measure the impact of asthma on individuals with asthma and have also attempted to define the quality of care for this common chronic illness. Green and colleagues conducted a study with a primary objective of assisting the National Asthma Program in South Africa with the formulation and delivery of its outreach program to rural asthmatic patients (Green *et al* 2001). The researchers conducted interviews with thirty five adult asthmatic patients and twenty seven parents of paediatric asthmatic patients at seven rural health clinics across South Africa. Each interview included extensive demographic details, questions on asthma definition, symptoms and symptom triggers, family history, age at diagnosis, frequency of symptoms, and treatment. Of the adult patients, 40% reported wheezing at least once a week (despite diagnosis and treatment) and 19% of

children reported similar symptom exacerbations. Fifty-one percent of adults and 56% of children were awakened at least once a week by cough or wheeze. Fifty-one percent of adults and 33% of children had been hospitalized at least once for asthma. Although respondents claimed regular training in use of inhaler device, only 43% of adults completed each step correctly. The researchers came to the conclusion that there is a great deal of fear and ignorance surrounding asthma and, therefore, there is need for a greater level of patient education in the rural areas of South Africa with special attention being paid to nurses, because they play a greater role than doctors in management and education of asthma (Green *et al* 2001).

Griffiths and colleagues conducted a cluster randomized controlled trial study to determine whether asthma specialist nurses, using a liaison model of care, could reduce unscheduled care in a deprived multiethnic area in England (Griffiths *et al* 2004). The study included 44 general practices in two boroughs in east London, and it involved 324 people aged 4-60 years admitted to or attending hospital or the general practitioner out of hour service with acute asthma (Griffiths *et al* 2004). At intervention clinics patients were reviewed by a nurse in liaison with general practitioners, there was also promotion of guidelines for high risk asthma, and ongoing clinical support. Control practices on the other hand received a visit promoting standard asthma guidelines and control patients were checked for inhaler technique only. The results of the study revealed that the intervention delayed time to first attendance with acute asthma (hazard ratio 0.73, 95% CI 0.54 to 1.00; median 194 days for intervention and 126 days for control) and reduced the percentage of participants attending with acute asthma (58% (101/174) versus 68% (99/145); odds ratio 0.62, 95% CI 0.38 to 1.01). The researchers concluded that asthma specialist nurses using a liaison model of care reduced unscheduled care for asthma (Griffiths *et al* 2004).

The above two cited studies indicate that nurses play a critical role in managing acute asthma at primary care level and countries especially developing countries

need to invest in them through training. One of the studies was conducted in a developed country while the other one was conducted in South Africa.

1.3.4 Chronic obstructive pulmonary disease (COPD)

In the evaluation of effects of inhaled anticholinergics for treating chronic obstructive pulmonary disease, a review of 3 large randomised controlled trials involving 1461 people comparing ipratropium, salmeterol and formoterol versus placebo was conducted. The review established that, compared to placebo, inhaled anticholinergics significantly improved forced expiratory volume in 1 second, exercise capacity and symptoms (Kerstjens and Postama 2002).

In evaluating inhaled beta-2 agonists for treating chronic obstructive pulmonary disease, one systematic review looked at 9 cross-over randomised controlled trials involving 264 people with stable chronic obstructive pulmonary disease comparing short acting beta-2 agonists versus placebo for 1 week. The review established that compared to placebo, inhaled beta-2 agonists slightly but significantly improved forced expiratory volume in 1 second and also improved respiratory symptoms (Sestini *et al* 2002).

In evaluating inhaled anticholinergics plus beta-2 agonists for treating chronic obstructive respiratory disease, one review looked at 6 randomised controlled trails involving 2772 people, comparing the addition of ipratropium versus no additional ipratropium in people using standard dose of short acting inhaled beta-2. The review established significant improvement in forced expiratory volume in 1 second of about 25% with the combination compared with either drug alone (Friedman *et al* 1999).

There is thus general agreement among the above three reviews that use of inhalers for treatment of chronic obstructive pulmonary disease has been shown to be effective.

Smith and colleagues reviewed evaluations of the effectiveness of outreach respiratory health care for patients with chronic obstructive pulmonary disease by looking at 4 randomised controlled trials involving 624 people (Smith *et al* 2004). The review established that patients with moderate chronic obstructive pulmonary disease may have mortality and health related quality of life gains from the programme whereas patients with severe chronic obstructive pulmonary disease do not. Reduction in hospital admissions were not obtained in severe patients (Smith *et al* 2004).

Despite the existence of effective cessation methods, the vast majority of smokers attempt to quit on their own (Hammond *et al* 2004). To date, there is little evidence to explain the low adoption rates for effective forms of cessation assistance, including pharmaceutical aids. Hammond and colleagues conducted a study that sought to assess smokers' awareness and perceived effectiveness of cessation methods and to examine the relationship of this knowledge to cessation behaviour among 616 adult daily smokers over 3 months in South-Western Ontario, Canada (Hammond *et al* 2004). The researchers established that participants who perceived cessation methods to be effective at baseline, were more likely to intend to quit (odds ratio 1.80; 95% CI 1.12 to 2.90), make a quit attempt at follow-up (odds ratio 1.80; 95% CI 1.03 to 3.16) and to adopt cessation assistance when doing so (odds ratio 3.62; 95% CI 1.04 to 12.58). The researchers came to the conclusion that many smokers may be unaware of effective cessation methods and most underestimate their benefit and this lack of knowledge may represent a significant barrier to treatment adoptions (Hammond *et al* 2004).

The review and study thus indicate that outreach respiratory care and smoking cessation interventions can be effective for treatment of chronic obstructive pulmonary disease.

1.3.5 Tuberculosis

It is assumed that preventive therapy for tuberculosis will only be considered by programs with high rates of case detection and cure of smear positive tuberculosis (Borgdorff *et al* 2002). It is further estimated that in the absence of treatment, each smear positive case of tuberculosis would be infectious for 2 years and thus generate $2B$ infections (where B is the number of infections generated per case per year) (Borgdorff *et al* 2002). Each new self reporting case detected after, on average, 4 months would have infected $0.33B$ contacts. Without treatment, each infectious case would generate on average one other first generation infectious case, and treatment of each case would prevent 0.73 new infectious cases (Borgdorff *et al* 2002).

In assessing the effects of short course chemotherapy (<6 months) versus longer term (>6 months) on cure rates in people with active tuberculosis, one review looked at 7 randomised controlled trials involving 4100 patients (Gelband 2004). The review established that longer periods of treatment result in higher success rates in patients with active tuberculosis even though the difference is small (Gelband 2004).

Another systematic review on tuberculosis was conducted by Mwanduaba and colleagues to compare the effectiveness of rifampicin-containing short course chemotherapy regimens, given 2 or 3 times a week with similar regimens given daily in adult patients with pulmonary tuberculosis (Mwanduaba and Squire 2004). One randomised controlled trial involving 399 patients compared the treatment of 3 times a week with daily treatment for a period of 6 months. The review revealed no difference in the cure rate between the two arms with an exception that five patients relapsed in the intermittent therapy compared to one in the daily therapy (Mwanduaba and Squire 2004).

Volmink and colleagues reviewed trials that compared policies of directly observed therapy with self-treatment at home in people requiring treatment for clinically active tuberculosis (Volmink and Garner 2004). Six randomised and quasi-randomised studies involving 1910 patients were reviewed. The review established that the effect of directly observation therapy on cure or treatment completion rates was similar to that of self-administered treatment (Volmink and Garner 2004).

There is thus general agreement among the above three reviews that treatment of tuberculosis using internationally accepted regimens can be effective.

Prevention and early treatment of infections is the mainstay of the medical management of the majority of people with HIV infection, especially those who live in low income countries without access to antiretroviral drugs. Cotrimoxazole is cheap and is effective against a wide range of organisms (Grimwade and Swingler 2004). Tuberculosis is one of the life threatening opportunistic infections among HIV positive patients. To evaluate the effectiveness of routinely administered cotrimoxazole on death and illness episodes in HIV infected adults, a systematic review looked at four randomised and quasi-randomised trials involving 1476 people (Grimwade and Swingler 2004). The review established that cotrimoxazole prophylaxis had a beneficial effect in preventing death and illness episodes in adults with early and with advanced HIV disease (Grimwade and Swingler 2004).

Zachariah and colleagues conducted a cross-sectional study to verify compliance with cotrimoxazole prophylaxis in human immunodeficiency virus infected tuberculosis patients during the continuation phase of anti-tuberculosis treatment, and to assess the sensitivity, specificity and positive predictive values of verbal verification and pill counts as methods of checking compliance in Malawi (Zachariah *et al* 2001). Results of the study showed that in a rural district in Malawi, compliance with cotrimoxazole prophylaxis as an adjunct to anti-tuberculosis treatment in HIV infected tuberculosis patients was good, and can be

assessed simply and practically by verbal verification and pill counts (*Zachariah et al 2001*).

Zachariah and colleagues conducted a subsequent cross-sectional study in the same setting as above, this time to determine 1) the proportion who continues with cotrimoxazole prophylaxis for the prevention of opportunistic infections, and 2) the reasons for continuing or stopping prophylaxis, in human immunodeficiency virus infected individuals with tuberculosis who complete anti-tuberculosis treatment (*Zachariah et al 2002*). The results of the study showed that in rural settings, the great majority of HIV infected individuals continued with cotrimoxazole after completing anti-tuberculosis treatment.

There is general agreement amongst the above reviews and studies that cotrimoxazole prophylaxis in rural settings is an effective intervention in preventing death and illness episodes in adults with early and advanced HIV with or without tuberculosis co-infection.

Table 1.7 below gives a summary of systematic reviews on treatment of the 5 priority lung diseases of PALSAs. The table suggests that all 5 priority respiratory diseases can be effectively managed at primary health care level by drugs which can be issued at that level. Antiretroviral (ARV) treatment effectiveness was not reviewed as these drugs were not yet generally available at primary care level in South Africa at the time of the study. For management at primary health care level however, clinician competence in diagnosing and treating these diseases is needed.

Table 1.7: Summary of treatment of PALSA lung diseases at primary care level

Condition	Treatment	Effective/Non-effective
Community Acquired Pneumonia	Antibiotics	Effective
Upper Respiratory tract infection	Antibiotics	Non-effective
Asthma	Antibiotics	Unclear
	Inhaled beta-2 agonist	Effective
	Inhaled long acting beta-2 agonists	Effective
	Inhaled corticosteroids	Effective
Chronic obstructive pulmonary disease	Knowledge on smoking cessation options	Effective
	Outreach respiratory care	Effective
Tuberculosis	Short course	Effective
	Long course	More effective
	Intermittent therapy	Non-effective
	DOTS	Effective
	Self-treatment	Effective
	Cotrimoxasole prophylaxis	Effective

1.4 KEY PRIMARY HEALTH CARE POLICIES AND STRATEGIES RELEVANT TO THE DIAGNOSIS AND TREATMENT OF LUNG DISEASES

1.4.1 International

The World Health Organisation (WHO), as the technical advisory body of the United Nations (UN) to countries on all health related issues, spearheads development of health-related policies, protocols, guidelines and strategies (WHO 2004(b)). Individual countries then adapt these documents to suit their conditions and requirements. WHO is also responsible for monitoring and evaluating implementation of the documents as well as maintaining a database that indicates implementation and status of each member country (WHO 2004 (b)).

In an attempt to fight against all these above mentioned life-threatening respiratory diseases. WHO in collaboration with other international agencies and governments, has for a long time been promoting implementation of several national programmes. Of major importance is the fight against tuberculosis which has for a long time been one of the top killer diseases in the world (Borgdorff *et al* 2002, Hopewell 2002). In 1993 and 1997, the 1st and 2nd editions of Treatment of Tuberculosis: Guidelines for National Programmes were published by WHO (WHO 2003 (b)). The guidelines were adapted by each country as National Tuberculosis Programmes were being implemented, especially in low income countries where tuberculosis is one of the leading causes of death in adults (Dye *et al* 2002, Enarson *et al* 1996). The 3rd edition of the guidelines compiled in 2003 is the latest version of the guidelines (WHO 2003(b)).

Another important policy that was developed through WHO initiative was the Integrated Management of Childhood Illnesses (IMCI) strategy. This was a joint venture between WHO and UNICEF and it was initiated in 1995. IMCI offers a set of interventions that promote rapid recognition and effective treatment of major killer diseases of children under five from an integrated approach (WHO/UNICEF 2001). This approach emphasises syndromic management, in which limited diagnostic skills and resources can still lead to appropriate treatment for most patients.

Another policy document that was developed through WHO initiative was the Global Initiative for Chronic Obstructive Pulmonary Disease (GOLD). This was a joint venture between WHO and the United States National Heart, Lung and Blood Initiative (NHLBI) and it was initiated in the early 1990s. Through WHO's initiative, guidelines were developed to classify chronic obstructive pulmonary disease (COPD) patients according to 4 stages of the disease severity using the spirometer measurements (Pauwels *et al* 2001).

It was on the basis of the policies discussed above that the Adult Lung Health Initiative (ALHI) which later became the Practical Approach to Lung Health (PAL) (See 1.5) was adapted.

1.4.2 South Africa

There are several primary care policies and strategies that the national Health Department has developed. Many of these are based on WHO policies. National policies are passed on to the nine provincial health authorities to also adapt and implement at provincial level (Department of Health 2000(b)). Among these is the tuberculosis (TB) programme that is currently being implemented in all nine provinces, although with different degrees of intensity and success (Bamford *et al* 2004). Each province has a provincial TB coordinator who supervises district TB coordinators to ensure smooth implementation of the programme at district level. Referral and reporting systems follow the same route on a quarterly basis, that is, from district to province and then to national and vice versa. An annual report that highlights trends of morbidity and mortality due to tuberculosis is compiled at national level with contributions from the provinces (Bamford *et al* 2004). The report also makes a comparison between and amongst the nine provinces on an annual basis. South Africa is currently implementing the TB Strategic Plan for 2001-2005 which was adopted following the Amsterdam Conference on TB in 2000 (Bamford *et al* 2004, WHO 2004(b)).

In 1996 the National Government of South Africa adopted the Integrated Management of Childhood Illnesses (IMCI) strategy that was developed by WHO and UNICEF in 1995. Full political and administrative support from the highest levels of government was given for commencement of implementation in all nine provinces by incorporating IMCI as part of the PHC package for the country (Department of Health 2002(b)). Commencement and level of IMCI implementation in three out of the nine provinces namely, Gauteng, the Western Cape and Free State was evaluated in 2002 and a draft report compiled thereof. In

summary, these three provinces are implementing IMCI at different levels (Department of Health 2002(b)).

The implementation of AIDS policy in the first four years after 1994 has been characterized by a lack of progress and a breakdown of trust and co-operation, both within government and between government and NGOs (Schneider and Stein 2001). There were generally difficulties of implementing the comprehensive response to AIDS in a country undergoing restructuring at every level. This was characterized by "inadequate political will" as an explanation for lack of progress. Involvement by politicians has, in fact, been experienced as a double-edged sword in South Africa, with inappropriate, "quick-fix" actions creating conflict and hampering a more longer-term, effective response (Schneider and Stein 2001). The importance of groups like the Treatment Action Campaign (TAC) which function outside government in promoting effective policy actions, and the types of leadership required to mobilise a broad range of actors around a common vision can not be overemphasized (Schneider and Stein 2001).

In 2000, the HIV/AIDS Strategic Plan for South Africa 2000-2005 was adopted by government. The strategic plan contains four priority areas namely: 1) prevention, 2) treatment, care and support, 3) research, monitoring and surveillance, 4) human rights (Department of Health 2000(a)). There have been developments to different degrees by each of the nine provinces regarding implementation of the strategic plan. In 2003 government approved a proposed budget for implementation of roll-out of antiretroviral drugs (ARV) as part of the treatment, care and support priority area 2 of the strategic plan (DOH 2003(a), Mbewu and Simelela 2003). Each province has drawn up its own implementation plan of the roll-out, most of which started implementation in 2004 (Mbewu and Simelela 2003). This is a follow-up to several trials that were conducted at provincial level to establish the effectiveness of treating symptomatic HIV positive patients with WHO approved antiretroviral drugs (Doherty and Colvin 2004). In 2003 the National Department of Health

adopted a policy of providing antiretroviral treatment to people in advanced stages of HIV/AIDS (Department of Health 2003(b)).

Following the 1994 political changes in South Africa, the health care delivery system was changed on a number of fronts and several policy documents were developed as a result. On December 3, 1998, the Minister of Health of South Africa launched the First Edition of the Standard Treatment Guidelines (STG) and Essential Drug List (EDL) for adults and children at hospital, and the Second Edition of the STG/EDL for Primary Health Care (Zweygarth and Summers 2000). The STG/EDL lists and defines diseases that are of public health importance at either a hospital or primary health care clinic, non-drug and drug treatment of such diseases and essential drugs to be prescribed (by what cadre of health professional) at each level (Department of Health 1998(b), Zweygarth and Summers 2000). The hospital STG/EDL is currently being reviewed and updated through official channels throughout South Africa.

In South Africa, as in most low-middle income countries, primary health care is provided at low or no cost to users through public sector health services or publicly subsidized agencies (Department of Health 1996, Segall 2003). Due to constraints on resources, as well as relatively unattractive incentives for doctors, such care is mainly provided by primary care nurses (Green *et al* 2001, Louwagie *et al* 2002). In South Africa most nurses undergo a four year college or university training to obtain a recognised professional nursing qualification. In response to the national government's policy of adoption of the primary health care package norms and standards, provincial health departments requested universities and nursing colleges in their provinces to provide training to professional nurses (Louwagie *et al* 2002). This is done through post-basic nursing courses aimed at equipping participants with necessary skills for effective delivery of quality, comprehensive health care at primary care level. "A Comprehensive Primary Health Care Service Package for South Africa" was developed in 2000 by the National Department of Health. This booklet summarises all health services that are supposed to be

rendered at primary care level in terms of who should to what and how at primary care level (Department of Health 2000(b)).

Non-communicable diseases such as hypertension, asthma, diabetes and epilepsy are placing an increasing burden on clinical services in developing countries and innovative strategies are therefore needed to optimize existing services (Coleman *et al* 1998, Louwagie *et al* 2002). Coleman and colleagues conducted a study that aimed at describing the design and implementation of a nurse-led service based on clinical protocols in a resource-poor area of South Africa (Coleman *et al* 1998). Diagnostic and treatment protocols were designed and introduced at all primary care clinics in a district, using only essential drugs and appropriate technology. The protocols enabled the nurses to control the clinical condition of 68% of patients with hypertension, 82% of those with non-insulin-dependent diabetes, and 84% of those with asthma. The management of non-communicable diseases of 79% of patients who came from areas served by village or mobile clinics was transferred from the district hospital to such clinics. Patient-reported adherence to treatment increased from 79% to 87% ($p= 0.03$) over the 2 years that the service was operating. The use of simple protocols and treatment strategies that were responsive to the local situation enabled the majority of patients to receive convenient and appropriate management of their non-communicable diseases at their local primary care facility (Coleman *et al* 1998).

Louwagie and colleagues conducted an audit aimed at comparing the clinical competencies of nurses who underwent a one year "Advanced Diploma in Health Assessment, Diagnosis and Treatment" course at the University of the Free State with those who did not. The primary objective was to assess the clinical management of one chronic and one acute disease (diabetes mellitus and acute respiratory tract infections in adults, respectively) for these two groups of nurses (Louwagie *et al* 2002). The researchers reviewed records of 286 consecutive visits for adults with diabetes and 293 consecutive visits for adults with an acute

respiratory tract infection (ARTI). Nurses completed questionnaires on nurse characteristics, while the researchers obtained the information about the clinics. Recording of important generic (for ARTIs) and disease-specific steps (for diabetes) in patient management were assessed. When comparing results of patients of "trained" and "non-trained" professionals, and adjusting for nurses', clinics' and patients' characteristics, there was generally little evidence of patients being thoroughly managed (Louwagie *et al* 2002). The researchers concluded that formal training was marginally associated with better care for ARTIs ($p = 0.06$) but not for diabetes ($p = 0.47$). Other factors associated with more thorough care were years of experience in curative primary health care ($p = 0.006$) and additional nursing degrees for ARTIs ($p = 0.03$) and the presence of enrolled or assistant nurses at the clinic for diabetes ($p = 0.06$) (Louwagie *et al* 2002).

Evidence provided by the above two studies and others cited earlier in the chapter supports an argument that there was a need to design a simple nurse oriented syndromic approach that would attempt to manage respiratory care service delivery in South Africa, hence the adoption of PALSA

1.4.3 Free State

The Free State, one of the nine provinces of South Africa, also follows and adapts policy guidelines, strategies and protocols from the National Health Department. Currently the province implements the following policies that are related to the PALSA project and are adapted locally:

1. Tuberculosis (TB) treatment and diagnosis guidelines
2. IMCI training manual
3. Asthma treatment guidelines
4. Hospital and primary care level Standard Treatment Guidelines and Essential Drug List (STG/EDL).

These policy documents are periodically reviewed and updated as and when required by the provincial authorities in consultation with the National Department of Health. Technical input from local and international experts is incorporated.

1.5 PRACTICAL APPROACH TO LUNG HEALTH (PAL) AND PALS

The Practical Approach to Lung health (PAL) is a WHO initiated syndromic approach to management of patients (above 5 years old) who attend primary health care service for respiratory symptoms (WHO 2003(c)). The initiative targets multi-purpose health workers, nurses, doctors and managers in primary health care settings with successful TB Control Programmes in low and middle-income countries (WHO 2003(c)). PAL, which was initially known as the Adult Lung Health Initiative (ALHI) was developed as a result of several studies that revealed that up to one-third of patients over the age of 5 years attending primary health care settings seek health care for respiratory symptoms (WHO 2003(c)).

The main objectives of PAL are to improve quality of respiratory case management for the individual patients as well as to improve the efficiency and cost-effectiveness of respiratory care within the health systems. Components of PAL comprise of standardisation of health care service delivery through development and implementation of clinical practice guidelines as well as coordination of all role players at all levels of health care, the TB Control Programmes and organisation and management of general health services. It is noteworthy that PAL is organised within the WHO TB Control Programme, specifically as part of the Global Directly Observed Therapy Expanded Plan. The WHO TB programme is particularly interested in PAL's role in expanded tuberculosis case detection. Requirement for introducing PAL into a country include, among several conditions, political commitment to adapt and implement the strategy, assessment of existing conditions to adapt the strategy, formulation of an agenda for adaptation and development and implementation of the strategy (WHO 2003(c)).

The idea of adapting ALHI (now PAL) in South Africa (PALSA) dates as far back as 1999 through the involvement of one of PAL's senior researcher (then an employee of MRC SA) at meetings of an international organisation called the Pragmatic Randomised Controlled Trials in Health Care (PRACTIC), an organisation with interest in pragmatic randomised controlled trials to influence health policies in countries throughout the world. Eventually the adaptation and implementation of the strategy was conducted on trial basis through a cluster randomised trial which started in 2003. This was a joint venture between the Free State Provincial Health Department and University of the Free State's Community Health Department, Centre for Health Systems Research and Development and Biostatistics Department as well as the University of Cape Town Lung Institute. The project has been financially supported by the Canadian International Development Research Centre, the WHO, the Government of South Africa (National and Provincial) and the Government of Lesotho. Results of the trial will be used for making informed decisions about implementation in the entire province and, later on, the whole country (IDRC 2004).

1.6 EVALUATING THE EFFECTIVENESS OF EDUCATIONAL METHODS AIMED AT CHANGING CLINICAL PRACTICE

There have been several systematic reviews to evaluate the effects of clinical practice guidelines on patient outcomes in primary health care. Grimshaw and colleagues conducted a systematic review to establish the effectiveness and efficiency of guideline dissemination and implementation strategies (Grimshaw *et al* 2004). A total of 235 randomised controlled trials, controlled clinical trials, and controlled before and after studies, reporting 309 comparisons were reviewed. Guideline dissemination and implementation strategies were the main interventions evaluated. Commonly evaluated single interventions were reminders (38 comparisons), dissemination of educational materials (18 comparisons) and audit and feedback (12 comparisons). There were 23 comparisons of multifaceted

interventions involving educational outreach. The majority of interventions observed modest to moderate improvements to care. The median absolute improvement in performance across interventions were 14.1% in 14 cluster randomised comparisons of reminders, 8.1% in four cluster randomised comparisons of dissemination of educational materials, 7.0% in five cluster randomised comparisons of audit and feedback comparisons and 6.0% in 13 cluster randomised comparisons of multifaceted interventions involving educational outreach. The review concluded that there is imperfect evidence to support decisions about which guideline dissemination and implementation strategies are likely to be efficient under different circumstances. Decision makers need to consider potential clinical areas for clinical effectiveness activities, the likely benefits and costs required to introduce guidelines and the likely benefits and costs as a result of any changes in provider behaviour (Grimshaw *et al* 2004).

Hulscher and colleagues reviewed available data on evaluation of interventions to improve delivery of preventive services in primary health care. They reviewed 55 randomised trials, controlled before and after studies involving 2000 professionals and 99000 people (Hulscher *et al* 2004). The researchers established that in comparing interventions that used randomised groups, the effectiveness varied extensively. Five comparisons of group education versus no intervention showed absolute changes of preventive services varying between -4% and 31%, nine comparisons of physician reminder versus no intervention showed absolute changes of preventive services varying between 5% and 24% and fourteen comparisons of multifaceted intervention versus no intervention showed absolute changes of preventive services varying between -3% and 64%. Six comparisons of multifaceted interventions versus group education reported absolute changes varying between 28% and 31%. This review reveals that effective interventions to increase preventive activities in primary care do exist, but there is considerable variation in the level of change achieved, with effect sizes usually small or moderate. The review also indicates that tailoring interventions to address specific barriers to change is important and that multifaceted interventions may be more

effective than single interventions because more barriers to change can be addressed (Hulscher *et al* 2004).

Thomson O'Brien and colleagues conducted a systematic review of studies to evaluate the effects of outreach visits on improving health professional practice or patient outcomes. The researchers reviewed 18 randomised controlled trials involving 1896 physicians (Thomson O'Brien *et al* 2004). The targeted behaviours were mainly prescribing, and preventive services including counselling for smoking cessation (Thomson O'Brien *et al* 2004). Positive effects on practice were observed in all studies, although at different magnitudes. The authors concluded that educational outreach visits, particularly when combined with social marketing, appear to be a promising approach to modify health professional behaviour, especially on prescribing (Thomson O'Brien *et al* 2004).

Trials that have been cited in the above reviews were mainly randomised controlled trials, controlled clinical trials as well as controlled before and after trials. Most of these trials compared intervention groups with controls or placebo. Findings of the above three reviews suggest that implementation of clinical guidelines, preventive services and outreach visits are some of the most effective interventions that can be provided at primary care level. Because their effectiveness varies considerably in size, that is, from modest to moderate, there is a need to further explore their value.

1.7 CLUSTER RANDOMISED TRIALS

A cluster randomised trial is one where a group of patients rather than individuals are randomised to different groups that are managed in different ways (Campbell and Grimshaw 1998, Donner and Klar 2000). An example of this is when patients of general practitioners who have received special training are compared with patients of general practitioners who have not received the training (Bland and Kerry 1997). Reasons for adopting cluster randomization are diverse, but include

administrative convenience, a desire to reduce the effect of treatment contamination and the need to avoid ethical issues that might arise (Klar and Donner 2001, MRC 2002). The main consequence of adopting a cluster design is that the outcome for each patient can no longer be assumed to be independent of that for other patients (which is the case in an individually randomised trial) (Donner and Klar 2000). Patients within any one cluster are more likely than patients in other clusters to have similar outcomes. For example, the management of patients within a single general practice is more likely to be more similar than management across several practices (Campbell and Grimshaw 1998).

There are several reasons why cluster randomised trials are currently considered instead of other designs, but the following reasons are most commonly given.

- 1) The intervention to be studied is itself delivered to and affects groups of people rather than individuals, e.g. use of local radio for health promotion.
- 2) The intervention is targeted at health professionals with the aim of studying its impact on patient outcomes, e.g. education about guidelines for a particular medical condition.
- 3) Likely contamination of control arms by interventions aimed at intervention arms (e.g. nurses in control arms being inadvertently exposed to educational interventions because they work in the same clinic).

It is however worth noting that, because outcomes among subjects in the same cluster may be similar (e.g. patients in different geographical areas may be more severely ill than in other areas) and because their management may also be similar (e.g. if different clinics have different norms or if some nurses are more effective than others) independence of observation cannot be assumed in the analysis. This non-independence is taken care of by estimating and adjusting for intra-cluster correlation of outcomes within clusters (Donner and Klar 2001). The non-independence has the disadvantage of reducing a trial's statistical power, and therefore larger sample sizes are usually needed to achieve a given degree

of power. One method of adjusting for such cluster sampling design effect is incorporated in the Stata statistical package (StataCorp 2003).

Many cluster randomised trials have been conducted globally and locally to evaluate the effectiveness of health service interventions. Most of these trials investigate the effectiveness of implementing guidelines for management of certain diseases that are of public health importance (Kerry and Bland 1998, Flottorp *et al* 2002)

1.8 CONCLUDING REMARKS

This chapter has given an overview of the current burden and primary health care of respiratory conditions. Respiratory conditions of public health importance discussed are upper/lower respiratory tract infections, chronic obstructive pulmonary disease, asthma and tuberculosis combined with HIV/AIDS. A global scenario followed by that of South Africa and the Free State province were given in terms of the current morbidity, mortality and trends, followed by future projections of each disease.

From the literature reviewed, it is evident that adult lung diseases that are of public health importance to South Africa and other developing countries, notably, tuberculosis, upper and lower respiratory tract infections, asthma, and chronic obstructive pulmonary disease (COPD) can be managed at primary health care level. The challenge is to determine whether this is true in a resource limited setting like rural Free State.

Effective treatments have been shown to be available. Of importance are implementation of treatment guidelines and essential drug lists that are developed at national and local level and adoption of effective information dissemination strategies of national policies. Nurses are an integral component of health care service delivery. However, their formal training for improvement in diagnosis and

treatment of these respiratory conditions has not proven to be effective, thus warranting the need for further research to plan effective training methods.

It was with these points in mind, and using the best available evidence, that a team of PALSA researchers developed a training package for primary health care nurses in a South African setting with high logistical and human resource constraints. The purpose of the trial was to assess its effectiveness through a cluster randomised controlled trial.

Alongside the randomized controlled trial was a validation study of the South African adapted guidelines that was conducted in Cape Town. Results of the validation study will soon be out and shared with relevant stakeholders as well.

1.9 AIM OF THE STUDY

The aim of the study was to estimate the effectiveness of implementation of the Practical Approach to Lung Health in South Africa (PALSA) on the processes and outcomes of respiratory care in Free State Government primary health care clinics.

1.10 OBJECTIVES OF THE STUDY

The objectives of the study were to estimate the effectiveness of the intervention on the following outcomes:

1.10.1 Primary outcomes

To improve the process of care

1.10.1.1 To reduce the rate of antibiotic prescription.

1.10.1.2 To increase the rate of inhaled steroid prescription.

1.10.1.3 To increase the rate of sending of sputa for tuberculosis testing.

1.10.1.4 To increase appropriate use of cotrimoxazole prophylaxis in known tuberculosis cases.

To improve health outcomes

1.10.1.5 To reduce the rate of interference with usual activity due to illness.

1.10.2 Secondary outcomes

To improve the process of care

1.10.2.1 To increase appropriate referral of patients with severe respiratory disease (appropriately defined as respiratory rate ≥ 30 breaths/minute, breathless on talking or at rest, use of accessory muscles, temperature ≥ 38 degrees Celsius).

1.10.2.2 To increase the percentage of patients offered VCCT/HIV counselling.

1.10.2.3 To increase the percentage of current smokers receiving counselling for smoking cessation.

To improve health outcomes

1.10.2.4 To increase the rate of readiness to quit smoking among current smokers.

1.10.2.5 To increase the rate of smoking cessation among current

smokers.

- 1.10.2.6 To increase the tuberculosis case detection rate.
- 1.10.2.7 To reduce the rate of mortality.
- 1.10.2.8 To decrease the frequency of difficulty sleeping due to chest symptoms.
- 1.10.2.9 To decrease the frequency of chest symptoms during daytime.
- 1.10.2.10 To decrease the frequency of interference of chest problems with usual activities.
- 1.10.2.11 To improve each domain of the EQ-5D quality of life measurement and the combined score.

Health Care utilisation

- 1.10.2.12 To reduce the rate of unplanned visits to clinics.
- 1.10.2.13 To reduce admissions to hospitals.

CHAPTER 2- METHODS

2.1 INTRODUCTION

This chapter will start by giving a description of the PALSA intervention. This will be followed by an overview of the design and methods of the randomized controlled trial to evaluate the effectiveness of the PALSA intervention.

2.2 PALSA INTERVENTION

2.2.1 Description

The PALSA intervention package was intended to reduce the burden and costs of priority lung disease in the Free State, and to also provide evidence to support rational decision-making regarding implementation.

The intervention comprised the following components, described in detail below.

1. Academic detailing consisting of 3 to 4 training sessions of primary care nursing practitioners per clinic delivered on-site by district TB co-ordinators over 9 weeks.
2. Dissemination of clinical practice guidelines and support materials e.g. desk blotter, pens, penholders and butterfly fridge magnets for each trained nurse.
3. Changes in prescribing provisions for primary care nurses (cotrimoxazole prophylaxis for symptomatic HIV infected persons, initiation and step-up or step-down of inhaled steroids for asthma, short course oral steroids (prednisone) for exacerbation of asthma and COPD).
4. Doctor sensitization about PALSA by personally addressed letters.

2.2.2 Schedule

2.2.2.1 Training of TB coordinators as PALSAs trainers

In February 2003, 13 district TB coordinators received a one week training as PALSAs trainers in Cape Town. The training was facilitated by a privately employed anthropologist. Other resource persons were PALSAs researchers who were involved in the designing and production of the PALSAs intervention materials. The training involved theoretical lectures on the following 6 topics: severity markers of respiratory diseases, upper and lower respiratory tract infections, asthma, COPD, TB and HIV/AIDS. Participants were given an opportunity to design their own training plans and methods using the PALSAs intervention materials. PALSAs materials included the locally adapted guidelines (attached as Annex 1), a desk blotter, a flip chart, an inhaler, and fridge magnets. The theoretical lectures were followed by teaching exposure by teaching clinic nurses in two primary care clinics in Cape Town with each trainer's teaching lesson video taped. The teaching sessions were followed by comments from PALSAs researchers assigned to the two clinics on how each session was conducted, with special attention drawn to time taken, innovation and involvement of the trainees. Each trainer was given an opportunity to review the recorded session and also received comments from the rest of the training resource persons through a joint session. Each trainer indicated suitable dates for conducting PALSAs trainings in their respective districts. From these individual trainers' schedules an overall training schedule for the whole province was drawn up by PALSAs researchers, from April to August 2003. At the end of the week long training, the 13 trainers were issued with certificates as PALSAs trainers.

During training of PALSAs trainers (TB coordinators) in Cape Town, it was decided by PALSAs researchers that, prior to commencement of the clinic staff training, one of the researchers responsible for the qualitative assessment of the project would undertake three regional quality check sessions of the trainers. The quality check

sessions entailed conducting training of clinic staff in non-trial clinics by PALSAs trainers under supervision of PALSAs researchers. The training sessions were video taped and feedback given immediately to the trainers on their performance in preparation for the PALSAs training.

2.2.2.2 Training of clinic nursing staff

The PALSAs training of trainers was followed by delivery of intervention materials to each trainer. The quantity of materials varied according to the number of clinics each trainer was allocated and the number of trainees in each clinic. Each package comprised the PALSAs Clinical Practice Guideline and support materials namely, a desk blotter, pen and penholder and a butterfly fridge magnet. These support materials bore short key messages on respiratory diseases, together with a PALSAs logo. Trainees were mainly primary care nursing practitioners who had received full PHC training and who therefore saw sick patients and prescribed in the clinics. They included chief professional nurses, senior professional nurses, professional nurses, and senior enrolled nurses, depending on how each clinic operated. The allocation of clinics for training was done in such a way that no trainer was overburdened with more than four clinics. The main reasons for this were to avoid fatigue and because trainers had other responsibilities other than TB or PALSAs related activities in their respective districts.

Each clinic received a total of three to four training sessions from each PALSAs trainer. The training was conducted at each clinic to avoid having to take the nurses away from the clinic for a period of time. During each training visit, the trainer took 50% of the nurses for about thirty minutes covering at least three of the six PALSAs topics. After the first session, the trainer then trained the remaining 50% of the clinic staff. After every training session at the intervention clinic, each trainer completed a training form that indicated the number of clinic nurses trained by cadre, topics covered, time spent at the clinic, amount of money spent on

refreshments and fuel during that particular visit. An example of the training form is attached as Annex 2.

2.2.2.3 Official communication with district management teams

Delivery of PALSA intervention materials to the clinics was followed by official letters to district management teams in each of the five districts of the province. These were mainly the district manager him/herself, Chief executive officer, Senior executive officer, local area managers and clinic managers. The letter informed them about PALSA as an intervention project, progress made so far and planned PALSA training due to take place in their respective districts. The letter explained the types of support expected from each district management to ensure the success of the project. A copy of such a standard letter is attached as Annex 3.

Data on the 40 trial clinics regarding nursing staff complement, operation hours, and special/fast lanes were provided to the PALSA researchers by the district management authorities, who were mainly district and clinic managers. These data helped plan how much training/intervention material was required by each intervention clinic.

2.2.2.4 Sensitization of medical doctors

Concurrent to the district management letters, "sensitization" letters were sent to doctors operating in those hospitals to which the intervention clinics refer their patients, those doctors who are assigned to the intervention clinics on a part or full-time basis, and private doctors operating in the neighbourhood of intervention clinics. The letters were in both English and Afrikaans. The letters were issued because these doctors interacted with potential PALSA patients and therefore had to be aware of changes that were to be brought about by the intervention, especially to the prescribing responsibilities of clinic nurses. An English version of the doctors' letter is attached as Annex 4.

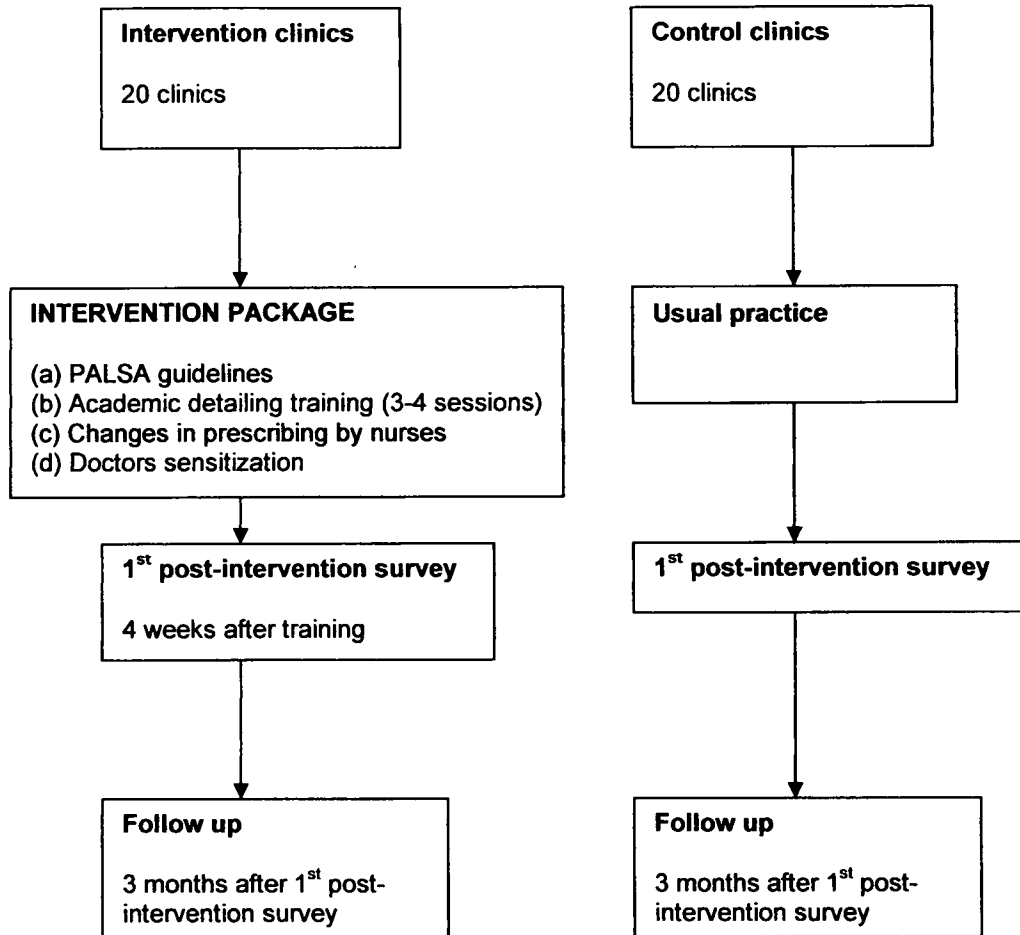
2.2.2.5 Provincial drug circular on PALSA drugs

Prior to commencement of PALSA training, which was scheduled to start on the week beginning April 7th 2003, the provincial health department through the office of the General Manager, Health Support, Dr. Ron Chapman, wrote a circular defining changes to prescribing to clinic managers of intervention clinics. The circular informed clinic managers about the department's decision about changes to prescription for PALSA patients during the trial. The managers were urged to ensure that the referred to drugs were ordered on time and stocked effectively to avoid stock out at all cost. The managers were referred to specific offices to ensure smooth operation. The circular is attached as Annex 5.

2.3 STUDY DESIGN

The study was a cluster randomized controlled trial. The unit of randomization was a primary health care clinic. Inferences about the effectiveness of primary care nurse training were based on examination of patient level outcomes. Patients and personnel recording outcomes were blind to the intervention or control status of each clinic. It was however not possible to blind health care staff at the intervention clinics even though the researchers referred to anything related to the training of clinic staff as PALSA while anything to do with the data collection process as Lung Health survey. Figure 2.1 below is an illustration of the study design.

Figure 2.1: Study design

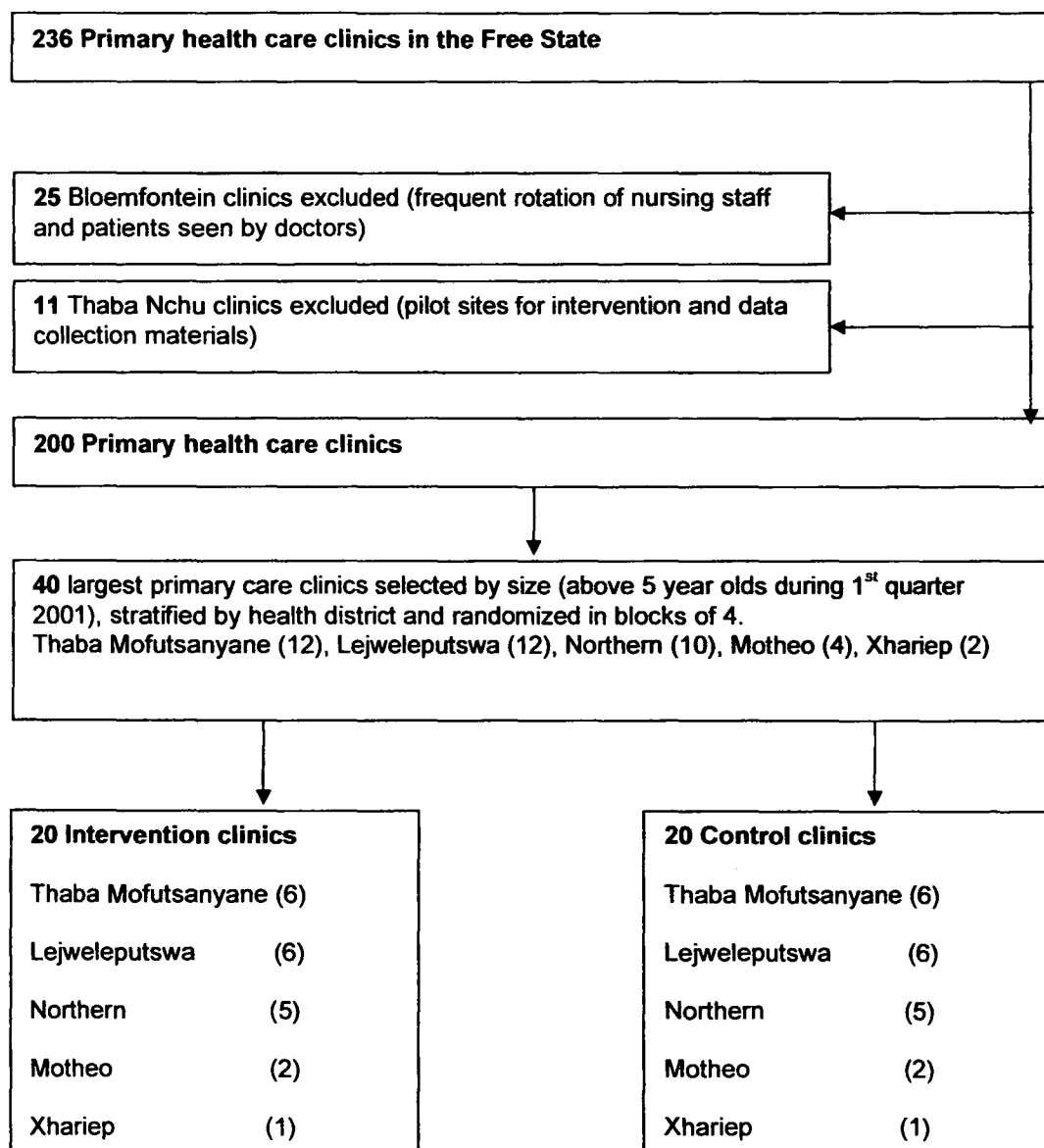


2.4 STUDY POPULATION

2.4.1 Clinics

The study took place in the 40 largest primary health care clinics of the Free State Government with the following exceptions: Bloemfontein clinics were excluded due to frequent rotation of nursing staff and because many Bloemfontein patients are managed by doctors. Nurse rotation could have led to contamination of control clinics with trained nurses, and doctors could have diluted effects of nurse training. Thaba Nchu area clinics were used for piloting the project's intervention materials and data collection tools and were therefore also excluded from the study. A purposive sample of the 40 remaining largest clinics was therefore selected for logistical and recruitment purposes of eligible patients. Figure 2.2 shows how the 40 trial clinics were arrived at from a total of 236 primary health care clinics in the Free State province.

Figure 2.2: PALSA RCT clinic selection



2.4.2 Patients

We aimed to recruit 50 patients per clinic, that is, 2000 patients in total.

The patient inclusion criteria were as follows:

- All patients 15 years and older.

And one or more of the following:

- Patients reporting difficulty breathing on the day of presentation or in the last 6 months.
- Patients reporting cough for more than a week or recurrent cough in the last 6 months.
- Patients reporting cough for less than 1 week but with a marker of severe disease (respiratory rate ≥ 30 and/or temperature $\geq 38^{\circ}\text{C}$).

The exclusion criteria were as follows:

- Unconscious patients
- Patients who appeared unable to breathe adequately to be interviewed
- Patients who were unable to talk adequately to be interviewed
- Patients who appeared psychotic (clearly hallucinating, unable to sit still, aggressive)
- Patients who were only seen by a doctor on the day of presentation.

Patients were selected from the general queue as well as the TB queue at each clinic.

2.5 SAMPLE SIZE ASSUMPTION AND ESTIMATES

Results of the pilot study revealed the following points:

- 70% of patients interviewed had antibiotic prescriptions
- 17% of patients interviewed had inhaled steroid prescriptions
- 50% of patients interviewed had problems with their usual activities

To decrease antibiotic prescription by 10% (from 70% to 60%) with 90% power and 5% significance, we would require 500 patients per arm. Because of cluster randomisation, we assumed that we needed to double the number and therefore needed 1000 per arm.

To increase inhaled steroids prescription by 10% (from 17% to 26%) with 90% power and 5% significance, we would require 458 patients per arm. Because of cluster randomisation, we assumed that we needed to double the number and therefore needed 916 per arm.

To decrease the frequency of problems with usual activities by 10% (from 50% to 40%) with 90% power and 5% significance, we would require 538 patients per arm. Because of cluster randomisation, we assumed that we needed to double the number and therefore needed 1076 per arm.

From the above assumptions, we estimated that the sample size had to be approximately 1000 in each arm of the trial.

2.6 RANDOMISATION

The 40 largest primary care clinics in the province were first ranked by size (headcount of patients over 5 years old during the 1st quarter of 2001), stratified by district and then randomised in blocks of 4. All the 5 districts of the province were

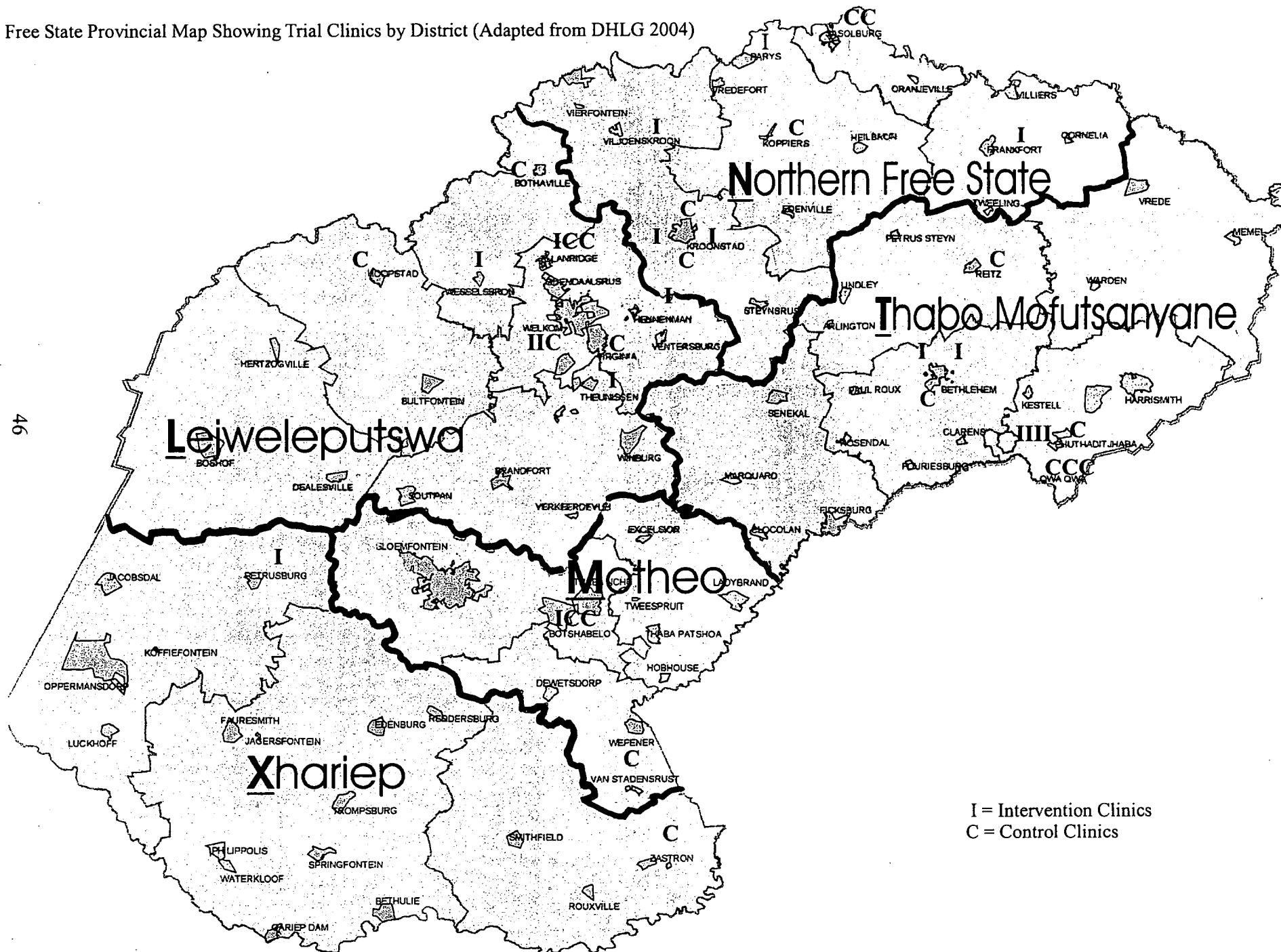
represented. Figure 2.3 below is the Free State provincial map showing the distribution of the trial clinics by district.

In randomising the clinics some complexities arose. Initially the 40 largest clinics were from only four districts of the province, namely Motheo, Lejweleputswa, Northern and Thaba Mofutswanyane. The district that was not represented was Xhariep. It however came to the attention of the researchers just before commencement of PALSA training of trainers that one of the Northern district's clinic, Koppies appeared twice in the sample of randomised clinics, but under different names. The next largest clinic, Petrusburg, was from Xhariep which was originally not represented. To include another clinic from the same district, the next largest clinic in Xhariep, Matlakeng was included. This meant that the last largest clinic in the Northern district, Sasolburg town clinic, had to be excluded from the study.

Two months after commencement of field work, but before field work commenced at the clinic, one of the control clinics, Osizweni, had to be closed down due to logistical and administrative problems beyond our control. Patients attending the clinic were for logistical and administrative reasons referred to three neighbouring clinics, one of which was Sasolburg town clinic which had been excluded from the study. A decision was then taken by the researchers to once again include Sasolburg town clinic to the study's control arm, for the following reasons:

- Patients from Osizweni clinic were already being referred to Sasolburg town clinic for logistical and administrative reasons, meaning that most of the patients would have still been from Osizweni clinic anyway.
- Sasolburg town clinic had initially met the criteria for selection to the study (which was size) but had only been excluded to make way for the Xhariep district clinic. If it had been in the clinic sample instead of Osizweni it would have been allocated to the control group. Substitution was done without the researchers' prior

Figure 2.2: Free State Provincial Map Showing Trial Clinics by District (Adapted from DHLG 2004)



knowledge of Sasolburg town clinic's performance, or types of services provided at the clinic.

2.7 ENROLMENT OF PARTICIPANTS

2.7.1 Assessment of eligibility and enrolment

After registering and while waiting to be seen by the clinic nurse and/or doctor, patients were screened for eligibility to participate in the study by using the screening question, "Do you have cough and/ or difficulty breathing today or in the last 6 months?" This was asked of all patients that were 15 years or older. All patients whose response was "yes" to this screening question were then requested to report to the interviewer to provide more details about their illness, after being seen by the nurse/doctor and collecting medication. A systematic selection process was applied to avoid eligible patients having to queue for interviews. The selection process is attached as Annex 6.

After being seen by a clinic nurse and/or doctor and collecting medication, patients who had been identified by team leaders as potential candidates were further screened by the interviewers for inclusion. This entailed establishing the severity and duration of the presenting respiratory problem and taking respiratory rate and temperature. A patient screening questionnaire (Annex 7) was used for establishing the severity and duration of the respiratory problems of eligible patients. Temperature and respiratory rates were measured using an alcohol and/or mercury thermometer and a stop watch, respectively. Patients who had only been seen by a doctor on that day were excluded from the study. However those seen by both the doctor and nurse were considered for inclusion. Upon qualification, informed consent was then sought from eligible patients for enrolment to the study after a thorough explanation of what the study was about.

2.7.2 Informed consent

Eligible patients were asked to complete a consent form that briefly explained the background, purpose and methods of the trial. It also clearly stated that: participation was voluntary; that a patient could withdraw at any time and would not be discriminated against by the trial or clinic staff; that he/she would be interviewed by a field worker and would at the end of the interview be requested to come back for a follow-up visit three months after the initial visit. The consent form also indicated that all participants were entitled to a food voucher/parcel worth sixty Rand (R60) that they would receive on the day of the follow up visit to the clinic or at a place of their choice. If they consented, each participant was asked to sign a consent form that was written in either Sesotho, Xhosa, Zulu, Afrikaans or English. The English version of the patient information and written consent form is attached as Annex 8.

At the end of the interview, participants were given a reminder form, indicating the exact date of the follow-up interview as well as venue for the interview. The reminder form is attached as Annex 9.

2.8 DATA COLLECTION TOOLS

2.8.1 First post-intervention survey and follow-up interview questionnaire

Both first post-intervention survey (Annex 10) and follow-up (Annex 11) questionnaires were developed with clinical input of respiratory disease physicians from the UCT Lung Institute. The questionnaires comprised questions about the presence of a cough and or difficulty breathing, in terms of severity and duration. The questionnaire then went on to establish presence of other symptoms related to either the upper or lower respiratory tract infections and their severities during the day and night. The questionnaire included 3 respiratory questions adapted from the St. George's Hospital respiratory questionnaire (Barr *et al* 2000). These

covered difficulty sleeping due to chest symptoms, chest symptoms during the day and interference with usual activities due to chest symptoms.

The questionnaire also included the international EuroQol-5D questionnaire (The EuroQol group 1990). This comprises questions about 5 dimensions of quality of life, namely mobility, self-care, interference with usual activities, pain/discomfort, and anxiety/depression. EuroQol-5D questions are combined into a weighted scale, indicating quality of life. A score of 100 represents perfect health and a score of 0 represents death. Permission was sought from and granted by the EuroQol group to the PALSA team to translate and pilot test the translated versions of the EuroQol questionnaire. The questionnaire was translated to Sesotho, Zulu, Xhosa and Afrikaans. Approval for its use was granted upon the EuroQol group's satisfaction that the translation and pilot testing procedures were followed appropriately.

Questions regarding smoking habits and counselling on cessation also formed part of the questionnaire. An abbreviated form of a questionnaire devised by DiClemente and Prochaska, which classifies patients according to their readiness to quit smoking, was used (DiClemente and Prochaska 1982).

Also included were questions on details of the patients' consultation with nurse practitioners, further tests ordered, emergency treatments given, prescriptions given, regular/on-going medication taken by patients and referral to a doctor at the clinic, to hospital, or to other health care service providers.

Questions on health care utilisation and their financial implications on the patient also formed part of the questionnaire. In particular these questions established different health care providers that the patient utilised in the last three months and expenditure incurred on each visit to such health care providers. Several utilisation questions covered variables to be used for an economic evaluation, which is beyond the scope of this thesis.

There were several differences between the first post-intervention survey and follow-up questionnaires. Firstly, the first post-intervention survey questionnaire had a patient screening section by which eligible patients were identified whereas the follow-up did not. Secondly, the follow-up questionnaire had a number of questions on patient satisfaction with health care at the clinic where she/he regularly went or where the interview was conducted. Satisfaction in this case pertained to clinic staff attitudes and availability of essential resources such as adequately skilled nursing staff and drugs.

Because of the diversity of languages in the Free State, the first post-intervention survey and follow up questionnaires, reminder, and consent forms (issued during the first post-intervention survey) were translated from English into four local languages that are commonly spoken in the province. These are Sesotho, Afrikaans, Xhosa and Zulu. In total the questionnaire was in five different languages and interviews were conducted in an individual patient's choice of language.

2.8.2. Visual aids

As part of the questionnaire (first post-intervention survey and follow-up), interviewers used a visual aid document that assisted interviewees to identify and give correct answers to some questions. The visual aid comprised of two main parts namely:

2.8.2.1 Euroqol-5D questionnaire including scale

This was a locally adapted Euroqol-5D questionnaire which included a scale, written in the 5 different languages of English, Afrikaans, Zulu, Xhosa and Sotho. This part was meant to assist patients to identify where they fell in relation to health-related quality of life within the five domains i.e. mobility, self care, usual activity, pain/discomfort and anxiety/depression (See pages 7 and 8 of Annex 11).

2.8.2.2 Photographs (Annex 12)

This was a set of photographs relating to the following required information:

- a) Different modes of transport used in the province, and this included a taxi, train, bus, animal wagon, private motor vehicle, ambulance, bicycle and walking.
- b) Other health care providers in the province, and this included a hospital, another primary health care clinic, mobile ambulance, workplace clinic, private doctor, traditional healer and pharmacy/chemist.
- c) Prescription information showing different reliever and preventer inhalers, antibiotic tablets for other respiratory conditions and nasal sprays.

2.8.3 Notification of deceased patients form

For patients who died during the 3 month period between the first post-intervention survey and follow-up interviews, interviewers were asked to request a copy of a death certificate of the deceased patient, duly stamped and signed by appropriate authorities. The collected death certificates were then forwarded to the PALSA data management centre in Cape Town. In the absence of a death certificate, interviewers completed a notification of deceased patients at follow-up form (Annex 13) developed by PALSA researchers and submitted it in place of the death certificate.

2.8.4 Personal Digital Assistant (PDA)

A PDA is a small hand-held device that was used for collecting data in place of a paper questionnaire. It functions as a small computer by having the questionnaire in the 5 languages formatted into it. The questionnaire can be retrieved and administered as with a paper version. The device was able to take up to 12 completed questionnaires at a time and to store them until the information was

uploaded to a toll-free number to which it was connected from a direct land-line. This was a new method of data collection process pioneered by the Medical Research Council (MRC) of South Africa. It took about 3 minutes to upload 12 interviews from each PDA daily.

During the first week of the first post-intervention survey data collection, the first four teams that did field work used paper questionnaires because the PDA was not yet ready for use. Subsequently, all four teams used PDA. The remaining two teams also started with paper versions and switched to PDA on week two of their schedule. In total about 500 paper questionnaires were used, including only two used during follow-up. This happened when two interviewers of the Bethlehem Team had gone to the village in search of patients who were supposed to come for follow-up interviews at the clinic but did not turn up. It was while they were away that two other patients arrived at the clinic and the team leader interviewed them using paper questionnaires because she did not have a PDA at the time.

2.9 PILOT OF TRAINING AND DATA COLLECTION PROCESSES

Table 2.1 summarises interviews conducted during piloting of training and data collection tools. In November 2001, piloting of intervention materials, and in particular the academic detailing method of training, was conducted for nursing practitioners from three primary care clinics of Thaba Nchu district. The clinics were Gaongalelwe, Thaba Nchu and Tiger River. A total of 8 Chief Professional Nurses (CPN) from the three clinics received the academic detailing training in two sessions, each lasting for an hour. Training materials used were the flip chart, the guidelines and the desk blotter. From then on the three clinics were used for piloting other project intervention materials and data collection tools.

The pilot exercise concentrated on the academic detailing method of training and data collection tools, particularly the screening and the first post-intervention survey questionnaires, both the paper version and PDA. Information obtained from

the pilot was used to adapt the training to local conditions, to make an assessment of the number of eligible patients that could be interviewed per day per clinic, to assess feasibility and duration of an interview, and to assess possible obstacles to follow up patients. The pilot also served as a final check of clinic staff knowledge and skills needs.

Table 2.1 Summary of interviews conducted during piloting of PALSA

Date	Purpose	Number interviewed	Interviewer(s)
08-10/11/02	To pilot test draft I of the first post-intervention questionnaire. (paper version)	3 in T/Nchu clinic 4 in GAO clinic 2 in Tiger River clinic	B.Majara
28-30/12/02	To pilot test draft II of the first post-intervention questionnaire. (paper version)	4 in T/Nchu clinic 3 in GAO 2 in Tiger River clinic	B.Majara
12-13/02/03	To pilot test draft III of the first post-intervention and screening questionnaire. (paper version)	3 in T/Nchu clinic 4 in GAO clinic 3 in Tiger River clinic	B.Majara
18-19/03/03	To pilot test draft IV (final) of the first post-intervention and the screening questionnaires. (paper & PDA version)	9 in T/Nchu clinic 6 in GAO clinic	B.Majara (Supervisor) C.Seegreht (PDA supervisor) I.Duma V.Rammile
03/07/03	To pilot test draft III of the follow-up questionnaire. (paper & PDA version)	2 in T/Nchu clinic 1 in GAO clinic	B.Majara (Supervisor) I.Duma V.Rammile

Because of the role that the three clinics played in serving as pilot, they were excluded from participating in the trial even though they were large enough to have been included.

2.10 INTERVIEWERS

2.10.1 Recruitment of interviewers for the first post-intervention survey and follow-up interviews.

A total of 23 field workers were recruited to collect data. They were recruited by the Centre for Health Systems Research and Development at the University of the Free State from 6 strategic areas within the province. The aim was to assign each team enough clinics to conduct interviews without incurring unnecessary expenditure, given the limited budget for the project. The teams were recruited from Parys, Bothaville, Welkom, Bloemfontein, Bethlehem and QwaQwa. The candidates were mainly matriculants, some with tertiary education in nursing and social sciences. Ages ranged from 24 to 45 years. Each team comprised 3 to 4 field workers depending on the locality and number of clinics assigned for conducting interviews. The teams comprised a team leader and 2 to 3 interviewers. Three supervisors were recruited to monitor and oversee 2 of the 6 regional teams each, these being allocated by region and proximity. A list of responsibilities of the field workers is attached as Annex 14.

2.10.2 Training of interviewers

The training of the field workers for the first post-intervention survey interviews was conducted during April 28 to May 2, 2003 in Bloemfontein. The training was conducted at the Centre for Health Systems Research and Development, University of the Free State. Facilitators were PALSA researchers who were involved in the development of the first post-intervention survey questionnaire as well as staff of the CHSR&D with experience on the data collection process. The

training focused mainly on the first post-intervention survey questionnaire itself, interviewing techniques, clinical respiratory signs and symptoms as well as appropriate data collection techniques using paper questionnaires and PDA, thermometers and stop watches. Participants were then exposed to practical experience by conducting interviews at three of the pilot clinics in Thaba Nchu area.

At the end of the three day training, all 40 clinics of the trial were listed alphabetically and each assigned a two digit code. Field workers were also grouped by teams, listed alphabetically within each team and each was assigned a two digit code as well. At the beginning of an interview, whether using the paper or PDA version of the questionnaire, the interviewer was required to fill in the clinic and interviewer codes on the questionnaire before proceeding with the contents of the questionnaire. This was meant to facilitate tracing a questionnaire if further clarification was required during the editing process.

Training of field workers for follow-up interviews was conducted during July 19-20, 2003, also in Bloemfontein. Only 18 field workers were trained this time because three had resigned from the project while two were unable to come for training due to ill health. Field workers were given a summary of how the first phase of the first post-intervention survey data collection had gone, that is, what had gone well or not well. They were then taken through the follow-up questionnaire.

Because follow-up interviews were going to be conducted either at the clinic or the patient's home, logistical implications of such trips were discussed with CHSR&D. Logistical and administrative issues relating to food parcels that were to be given to patients during follow-up interviews were also discussed with teams. New responsibilities of team leaders were discussed. The training took one and half days.

Training of fieldworkers on first post-intervention survey and follow-up interviews was conducted using the questionnaires' fieldwork manuals compiled by Dr. Lara Fairall from the UCT Lung Institute, and Mr. Bosielo Majara from the University of the Free State. The manuals are attached as Annexes 15-I, 15-II & 16 respectively. The manuals included the respective questionnaires, as attached in Annexes 7 and 8.

2.10.3 Blinding of interviewers

To avoid contamination of data to be collected, both the patient and the interviewer were blinded as to the intervention or control status of each clinic.

A "Blinding Circular" was drafted by the PALSA researchers and circulated among themselves and the PALSA trainers (TB coordinators). This stated that in order to ensure blinding in the trial, the two activities, the PALSA training and recruitment of the cohort, should be separated from each other. Anything to do with training of clinic staff in the 20 intervention clinics was referred to as "PALSA" while anything to do with interviews of patients with respiratory problems in the 40 trial clinics was referred to as the "Lung Health Survey (LHS)". The circular requested PALSA trainers to refrain from assisting PALSA researchers with anything to do with the LHS interviews. Responsibility for administrative and logistics support of the LHS was left in the hands of LHS supervisors and the PALSA researchers themselves. Schedules for both the training and field work were compiled so that both activities did not take place in the same week in one clinic. Field work at a given intervention clinic was conducted exactly four weeks after that clinic had received at least two sessions training. Control clinics, on the other hand, had interviews conducted without any particular order as blinding was unnecessary.

During training of the field workers no mention was made about the survey being part of a trial that involved intervention and control arms.

2.11 DATA COLLECTION PROCESS

For the first post-intervention survey interviews, the 6 teams were each assigned 7 to 8 clinics, belonging to both intervention and control arms, according to their location in the province. Data collection commenced on the week beginning May 5th 2003 for the first post-intervention survey and the week beginning July 28th 2003 for follow-up interviews. The entire data collection process started on May 5th and went up to November 28th 2003.

The teams spent three to five days at a clinic, recruiting a target of about 50 patients per clinic during the first post-intervention survey interviews. Patients were then requested to return for follow-up interviews three months after the initial visit at a place of their choice, this being either at the clinic or their homes. All recruited patients were issued with consent and reminder forms that served as proof that they were seen and interviewed at the first post-intervention survey.

Follow-up interviews were conducted three months after the first post-intervention survey using a follow-up questionnaire that differed slightly from the first post-intervention survey questionnaire. Lists of the 50 patients recruited at each clinic during the first post-intervention survey interviews were consolidated by the MRC, Cape Town, and the research team's data management centre. The lists had patients' name, folder number, age and/or date of birth, contact address and telephone numbers where applicable. The lists were sent to the supervisors and team leaders a week before follow-up interviews to facilitate contacting and reminding of patients about the follow up interview. The interviews were conducted at either the clinic or at patients' homes, based on their preference.

If patients failed to come for a follow-up interview at the clinic on agreed upon dates, the interviewers waited until 1200H, after which they went to look for the patients at their homes using residential addresses provided during the first post-intervention survey interviews. In the case of patients who died during the 3

months period, relatives were requested to provide interviewers with certified copies of death certificates or to complete a notification of deceased patients form (See 2.7.3). Relatives were given the food parcel that was due to the deceased. For hospitalised or too ill to be interviewed as well as untraceable patients, interviewers confirmed reasons why such patients could not be interviewed during the follow-up period and conveyed a written confirmation to that effect to PALSAs data management centre in Cape Town.

2.12 QUALITY CONTROL

Quality control of implementation of the project was done in three separate ways.

2.12.1 Quality control of the data collection process

During the first post-intervention survey and follow-up interviews, team leaders of the six teams conducted quality control of patient interviews by re-interviewing 20% of the patients using five key questions extracted from both the first post-intervention survey and follow-up questionnaires. The five re-interview questions were chosen from the questionnaire by PALSAs researchers on a monthly basis. The team leader compared the answers he/she obtained with those of the interviewer. In the case of a difference they verified the results with the patient while still at the clinic and informed the interviewer about the difference. If the same interviewer continued to make the same mistake over a certain period he/she was warned that disciplinary measures could be taken. This did not happen, however.

On the last Friday of every month, the PALSAs data management centre in Cape Town compiled a full report of all re-interviews conducted by team leaders, highlighting important omissions and common mistakes during that month. These reports were e-mailed to all the supervisors for onward transmission to the team leaders for action. This had to be done before starting field work at the next clinic.

The May 2003 re-interview questionnaire is attached as Annex 17.

2.12.2 Periodic supervisory visits by the PALSA researchers

Even though the project had recruited a team of 3 supervisors whose main responsibilities were to monitor and ensure smooth data collection, PALSA researchers also conducted periodic visits to the project sites, providing technical and back-up support to both the PALSA trainers and field workers though separately. The main task was checking of completed paper questionnaires, especially during the start of cohort recruitment when the PDA was not yet in use. The researchers also supported the supervisors in ensuring that PDAs were uploaded on a daily basis, and providing feedback to the supervisors on specific data collection errors that required certain interviewers' attention.

2.12.3 Single database

To ensure a standard channel of transmitting collected data, researchers agreed on MRC, Cape Town to be the PALSA data management centre. All paper versions of the questionnaire were collected by team leaders after proof-reading, sealed and couriered to Centre for Health Systems Research & Development for onward transmission to MRC, Cape Town. Information collected by PDA was uploaded on a daily basis and transmitted to MRC, Cape Town using two toll-free numbers by team leaders. The uploading process either took place at the clinic where interviews were conducted or at the team leader's home.

2.13 ETHICS AND CONSENT

The intervention posed minimal risk of causing harm, since it was mainly a training strategy that was meant to build on existing methods. The main ethical issues were therefore confidentiality and consent. Upon completion of the follow-up interviews, patients were thanked and given a food parcel worth R60 that they had

been informed about by interviewers during the first post-intervention survey interviews. The food parcel was meant to motivate patients to return for follow-up interviews as well as to serve as a token of thanks by PALSA researchers.

2.13.1 Provincial Health Department

PALSA researchers were granted permission to conduct the randomised controlled trial using the government's health facilities, that is, primary care clinics, clinic staff and patients by the Free State Provincial Health Department through the office of the Director General (DG), Department of Health.

2.13.2 University of the Free State Ethics Committee

Prior to field work, that is, collection of data for the trial, the research team submitted a protocol of the study for approval to the Ethics Committee of the Faculty of Health Sciences, University of the Free State. Permission was granted by the Ethics Committee for the researchers to conduct the study (**ETOVS NR 42/03**).

2.13.3 Patient consent forms

Upon meeting the criteria for eligibility to participate in the study, each patient was given a thorough explanation of what the study was about, what it entailed and requested verbal and written consent (See 2.6.2).

2.13.4 Confidentiality

Patient identities and questionnaire responses were treated as confidential and were known only to the researchers. Paper and electronic records were stored securely and were only known to researchers. Clinic identities were treated as confidential. Staff identities were not recorded.

2.14 DATA CHECKING

2.14.1 Data uploaded by PDA on daily basis

The interviewers were advised during training, particularly during the first post-intervention survey questionnaire training, to upload data on a daily basis to the toll free numbers in Cape Town to avoid loss of data. The uploaded data were immediately entered into the database upon receipt. Data that were not entered correctly and/or had queries were compiled into a weekly list that was sent back to supervisors and team leaders for follow up and rectification. This was routinely done by researchers based in Cape Town from the beginning up to the end of the data collection process.

2.14.2 Data collected by paper questionnaires

Data that were collected using paper questionnaires were first checked by supervisors before being sent to the Centre for Health Systems Research and Development, University of the Free State for forwarding to the data management centre in Cape Town. Questionnaires that were not complete or had queries were sent back to team leaders for tracing and following up with patients in question. Upon correction and/or rectification by team leaders who also signed for the corrections on the questionnaire, the paper versions were then couriered to the PALSA data management centre at MRC, Cape Town for entry into the research database.

Prior to final entry of all paper questionnaires onto the research database, all paper questionnaires were checked for completeness of the questionnaires, correct skipping of questions and making sure that incorrectly spelt names were corrected by the Sotho speaking PALSA researcher based at the Community Health Department of the University of the Free State (B. Majara). This was because about 90% of the participants were Sotho speaking and were therefore

interviewed in Sotho. The edited paper questionnaires were then entered, using the double entry process by data capturers at MRC, Cape Town.

2.15 DATA ANALYSIS

Statistical analysis aimed to estimate the precision (95% confidence interval) of each measure of effect, and to estimate the probability (P value) of obtaining at least as large an effect if the respective null hypothesis was true (Altman 1991). Five primary outcomes were specified in advance (see section 1.10.1), to reduce the probability of finding a significant effect by chance as a result of multiple hypothesis testing. However we also examined a larger number of predefined secondary outcomes of interest (see section 1.10.2), bearing in mind the chance of finding significant effects due to multiple comparisons. Table 2.2 below summarises the numerators and denominators used for each outcome.

Outcome variables were compared between patients in intervention and control arms. For binary and ordered categorical outcome measures we compared proportions, and calculated odds ratios (that is, the odds of each outcome in the intervention arm divided by the odds in the control arm). For normally distributed continuous outcome measures we compared means (and standard deviations), and estimated differences between means. For continuous outcome measures with distributions that were not normal we compared medians, and estimated the odds ratio of having a higher value in the intervention arm compared to the control arm.

Table 2.2: Numerators and denominators for outcomes

Outcome	Numerator	Denominator
Primary outcomes		
1. Antibiotic prescription	Number with antibiotic prescription at the first-post intervention survey	All patients recruited at the first-post intervention survey
2. Inhaled steroids prescription	Number with inhaled steroids at the first-post intervention survey or follow-up	All followed up patients
3. Sputa for TB testing	Number with TB sputa sent	All at the first-post intervention survey with cough > 2 weeks, excluding known TB cases
4. Cotrimoxazole prophylaxis	Number with prescribed cotrimoxazole	Known TB cases at the first-post intervention survey
5. Improvement in interference with usual activities (EQ-5D)	Number with improvement in EQ-5D interference with usual activities from the first-post intervention survey to follow-up among all followed up	All followed up patients
Secondary outcomes		
1. Appropriate referrals	Number with referral to any health service provider	All patients with any of the 4 severity markers at first post-intervention survey (respiratory rate ≥ 30 , breathless on talking or at rest, use of accessory muscles, temperature $\geq 38^{\circ}\text{C}$)
2. VCCT/HIV counselling	Number who received VCCT/HIV counselling at the first-post intervention survey or follow-up	All followed up patients
3. Counselling for smoking cessation	(a) Number who received smoking counselling at the first-post intervention survey (b) Number who received smoking counselling at the first-post intervention survey or follow-up	Current smokers at the first-post intervention survey The first-post intervention survey smokers followed up
4. Increased readiness to quit smoking	Number with increased readiness to quit between the first-post intervention survey and follow-up	The first-post intervention survey smokers followed up
5. Smoking cessation	Number of smokers who have quit smoking at follow up	All the first-post intervention survey smokers
6. TB case detection rate	New TB cases	All followed up patients excluding

		TB cases at the first-post intervention survey
7. Mortality rate	(a) Patients deceased at follow up (b) All known TB cases found deceased at follow-up	All followed up patients including All followed up TB cases
8. Difficulty sleeping due to chest symptoms	Patients presenting with difficulty sleeping at follow-up	All followed up patients
9. Chest symptoms during daytime	Patients presenting with chest symptoms at follow-up	All followed up patients
10. Interference with usual activities due to chest symptoms	Patients presenting with interference with usual activities at follow-up	All followed up patients
11. Domain of EQ-5D and combined score		
(a) Mobility	Patients responding to EuroQoL-5D mobility question	All followed up patients
(b) Self-care	Patients responding to EuroQoL-5D self-care question	All followed up patients
(c) Usual activity	Patients responding to EuroQoL-5D usual activity question	All followed up patients
(d) Pain/discomfort	Patients responding to EuroQoL-5D pain/discomfort question	All followed up patients
(e) Anxiety/depression	Patients responding to EuroQoL-5D anxiety/depression question	All followed up patients
12. Number of visits to other health care providers	Number of patients who reported visiting other health care providers between the first-post intervention survey and follow-up	All followed up patients
13. Admissions to hospitals	Number of patients who reported admissions to hospitals at follow up	All followed up patients

The cluster randomised study design necessitated adjustment of confidence intervals and P values to take account of cluster sampling design effects, which are determined by intra-cluster correlation coefficients (ICCs) (Donner and Klar 2001). ICCs in this study were the proportions of the total outcome variances that were accounted for by variances between patients within each clinic, as opposed to variances between clinics (Donner and Klar 2001). ICCs were estimated with

Stata statistical software, using the "large analysis of variance" ("lone way") command (StataCorp 2003). Confidence intervals and P values for comparisons between intervention and control arms were adjusted with the following regression methods in Stata, using Stata's "cluster" option for each model (StataCorp 2003).

For binary outcome variables we used multiple logistic regression. For normally distributed continuous outcome variables we used multiple linear regression. For ordered categorical and count variables we used ordinal logistic regression. For count variables that appeared to be normally distributed on histograms (e.g. numbers of visits to other health care providers) we also used multiple linear regression as secondary analyses, to assess the robustness of the primary analyses. In each multiple regression model, intervention versus control arm was the main explanatory variable of interest. Because the randomisation of clinics was stratified by (five) districts, we also included dummy variables for district as explanatory variables in each model.

In primary analyses involving all subjects recruited, or all subjects who were followed up, we did not adjust for any potential confounding between intervention and control arms. This was supported by the finding (see section 3.2.2) that patients in each arm at first post-intervention survey were comparable with regard to potential confounding variables, as a result of randomisation. However some outcomes were compared only among four subgroups of the study population, these being patients with cough for more than 2 weeks, not known TB cases, patients who are known TB cases, patients with one of the four severity markers, and current smokers at first post-intervention survey. For these subgroups too we compared patients' characteristics, symptoms and signs at the first post-intervention survey. These comparisons generally provided reassurance that characteristics of intervention and control patients within each subgroup were balanced. For one subgroup namely patients with indicators of severe illness requiring referral, first post-intervention survey prevalence of certain prognostic symptoms differed between intervention and control groups. Therefore, as a

secondary analysis, we added these prognostic symptoms as explanatory variables in the regression model.

For outcomes differing significantly between the intervention and control arms, numbers needed to treat were calculated.

2.16 RESPONSIBILITIES OF THE CANDIDATE

The PALSA project evaluation was a complex activity that involved a number of institutions and individuals each tasked with specific responsibilities (See Annex 18). The candidate undertook the following specific responsibilities:

- a) Participated in the designing and eventual write up of the randomised controlled trial's protocol that was submitted to the Ethics Committee of the Faculty of Health Sciences University of the Free State.
- b) Conducted focus group discussions and attended meetings during development of the guideline.
- c) Participated in the training of district TB coordinators who served as PALSA trainers.
- d) Participated in the drafting and refining of both the first post-intervention survey and follow-up questionnaires.
- e) Led the process of piloting of data collection tools i.e. the screening questionnaire, first post-intervention survey and follow-up questionnaire (paper and PDA versions) for further refinement of the tools.
- f) Participated in the translation process of the data collection tools to the five local languages especially the Sesotho version, because Sesotho is the most commonly used local language in the Free State. This included translation of the English version of the Euroqol-5 questionnaire and instructions.
- g) Was responsible for communicating in writing with district health department authorities i.e. district managers, hospital and clinic managers

about the trial's requirements, implementation dates and responses to any queries or clarification sought by the authorities on the project.

- h) Compiled the 40 trial clinics' profiles i.e. number of clinic nurses by staff category (e.g. Chief Professional Nurse, Principal Professional Nurse and Professional Nurse), daily patient load, and number of fast lanes by type of disease and operating hours. Such information was sought from and provided by the district and clinic authorities, namely district and clinic managers.
- i) Participated in the distribution of intervention materials to the PALSA trainers for distribution to clinic nurses during PALSA training sessions.
- j) Participated in the drafting of the first post-intervention survey and follow-up training manuals.
- k) Participated in the training of interviewers on both first post-intervention survey and follow-up questionnaires.
- l) Conducted supervisory and support visits of field work teams during the data collection process.
- m) Checked for completeness, spelling mistakes and proper filling of answers on all paper questionnaires prior to entry of collected data to the entire database.
- n) Archived consent forms of all participants by clinic.
- o) During the data cleaning process, checked discrepancies between the first post-intervention survey and follow-up demographics of patients, and checked that patients met inclusion criteria.
- p) Assisted and discussed statistical analysis of data, which was led by the candidate's supervisors. The candidate was present during almost all analyses. He clarified the interpretation of relevant variables, and which patients comprised the respective numerator and denominator population for each outcome. During this process, the purpose and interpretation of each statistical test was discussed with him.
- q) Wrote the doctoral thesis.

CHAPTER 3- RESULTS

3.1 INTRODUCTION

This chapter will give an overview of results obtained from the trial. First, to assess the effectiveness of randomization and the comparability of the trial arms, the characteristics of clinics and patients in intervention and control arms at the first post-intervention survey will be compared. Second, to assess the effectiveness of the intervention, patient outcomes will be compared between intervention and control groups.

3.2 RESULTS OF THE STUDY

3.2.1 Characteristics of clinics

Table 3.1: Characteristics of clinics

Characteristics	Intervention clinics	Control clinics
Number of CPN (Median, IQR)	1 (0; 3.50)	1 (0; 2)
Number of SPN (Median, IQR)	1 (1; 2.25)	1.5 (1; 2.25)
Number of PN (Median, IQR)	3.5 (1.75; 6)	3 (2; 4)
All levels of PN (Median, IQR)	6.5 (5; 9.50)	6 (5; 7.25)
Weekly patient load (Median, IQR)	530 (428; 732)	485.5 (393; 637)
Number of fast lanes (Median, IQR)	4 (3;4)	3 (3;4)
Number with separate TB queue (Number, %)	19 (95%)	20 (100%)
Number providing 24/7 services (Number, %)	4 (20%)	2 (10%)

IQR= Interquartile range

24/7= Operating 24 hours, 7 days a week

CPN= Chief professional nurse, SPN= Senior professional nurse, PN= Professional nurse

Table 3.1 indicates that the staffing patterns of all levels of professional nurses for intervention and control clinics were similar at the beginning of the trial. The clinics each had median values of 6.5 and 6.0 professional nurses for intervention and control arms respectively. The intervention arm had a median of 529.5 patients weekly versus 485.5 for control, with the number of fast lanes, and number of separate tuberculosis queues all similar.

3.2.2 PALSA training sessions at intervention clinics

Table 3.2 below is a summary of the number of training sessions that nurses in each intervention clinic received from PALSA trainers. Even though the intention was to conduct a minimum of 4 sessions at each clinic, nurses only received a median of 2 sessions. Some missed contact sessions due to various reasons such as being on leave, and/or attending other meetings on behalf of the clinic.

Table 3.2: PALSA training sessions at intervention clinics

Clinic	Training sessions per nurse (median)
Albert Luthuli	3
Bethlehem	3
Boithusong	3
Botshabelo B	1
Botshabelo U&S	1
K-Maile	2
Mphohadi	3
Namahali	2
Petrusburg	2
Phahameng	3
Phomolong	2
PAX	0
Riverside	2.5
Seeisoville	1
Tebang	1
Thusanong	4
Tseki	2
Tshepong	2
Tumahole	2
Welkom	3
Median number of training sessions	2

3.2.3 Characteristics of patients- general

Table 3.3 below is a summary of numbers of patients included in the study, from the time of recruitment up to follow-up. At the end of the recruitment period, we had recruited 1000 and 999 patients for intervention and control arms, with between 47 and 52 patients per clinic. During data analysis, four more patients in each arm were deleted due to unavailability of the first post-intervention survey data and/or because they did not meet the inclusion criteria. During follow-up, both arms had an almost equal number of patients who were not followed up due to hospitalisation, being too ill to be interviewed, relocated and/or dead. Follow-up rates were 92.9% and 92.7% for intervention and control arms.

Table 3.3: Number of patients included in the study

	Intervention	Control
Number of patients interviewed during the first post-intervention survey	1000	999
Analysed at first post-intervention	996*	995*
Hospitalised/ill/relocated	2	3
Lost to follow-up (no reason provided)	47	44
Deceased	22	26
Followed up	925 (92.9%)	922 (92.7%)

* 4 patients in each group were excluded from analysis because they were without the first post-intervention survey data and/or did not meet inclusion criteria

Table 3.4 is an illustration of the patient characteristics at the first post-intervention survey. This shows that patients in the two arms were balanced as a result of randomisation. In both arms almost two thirds were females and the most frequent age group was 25-54 years. Where discrepancies between date of births recorded at the first post-intervention survey and follow-up occurred, that is, date of birth as reflected in the patient's clinic folder number, ages were defined as missing. About 50% of patients had a smoking history, about 50% had primary education, close to

50% were unemployed, above 80% walked to get to the nearest clinic and 70% spent between 2 and 12 hours to travel to and from the clinic.

Table 3.4: Patients' characteristics at first post-intervention survey

	Intervention	Control
Demography		
Gender	N=996	N=995
Male	35.8%	34.1%
Female	64.2%	65.9%
Age	N=981	N=985
15-24	8.0%	8.6%
25-54	66.2%	68.8%
≥55	25.9%	22.5%
Smoking history	N=996	N=995
Current	16.5%	19.4%
Ex-smoker	31.4%	30.2%
Never smoked	52.1%	50.5%
Educational background	N=996	N=995
Never attended school	16.8%	15.5%
Attended primary school only	46.6%	43.5%
Attended secondary school	36.5%	41.0%
Employment Status	N=996	N=995
Employed	13.7%	18.5%
Self-employed	1.9%	2.3%
Unemployed	49.4%	45.3%
Student/learner	2.5%	3.1%
Looking for work	5.1%	6.8%
Receiving Grant/pension	27.2%	23.1%
Other	0.2%	0.8%
Mode of transport to health facility	N=996	N=995
Walk	83.4%	83.1%
Bicycle	0.5%	0.9%
Taxi	12.6%	10.5%
Bus	0.4%	0.3%
Private motor vehicle	2.9%	5.1%
Other	0.2%	0.1%
Time taken to travel to clinic and back	N=977	N=993
Overnight	0.3%	0.0%
Between 2- 12 hrs	66.5%	67.4%
Less than 2 hrs	33.2%	32.6%

Table 3.5 compares the patients' clinical symptoms at the first post-intervention survey. The table shows a balance between the two arms. Rates of cough and

difficulty breathing ranged between 70% and 90%. About 70% of the patients complained about chest symptoms interfering with their usual activities while around 36% had gone to the clinic for a check-up on recurrent respiratory problem. "Check-up" meant planned visits to the clinic, while "first visit" meant unplanned visit. The distinction between these two meanings were poorly understood by the fieldworkers during training and also by patients during interviews, hence the surprisingly high number of patients who said they had come to the clinic for a check-up for a respiratory problem and a low number of patients who had come for first visit for a respiratory problem.

Table 3.5: Patients' symptoms at first post-intervention survey

	Intervention	Control
Symptoms		
Cough >2 weeks	78.4% (N=995)	76.5% (N=992)
Cough<2weeks with respiratory rate \geq 30	2.7% (N=993)	0.6% (N=991)
Cough<2 weeks with temperature \geq 38°C	0.8% (N=992)	0.7% (N=991)
Phlegm/Slime	49.7% (N=881)	50.3% (N=887)
Yellow/green phlegm/slime	48.1% (N=696)	52.0% (N=703)
Haemoptysis	51.2% (N=881)	48.8% (N=887)
Difficulty breathing today or in last 6 months	89.4% (N=995)	87.1% (N=995)
Chest problems interfering with usual activities	76.5% (N=995)	70.6% (N=995)
Frequency of chest problems on patient's usual activities	N=760	N=702
1- 2 times per month	3.3%	4.7%
1- 2 times per week	20.9%	25.4%
Most days	75.8%	69.9%
Reasons for presentation to clinic today	N=995	N=989
Check-up high blood pressure	27.0%	22.7%
Check-up diabetes	1.7%	2.5%
Check-up respiratory problem	36.6%	36.2%
Check-up other problem	9.5%	17.1%
1 st visit respiratory problem	3.0%	7.1%
1 st visit other problem	23.6%	23.1%

3.2.4 Characteristics of patients by sub-groups

As some trial outcomes were only relevant to subgroups of patients, the first post-intervention survey characteristics of these subgroups were compared between

intervention and control arms. These subgroups were 1) patients with cough for more than 2 weeks and not known to have tuberculosis, 2) known tuberculosis cases, 3) patients with at least one of the severity markers indicating need for referral and 4) current smokers at first post-intervention survey. Table 3.6 shows characteristics at first post-intervention survey of the subgroup of patients with cough more than 2 weeks excluding known tuberculosis cases.

Table 3.6: Characteristics at first post-intervention survey of patients with cough >2 weeks and not known to have tuberculosis

	Intervention	Control
Demography		
Gender	N=643	N=667
Male	35.2%	33.0%
Female	64.9%	67.0%
Age	N=632	N=662
15-24	6.5%	6.5%
25-54	64.9%	67.8%
≥55	28.6%	25.7%
Smoking history	N=643	N=667
Current	18.7%	22.6%
Ex-smoker	30.8%	28.8%
Never smoked	50.5%	48.6%
Educational background	N=643	N=667
Never attended school	18.7%	17.5%
Attended primary school only	47.1%	44.7%
Attended secondary school	34.2%	37.8%
Employment Status	N=642	N=667
Employed	13.9%	19.5%
Self-employed	1.7%	2.6%
Unemployed	47.4%	42.7%
Student/learner	2.3%	2.7%
Looking for work	5.3%	6.6%
Receiving Grant/pension	29.3%	24.9%
Other	0.2%	1.1%
Transport mode	N=628	N=665
Walk	83.3%	81.4%
Bicycle	0.6%	0.8%
Taxi	11.8%	12.8%
Private vehicle	3.7%	4.8%
Other	0.3%	0.2%
Time taken to travel to clinic and back	N=626	N=665
Overnight	0.35%	0.0%
Between 2-12 hrs	69.3%	68.9%
Less than 2 hrs	30.4%	31.1%

Table 3.7 compares clinical symptoms of patients in the subgroup of patients with cough for more than 2 weeks and excluding known tuberculosis cases at first post-intervention survey. The arms were balanced.

Table 3.7 Symptoms at first post-intervention survey of patients with cough >2 weeks and not known to have tuberculosis

	Intervention	Control
Symptoms		
Cough > 2 weeks	100% (N=643)	100% (N=667)
Cough <2 weeks with respiratory rate \geq 30	0.0% (N=643)	0.0% (N=667)
Cough <2 weeks with temperature \geq 38°C	0.0% (N=643)	0.0% (N=667)
Phlegm/slime	48.3% (N=630)	51.7% (N=662)
Yellow/green phlegm/slime	47.1% (N=496)	53.0% (530)
Haemoptysis	49.7% (N=630)	50.3% (N=662)
Continuous difficulty breathing problem	87.4% (N=643)	85.5% (N=667)
Chest symptoms interfering with usual activities	75.1% (N=643)	71.4% (N=667)
Frequency of chest symptoms interfering with usual activities	N=482	N=476
1-2 times per month	3.1%	5.3%
1-2 times per week	22.0%	23.3%
Most days	74.9%	71.4%
Reasons for coming to clinic today	N=642	N=665
Check-up high blood pressure	29.6%	27.1%
Check-up diabetes	2.3%	3.0%
Check-up respiratory problem	36.1%	35.0%
Check-up other problem	9.4%	20.5%
1 st visit respiratory problem	3.0%	7.2%
1 st visit other problem	24.8%	22.9%
Attendance to the clinic in last 3 months	77.5% (N=643)	74.1% (N=667)

Table 3.8 shows patient characteristics for the known tuberculosis cases subgroup at first post-intervention survey. This table also indicates similarity between the two arms at the first post-intervention survey, in terms of demography, gender, smoking history, educational background, employment status, transport mode and time taken to travel to clinic and back. What is interesting about the subgroup is that almost 60% of the patients in the sub-group have a smoking history compared

to 50% of all enrolled patients. There is also a balance of 50% male and female in both arms and a slight increase from 8 to 12% of the 15- 24 age group.

Table 3.8: Characteristics at first post-intervention survey of patients known to have tuberculosis

	Intervention	Control
Demography		
Gender	N=143	N=132
Male	49.7%	55.3%
Female	50.6%	44.7%
Age	N=141	N=130
15-24	12.1%	10.0%
25-54	76.6%	81.5%
≥55	11.4%	8.5%
Smoking history	N=143	N=132
Current	11.2%	15.9%
Ex-smoker	44.1%	43.9%
Never smoked	44.8%	40.2%
Educational background	N=143	N=132
Never attended school	9.1%	8.3%
Attended primary school only	46.2%	43.9%
Attended secondary school	44.8%	47.7%
Employment Status	N=143	N=131
Employed	7.0%	12.2%
Self-employed	2.8%	2.3%
Unemployed	71.3%	64.1%
Student/learner	1.4%	3.1%
Looking for work	5.6%	3.8%
Receiving Grant/pension	11.9%	13.7%
Other	0.0%	0.8%
Transport mode	N=142	N=132
Walk	83.8%	88.6%
Bicycle	0.0%	3.0%
Taxi	14.1%	4.6%
Bus	0.0%	0.8%
Private vehicle	2.1%	3.0%
Time taken to travel to clinic and back	N=142	N=132
Between 2- 12 hrs	46.5%	48.5%
Less than 2 hrs	53.5%	51.5%

Table 3.9 shows clinical symptoms for patients within the known tuberculosis cases subgroup at first post-intervention survey. The subgroup indicates a sharp increase in cough for more than 2 weeks as well as continuous difficulty breathing

as compared to all enrolled patients. There is also an increase in the number of patients who visit the clinic for check-up of respiratory problems in this sub-group.

Table 3.9: Symptoms at first post-intervention survey of patients known to have tuberculosis

	Intervention	Control
Symptoms		
Cough > 2 weeks	83.2% (N=143)	84.1% (N=132)
Cough <2 weeks with respiratory rate \geq 30	2.1% (N=143)	0.0% (N=132)
Cough <2 weeks with temperature \geq 38°C	0.0% (N=143)	0.0% (N=131)
Phlegm/slime	50.7% (N=126)	49.3% (N=116)
Yellow/green phlegm/slime	46.2% (N=104)	53.9% (N=101)
Haemoptysis	51.9% (N=126)	48.2% (N=116)
Continuous difficulty breathing problem	93.7% (N=143)	93.1% (N=132)
Chest symptoms interfering with usual activities	88.8% (N=143)	80.3% (N=132)
Frequency of chest symptoms interfering with usual activities	N=126	N=106
1-2 times per month	3.2%	3.8%
1-2 times per week	11.9%	31.1%
Most days	84.9%	65.1%
Reasons for coming to clinic today	N=143	N=131
Check-up high blood pressure	8.4%	6.3%
Check-up diabetes	0.0%	0.0%
Check-up respiratory problem	39.9%	43.8%
Check-up other problem	9.1%	7.0%
1 st visit respiratory problem	0.7%	1.6%
1 st visit other problem	19.6%	25.8%
Attendance to the clinic in last 3 months	80.9% (N=256)	76.4% (N=165)

Table 3.10 shows characteristics of the subgroup of patients with the one or more of the severity markers indicating need for urgent referral at first post-intervention survey. Even though the total number of patients whose data was analysed was more by a 100 in the intervention arm, the percentages was the same in both arms as far as distribution of gender, age, smoking habits and other characteristics were concerned. Compared to Table 3.4, this table shows a slightly lower percentage of patients falling within the 15- 24 age group in this subgroup and a higher percentage of patients who never attended school.

Table 3.10: Characteristics at first post-intervention survey of patients with at least one of the 4 severity markers

	Intervention	Control
Demography		
Gender	N=256	N=165
Male	31.3%	29.1%
Female	68.8%	71.0%
Age	N=252	N=161
15-24	5.6%	5.6%
25-54	67.9%	67.1%
≥55	26.6%	27.3%
Smoking history	N=256	N=165
Current	16.0%	15.2%
Ex-smoker	30.9%	29.1%
Never smoked	53.1%	55.8%
Educational background	N=256	N=165
Never attended school	23.1%	16.4%
Attended primary school only	49.2%	54.6%
Attended secondary school	27.7%	29.1%
Employment Status	N=256	N=165
Employed	11.0%	17.6%
Self-employed	1.6%	1.2%
Unemployed	47.3%	41.8%
Student/learner	1.6%	3.0%
Looking for work	3.9%	6.7%
Receiving Grant/pension	34.4%	27.9%
Other	0.4%	1.8%
Transport mode	N=251	N=165
Walk	82.9%	77.6%
Bicycle	1.2%	0.0%
Taxi	11.6%	13.9%
Private vehicle	0.0%	0.6%
Other	4.0%	7.9%
Time taken to travel to clinic and back	N=250	N=165
Overnight	0.8%	0.0%
Between 2-12 hrs	73.2%	71.5%
Less than 2 hrs	26.0%	28.5%

Table 3.11 shows clinical symptoms at first post-intervention survey of patients with one or more of the severity markers. The table shows the following differences between arms in terms of symptoms. Intervention patients were more likely to report phlegm production, haemoptysis and yellow/green coloured

Table 3.13: Symptoms at the first post-intervention survey of current smokers

Symptoms	Intervention	Control
Cough >2 weeks	81.7% (N=164)	87.6% (N=193)
Cough <2 weeks with respiratory rate \geq 30	1.8% (N=164)	0.0% (N=193)
Cough <2 weeks with temperature \geq 38°C	1.2% (N=163)	0.5% (N=193)
Phlegm/slime	46.5% (N=152)	53.5% (N=183)
Yellow/green phlegm/slime	47.1% (N=126)	52.9% (N=146)
Haemoptysis	39.6% (N=152)	60.4% (N=183)
Continuous difficulty breathing problem	89.0% (N=164)	85.5% (N=193)
Chest problems interfering with usual activities	78.1% (N=164)	61.7% (N=193)
Frequency of chest symptoms interfering with usual activities	N=127	N=119
1-2 times per month	3.9%	5.9%
1-2 times per week	22.1%	26.1%
Most days	74.1%	68.1%
Reasons for coming to clinic today	N=164	N=191
Check-up high blood pressure	23.2%	17.8%
Check-up diabetes	0.6%	0.0%
Check-up respiratory problem	26.2%	33.0%
Check-up other problem	11.6%	22.0%
1 st visit respiratory problem	4.3%	7.9%
1 st visit other problem	22.6%	21.5%
Attendance to the clinic in last 3 months	68.9% (N=164)	68.4% (N=193)

3.2.5 Reliability of tracer questions

At the first post-intervention survey there were questions on difficulty breathing and cough on the day of the interview that eligible patients had to answer twice to assess test-retest reliability. Table 3.14 indicates good agreement between the repeated questions using the Kappa statistic.

Table 3.14: Agreement between repeated questions at first post-intervention survey

Questions asked	Intervention arm		Control arm	
	Kappa	95% CI	Kappa	95% CI
Do you have difficulty breathing (tight chest, shortness of breath, wheeze) today?	0.80	(0.75-0.84)	0.84	(0.81-0.88)
Do you have a cough today?	0.87	(0.82-0.92)	0.92	(0.88-0.96)

3.2.6 Primary and secondary outcomes

Table 3.15 shows the comparison of primary outcome variables between the intervention and control arms of the trial. The results are given as percentages, odds ratios, 95% confidence intervals, p values and inter-cluster correlation coefficients (ICC). The five primary outcomes that were measured were antibiotic prescription, inhaled steroid prescription, sending of sputa for tuberculosis testing, cotrimoxazole prophylaxis among patients with tuberculosis and interference with usual activities. The table shows that, in comparison to the control group, the intervention did not have any effect on antibiotic prescribing. However, there was a significant increase in inhaled steroid prescription as well as on the sending of sputa for tuberculosis testing. Compared to the control group, the intervention had no effect on prescribing of cotrimoxazole prophylaxis, or on improvement of interference with usual activities.

Table 3.13: Symptoms at the first post-intervention survey of current smokers

Symptoms	Intervention	Control
Cough >2 weeks	81.7% (N=164)	87.6% (N=193)
Cough <2 weeks with respiratory rate \geq 30	1.8% (N=164)	0.0% (N=193)
Cough <2 weeks with temperature \geq 38°C	1.2% (N=163)	0.5% (N=193)
Phlegm/slime	46.5% (N=152)	53.5% (N=183)
Yellow/green phlegm/slime	47.1% (N=126)	52.9% (N=146)
Haemoptysis	39.6% (N=152)	60.4% (N=183)
Continuous difficulty breathing problem	89.0% (N=164)	85.5% (N=193)
Chest problems interfering with usual activities	78.1% (N=164)	61.7% (N=193)
Frequency of chest symptoms interfering with usual activities	N=127	N=119
1-2 times per month	3.9%	5.9%
1-2 times per week	22.1%	26.1%
Most days	74.1%	68.1%
Reasons for coming to clinic today	N=164	N=191
Check-up high blood pressure	23.2%	17.8%
Check-up diabetes	0.6%	0.0%
Check-up respiratory problem	26.2%	33.0%
Check-up other problem	11.6%	22.0%
1 st visit respiratory problem	4.3%	7.9%
1 st visit other problem	22.6%	21.5%
Attendance to the clinic in last 3 months	68.9% (N=164)	68.4% (N=193)

3.2.5 Reliability of tracer questions

At the first post-intervention survey there were questions on difficulty breathing and cough on the day of the interview that eligible patients had to answer twice to assess test-retest reliability. Table 3.14 indicates good agreement between the repeated questions using the Kappa statistic.

Table 3.14: Agreement between repeated questions at first post-intervention survey

Questions asked	Intervention arm		Control arm	
	Kappa	95% CI	Kappa	95% CI
Do you have difficulty breathing (tight chest, shortness of breath, wheeze) today?	0.80	(0.75-0.84)	0.84	(0.81-0.88)
Do you have a cough today?	0.87	(0.82-0.92)	0.92	(0.88-0.96)

3.2.6 Primary and secondary outcomes

Table 3.15 shows the comparison of primary outcome variables between the intervention and control arms of the trial. The results are given as percentages, odds ratios, 95% confidence intervals, p values and inter-cluster correlation coefficients (ICC). The five primary outcomes that were measured were antibiotic prescription, inhaled steroid prescription, sending of sputa for tuberculosis testing, cotrimoxazole prophylaxis among patients with tuberculosis and interference with usual activities. The table shows that, in comparison to the control group, the intervention did not have any effect on antibiotic prescribing. However, there was a significant increase in inhaled steroid prescription as well as on the sending of sputa for tuberculosis testing. Compared to the control group, the intervention had no effect on prescribing of cotrimoxazole prophylaxis, or on improvement of interference with usual activities.

Table 3.15: Primary outcomes

Outcomes	Intervention arm		Control arm		Odds ratios	Adjusted 95% CI*	P value	ICC**
	n/N	(%)	n/N	(%)				
Antibiotics prescription at first post-intervention survey among all patients	360/996	36.1	378/995	38.0	0.92	(0.62-1.36)	0.68	0.102
Inhaled steroid prescription at first post-intervention survey or follow up among all followed up	149/927	16.1	95/925	10.3	1.70	(1.13-2.56)	0.01	0.060
Referrals for TB testing at first post-intervention survey or follow up among all followed up, including known TB cases	112/669	16.7	76/680	11.2	1.60	(1.00-2.54)	0.050	0.058
Isoniazid prophylaxis among TB cases	18/143	12.6	13/132	9.9	1.52	(0.60-3.89)	0.38	0.133
Improvement of interference with usual activities from first post-intervention survey to follow up among all followed up	363/923	39.3	316/922	34.3	1.25	(0.96-1.63)	0.10	0.032

*Confidence Intervals

** Intra-cluster correlation coefficient

Tables 3.16(a) and 3.16(b) show comparison of secondary outcome variables between the intervention and control arms of the trial. The results are also given as percentages, odd ratios, 95% confidence intervals, p values and inter-cluster correlation coefficients (ICC). Significant effects were seen on appropriate referral, with tuberculosis case detection rate, and admission to hospitals being close to significant. Significant adverse effects were seen on interference with usual activities due to chest problems and severity of anxiety and depression.

Table 3.16(a): Secondary outcomes

Outcomes	Intervention arm		Control arm		Odds ratio	Adjusted 95% CI*	P value	ICC***
	n/N	(%)	n/N	(%)				
Secondary outcomes								
1. Appropriate referral (if one of 4 severity markers present) at first post-intervention survey	27/255	10.6	8/165	4.9	2.56	(1.06-6.17)	0.036	0.0319
2. VCCT/HIV counselling	75/925	8.1	67/922	7.3	1.13	(0.69-1.84)	0.63	0.0330
3. Counselling for smoking cessation								
(a) Only at first post-intervention survey among current smokers at first post-intervention survey	83/163	50.9	86/193	44.6	1.35	(0.92-1.98)	0.13	0.0176
(b) First post-intervention survey or follow-up among current smokers at first post-intervention survey	100/147	68.0	111/179	62.0	1.36	(0.90-2.05)	0.14	0.0034
4. Increased readiness to quit smoking among current smokers at first post-intervention survey**	19/70	27.1	20/78	25.6	1.04	(0.53-2.05)	0.91	<0.0001
5. Smoking cessation at follow-up among current smokers	39/138	28.3	43/159	27.0	1.00	(0.57-1.77)	1.00	0.0645
6. Tuberculosis case detection rate								
(a) Excluding known TB cases at first post-intervention survey	28/925	3.0	17/922	1.8	1.67	(0.92-3.02)	0.091	0.0006
(b) Including patients who started tuberculosis treatment less than 28 days before interviews started	25/996	2.5	17/995	1.7	1.48	(0.77-2.86)	0.24	0.0080
7. Mortality rate								
(a) All at follow up	22/947	2.3	26/948	2.7	0.84	(0.46-1.53)	0.57	0.0048
(b) Among patients with tuberculosis at first post-intervention survey	10/136	7.4	5/129	3.9	2.00	(0.51-7.75)	0.32	0.0726
8. Difficulty sleeping due to chest symptoms at follow-up.	627/925	67.8	603/922	65.4	1.12	(0.89-1.41)	0.34	0.0322
9. Chest symptoms during the day at follow up	637/925	68.9	623/922	67.6	1.07	(0.81-1.40)	0.64	0.0772
10. Interference with usual activities due to chest symptoms at follow up	629/925	68.0	554/922	60.1	1.44	(1.13-1.85)	0.003	0.0744

*Confidence Intervals

** Smaller denominator because only 148 of the first-post intervention survey smokers answered both questions

*** Intra-cluster correlation coefficient

Table 3.16(b): Secondary outcomes (continued)

Outcomes	Intervention arm		Control arm		Odds ratios	Adjusted 95% CI*	P value	ICC**
	n/N	(%)	n/N	(%)				
Secondary outcomes (continued)								
11. Improvement of each domain of EQ-5D and change in the combined score at follow up								
a) Mobility								
No problem in walking about	465/923	50.4	502/922	54.5	0.84	(0.44-1.59)	0.59	0.0623
Between no problem and some problem	52/923	5.6	67/922	7.3				
Some problem in walking about	364/923	39.4	330/922	35.8				
Between some problem and confined to bed	22/923	2.4	12/922	1.3				
Confined to bed	20/923	2.2	11/922	1.2				
b) Self-care								
No problem with self-care	770/923	83.4	798/922	86.6	0.77	(0.40-1.50)	0.45	0.1129
Between no problem and some problem	28/923	3.0	36/922	3.9				
Some problem washing or dressing	105/923	11.4	75/922	8.1				
Between some problem and unable to wash or dress	7/923	0.8	5/922	0.5				
Unable to wash or dress	13/923	1.4	8/922	0.9				
c) Usual activities								
No problem with performing usual activities	340/923	36.8	401/922	43.5	1.18	(0.69-2.01)	0.55	0.0607
Between no problem and some problem	53/923	5.7	53/922	5.8				
Some problem with performing usual activities	373/923	40.4	364/922	39.5				
Between some problem and unable to perform usual activities	36/923	3.9	28/922	3.0				
Unable to perform usual activities	121/923	13.1	76/922	8.2				
d) Pain/discomfort								
No pain or discomfort	256/923	27.7	291/922	31.6	1.04	(0.59-1.83)	0.90	0.0846
Between none and moderate pain or discomfort	49/923	5.3	50/922	5.4				
Moderate pain or discomfort	403/923	43.7	401/922	43.5				
Between extreme and moderate pain or discomfort	49/923	5.3	41/922	4.5				
Extreme pain or discomfort	166/923	18.0	139/922	15.1				
e) Anxiety/depression								
No anxiety or depression	297/923	32.2	351/922	38.1	1.66	(1.41-1.95)	<0.001	0.1123
Between none and moderate anxiety or depression	49/923	5.3	37/922	4.0				
Moderate anxiety or depression	290/923	31.4	279/922	30.3				
Between extreme and moderate anxiety or depression	38/923	4.1	30/922	3.3				
Extreme anxiety or depression	249/923	27.0	224/922	24.3				
Change in the combined EQ-5D score								
Mean (SD)	0.10	(0.44)	0.12	(0.41)	-0.03	(-0.08-0.03)	0.37	0.0367
12. Number of visits to other health care providers between the first post-intervention survey and follow up								
(a)Median (IQR)	2	(1-3)	2	(1-3)	1.19	(0.82-1.72)	0.37	0.0984
(b)Mean (SD)	2.0	(1.5)	1.8	(1.4)	1.19	(0.82-1.72)	0.37	0.0984
13. Admissions to hospitals between the first post-intervention survey and follow up								
	26/925	2.8	41/922	4.5	0.62	(0.38-1.02)	0.062	0.0023

IQR= Interquartile range, SD= Standard deviation, *Confidence Intervals

** Intra-cluster correlation coefficient

Since first post-intervention survey differences were observed between the two groups when analysing patients with indicators of severe illness requiring referral (secondary outcome 1), haemoptysis, phlegm and sputum colour were added as explanatory variables in the regression model. The adjusted odds ratio was 2.54 (95% CI 1.01 to 6.38) and p-value 0.047. This shows that the first post-intervention survey adjustment did not influence the estimated effect.

First post-intervention survey differences were also observed between the two groups when analysing patients with difficulty sleeping due to chest problems, (secondary outcome 8), patients with chest symptoms during the day (secondary outcome 9), and patients with interference with usual activities due to chest symptoms (secondary outcome 10). The first post-intervention survey adjustment was therefore done for all the three outcomes. For difficulty sleeping due to chest problems, the adjusted odds ratio was 1.12 (95% CI 0.89 to 1.41), for chest symptoms during the day the adjusted odds ratio was 1.07 (95% CI 0.81 to 1.40), and for interference with usual activities due to chest symptoms the adjusted odds ratio was 1.44 (95% CI 1.13 to 1.85). This also implies that the first post-intervention survey adjustment did not influence the estimated effect.

Ordinal logistic regressions of the EuroQoL-5D sub-domains were done adjusting for the first post-intervention survey values of the same variables. Stata output warned that the resulting standard errors were questionable, so these results should be interpreted with caution. However comparison of anxiety and depression at follow-up using Cusick's non-parametric test for trend, but not adjusting for cluster effects or the first post-intervention survey values, also found this to be significantly worse in the intervention arm (p value=0.03)

For change in the combined EQ-5D score, the coefficient (and 95% confidence interval) are difference in score instead of odds ratios. The change in score is normally distributed, so linear regression is an appropriate method of comparison.

3.2.7 Number needed to treat calculations

Table 3.17 below is an illustration of numbers needed to treat in order to see the effects of the study. As indicated, eighteen patients would need to be seen by a PALSAs trained nurse for one extra patient to be prescribed an inhaled steroid. Seventeen patients would need to be seen by a PALSAs trained nurse for one extra appropriate referral to be made. Other differences were not significant (95% confidence intervals include 0)

Table 3.17: Number needed to treat (NNT)

Outcomes	RD (95% CI)	Number needed to treat (NNT)= 1/RD	(95% CI)
1. Inhaled steroid prescription	0.055 (0.017; 0.094)	18	11; 59
2. Sputa sent for TB testing	0.44 (-0.004; 0.89)	2.3	-250; 1.1
3. Appropriate referral	0.058 (0.008; 0.11)	17	9.1; 125
4. TB case detection rate	0.011 (-0.002; 0.025)	91	-500; 40
5. Hospital admissions	-0.015 (-0.030; -0.001)	-67	-33; 1000

CHAPTER 4- DISCUSSION AND CONCLUSION

4.1 INTRODUCTION

This chapter will discuss the results of the study. Strengths and limitations of the study will follow, as well as implications for policy. Finally, a conclusion about the study will be given.

4.2 OVERVIEW OF RESULTS

The results of the study show that the PALSA intervention led to a significant improvement on inhaled steroid prescription, with a prescription rate of 16.1% in the intervention arm compared to 10.3% in the control arm (odds ratio 1.70; 95%CI 1.13 to 2.56), and a marginally significant improvement in sending of sputa for tuberculosis testing, with 16.1% in the intervention arm compared to 11.0% in the control arm (odds ratio 1.60; 95%CI 1.00 to 2.54). There were also significantly higher probabilities of appropriate referral of patients that had one of the four severity markers at first post-intervention survey, that is, 10.6% for intervention compared to 4.9% for the control arm (odds ratio 2.56; 95%CI 1.06 to 6.17); and of interference with usual activities due to chest symptoms at follow-up of 68.0% for intervention and 60.1% for control arms (odds ratio 1.44; 95%CI 1.13 to 1.85). A close to significant difference was found in the tuberculosis case detection rate, 3.0% for intervention compared to 1.8% for control arm (odds ratio 1.67; 95%CI 0.92 to 3.02). All but one of these outcomes was improvements in health care processes rather than in patients' health status. It is however reasonable to predict, based on previous research, that earlier tuberculosis treatment and increased asthma preventive therapy would lead to improved health status in patients with these conditions, although it would take longer than three months for health gains to be detected (Borgdorff *et al* 2002, Griffiths *et al* 2004). The marked improvement in inhaler prescribing could have been due to the permission that was granted by the provincial health department authorities to nursing practitioners in intervention clinics to prescribe inhalers during the study rather than to the

intervention itself. This permission was part of the intervention package, and so its effects cannot be distinguished from the educational components.

There was no significant effect of the intervention on 3 of the 5 primary outcomes of the study, these being reduction of antibiotic prescription, increase in cotrimoxazole prophylaxis among known tuberculosis patients, and improvement of interference with usual activities due to chest symptoms. The latter primary outcome (improvement of interference with usual activities) was the difference between interference after three months and at first post-intervention survey, in contrast to the secondary outcome reported in the previous paragraph, which did not account for interference at first post-intervention survey. One plausible explanation for the lack of effect on cotrimoxazole prescribing was that during the course of the study, the province had an interruption of the supply of cotrimoxazole, even though the province had adopted a policy on cotrimoxazole prophylaxis that had been budgeted for.

Numbers needed to treat provide an estimate of absolute, rather than relative effectiveness. As illustrated in Table 3.17, only 2.3 patients with chronic cough and without known tuberculosis would need to be managed by a PALSA-trained nurse for one more such patient to have sputum sent for testing (95%CI -250 to 1.1), 18 patients would need to be managed by a PALSA-trained nurse for one more patient to be prescribed inhaled steroids (95%CI 11 to 59), and 17 patients with signs indicating severe disease would need to be managed by a PALSA-trained nurse for one more patient to be referred to a doctor or hospital (95%CI 9.1 to 125). Given the large numbers of such patients managed every day in Free State clinics, and the capacity of such patients to benefit from such care; these appear to be substantial effects.

The screening questions about cough and difficulty breathing were broad and could include patients with heart problems and not necessarily respiratory problems. For example, high percentages of patients reported that they were

attending the clinic for hypertension. These questions were possibly overly sensitive in the screening context, and thus lack specificity for conditions that are the target for intervention. The guidelines and medication for respiratory conditions would not be expected to benefit heart disease patients. The inclusion of such patients in the study could have thus led to an underestimation of the effect of the intervention on respiratory patients alone. This also raises the cost of implementing the intervention.

The results also showed an extraordinarily high prevalence of certain respiratory symptoms, especially since only about 40 percent of patients were attending for respiratory problems. This is seen on Table 3.5, where in the intervention group persistent cough accounted for 78%, troublesome respiratory symptoms accounted for 76% of which 76% were daily, and haemoptysis accounted for 51%.

The proportion of ex-smokers (31%) was also surprisingly high, especially as two thirds of the attendees were women. This might reflect medical advice given to patients with respiratory symptoms, which would suggest a highly effective prior smoking cessation practices in the clinics. Steyn and colleagues determined smoking patterns in South Africa, and identified groups requiring culturally appropriate smoking cessation programmes by conducting interviews of a random sample of 13 826 people (> 15 years to identify tobacco use patterns and respiratory symptoms as part of the 1998 South African demographic health survey (Steyn *et al* 2002). Results of the study showed that adults (44.2% of males and 11.0% of females) smoked regularly. About 24% of the regular smokers had attempted to quit, with only 9.9% succeeding. The researchers came to the conclusion that smoking in South Africa is decreasing and should continue with the recently passed tobacco control legislation (Steyn *et al* 2002). Culturally appropriate tobacco cessation programmes for the identified target groups need to be developed (Steyn *et al* 2002).

The primary outcomes that were not significantly different were antibiotic prescription, cotrimoxazole prophylaxis and interference with usual activities. This could either be due to no true effect, or due to the study having insufficient power to detect a significant difference. Estimations from the pilot study were worked out to reduce antibiotic prescription by 10%, with 90% power at the 5% significance level. It however turned out that the intervention had no significant effect on antibiotic prescription, 36% versus 38% for intervention and control arms (odds ratio 0.92; 95%CI 0.62 to 1.36). The present study only had 14% power to find such a small difference significant at the 5% level, ignoring the reduced power due to cluster randomization. A 2% difference in antibiotic prescribing would in any case be of questionable clinical significance. Similarly, the study had only 7.4% power to detect a true difference in cotrimoxazole prophylaxis in patients with tuberculosis of the magnitude found (12.6% versus 9.9% for intervention and control groups), ignoring the cluster randomization design effect.

4.3 COMPARISON OF THESE RESULTS WITH RESULTS OF PREVIOUS TRIALS

The results of this study will now be compared with those of similar trials of interventions aimed to improve diagnosis or treatment of respiratory diseases in primary care.

4.3.1 Antibiotic prescribing

Several studies have been conducted to assess the effectiveness of interventions aimed at reducing antibiotic prescribing for respiratory conditions at primary care level. In one trial, Welschen and colleagues conducted a randomized controlled trial in The Netherlands to assess the effectiveness of a multifaceted intervention aimed at reducing antibiotic prescription rates for symptoms of the respiratory tract among general practitioners in primary care (Welschen *et al* 2004). The

intervention comprised group education meetings for the practitioners, monitoring and feedback on prescribing behaviour, group education for assistants of general practitioners and pharmacists, and education materials for patients. The control group did not receive any of these elements. From 89 general practitioners who completed the 9 months study, there was a difference in the prescription rate of -12% (95% CI -18.9% to -4.0%) between the intervention and control groups. There was also high patient satisfaction which did not differ between the two arms (Welschen *et al* 2004).

In another trial on antibiotic prescription, Zwar and colleagues conducted a randomized controlled trial in a community setting in New South Wales to examine the effectiveness of prescriber feedback and management guidelines in reducing antibiotic prescribing for undifferentiated upper respiratory tract infection by general practice trainees, and in improving the choice of antibiotic for tonsillitis/streptococcal pharyngitis (Zwar *et al* 1999). Of the 157 trainees enrolled for the trial, 78 were randomly allocated to the intervention while 79 were assigned to the control arm. The trainees completed three practice activity surveys, each of 110 consecutive patient encounters, with 6-month intervals between surveys. Prescriber feedback and management guidelines on use of antibiotics for upper respiratory tract infection and choice of antibiotic for tonsillitis/streptococcal pharyngitis were delivered in a written form between surveys 1 and 2. An educational outreach visit to high prescribers occurred between surveys 2 and 3. Outcome measures were the rate of antibiotic prescribing for all indications, for upper respiratory tract infection and prescribing of select antibiotics for tonsillitis/streptococcal pharyngitis (Zwar *et al* 1999). Results of the study showed a decline in antibiotic prescribing by the intervention group over three occasions from 25.0 to 23.3 to 19.7 per 100 upper respiratory tract infection problems, while the control group increased from 22.0 to 25.0 to 31.7 per 100 upper respiratory tract infection problems ($p=0.002$). Prescribing in agreement with accepted guidelines for tonsillitis/streptococcal pharyngitis increased over time in the intervention group from 55.6 to 69.8 to 73.0 per 100 problems, but decreased in

the control group from 59.6 to 57.5 to 58.5 ($p=0.05$) (Zwar *et al* 1999). Even though this study was conducted in a developed country as compared to our study which was conducted in a developing country, the study provides a model for targeting educational input to those prescribers who are in most need to change their behavior in prescribing antibiotics.

The above two cited studies were conducted in developed countries and both targeted medical doctors as compared to our study that was conducted in a developing country and targeted primary care clinic nurses. Results of our study were not consistent with these two studies in that the effect of reduction in antibiotic prescription as a result of outreach training of primary care practitioners was not significant ($p=0.68$). .

4.3.2 Asthma treatment and management

4.3.2.1 General practitioners' knowledge about diagnosis and treatment of asthma

Tomson and colleagues conducted a study to assess the effect of an intervention on general practitioners' knowledge about the diagnosis and treatment of asthma, including the prescribing of anti-asthmatic drugs, and asthmatic patients' knowledge about their disease in Sweden (Tomson *et al* 1997). In the intervention area, 44 general practitioners at 21 health centres were visited by a clinical pharmacologist and a pharmacist presenting oral and written information. The basic messages were: (1) the central role of inhaled glucocorticoids; (2) the use of peak expiratory flow (PEF) meters; and (3) the use of reversibility tests. In the control area, there were 19 general practitioners at nine health centres. The general practitioners' knowledge about the intervention message was evaluated by a questionnaire pre- and post-intervention. The ratios of prescribed inhaled beta-adrenoceptor agonists to inhaled glucocorticoids were determined. At the 26 local

pharmacies, all asthmatic patients who presented a prescription for anti-asthmatic drugs, issued at the 30 trial health centres, were given a questionnaire before and after the intervention regarding their knowledge of asthma and its treatment. Results of the trial showed that general practitioners in the intervention area showed significantly more knowledge about item numbers 2 and 3 in the above-described intervention message than did the general practitioners in the control area. The data on prescriptions showed lower but not significant ratios of beta-adrenoceptor agonists to glucocorticoids in the intervention area than in the control area. After the general practitioners' intervention, the patients' knowledge about asthma had increased in the intervention area, as assessed by the questionnaire filled in by the patients. However, there was no significant difference from that in the control area. The authors found changes in knowledge, attitudes and actual practice, the latter being measured by the prescriptions (Tomson *et al* 1997). The difference between our study and the above cited trial is that our study was conducted in a developing country and it targeted nursing practitioners while this one was conducted in a developed country and targeted doctors. Our study shows that in place of general practitioners, if properly trained and supported, clinic nursing practitioners can equally improve adult asthma management at primary care level.

4.3.2.2 Asthma specialist nurses

Griffiths and colleagues conducted a cluster randomized controlled trial to determine whether asthma specialist nurses, using a liaison model of care, reduce unscheduled care in a deprived multiethnic area in London (Griffiths *et al* 2004). The study involved 44 general practices in which 324 people aged 4 to 60 years were admitted to or were attending hospital or the general practitioner out of hour service with acute asthma. The intervention comprised of patient review in a nurse led clinic and liaison with general practitioners and practice nurses comprising educational outreach, promotion of guidelines for high risk asthma, and ongoing clinical support. Control practices only received a visit promoting standard asthma

guidelines, and control patients were checked for inhaler technique. The main outcome measures were percentage of participants receiving unscheduled care for acute asthma over one year and time to the first unscheduled attendance. Primary outcome data were available for 319 of 324 (98%) participants. Intervention delayed time to first attendance with acute asthma (hazard ratio 0.73, 95% confidence interval 0.54 to 1.00; median 194 days for intervention and 126 days for control) and reduced the percentage of participants attending with acute asthma (58% (101/174) v 68% (99/145); odds ratio 0.62; 95% confidence interval 0.38 to 1.01). In analyses of specified subgroups the difference in effect on ethnic groups was not significant, but results were consistent with greater benefit for white patients than for South Asian patients or those from other ethnic groups. The results of the study showed that asthma specialist nurses using a liaison model of care reduced unscheduled care for asthma in a deprived multiethnic health district (Griffiths *et al* 2004).

The above cited study differed from ours in that it was conducted in a developed country and at secondary care level. Our study's results were however consistent with the cited trial in showing that training nurses on asthma management can produce significant results in improving asthma management. However, nurses in the cited trial received two one hour visits by specialist nurses compared to our study where nurses received a median of two half an hour visits, adding up to only one hour.

4.3.2.3 Asthma patient education

Premaratne and colleagues conducted a randomized controlled trial to evaluate the effectiveness of an asthma resource centre in improving treatment and quality of life for asthmatic patients aged 15-50 years in 41 general practices in Greenwich with a practice nurse (Premaratne *et al* 2000). The intervention comprised a nurse specialist in asthma who educated and supported practice nurses, who in turn educated patients in the management of asthma according to the British Thoracic Society's guidelines. Outcome measures were quality of life of

asthmatic patients, attendance at accident and emergency departments, admissions to local hospitals, and steroid prescribing by general practitioners. Of 24 400 patients randomly selected and surveyed in 1993, 12 238 replied; 1621 were asthmatic of whom 1291 were sent a repeat questionnaire in 1996 and 780 replied. Of 24 400 patients newly surveyed in 1996, 10 783 (1616 asthmatic) replied. No evidence was found for an improvement in asthma related quality of life among newly surveyed patients in intervention practices compared with control practices. Neither was there evidence of an improvement in other measures of the quality of asthma care. Weak evidence was found for an improvement in quality of life in intervention practices among asthmatics registered with study practices in 1993 and followed up in 1996. Neither attendances at accident and emergency departments nor admissions for asthma showed any tendency to diverge in intervention and control practices over the study period. Steroid prescribing rates rose steadily during the study period. The average annual increase in steroid prescribing was 3% per year higher in intervention than control practices (95% confidence interval -1% to 6%, $P=0.10$). The authors came to the conclusion that this model of service delivery is not effective in improving the outcome of asthma in the community (Premaratne *et al* 2000). Further development is required if cost effective management of asthma is to be introduced.

Smeele and colleagues conducted a randomized controlled trial to assess the effectiveness of an intensive small group education and peer review programme aimed at implementing national guidelines on asthma/chronic obstructive pulmonary disease on care provision by general practitioners and on patient outcomes (Smeele *et al* 1999). This was a study with pre-measurement and post-measurement (after one year) in an experimental group and a control group in Dutch general practice. The education and peer review group (17 general practitioners with 210 patients) had an intervention consisting of an interactive group education and peer review programme (four sessions each lasting two hours). The control group consisted of 17 general practitioners with 223 patients (no intervention). The effectiveness of the intervention was measured by

knowledge, skills, opinion about asthma and chronic obstructive pulmonary disease care, presence of equipment in practice; actual performance of peak-flow measurement, non-pharmacological and pharmacological treatment; asthma symptoms according to the Dutch Medical Research Council guidelines, smoking habits, exacerbation ratio, and disease specific quality of life (QOL-RIQ). Data were collected by a written questionnaire for general practitioners, by self recording of consultations by general practitioners, and by a written self administered questionnaire for adult patients with asthma/COPD. Data from 34 general practitioners questionnaires, 433 patient questionnaires, and recordings from 934 consultations/visits and 350 repeat prescriptions were available. Compared with the control group there were only significant changes for self estimated skills (+16%, 95% confidence interval 4% to 26%) and presence of peak flow meters in practice (+18%, $p < 0.05$). No significant changes were found for provided care and patient outcomes compared with the control group. In the subgroup of more severe patients, the group of older patients, and in the group of patients not using anti-inflammatory medication at the first post-intervention survey, no significant changes compared with the control group were seen in patient outcomes. Except for two aspects, intensive small group education and peer review in asthma and COPD care do not seem to be effective in changing relevant aspects of the provided care by general practitioners in accordance with guidelines, nor in changing patients' health status.

Our study differed from the above two studies in that instead of looking at specialized facilities such as asthma centres and intensive small groups education programmes, we used a team of specially trained nurses to train primary care clinic nurses on respiratory conditions in general. Our study also slightly differed from the above two cited studies in that we investigated the effectiveness of a locally adapted set of guidelines that addressed respiratory care at primary care level instead of a national set of guidelines. An addition that our study brings into the respiratory care field is to show that localization of internationally developed

set of guidelines that addresses respiratory conditions of public health importance can be effective in rural primary care settings.

4.3.3 Cotrimoxazole prophylaxis

Several studies have been conducted to establish the effects of cotrimoxazole prophylaxis on known tuberculosis cases. In one study, Mwaungulu and colleagues conducted a cohort study to estimate the effect of cotrimoxazole prophylaxis on the survival of HIV-positive tuberculosis patients in Malawi between 1999 and 2000 (Mwaungulu *et al* 2004). Of the 355 and 362 tuberculosis patients registered in 1999 and 2000 respectively, 70% were HIV-positive. The overall case fatality rate fell from 37% to 29%, meaning that, for every 12.5 tuberculosis patients treated, one death was averted. Case fatality was unchanged in HIV-negative patients, but fell in HIV-positive patients from 43% to 24% in the 2 years. The improvement was most marked in patients with smear-positive tuberculosis and others with confirmed tuberculosis diagnosis. The researchers concluded that survival of HIV-positive tuberculosis patients improved dramatically with the addition of cotrimoxazole prophylaxis to the treatment regimen (Mwaungulu *et al* 2004). Our study tried to establish if the intervention increased prescribing of cotrimoxazole prophylaxis. There is still a need for further research in this area under conditions when cotrimoxazole is available.

Brou and colleagues conducted a survey in Cote d'Ivoire, Africa, among healthcare providers, on the knowledge of prophylactic use of cotrimoxazole to prevent opportunistic infections in HIV-infected persons (Brou *et al* 2003). The survey was conducted in 15 health centres, involved or not in the 'initiative of access to treatment for HIV infected people'. Between December 1999 and March 2000, 145 physicians and 297 other health care providers were interviewed. In the analysis, the health centres were divided into three groups: health centres implicated in the initiative of access to treatment for HIV-infected people with a great deal of caring for HIV-infected people, health centres implicated in this

initiative but caring for few HIV-infected people, and health centres not specifically involved in the care of HIV-infected people. Six per cent of physicians and 50% of other health care providers had never heard of cotrimoxazole prophylaxis. The level of information about this prophylaxis is related to the level of HIV-related activities in the health centre. Among health care providers informed, knowledge on the exact terms of prescription of the cotrimoxazole was poor. The authors came to the conclusion that the recommendations for primary cotrimoxazole prophylaxis of HIV-infected people did not reach the whole health care provider population. Most physicians are informed but not other health workers, even if the latter were often the only contact of the patient with the health centre. The only medical staff correctly informed were the physicians already strongly engaged in the care of HIV-infected people (Brou *et al* 2003).

The similarity between our study and the above two cited studies are that they were all conducted in developing countries and in primary care settings. Even though our study was not meant to establish the knowledge level of health care providers on cotrimoxazole prophylaxis, its implementation could be translated into level of awareness among health care providers. Even though affected by the provincial stock out of cotrimoxazole during the course of the trial, the fact that the intervention had no effect is a cause for concern.

4.4 STRENGTHS AND LIMITATIONS

4.4.1 Strengths of the study

The study recruited a total of 1991 patients, 996 for intervention and 995 for control arms. This was a large sample that provided adequate power to detect fairly small differences between the two arms, even taking into account the cluster randomization.

The randomization succeeded in balancing the characteristics of the clinics as well as the patients at the first post-intervention survey. In almost all the subgroup

analyses, the first post-intervention survey characteristics of patients of the two groups were balanced.

The fact that the PALSA project was implemented at clinic level ensured that contamination was minimized. Unlike studies that randomize individual participants and not clusters, our study randomized participants attending a given clinic. This resulted in no participants from the control arm being seen by a PALSA trained nurse from the intervention arm.

The clinic follow-up rate was complete, that is, follow-up interviews were conducted in all 40 clinics and the patient follow-up rate of 92.8% was high, thus enhancing the internal validity of the study. The high follow-up rate can be attributed to the food parcel incentive, as well as the diligence of the fieldworkers, clear instructions on how to arrange a follow-up interview, and what to do during emergency situations such as when a patient does not show up for an interview. In cases where logistical problems were encountered innovative corrective measures were taken. An example of this innovation was during follow-up interviews in one of the control clinics, Marakong, where due to miscommunication on dates for follow-up interviews, field workers gave patients wrong dates for coming back. When reminded about the follow-up dates by the PALSA researchers, last minute preparations had to be done in order to prepare for field work at the clinic. In order to inform and request patients to come for interviews at the clinic that week, field workers sought assistance from local authorities to inform patients about the interview dates and a local radio station was used for informing patients who were due for follow-up interviews to report themselves at the clinic during that week. Even though the overall follow-up rate for that clinic ended up being 80%, which was below the average 92.8%, this reflected dedication and diligence by the field workers on the project.

The Centre for Health Systems Research and Development, University of the Free State coordinated the data collection process. The Centre has conducted national

and provincial studies of different magnitudes, all of which reflect a wealth of experience. It is this wealth of experience that has contributed to the success in attaining high follow-up rate.

The use of the personal digital assistant (PDA) could have also contributed significantly to the high follow-up rate due to the fact that it was a new method of data collection which fascinated the relatively young interviewers, compared to the traditionally used paper questionnaire, which can be unappealing due to size. It also became apparent during the study that some patients felt more confident of the PDA's confidentiality in that the information they were providing could not be easily retrieved or seen once entered into the computer-like device compared to a paper questionnaire that one can look at anytime. The success of using the PDAs in this study shows that such technology can be applied in health facility settings.

Use of the visual aid as part of the data collection tools assisted patients to easily identify and therefore give correct responses to questions relating to medication normally used or prescribed on the day of interview.

The blinding of clinic staff and field workers contributed significantly to the internal validity of the study.

The study population was intended to be as broadly defined as possible, so as to include all patients who might benefit from the intervention. That is, it included all adults with difficult breathing or with cough of more than one week because it was believed that any such patients could potentially benefit, regardless of their reason for arriving there. Even patients who attended a clinic for another reason, for example, for treatment of a rash, hypertension or an injury, would be at higher risk than the general population having a respiratory illness such as tuberculosis or asthma and so could potentially benefit from appropriate diagnosis and treatment.

4.4.2 Limitations of the study

The study's results can be generalized to a wide range of primary care patients since broad inclusion criteria were used. This, however, has drawbacks as well. Patients who were recruited to the trial according to the inclusion criteria were diverse as shown by the reasons for presenting to the clinic on the day of the interview. These included check-up for chronic diseases such as diabetes and high blood pressure as well as check-up for respiratory diseases. Other patients indicated that this was their first visit for the above illnesses. According to Table 3.5, which shows patients' symptoms at the first post intervention survey, more than 20% of the patients presented with high blood pressure, implying that these patients were a mix of patients with cough and difficulty breathing problems. This posed a problem of defining appropriate denominators of populations during the analysis process. To address this problem, apart from the analyses being done on all patients at the first post intervention survey and all patients followed up, participants were divided into four subgroups, these being, 1) patients with cough for more than 2 weeks and not known to have tuberculosis, 2) known tuberculosis cases, 3) patients with at least one of the severity markers and 4) current smokers at the first post intervention survey. In order for the analysis to be as inclusive as possible and to be by intention to treat, all subjects were included in the comparisons of outcomes unless it was illogical to do so. But if subgroups of patients could not possibly achieve particular outcomes, they were excluded from the particular comparisons. For example, patients currently being treated for tuberculosis could not possibly be newly diagnosed as having tuberculosis, and non-smoking patients could not possibly quit smoking. Although it would have been possible to identify subgroups of patients who would be more likely to benefit from particular diagnoses or treatments, for example, a subgroup of patients whose symptoms indicated that they were at higher risk of having asthma and could have been analyzed to compare asthma-related outcomes. This higher probability does not equate with logical entailment. Therefore the latter types of subgroup analyses were not performed. Since randomization was done not at the level of these subgroups, the subgroups could have been unbalanced, but as discussed

before within subgroups intervention and control patients usually did not differ with regard to measured first post-intervention survey characteristics.

Staff movement in the form of transfers and resignation is common in the public health sector. Such staff movement usually reduces the magnitude of effects of an intervention. Chief nursing officers in the control clinics were contacted to establish if any of trained nurses from the intervention clinics were transferred to the control clinics during the project period. Responses were that none were transferred to their clinics. This means that there was no contamination caused by staff movement as a result of transfers.

Follow-up interviews were conducted within a short space of time three months after the first post-intervention survey which is four months after the training had taken place. Therefore long term effects on health outcomes, especially effects on chronic diseases could not be adequately determined.

The fact that the training targets were not met, with most intervention clinics nurses having received half of what was required, that is, one hour only could have affected the results of the trial and sustainability of the intervention.

Although PALSAs trainers were cautioned not to inform intervention clinic nurses that they were going to be evaluated, clinic nurses may have anticipated being evaluated, which could have influenced their practice.

This was a cluster randomized trial with a primary care clinic being a unit of randomization. This design reduces the power to detect the effect of an exposure as compared to trials involving individuals.

This project had many stakeholders with a broad expertise base. Contributions to development of data collection tools were diverse with different expectations and this sometimes resulted in omission of relevant questions or erroneous question formulation in the questionnaires. For example, the follow-up questionnaire did not

ask whether patients had received any preventer inhaler(s) in the last 3 months (since the first interview). The questions tried only to establish if the patient had received an inhaler on the day of the interview or was currently using an inhaler.

To ensure that adequate numbers of patients would be recruited, the study was conducted in the province's largest and busiest clinics with heavy daily patient loads. Our study was not designed in such a way that it compared the intensity of effects of the intervention on different sizes of clinics, that is, variation between large, medium and small sized clinics. In a randomized controlled trial conducted by Freemantle and colleagues to estimate the effectiveness of educational outreach visits on United Kingdom (UK) general practice prescribing and to examine the extent to which practice characteristics influenced outcome, the authors established that in large practices, educational outreach alone is unlikely to achieve worthwhile change. The authors concluded that there is good evidence to support the use of educational outreach visits in small practices (Freemantle 2002).

The pilot study helped with questionnaire and study design but was misleading in some respects. The pilot study indicated higher percentages of antibiotic prescription and interference with usual activities and a lower percentage of inhaled steroid prescriptions than those found in the trial. In the pilot study the percentages were 70%, 17% and 50% for antibiotics prescription, inhaled steroid prescription and interference with usual activities respectively. In order to decrease the percentages of antibiotic prescription and interference with usual activities and increase inhaled steroids prescription each by 10% with 90% power it was estimated that we would require a sample size of 2000 participants for the study, that is, 1000 per arm. Results of the study however showed a prevalence of 38%, 10.3% and 34.3% for these three outcomes in the control group. These large differences imply that the pilot study was conducted on patients who were more severely ill than patients in the trial.

4.5 IMPLICATIONS FOR POLICY

Differences of 5.8% in inhaled steroid prescription, of 5.5% in sending of sputa for tuberculosis testing, and 5.7% for appropriate referral are large enough improvements to be worth considering in policy formulation. That is, for every 20 eligible patients managed using PALSAs methods, management of about one extra patient would be improved in each of these ways. The fact that these effects were obtained within a 3 months period suggests that even better results may have been obtained had the duration of the study been longer. Positive effects of the study do give an indication that such an intervention can be considered as a training strategy for clinic nurses who provide services in settings such as this South African province, however due consideration must be given to the associated costs of other equally important competing priorities in the settings.

The intervention was developed internationally, and it was tested to establish if it can be implemented in developing countries. Because the study was done in a resource-poor province of the country, it is possible to generalize its results to similar low income settings. It would therefore be beneficial to implement PALSAs training in addition to or as part of the primary care nurse training.

There are 238 primary care clinics that provide services to a population of about 2.4 million people in the Free State and if the PALSAs project were to be rolled out to cover the whole province, thousands of people would benefit from an improvement in inhaled steroid prescription and tuberculosis case detection rate. Implementation of this PALSAs training could be done in phases in order to ensure smooth adaptation and accommodation of limited resources. This could be started first at provincial level, then proceed to national implementation and hopefully at international level. The intervention may need to be adapted for different provinces or countries.

The cost effectiveness of this intervention needs to be considered. A cost effective analysis of the intervention is currently being conducted alongside the trial by one

of the PALSAs researchers, Dr. Lara Fairall. A large portion of the first post-intervention survey and follow-up questionnaires comprised questions about cost implication of respiratory care to patients and the health sector. However, this was a relatively low cost intervention, especially as it required clinic staff to spend relatively little time away from their patients. The training was conducted by public officials and not private trainers, and took place inside clinics compared to the normal conduct of training outside clinic premises. The intervention utilized public resources in the form of officials, transport and venues for conducting trainings. Much of the cost was incurred in the development of training materials and methods. Providing these on a larger scale as a result of expansion provincially and nationally would have relatively low marginal costs.

Reasons why PALSA achieved some objectives and not others should be further investigated. One of the conditions set by the principal funding agency of the project, the International Development Research Centre (IDRC), was that the researchers had to be able after conducting the trial to account for why some objectives were met and not others. A qualitative researcher is currently analyzing qualitative data showing different levels of acceptance and implementation by nursing staff in the intervention clinics. This data was collected prior and post implementation of the intervention. Results of the qualitative research will assist in explaining the perception of the clinic staff about the intervention and why some objectives and not others could not be achieved. These results could be used to improve the intervention.

In resource poor settings, health care is provided by nurses instead of doctors (Green *et al* 2001). Nurses normally lack adequate skills and knowledge to make right decisions especially on respiratory conditions. They end up either delaying to refer severe conditions on time or misdiagnose respiratory disease, both resulting in heavy financial burden to governments and families. Increase in appropriate referrals by clinic nurses to specialists in higher levels of the service is highly recommended as expressed in most guidelines (Lalloo *et al* 2000). Increase in

appropriate referral of patients result in reduction in morbidity and mortality. PALSAs type of primary care training could be considered for other conditions than respiratory conditions. Currently, this concept has been extended to implementation of PALSAs Plus which forms part of the antiretroviral drugs (ARV) roll-out in the Free State. PALSAs Plus is also being evaluated by a randomized controlled trial and qualitative research.

As with the integrated management of childhood illnesses (IMCI), sexually transmitted diseases care and tuberculosis/HIV, the syndromic management of diseases of public health importance in poor resourced countries continues to be a promising approach to training multipurpose primary care workers.

4.6 PRIORITIES FOR FUTURE RESEARCH

Results of the evaluation are to be disseminated to stakeholders throughout the province, mainly district health management teams comprising managers, CEOs, clinic managers, district tuberculosis coordinators and other relevant role players during this year. Upon approval of the reports and intention to roll-out the intervention, first, to the control clinics and then the entire province, it will be important to conduct observational studies of the large scale roll-out of the PALSAs project itself.

It is important for decision and policy makers to understand why certain interventions work and why others do not. Information can be obtained by conducting qualitative research alongside quantitative studies. Qualitative research was conducted alongside the randomized controlled trial by one of the PALSAs team members. It will be important for findings of the qualitative study to be shared with Free State authorities for decision making purposes about the fate of PALSAs. This will provide insights into the human and organizational aspects of the intervention and the setting, which will help to explain why various effects were or were not found, and how the intervention could be improved in future.

Future trials need to be conducted for similar interventions for different conditions. An example is the PALSA Plus trial currently ongoing in the Free State province related to the roll-out of antiretroviral drugs.

The Practical Approach to Lung Health project (PAL) is currently being implemented in three countries but using different approaches, namely, Nepal, Morocco and Brazil. Nepal, which is also a developing country like South Africa decided to implement PAL through a trial approach to establish its effectiveness prior to national implementation. Results of the trial will be peer reviewed and the intervention will be adapted by the relevant authorities on the basis of results obtained. A WHO PAL Advisory committee with membership from all the implementing countries is scheduled to hold biannual progress report meetings from which individual countries will learn from each others' reports and therefore amend its own project accordingly.

4.7 CONCLUSION

This study exemplifies an evaluation of the effectiveness of an educational intervention in South African primary care. It shows how a carefully developed intervention, using a syndromic approach to diagnosis and treatment, can improve several aspects of clinical care after brief training of primary care nurses. It also illustrates opportunities for, and difficulties in, implementing such an intervention, and conducting a large scale trial in this setting. This study suggests that other international interventions based on dissemination of clinical guidelines – such as for IMCI, STDs and HIV/AIDS - should be carefully developed and rigorously evaluated locally, given their potential impact on public health and on services.

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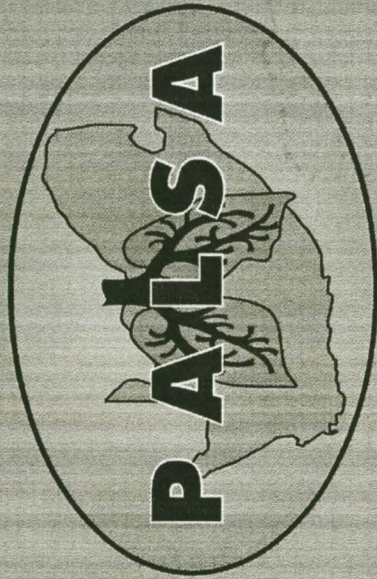
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ANNEX 1

PALSA Guidelines



PRACTICAL APPROACH TO LUNG HEALTH IN SOUTH AFRICA (PALSA) GUIDELINES

First-Level Primary Care Management of Respiratory Diseases

Approach to the adult patient who presents with difficult breathing and/or cough.

CONTENTS

PATIENT WITH DIFFICULT BREATHING AND/OR COUGH

Classify according to symptoms	1
Symptoms < 2 weeks: ASSESSMENT AND INITIAL MANAGEMENT	2
Further treatment of the wheezing patient: ASTHMA/COPD EXACERBATION	3
Discharge plan for the wheezing patient who has responded to treatment	4
Further treatment of the patient with fever and/or pain on breathing and coughing: LOWER RESPIRATORY TRACT INFECTION	5

UPPER RESPIRATORY TRACT INFECTIONS

Mildly ill patient with runny/blocked nose: RHINITIS	6
Mildly ill patient with pain and/or tenderness over sinuses: ACUTE SINUSITIS	7
Mildly ill patient with sore throat: ACUTE PHARYNGITIS, TONSILLITIS, ORAL CANDIDA	8
Mildly ill patient with ear problem: ACUTE AND CHRONIC EAR PROBLEMS	10
Dry mopping the ear	11

SYMPTOMS \geq 2 WEEKS

Diagnosing obstructive lung disease	12
Management of chronic asthma	13
Management of chronic obstructive pulmonary disease (COPD)	14
Chronic cough with or without sputum production; no breathlessness: CHRONIC BRONCHITIS	15

TUBERCULOSIS (TB)

Diagnosing TB	16
Sputum results	17
Follow-up plan for Regimen One	18
Follow-up plan for Regimen Two	19

HIV/AIDS

Suspecting HIV/AIDS	20
Follow-up of the known HIV-positive patient	21
Who is eligible for long-term cotrimoxazole (Bactrim) prophylaxis?	22

CLASSIFY ACCORDING TO SYMPTOMS

- Cough AND/OR
- Difficult breathing (defined as breathlessness at rest or on activity, wheeze and/or tight chest)

ASK ABOUT, AND RECORD

- Name
- Age
- Medical history
- Presenting symptoms
- Purpose of the visit

If the purpose of this visit is to treat and assess:

- Worsening of symptoms or
- New symptoms

If unsure of diagnosis

If continued treatment of known lung disease with:

- No worsening of symptoms
- No new symptoms
- No uncertainty about diagnosis

Symptoms present < 2 weeks

Symptoms present ≥ 2 weeks

Cough with or without sputum production

Cough and difficult breathing

Difficult breathing alone

Go to page 2

Exclude TB
(Go to page 16)
Consider **Chronic Bronchitis**
(Go to page 15)

Exclude TB
(Go to page 16)
Consider **Asthma or COPD**
(Go to page 12)

- **Asthma** (Go to page 13)
- **COPD** (Go to page 14)
- **TB** (Go to page 16)
- **HIV/AIDS** (Go to page 16)

SYMPTOMS < 2 WEEKS: ASSESSMENT AND INITIAL MANAGEMENT

IF ONE OR MORE SYMPTOMS PRESENT, ASSESS SEVERITY

	SEVERE	MILD	
BREATHLESSNESS	At rest or while talking	While walking	Normal
MENTAL STATE	May be agitated or confused		Normal
USE OF BREATHING MUSCLES	Prominent	May be normal	Normal
BREATH RATE	> 30 per minute	20 - 29 per minute	< 20 per minute
HEART RATE	> 120 per minute	100-119 per minute	< 100 per minute
HAEMOPTYSIS	> Tablespoon of frank blood	Blood streaking	Normal

INITIAL MANAGEMENT OF SEVERE PATIENTS

Airway: Position for greatest ease of breathing.

Breathing: 40% Face-mask oxygen or at 4 L/min via nasal prongs.

Call ambulance.

Doctor: Phone or refer.

Extra emergency treatment:

Wheezing or
tight chest

Temperature
≥ 38° C

SEVERE ACUTE ASTHMA/COPD EXACERBATIONS

- 4-8 puffs beta-agonist via spacer every 20 minutes in the first hour, then hourly depending on response

OR

Nebulise beta-agonist every 20 minutes, then hourly depending on response

- Oral prednisone 40mg

SEVERE LOWER RESPIRATORY TRACT INFECTION

Give: Amoxicillin 1 gm orally or if penicillin-allergic Erythromycin 500 mg orally

ASK, LISTEN:

Wheezing, tight chest?

Most likely **asthma** or **chronic obstructive airways disease (COPD)** exacerbation.

Go to page 3

ASK, MEASURE:

Fever and/or pain on breathing or coughing and/or sputum production

Most likely **LRTI, TB** or **suppurative lung disease**.

Go to page 5

ASK, LOOK:

- Runny nose
- Sore throat
- Pain and/or tenderness over sinuses
- Ear problem

UPPER RESPIRATORY TRACT INFECTION

Go to page 6-11

FURTHER TREATMENT OF THE WHEEZING PATIENT: ACUTE ASTHMA/COPD EXACERBATION

- 4 puffs beta-agonist via spacer every 20 minutes for one hour then reassess.
OR
Nebulise using beta-agonist every 20 minutes for one hour then reassess.
- Give 1 dose of oral prednisone 40 mg stat.

REASSESS SYMPTOMS AFTER 1 HOUR

BETTER OR NO SYMPTOMS

**OBSERVE FOR ONE MORE HOUR,
THEN FOLLOW DISCHARGE PLAN
ON PAGE 4**

NO CHANGE

**REPEAT ABOVE TREATMENT AND
ASSESS WITHIN ONE HOUR**
If worsening of symptoms, treat as
severe and refer.
If no response within two hours, refer.

WORSE

**FOLLOW TREATMENT PLAN FOR
SEVERE PATIENT ON PAGE 2.**

DISCHARGE PLAN FOR THE WHEEZING PATIENT WHO HAS RESPONDED TO TREATMENT

- Increase the dose and frequency of the inhaled bronchodilator to a maximum of 2 puffs 4 times a day.
- If the patient is already on inhaled corticosteroids: check compliance (are medications taken twice a day, every day)
: check inhaler technique (are the inhalers used correctly)
- If poor compliance and/or technique instruct patient on correct drug usage.
- Give 40mg of prednisone orally (once daily) for 7 days to patients with the following:
 - History of recent emergency visits for asthma.
 - Worsening of asthma symptoms in the months or weeks prior the onset of the acute attack.
 - History of previous hospital or intensive care unit admission for asthma.
- If the patient reports a cough with new or increased sputum production and/or change in sputum colour (yellow, green) and/or fever, add Amoxicillin 500mg three times a day for 7 days OR if penicillin-allergic, Erythromycin 500mg four times a day for 7 days.
- If the underlying lung condition is unknown, go to page 12 to make diagnosis.
- Encourage all patients to stop smoking cigarettes, pipes or dagga.
- Book follow-up visit before medicines are expected to run out.

TELL PATIENT TO RETURN IF:

- Symptoms get worse.
- Not better after a course of oral prednisone has been completed.

FURTHER TREATMENT OF THE PATIENT WITH FEVER AND/OR PAIN ON BREATHING OR COUGHING: LOWER RESPIRATORY TRACT INFECTION

IS THIS PATIENT AT HIGH RISK OF SEVERE RESPIRATORY INFECTION?

- ≥ 60 years old
- Frail with suspected AIDS
- Known: Lung disease
Heart disease
Liver disease
Diabetes Mellitus

Immediately give 1 gram Amoxicillin orally
OR

If penicillin-allergic, Erythromycin 500mg orally
AND

REFER TO NEXT LEVEL FACILITY OR CLINIC DOCTOR

NOT AT HIGH RISK OF SEVERE RESPIRATORY INFECTION?

- Bed rest at home
- Encourage high fluid intake
- No smoking
- Treat pain and fever with paracetamol 1-2 tablets 4 times a day.
- If new or increased sputum production with colour change, prescribe Amoxicillin 500mg orally three times a day for 7 days OR if penicillin-allergic, Erythromycin 500mg orally 6 hourly for 7 days.
- Look for signs of HIV/AIDS (Go to page 20)
- **Ask about symptoms of TB** (such as loss of weight, night sweats) (Go to page 16)

Refer if:

- Getting worse, or no response.
- Still not completely better within 7 days.

MILDLY ILL PATIENT WITH RUNNY/BLOCKED NOSE: RHINITIS

Ask about associated

- Mild sore throat
- Fever

Consider: **Common cold**

If:

Symptoms on most days for ≥ 4 weeks, ask about

- Sneezing
- Itching

Consider: **Allergic rhinitis (hayfever)**

INTERMITTENT
< 4 days per week

PERSISTENT
 ≥ 4 days per week

REASSURE PATIENT THAT ANTIBIOTICS ARE NOT NECESSARY.

Consider oxymetazoline 0.05%
nose drops, 2 drops in each nostril
every 6-8 hours for **no longer** than
1 day.

- 0.9% saline nose drops.
- Chlorpheniramine 4mg 3-4
times a day when necessary
Beware: Side-effect is
sedation.

- 0.9% saline nose drops.
- Chlorpheniramine 4mg 3-4
times a day when necessary
Beware: Side-effect is
sedation.
- Refer to next level facility for
steroid nasal spray.

MILDLY ILL PATIENT WITH PAIN AND/OR TENDERNESS OVER SINUSES: ACUTE SINUSITIS

- Clear nasal discharge.
- Mild pain over sinuses.
- Post-nasal drip.

Consider: **Viral sinusitis**

REASSURE PATIENT THAT ANTIBIOTICS ARE NOT NECESSARY.

- Instruct patient to mix 1/2 teaspoon salt + 1 teaspoon bicarbonate of soda in 500ml lukewarm water. Sniff up each nostril every 4-6 hours.
OR
0.9% Sodium chloride drops in each nostril every 4-6 hours.
- Oxymetazoline 0.05% nose drops, 2 drops in each nostril every 6-8 hours for **no longer** than 5 days.
- Paracetamol 1-2 tablets 4 times a day.

- Symptoms ≥ 7 days.
- Severe symptoms regardless of duration.
- Pusy nasal discharge.
- Face or tooth pain and tenderness.

Consider: **Bacterial sinusitis**

- Amoxicillin 500mg orally three times a day for 10 days
OR
If penicillin-allergic, give cotrimoxazole (Bactrim) 2 tablets (80/400mg) twice a day for 5 days.
- Instruct patient to mix 1/2 teaspoon salt + 1 teaspoon bicarbonate of soda in 500ml lukewarm water. Sniff up each nostril every 4-6 hours.
OR
0.9% Sodium chloride drops in each nostril every 4-6 hours.
- Oxymetazoline 0.05% nose drops, 2 drops in each nostril every 6-8 hours for **no longer** than 5 days.
- Paracetamol 1-2 tablets 4 times a day.

Refer if:

- Tooth abscess suspected.
- Swelling around eye or face.
- Failure to respond to medication after 10 days.

MILDLY ILL PATIENT WITH SORE THROAT: ACUTE PHARYNGITIS, TONSILLITIS, ORAL CANDIDA

RED THROAT WITHOUT PUS

Consider: **Pharyngitis**

**REASSURE PATIENT THAT
ANTIBIOTICS ARE NOT
NECESSARY.**

- Salt water mouthwash (1/2 teaspoon salt in a glass of warm water). Gargle twice a day.
- Paracetamol 1-2 tablets 4 times a day.

RED THROAT, WITH PUS OR WHITE PATCHES ON TONSILS

Consider: **Bacterial tonsillitis**

- Salt water mouthwash (1/2 teaspoon salt in a glass of warm water). Gargle twice a day.
- Phenoxyethylpenicillin (Pen VK) 500mg orally every 6 hours for 10 days.

OR

- If penicillin-allergic, give Erythromycin 250mg 6 hourly before meals for 10 days.
- Paracetamol 1-2 tablets 4 times a day.

Refer if:

- Severe swallowing problems.
- Inability to open mouth.
- More than 4 documented episodes per year.

WHITE PATCHES ON CHEEKS, GUMS, TONGUE AND PALATE

Consider: **Oral candida (thrush)**

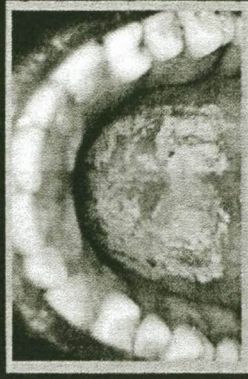
- Nystatin lozenges 100 000 IU - 4 times a day for 10 days.
OR
Nystatin 100 000 IU/ml 1-2 ml 4 times a day for 10 days.

- Exclude HIV infection. (Go to page 20)

Refer if:

- No response to Nystatin within 5 days. Fluconazole to be prescribed by doctor.
- Extensive disease.
- Recurrent episodes.

Examine the palate



Candida

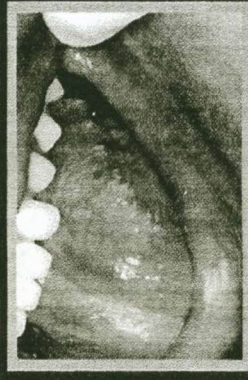


Candida



Candida

Examine the tongue



Candida



Candida

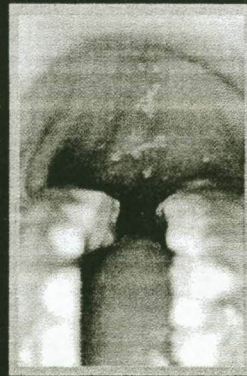


Candida

Examine the cheeks



Candida



Candida

MILDLY ILL PATIENT WITH EAR PROBLEM: ACUTE AND CHRONIC EAR PROBLEMS

LOOK IN EAR

OUTER EAR AND EAR CANAL

OTITIS EXTERNA

Inflammation or infection of skin of the outer ear

- Give Flucloxacillin 250mg orally 4 times a day
- OR
- If penicillin-allergic, give Erythromycin stearate 250mg 4 times a day for 5 days.
- Paracetamol 1 - 2 tablets 4 times a day for pain.

Inflammation or infection of ear canal

- Give Flucloxacillin 250mg orally 4 times a day.
- OR
- If penicillin-allergic, give Erythromycin stearate 250mg 4 times a day for 5 days
- 2% Acetic acid in alcohol, 6 hourly for 5 days.
- Dry mop ear. (Go to page 11)
- Paracetamol 1 - 2 tablets 4 times a day for pain.

Refer if:

- Diabetic.
- If no response within 48 hrs.

ACUTE

Inflamed or bulging eardrum, or pus from ear for < 2 weeks

- Dry mop ear. (Go to page 11)
- Amoxycillin 250mg orally three times a day for 5 days.
- OR
- If penicillin-allergic, give Bactrim 2 tablets (80/400mg) twice a day for 5 days.
- Paracetamol 1-2 tablets 4 times a day for pain.

Refer if:

- No response after 5 days.
- Swelling and tenderness of skin behind ear.
- Persistent pain.

EARDRUM

OTITIS MEDIA

CHRONIC

Perforation and pus from ear for ≥ 2 weeks

- The ear can only heal if dry.
- Dry mop ear. (Go to page 11)
- Paracetamol 1-2 tablets 4 times a day for pain.

Refer if:

- No improvement after 4 weeks.
- Foul-smelling discharge.
- Large hole in eardrum.
- Hearing loss.
- Pain.

Otitis Externa

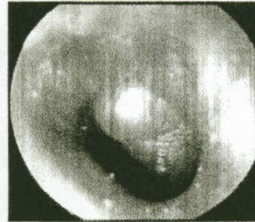
*Inflamed, swollen
outer ear*



Red swollen ear canal

Acute Otitis Media

Inflamed eardrum



Bulging eardrum

Chronic Otitis Media

Dry perforation

DRY MOPPING THE EAR**Demonstrate method to patient.**

- Roll a piece of paper towel into a wick.
- Insert wick into ear and remove once it is wet.
- Repeat 4 times a day until ear is dry.
- Insert acetic acid ear drops if indicated (go to page 10) - 4 drops in affected ear.
- Never leave the wick or any other object inside the ear.

DIAGNOSING OBSTRUCTIVE LUNG DISEASE

It is not always easy to decide whether a patient has asthma or COPD as the symptoms may be similar, or both diseases may be present.
A few questions may help with the diagnosis.

Ask if:

- Symptoms started during childhood or early adulthood.
- History of hayfever, eczema and/or allergies.
- Family history of asthma.
- Symptoms only during attacks with periods of normal breathing in between.
- Symptoms are usually worse: at night; in the early hours of the morning; during an upper respiratory tract infection or when the weather changes.
- Symptoms improve or disappear after using inhaler.



TREAT AS ASTHMA.
REFER TO DOCTOR WITHIN 1 MONTH
Go to page 13

Ask if:

- Symptoms started later in life (usually after the age of 35 years).
- Symptoms slowly worsened over a long period of time.
- Long history of daily or frequent cough and sputum production (usually starts long before the onset of shortness of breath).
- Short of breath for most of the day, rather than at night or during the early hours of the morning only.
- History of heavy smoking eg. more than 20 cigarettes / day for 15 years or more.



TREAT AS COPD.
REFER TO DOCTOR WITHIN 1 MONTH.
Go to page 14

(If unsure, treat as asthma)

If ≤ 1 feature of asthma, and no significant history of smoking, consider a cardiac or non-lung cause of breathlessness, especially if associated hypertension, ischaemic heart disease and/or diabetes mellitus.

MANAGEMENT OF CHRONIC ASTHMA

The aim of asthma management is to obtain complete control of all features of asthma.

Aim for:

- 1) Minimal (ideally no) daytime and night time symptoms
- 2) Minimal or no exacerbations (asthma attacks)
- 3) Minimal need for quick-relief medications
- 4) No limitations of daily activities

ASSESS CONTROL OF ASTHMA BY ASKING ABOUT DAY AND NIGHT TIME SYMPTOMS

LEVEL OF CONTROL	WELL-CONTROLLED	MODERATE CONTROL	POOR CONTROL
Daytime symptoms per week	< 2 times / week	2-4 times / week	Continuous
Night time symptoms per month	< 2 times / month	2-4 times /month	Frequent

LEVELS OF TREATMENT	LOW (if well-controlled)	MODERATE (if moderate control)	MAXIMUM (if poor control)
Inhaled salbutamol	2 puffs when needed	2 puffs when needed	2 puffs when needed May be required 4-6 times per day.
Inhaled corticosteroids	200-400 micrograms / day	800 micrograms / day	800-1600 micrograms / day
Slow-release theophylline Doctor to initiate	-	-	1 tablet twice a day
Oral prednisone	-	-	40mg orally (once daily) for 14 days to gain rapid control.

REVIEW EVERY 3 MONTHS

IF COMPLETE CONTROL AT ANY LEVEL OF TREATMENT

- Continue current medication.
- At next visit, reduce treatment to previous level (step-down) if control is still complete.
- Schedule next appointment.

IF POOR CONTROL AT ANY LEVEL OF TREATMENT

- Increase to next level of treatment (step-up).
- Consider adding prednisone 40mg orally once daily for 7 days and reassess in 1 month.

Refer if poor control despite stepping-up.

MANAGEMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

The aim of COPD management is to:

- Encourage patients to stop smoking in order to prevent worsening of disease.
- Improve symptoms with inhaled bronchodilators.
- Recognise and treat acute exacerbations early.

ENCOURAGE THE PATIENT TO STOP SMOKING

- Ask:** Identify and document all tobacco use at each visit.
Advise: Strongly urge the patient to quit.
Assess: Determine willingness to make a quit attempt.
Assist: Help the patient to quit.
Arrange: Schedule follow-up contact.

	MODERATE	SEVERE	SEVERE COPD WITH COMPLICATIONS	INFECTION
Symptoms	Mild breathlessness on usual activity	Breathlessness on minimal activity or continuously.	Ankle oedema	Increased sputum purulence or colour change to yellow/green
Treatment Options				
Bronchodilators				
Inhaled salbutamol	2 puffs when needed	2 puffs when needed	2 puffs 4 times a day	2 puffs when needed
Inhaled ipratropium bromide		2 puffs when needed (up to 4 times per day)	2 puffs 4 times a day	2 puffs when needed (up to 4 times per day)
Theophylline	1 tablet 2 times per day	1 tablet 2 times per day	1 tablet 2 times per day	1 tablet 2 times per day

REVIEW EVERY 3 TO 6 MONTHS

Refer for diuretics if ankle oedema

Amoxicillin 500mg three times a day for 7 days
 OR
 If penicillin-allergic,
 Erythromycin 500mg four times for 7 days.
 Prednisone 40mg orally (once daily) for 14 days

CHRONIC COUGH WITH OR WITHOUT SPUTUM PRODUCTION; NO BREATHLESSNESS: CHRONIC BRONCHITIS

- Usually in heavy smokers, or those with lung damage.
- Daily cough with or without sputum production for months or years.
- Usually begins in middle or old age.
- Heavy occupational (dust, mines, industry) or domestic air pollution (indoor fires or gas stoves) exposure in some.

Treatment

THE MOST EFFECTIVE TREATMENT IS TO REMOVE THE CAUSE!

- All patients should be advised to stop smoking.
- If possible, avoid domestic pollution, occupational exposure and substance abuse (eg. dagga).

Refer:

- If no history of smoking.

DIAGNOSING TUBERCULOSIS (TB)*

SUSPECT TB WHEN:

- Patient reports cough for ≥ 2 weeks.
- Unintentional weight loss.
- Loss of appetite.
- Night sweats and fever.
- Blood-stained sputum.
- Known HIV-positive or AIDS patients.

METHOD OF SPUTUM COLLECTION

Patient:

- Must stand in a well-ventilated room or outside.
- Rinse mouth with water.
- Take a deep breath, and cough forcibly.

Nurse:

- Must not stand in front of patient during the procedure.
- Replace and secure the lid immediately.
- Wash hands after handling specimen.
- Place specimen in bag and store in fridge while awaiting collection.

TB SUSPECTED

NEW, OR PREVIOUSLY CONFIRMED TB TREATED FOR < 4 WEEKS

PREVIOUS TB TREATED FOR ≥ 4 WEEKS

Test sputum: Label bottles before dispensing them to patients.

Day 1: For Acid-Fast Bacilli (AFB's).

Day 2: Early morning sputum, at home, for AFB's.

Day 1: For Acid-Fast Bacilli (AFB's).

Day 2: Two early morning sputa, at home.

- 1 for AFB's
- 1 for culture and sensitivity testing.

*According to the South African Tuberculosis Control Practical Guidelines 2000

SPUTUM RESULTS

Sputum (AFB+AFB+)

Sputa (AFB+ AFB-)

- Refer for CXR and schedule follow-up.

Sputa (AFB-AFB-)

- Give Amoxicillin 250mg orally 3 times a day for 7 days.

CXR report suggests TB.

CXR report does not suggest active TB or other condition requiring immediate referral.

- Repeat 1 sputum for AFBs
- Schedule follow-up

Sputum AFB+

Sputum AFB-

- Give Amoxicillin 250 mg orally 3 times a day for 7 days.
- Schedule follow-up.

Little improvement

- Repeat 1 sputum for AFBs

Improvement

- Suggests other respiratory diagnosis

Little improvement

- Repeat 1 sputum for AFBs

Improvement

- Suggests other respiratory

Sputum AFB+

Sputum AFB-

- Refer to medical officer for CXR +/- culture

Sputum AFB+

Sputum AFB-

- Refer to medical officer for CXR +/- culture

ACTIVE TB CONFIRMED

- Notify and register patient.
- If new case, or previous confirmed TB treatment for < 4 weeks, register as **NEW CASE; SPUTUM-POSITIVE PULMONARY TB** and start the intensive phase of **REGIMEN 1**. (Go to page 18)
- If previous TB treatment for \geq 4 weeks, register as **RETREATMENT PATIENT; SPUTUM-POSITIVE PULMONARY TB**, and start the intensive phase of **REGIMEN 2**. (Go to page 19)
- Offer HIV test to all patients. (Go to page 20)
- Select DOT supervisor.

INITIAL TREATMENT FOR REGIMEN ONE

START INTENSIVE PHASE

Rifampicin/Isoniazid/Pyrazinamide/Ethambutol 120/60/300/200mg (given 5 days a week).

< 50 kg
4 tablets

≥ 50 kg
5 tablets

At the end of 2 MONTHS of INTENSIVE treatment, take 2 sputa for AFBs. Schedule follow-up.

Sputa AFB- AFB-

Sputa AFB+ AFB- OR Sputa AFB+ AFB+

- Continue intensive phase for 1 more month.

At the end of 3 MONTHS, repeat 2 sputa for AFBs

- Schedule follow-up.

Sputa AFB- AFB-

Sputa AFB+ AFB- OR Sputa AFB+ AFB+

- Take sputum for culture and sensitivity.
- Schedule follow-up.
- If susceptible, continue. If resistant refer to MDR unit.

START CONTINUATION PHASE

Rifampicin/Isoniazid 150/100mg.
Rifampicin/Isoniazid 300/150mg.

< 50 kg
3 tablets
-

≥ 50 kg
-
2 tablets

At the end of 5 months of treatment, take 2 sputa for AFBs. Schedule follow-up.

Sputa AFB- AFB- or unable to produce sputum.

- Stop treatment and register as CURED.
- Discharge from TB clinic.
- Refer HIV-positive patients to the general clinic for further management.

Sputa AFB+ AFB- OR Sputa AFB+ AFB+

- Register as TREATMENT FAILURE.
- Take sputum for culture and sensitivity
- Re-register as a RETREATMENT patient, and refer to follow-up plan for Regimen 2.

TREATMENT PLAN FOR REGIMEN TWO

START INTENSIVE PHASE

Rifampicin/Isoniazid/Pyrazinamide/Ethambutol 120/60/300/200mg (given 5 days a week) PLUS Streptomycin (given 5 days a week) intramuscularly.

< 50 kg	≥ 50 kg
4 tablets 750mg	5 tablets 1000mg

THIRD MONTH

Rifampicin/Isoniazid/Pyrazinamide/Ethambutol 120/60/300/200mg (given 5 days a week) ONLY

4 tablets	5 tablets
-----------	-----------

At 6 weeks review the susceptibility results of the initial sputum. If:

Susceptible

- Continue treatment

Resistant

- Refer to MDR unit

At the end of 3 months, repeat 2 sputa for AFBs

- Schedule follow-up

Sputa AFB- AFB-

Sputa AFB+ AFB- OR Sputa AFB+ AFB+

- Repeat sputum for culture and sensitivity
- Schedule follow-up

- If susceptible, continue. If resistant, refer to MDR unit.

START CONTINUATION PHASE

Rifampicin/Isoniazid 150/100mg + Ethambutol 400mg

Rifampicin/Isoniazid 300/150mg + Ethambutol 400mg

< 50 kg
3 tablets + 2 tablets
-

≥ 50 kg
-
2 tablets + 3 tablets

At the end of 7 months of treatment, take 2 sputa for AFBs. Schedule follow-up.

Sputa AFB- AFB- or unable to produce sputum.

- Stop treatment and register as **CURED**.
- Discharge from TB clinic.
- Refer HIV-positive patients to the general clinic for management.

Sputa AFB+ AFB- OR Sputa AFB+ AFB+

- Register as **TREATMENT FAILURE**.
- Take sputum for culture and sensitivity.
- Refer to MDR unit.

HIV/AIDS

SUSPECT HIV/AIDS IN ALL WITH THE FOLLOWING:

- TB
- Recurrent respiratory infections
- Mouth lesions eg. Oral candida
- Skin infections eg. Herpes Zoster
- Severe weight loss
- Unexplained fever for > 4 weeks
- Sexually transmitted infections
- Painless swollen glands
- Long history of diarrhoea
- History of engaging in high-risk behaviour (eg. Vaginal, anal or oral sex without a condom)

LOOK FOR

- White patches in the mouth, which are scratched off with difficulty, causing bleeding (**ORAL THRUSH/CANDIDA**).
- Painful rash with blisters, confined to one part of the body (**HERPES ZOSTER**).
- Bluish-black patches or lumps on skin or mouth (**KAPOSI'S SARCOMA**).
- Evidence of severe loss of weight.
- Genital ulcers or discharge.

- **DO YOU SUSPECT HIV/AIDS ?**
- **DOES THE PATIENT REQUEST AN HIV TEST?**

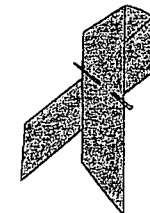
INFORM ABOUT VOLUNTARY CONFIDENTIAL COUNSELLING AND TESTING (VCCT)

Educate patient about HIV/AIDS, methods of transmission and risk factors.

Explain about VCCT:

Who will perform the counselling and the testing.
That it is completely voluntary.
That testing is confidential.
How testing is done.
When and how results are given.
What the results means.

- If patient agrees to have VCCT, refer to the lay counsellor for testing.
- If a lay counsellor is not available, refer to health facility where testing is available.



FOLLOW-UP OF KNOWN HIV-POSITIVE PATIENT

HIV POSITIVE

- Establish a relationship with the patient and encourage regular follow-up.
- Respect his/her right to confidentiality.
- Refer to the lay counsellor should the patient require further counselling.
- Encourage safer-sex practices.
- Provide medical care at each visit.
- Look for and treat HIV-related diseases.

HIV NEGATIVE

- Encourage safer sex practices.

ORAL THRUSH/CANDIDA

Go to page 9

ASYMMETRIC LARGE GLANDS

Refer:
For exclusion of extra-pulmonary TB.

ANY OTHER HIV- RELATED DISEASES

Refer to:
South African Department
of Health booklet:
Recommendations for the
prevention and treatment
of opportunistic and HIV-
related diseases in adult.
([www.http://196.36.153.56/doh/aids/docs/adult.html](http://196.36.153.56/doh/aids/docs/adult.html))



WHO IS ELIGIBLE FOR LIFE-LONG COTRIMOXAZOLE (BACTRIM) PROPHYLAXIS? (2 SINGLE STRENGTH TABLETS (80/400MG) PER DAY)

- All HIV-infected TB patients .
- All symptomatic HIV patients (World Health Organisation (WHO) stage 2,3,4). Refer below.
- If previous diagnosis of Pneumocystis carinii pneumonia.
- Cotrimoxazole (Bactrim) prophylaxis is started at a higher-level facility.

ADAPTED FROM THE WORLD HEALTH ORGANISATION (WHO) CLINICAL STAGING FOR HIV INFECTION

STAGE 1

Without symptoms.
Acute viral illness following HIV infection.
Persistent swollen glands < 2 cm and symmetrical.

STAGE 2

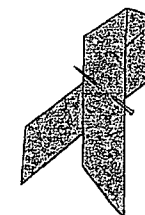
Unintentional weight loss.
Minor mouth and skin conditions (dry skin, mouth ulcers, fungal nail infections).
Herpes Zoster within the last 5 years.
Recurrent upper respiratory tract infections (eg. sinusitis).

STAGE 3

Significant unintentional weight loss.
Diarrhoea for more than a month.
Fever for more than a month.
Oral thrush/candida.
Pulmonary TB in the last year.
Severe pneumonia or other bacterial infections.
Vaginal candida for more than one month, or poor response to therapy.

STAGE 4

Chronic weight loss plus diarrhoea or fever.
Diagnosed opportunistic infection.
Extra-pulmonary TB.
Kaposi's sarcoma.
HIV dementia.
Diagnosed cancer (eg. Lymphoma).



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Members of the PALSA project.

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Guideline design Imago -Visual



UNIVERSITY OF CAPE TOWN
LUNG INSTITUTE



MEDICAL RESEARCH
COUNCIL



WORLD HEALTH ORGANISATION

ANNEX 2

PALSA Training Record

PALSA TRAINING RECORD

Please complete for every training visit. Fax completed forms to Bosielo Majara 051 4489278

Name of Trainer:	
Name of Clinic:	
Date of Training session:	

ATTENDANCE REGISTER (complete at clinic)

First Name	Surname	Rank e.g. CPN, SN, EN	Year qualified from nursing college

TOPICS COVERED DURING SESSION (S)

Tick topics covered during the training visit. You may tick *more than one* topic.

Severely ill respiratory patients		Asthma / COPD	
URTI		TB	
LRTI		HIV	

TRAVEL DETAILS

Indicate type of car used for travel to the clinic. You may tick *only one* box.

Subsidized government car		Private vehicle	
Car from government pool			
Enter if petrol or diesel:		Enter engine capacity in litres	
Enter year of manufacture:			
Enter km at start:		Enter km at end (return journey):	

REFRESHMENT COSTS

VENUE HIRE (if applicable)

Enter amount spent:		Enter cost:	
---------------------	--	-------------	--

TRAINER TIME Enter time to nearest half hour (e.g. 30 mins, 2 ½ hours etc)

Time spent traveling			
Time spent on PALSA activities at clinic		Time spent on non-PALSA activities at clinic	

ANNEX 3

Standard letter to district/clinic managers



THE UNIVERSITY OF THE ORANGE FREE STATE

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26 March 2003

Dear Ms Morigihlane

This is a follow up to a letter dated 26 March 2003 which was transmitted to you by fax on the same day regarding the Practical Approach to Lung Health in South Africa (PALSA) Project. Kindly note that following that letter, the following developments have taken place regarding the project:

1. Some of scheduled training of professional clinic nurses by PALSA trained TB Coordinators in your district have commenced. We are keeping record of all trained clinic staff and this activity is scheduled to go up to September- October this year.
2. Preparations are underway to conduct Lung a Health Survey to establish the extent of adult lung problems in the province. As part of the survey, we wish to collect some information in the 40 trial clinics in the province, some of which fall within your district. We will be sending field workers to collect data on lung disease in the 40 clinics at the beginning of May through to November this year. These field workers will receive training on all aspects of data collection for the project next week.

By this letter, we hereby solicit the following administrative support from you and your district health team:

- (a) That our field workers be provided with office space for conducting interviews with patients presenting with respiratory disease at the primary care clinic. The fieldwork is expected to take a maximum of five days per clinic.
- (b) That during the fieldwork (preferably at the end of each day), our field workers be allowed to use the clinic's telephone line to transmit data to a central information base for the project through a toll free number. This will be done by down loading from a

PDA, a device used for collecting data in place of a paper questionnaire. This will have absolutely NO financial implications on the clinic's monthly telephone bill.

(c) That you kindly convey the above two messages (a & b) to management of clinics that fall under your supervision.

We promise to cause minimal disruption to clinic operations during our fieldwork. I will follow up with the clinics' management on the exact dates of the fielding of our data collectors and will keep you informed all the way.

Below once again is a list of clinics in your district which are part of the survey which our field workers will be assigned to visit:

For further clarification on the above issues, please do not hesitate to contact me at any of the above contact addresses.

Regards,


Bosielo Majara

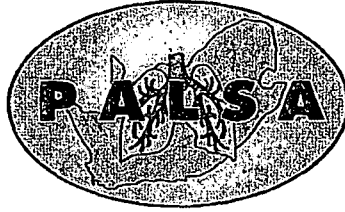
Community Health Department. UFS

List of clinics

1. Khothalong
2. AM Kruger
3. Hoopstad
4. Bothaville
5. Bophelong (Odend)
6. Thabong
7. Tshepong
8. K-Maile
9. Albert Luthuli Mem
10. Phomolong (Henn)
11. Welkom
12. Boithusong

ANNEX 4

Doctor's Letter



Dear Doctor

March 2003

The Practical Approach to Lung Health in South Africa (PALSA) is a WHO initiative to improve the management of adult patients with respiratory disease in primary care, particularly the initial care provided by frontline nurses.

It follows in the footsteps of the widely successful Integrated Management of Childhood Illness (IMCI) in that it has adopted a syndromic approach whereby patients are categorized and treated according to symptoms.

Clinicians and Researchers from the University of Cape Town Lung Institute, Medical Research Council and University of the Free State have adapted the package for local use in collaboration with primary care physicians and nurses, and the Free State Department of Health.

The next step is to test whether the programme improves the treatment of patients. This will be achieved by means of a controlled trial involving 40 clinics in the Free State between April and November 2003. District TB co-ordinators will train nursing practitioners at clinic level and the impact on rational prescribing practices, TB case detection and the health status of patients will be measured. An economic evaluation will examine at what cost any benefits are obtained.

Implementation of PALSA should have little impact on your clinical activities. However, you might recognize changes in the nature of patients referred and the treatment that has been initiated in the pilot clinics. These include the following:

1. PALSA will teach nurses to identify severely ill adult patients requiring transfer to the next level facility using "danger signs".
2. Provision has been made for Primary Care Nursing Practitioners (PCNPs) in pilot sites to initiate cotrimoxazole prophylaxis in HIV-infected symptomatic patients.
3. These PCNPs may also initiate inhaled steroids in known or suspected asthmatics provided that the patient is reviewed by a doctor within weeks of starting treatment.
4. PCNPs may also prescribe short courses of oral steroids for patients with exacerbations of asthma and COPD.

These provisions have been approved by the Pharmaceutical and Therapeutics Committee of the Department of Health of the Free State for the purpose of the study, and policy will be reviewed at the end of the pilot phase.

Your understanding and assistance is integral to the success of the programme and we look forward to sharing the results of the pilot phase with you.

Should you require further information please contact:

Dr Lara Fairall
University of Cape Town
Lung Institute
Phone: 021 4066850
Email: lfairall@uctqsh1.uct.ac.za

Mr Bosielo Majara
Department of Community Health
University of the Free State
Phone: 051 4053625
Email: gngmbpm@med.uovs.ac.za

Best wishes
The PALSA Team

ANNEX 5

Drug Circular



M. Makhele
Clinic Manager
Botshabelo Clinic B
PO Box 5051
Botshabelo
9781
Fax: 051 5341096

Dear M. Makhele

**Re: Practical Approach to Lung Health in South Africa
Changes in prescribing provisions for Primary Care Nursing Practitioners**

This letter follows previous correspondence detailing the Practical Approach to Lung Health training programme which is being piloted in your clinic.

The following changes in prescribing provisions have been made for Primary Care Nursing Practitioners (PCNPs) trained in the programme. They are as follows:

1. PCNPs may initiate lifelong cotrimoxazole prophylaxis (dose = 2 single strength tablets or 960mg daily) in HIV positive patients with symptoms.
2. PCNPs may initiate inhaled steroids (Inflammide® maximum daily dose of 800mcg) in known or suspected asthmatics provided patients are reviewed by a doctor within one month.
3. PCNPs may prescribe short courses of oral steroids (40mg daily for 7 days) in patients with asthma /COPD exacerbations.

These changes have been approved by the Pharmaceutical and Therapeutics Committee of the Free State Department of Health and financial provision has been made under the TB programme. The drugs are available from the Medicines Depot on request. The changes will be reviewed at the end of the pilot in order to inform policy in the rest of the province.

In order to maximize the benefits of the PALSA training in your clinic, we ask that you please ensure that these medications are available to Primary Care Nursing Practitioner staff in your clinic from *commencement of the PALSA training.*



Department of Health
Departement van Gesondheid
Lefapha La Bophelo Bo Botle
1997-09-01



Department of Health
Departement van Gesondheid
Lefapha La Bophelo Bo Botle
1997-09-01

Department of Health • Departement van Gesondheid • Lefapha La Bophelo Bo Botle

General Manager – Health Support, Dr RD Chapman, • PO Box 227, Bloemfontein 9300 • Tel: 051-4033431
Fax: 051-4098008 e-mail - chapmard@doh.ofs.gov.za • Room 505, Lebohang Building, St Andrews Street, Bloemfontein

If you have any further queries please contact the Medicines Depot or Mrs. Annatjie Peters, Provincial TB Coordinator. The contact details are as follows:

Medicines Depot (Attention Johan Meiring or Elzabe Oliveer)
P. O. Box 7622
Bloemfontein
9300
Phone: 051 4303091
Fax : 051 4302208

Mrs. Annatjie Peters
Provincial TB Coordinator
P. O. Box 396
Kroonstad
9500
Phone: 056 2122271
Cell: 082 8231050

We look forward to working with you in the coming months and sharing the results of the pilot with you.

Kind regards,



Dr RD Chapman
General Manager: Health Support

7/4/2003



Department of Health • Departement van Gesondheid • Lefapha La Bophelo Bo Botle

General Manager – Health Support, Dr RD Chapman, • PO Box 227, Bloemfontein 9300 • Tel: 051-4033431
Fax: 051-4098008 e-mail - chapmard@doh.ofs.gov.za • Room 505, Lebhang Building, St Andrews Street, Bloemfontein

ANNEX 6

The selection process

HOW TO SELECT PATIENTS FOR INTERVIEWING AFTER CONSULTATION

1. From the fast track queue for ill patients:

- Select every patient who answers "yes" to:
"Do you have or had you had any difficult breathing and/or cough today or in the last 6 months?"
- Exclude patients who are clearly too ill to complete an hour long interview. Clear examples of patients who are too ill to participate are:
 - unconscious patients
 - patients who are not breathing
 - patients who are unable to talk
 - patients who are psychotic

2. From the general queue:

- On arrival obtain the headcount from the previous day. If you are interviewing on a Monday use the headcount for the previous Thursday.
- Use the tables on the next page to work out how often you should select a patient who answers "yes" to difficult breathing (DB) and/or cough (today or in the last 6 months) in the general queue.
- Example: You determine that you should select every 3rd patient for interviewing. Ask every patient in the general queue about difficult breathing and/or cough (today or in the last 6 months). Ask every 3rd patient who answers "yes" to meet the interviewing team after their consultation with the nurse today.

SELECTION OF PATIENTS FROM THE GENERAL QUEUE

WITH 2 INTERVIEWERS	
Headcount from previous day (General queue)	Select Patients who answer yes to DB / cough
Up to 70 patients	Every patient
71 – 140 patients	Every second patient
141 – 200 patients	Every third patient
201 – 270 patients	Every fourth patient
271 – 340 patients	Every fifth patient
341 – 410 patients	Every sixth patient
411 – 480 patients	Every seventh patient

WITH 3 INTERVIEWERS	
Headcount from previous day (General queue)	Select Patients who answer yes to DB / cough
Up to 110 patients	Every patient
111 – 220 patients	Every second patient
221 – 330 patients	Every third patient
431 – 540 patients	Every fourth patient

3. From the fast track TB queue

- This will differ from clinic to clinic based on the number of patients attending for TB treatment at each clinic
- You will receive specific instructions for each clinic.
- Team leader to identify on what day of the week, most patients attend the TB service at that particular clinic. This day is to be set aside for interviewing TB patients and reaching your "TB target".

Compiled by Lara Fairall

ANNEX 7

Patient screening questionnaire- English version

Patient Initials:	Date:	Clinic:	Interviewer code:
FREE STATE LUNG HEALTH SURVEY SCREENING QUESTIONNAIRE			

PATIENT DETAILS			
3	Enter first name:	4	Enter surname:
5	Gender: (Mark with an X)	Male	Female
6	Enter folder no:	7	Re-enter folder no:

DOES THE PATIENT QUALIFY FOR THE FULL INTERVIEW?			
8	What is your date of birth? If you don't know your date of birth, enter age at last birthday.		
9	Date:	Month	Year → 1987 of after? → do not continue
11	Age at last birthday:	→ 14 years or younger? → do not continue	

12	Have you participated in this study before (full questionnaire ± 1 hour)?		
	YES	→ do not continue	
	NO	→ go to the next question	

13	Were you seen ONLY by a doctor today?		
	YES	→ do not continue	
	NO	→ go to the next question	

14	Were you seen by a nurse/nursing sister today?		
	YES	→ go to the next question	
	NO	→ do not continue	

15	Do you have difficult breathing (tight chest, shortness of breath, wheeze) today?		
	YES	→ CONSENT → skip to question 17	
	NO	→ go to the next question	

16	Have you had difficult breathing (tight chest, shortness of breath, wheeze) in the last 6 months?		
	YES	→ CONSENT → go to the next question	
	NO	→ go to the next question	

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:		Date:		Clinic:		Interviewer code:	
--------------------------	--	--------------	--	----------------	--	--------------------------	--

17	Do you have a cough today?		
	YES		→ go to the next question
	NO		→ do not continue

18	For how long have you been coughing? Choose <i>one</i> option and enter number.		
	Days		→ 19. Enter number:
	Weeks		→ 19. Enter number:
	Months		→ 19. Enter number:
	Years		→ 19. Enter number:

20	Interviewer: For how long has the patient been coughing?		
	6 days or less		→ go to the next question
	7 days or more		→ CONSENT if haven't already done so → skip to question 22

21	Have you had another episode of cough like this one in the last 6 months?		
	YES		→ CONSENT if haven't already → go to the next question
	NO		→ go to the next question

22	Interviewer: What is the respiratory rate? Count number of breaths over 1 full minute.		
	Enter Respiratory Rate (breaths/min)		

23	Interviewer: What is the respiratory rate?		
	29 breaths / minute or less		→ go to the next question
	30 breaths / minute or more		→ CONSENT if haven't already → go to the next question

24	Interviewer: What is the patient's temperature? Take the temperature with the thermometer.		
	Enter Temperature (in degrees Celsius)		

25	Interviewer: Is the temperature 38 degrees Celsius or more?		
	37.9 Celsius or less		→ Patient consented already? → continue with question 27 → Patient not yet consented? → do not continue
	38 Celsius or more		→ CONSENT if haven't already → complete full questionnaire → go to question 27 (top of page 3)

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Capturer tick if completed.

ANNEX 8

Patient information and written consent form- English version

PATIENT INFORMATION AND WRITTEN CONSENT FORM - LHS

Study Number: _____

Patient's Initials: _____

You are invited to participate in a Randomised Control Trial. Before you agree to take part you need to understand what it involves.

Purpose of study

Researchers from the UFS Community Health Department are studying patient's who present to primary health care clinics with a complaint of difficult breathing and/or cough.

The reason for doing this study is to test better ways to diagnose and treat lung disorders. We will compare nurse diagnoses of respiratory diseases using PALSA intervention compared to a nurse without PALSA intervention.

What are the possible benefits of participating in this study?

The information that we obtain from the study will help us improve the diagnosis and treatment of respiratory disease by nurses at primary health care level. You will be entitled to a R60 worth of food upon your return to the clinic for a follow up visit 3 months from today.

What are the possible drawbacks or discomforts in participating in this study?

None since this is only a training intervention.

Do I have to participate in this study?

Your participation in this study is voluntary. Should you agree to participate, you are to sign this form. You are free to withdraw from the study at any stage and this will in no way affect your management. Likewise, should we feel that further participation in the study would not be in your best interest we will withdraw you from the study.

What will happen to me if I participate?

After being seen by a clinic nurse who will record information about your medical history and your current condition, you will be screened for whether you qualify for inclusion to the study and questionnaire. Thereafter, you will be escorted to another cubicle where you will be interviewed by a research assistant using an exit interview questionnaire. Information regarding your medical history and current condition will also be recorded. You will then be requested to return to the clinic 3 months from today for a follow up visit.

Will the information remain confidential?

Should you agree to participate in the study all your records will be viewed by the researchers only. Your information will not be viewed by any other persons or parties not involved in this study. All the information will be safely stored on a computer and at the study site. At no time will anyone be able to link the information stored on the computer to your name.

1.1 Contact details of the study staff

Should you have any questions relating to this study, please contact any of the following members of our researchers.

Name _____ Phone Number _____

Name _____ Phone Number _____

I,.....
(Name of Patient in block letters)

have read and understood all the information given to me about my participation in this study and I have been given the opportunity to discuss it and ask questions. I voluntarily agree to take part in this study and understand that I will receive a copy of this consent form.

.....
Signature of Patient

.....
Date

.....
1.2 *Printed name of Patient*

I have explained the nature and purpose of the study to the Patient named above.

.....
Signature of Principal Investigator or delegate

.....
Date

.....
1.3 *Printed name of Principal Investigator or delegate*

ANNEX 9

Reminder form

DEAR(Insert name of patient)

We would like to schedule a follow-up interview for 3 months' time to check-up on your progress and state of health. This interview will be similar to the one we have just completed, and we will ask you about your quality of life, regular medications and visits back to this clinic or other health care providers.

The interview may be conducted here at the clinic or at your home, depending on what you and the interviewer agree to today.

If you agree to meet at the clinic, bear in mind that it may be on a different day to your next check-up visit. If this is the case you will not be required to wait until after you have seen the nurse. Remember to bring along your regular medications so that we can record the details at this interview.

At the follow-up interview you will receive a small food parcel in appreciation of your participation in this survey.

Once again, thank you for your participation today.

DATE OF FOLLOW-UP INTERVIEW:

DAY OF THE WEEK	DATE	MONTH

FOLLOW-UP AT....
(Choose *one*)

- THIS CLINIC ENTER NAME OF CLINIC:
- AT PATIENT'S HOME

ANNEX 10

First post-intervention survey interview questionnaire- English version

Patient Initials:	Date:	Clinic:	Interviewer code:
MORE QUESTIONS ON DIFFICULT BREATHING (tight chest, shortness of breath, wheeze)			

27	Do you have difficult breathing (tight chest, shortness of breath, wheeze) today?		
	YES		→ skip to question 29
	NO		→ go to the next question

28	Have you had difficult breathing (tight chest, shortness of breath, wheeze) in the last 6 months?		
	YES		→ go to the next question
	NO		→ Skip to Question 35 (top of page 4)

29	For how long have you had or did you have difficult breathing (tight chest, shortness of breath, wheeze)? Choose <i>one</i> option and enter number.		
	Days		→ 30. Enter number:
	Weeks		→ 30. Enter number:
	Months		→ 30. Enter number:
	Years		→ 30. Enter number:

31	Does this difficult breathing trouble you continuously, so that your breathing is never quite right, or does it trouble you repeatedly but always gets completely better?		
	Continuously		
	Repeatedly		

32	Does this difficulty breathing trouble you only when walking fast on the flat or uphill or also when resting?		
	Only when walking fast / uphill		
	When resting (sitting etc.)		

33	Do you experience sharp chest pain on breathing in deeply with this current illness?		
	YES		
	NO		

34	Does your chest wheeze (make a whistling sound) when you breathe with your current illness?		
	YES		
	NO		

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Capturer tick if completed:

Patient Initials:		Date:		Clinic:		Interviewer code:	
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MORE QUESTIONS ABOUT COUGH

35	Do you have a cough today?		
	YES		→ go to the next question
	NO		→ skip to question 43 (top of page 5)

36	Are you coughing up phlegm or slime with your current illness?		
	YES		→ go to the next question
	NO		→ skip to question 38

37	What colour is your phlegm / slime with this current illness?		
	Choose <i>one</i> option.		
	Clear / White		
	Yellow / Green		
	Other		

38	Are you coughing up blood with this current illness?		
	YES		
	NO		

39	Do you experience sharp chest pain on coughing with this current illness?		
	YES		
	NO		

40	Do you experience sharp chest pain on breathing in deeply with this current illness?		
	YES		
	NO		

41	Does your chest wheeze (make a whistling sound) when you breathe with your current illness?		
	YES		
	NO		

42	Did the nurse who saw you today ask you for how long you have been coughing?		
	YES		
	NO		

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Capturer tick if completed.

Patient Initials:	Date:	Clinic:	Interviewer code:
OTHER SYMPTOMS OF THIS CURRENT ILLNESS			

43	With this current illness, do you sweat a lot at night so that your pajamas or bed clothes are wet?		
	YES		
	NO		

44	Do you have a runny or blocked nose with this current illness?		
	YES		
	NO		

45	Do you have a sore throat with this current illness?		
	YES		
	NO		

46	Is your ear leaking pus with your current illness?		
	YES		
	NO		

47	Are you losing weight these days?		
	YES		
	NO		

48	Has a nurse or doctor told you that you might have TB recently?		
	YES		
	NO		

49	Before this illness now, have you ever had TB before?		
	YES		
	NO		

50	Have you ever worked underground in a mine?		
	YES		→ 51. For how many years?
	NO		

52	Interviewer: Is the patient breathless now during the interview (e.g. breathless while seated, breathless while talking, unable to speak in full sentences without stopping to breathe)?		
	YES		
	NO		

53	Interviewer: Is the patient straining his/her neck muscles in order to breathe?		
	YES		
	NO		

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed	Fieldworker tick if completed	Capturer tick if completed:

Patient Initials:		Date:		Clinic:		Interviewer code:	
SYMPTOM SEVERITY IN THE LAST MONTH							

54	Have you had difficulty in sleeping because of difficulty in breathing and/or cough in the last month?						
	YES			→ go to the next question			
	NO			→ skip to question 56			

55	Select a category:						
	1 – 2 times per month						
	1 – 2 times per week						
	Most nights						

56	Have you has your usual chest symptoms during the day (cough, wheeze, breathlessness) in the last month?						
	YES			→ go to the next question			
	NO			→ skip to question 58			

57	Select a category:						
	1 – 2 times per month						
	1 – 2 times per week						
	Most days						

58	Has your chest problem interfered with your usual activities (e.g. work, study, housework, family or leisure activities) in the last month?						
	YES			→ go to the next question			
	NO			→ skip to question 60 (top of page 7)			

59	Select a category:						
	1 – 2 times per week						
	1 – 2 times per month						
	Most days						

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:	Date:	Clinic:	Interviewer code:
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HEALTH-RELATED QUALITY OF LIFE TODAY

Read to patient (and complete with the help of the visual aid)
 By placing a tick in one box in each group below, please indicate which of the following statements best describe your own state of health TODAY.

MOBILITY

60

I have no problems in walking about I have some problems in walking about I am confined to bed

SELF-CARE

61

I have no problems with self-care I have some problems washing or dressing myself I am unable to wash or dress myself

USUAL ACTIVITIES (e.g. work, study, housework, family or leisure activities)

62

I have no problems with performing usual activities I have some problems with performing usual activities I am unable to perform usual activities

PAIN / DISCOMFORT

63

I have no pain or discomfort I have moderate pain or discomfort I have severe pain or discomfort

ANXIETY / DEPRESSION

64

I am not anxious or depressed I am moderately anxious or depressed I am extremely anxious or depressed

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

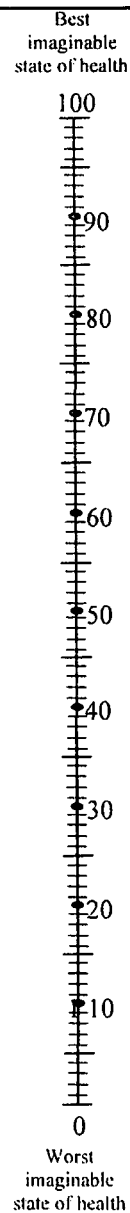
Patient Initials:	Date:	Clinic:	Interviewer code:
HEALTH-RELATED QUALITY OF LIFE TODAY cont'd			

65. Read:

To help people say how good or bad a health state is, we have drawn a scale (rather like a thermometer) on which the best state you can imagine is marked 100 and the worst state you can imagine is marked 0.

We would like you to indicate on this scale, in your opinion, how good or bad your own health is today. Please do this by drawing a line from the box below to whichever point on the scale indicates how good or bad your state of health is today.

Your own state
of health today



COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:		Date:		Clinic:		Interviewer code:	
HEALTH-RELATED QUALITY OF LIFE IN THE LAST MONTH							

Read to patient (and complete with the help of the visual aid)
 By placing a tick in one box in each group below, please indicate which of the following statements best describe your own state of health IN THE LAST MONTH.

MOBILITY

66

I have no problems in walking about I have some problems in walking about I am confined to bed

SELF-CARE

67

I have no problems with self-care I have some problems washing or dressing myself I am unable to wash or dress myself

USUAL ACTIVITIES (e.g. work, study, housework, family or leisure activities)

68

I have no problems with performing usual activities I have some problems with performing usual activities I am unable to perform usual activities

PAIN / DISCOMFORT

69

I have no pain or discomfort I have moderate pain or discomfort I am have severe pain or discomfort

ANXIETY / DEPRESSION

70

I am not anxious or depressed I am moderately anxious or depressed I am extremely anxious or depressed

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

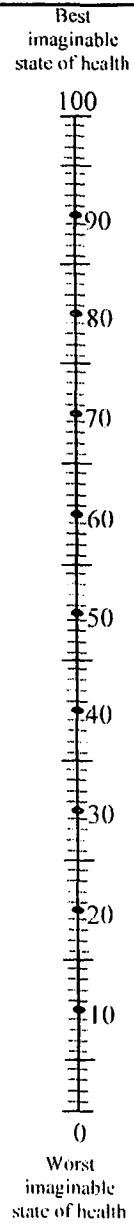
Patient Initials:	Date:	Clinic:	Interviewer code:
HEALTH-RELATED QUALITY OF LIFE IN THE LAST MONTH cont'd			

71. Read:

To help people say how good or bad a health state is, we have drawn a scale (rather like a thermometer) on which the best state you can imagine is marked 100 and the worst state you can imagine is marked 0.

We would like you to indicate on this scale, in your opinion, how good or bad your own health has been in the last month. Please do this by drawing a line from the box below to whichever point on the scale indicates how good or bad your state of health has been in the last month.

Your own state
of health in the
last month



COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:		Date:		Clinic:		Interviewer code:	
SMOKING							

72	Have you ever smoked?						
	YES			→ go to the next question			
	NO			→ skip to question 91 (top of page 12)			

73	Do you smoke currently?						
	YES			→ go to the next question			
	NO			→ skip to question 82(this page)			

74 to 76	On average how many of the following items do you smoke per day?						
	Mark appropriate boxes and enter average number smoked per day. Check all that apply.						
	Shop-bought cigarettes			→ 74. Enter no. smoked per day:			
	Hand-rolled cigarettes			→ 75. Enter no. smoked per day:			
	Pipefuls of tobacco			→ 76. Enter no. smoked per day:			

77	When did you start smoking regularly (at least one cigarette / pipe per day)?						
	Interviewer: You may enter the age OR the year:						
	AGE			→ 78. Enter age:			
	YEAR			→ 79. Enter year:			

80	Did the nurse who saw you today advise you to reduce or quit smoking?						
	YES						
	NO						

81	Which of the following best describes your thoughts about stopping smoking now?						
	Interviewer: Read all 3 statements to patient and ask them to choose one.						
	I will stop smoking			→ skip to question 91 (top of page 12)			
	I plan to stop smoking but not now			→ skip to question 91 (top of page 12)			
	I do not plan to stop smoking soon			→ skip to question 91 (top of page 12)			

82	When did you stop smoking?						
	Interviewer: You may enter age OR year:						
	AGE			→ 83. Enter age:			
	YEAR			→ 84. Enter year:			

85	When did you start smoking regularly (at least one cigarette / pipe per day)?						
	Interviewer: You may enter the age OR the year:						
	AGE			→ 86. Enter age:			
	YEAR			→ 87. Enter year:			

88 to 90	On average how many of the following items did you smoke per day?						
	Mark appropriate boxes and enter average number smoked per day. Check all that apply.						
	Shop-bought cigarettes			→ 88. Enter no. smoked per day:			
	Hand-rolled cigarettes			→ 89. Enter no. smoked per day:			
	Pipefuls of tobacco			→ 90. Enter no. smoked per day:			

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:		Date:		Clinic:		Interviewer code:	
--------------------------	--	--------------	--	----------------	--	--------------------------	--

DETAILS OF TODAY'S VISIT AT THE CLINIC

Read:
 We would like to ask some questions about the treatment you received at the clinic TODAY. The following questions all ask about treatment and tests done TODAY, on the same day as this interview. We do not want information about investigations completed previously for the same illness or for other illnesses. For example we do not want to know about blood tests taken 6 months ago, only those taken today.

92	What was the reason for coming to the clinic today? Interviewer: Check all that apply. Mark boxes with an X.		
	Check-up for diabetes ('sugar')		
	Check-up for a respiratory problem		
	Check-up for other problem		
	First visit for a respiratory problem		
	First visit for other problem		
Other		→ 93. Specify:	

94	Did the nurse who saw you today tell you what is wrong with you?		
	YES		→ go to the next question
	NO		→ skip to Q96

95	What did she tell you? Interviewer: Probe with examples like cold, 'flu, asthma, TB, high blood etc. Enter response below:		

96	Did the nurse who you saw today collect any phlegm / sputum samples for testing? Interviewer: Show patient examples of sputum jars in visual aid.		
	YES		→ 97. How many did she collect?
	NO		

98	Did the nurse who you saw today ask you to collect any phlegm / sputum samples at home? Interviewer: Show patient examples of sputum jars in visual aid.		
	YES		→ 98. How many did she ask you to collect?
	NO		

99	Did the nurse who saw you today take any blood for tests?		
	YES		
	NO		

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:		Date:		Clinic:		Interviewer code:	
PRESCRIPTION DETAILS – Inhalers (Visual Aid pages 28 – 29)							

Interviewer: Show patient photo's of inhalers in visual aid (pages 28 and 29).
 First ask patient to identify inhalers *they received to take home today*. Complete the tables below.
 Then ask them to identify the inhalers *they usually use at home*. Complete the second set of tables below.

100	Did you receive an inhaler to take home today?		
	YES		→ complete the following 2 tables (Reliever & Preventer inhalers)
	NO		→ skip to question 116 (this page)

RELIEVER INHALERS RECEIVED TODAY (Interviewer: Check all that apply)				YES	NO
101	Fenoterol (Berotec)		→ 102. Does this inhaler improve your difficult breathing minutes after using it?		
103	Fenoterol/Ipratropium (Duovent)		→ 104. Does this inhaler improve your difficult breathing minutes after using it?		
105	Ipratropium (Atrovent)		→ 106. Does this inhaler improve your difficult breathing minutes after using it?		
107	Salbutamol (Asthavent)		→ 108. Does this inhaler improve your difficult breathing minutes after using it?		
109	Salbutamol/Ipratropium (Combivent)		→ 110. Does this inhaler improve your difficult breathing minutes after using it?		
111	Salmeterol (Serevent)		→ 112. Does this inhaler improve your difficult breathing minutes after using it?		

PREVENTER INHALERS RECEIVED TODAY (Interviewer: Choose one)					
		No. of times to be taken each day		No. of puffs to be taken each time	
113	Budesonide 100		114	115	
113	Budesonide 200		114	115	
113	Budesonide (don't know the dose)		114	115	

	If you didn't receive an inhaler today, do you usually use an inhaler?		
116	YES		→ complete the following 2 tables (Reliever & Preventer inhalers)
	NO		→ skip to question 132 (top of page 14)

RELIEVER INHALERS USUALLY USED AT HOME (Interviewer: Check all that apply)				YES	NO
117	Fenoterol (Berotec)		→ 118. Does this inhaler improve your difficult breathing minutes after using it?		
119	Fenoterol/Ipratropium (Duovent)		→ 120. Does this inhaler improve your difficult breathing minutes after using it?		
121	Ipratropium (Atrovent)		→ 122. Does this inhaler improve your difficult breathing minutes after using it?		
123	Salbutamol (Asthavent)		→ 124. Does this inhaler improve your difficult breathing minutes after using it?		
125	Salbutamol/Ipratropium (Combivent)		→ 126. Does this inhaler improve your difficult breathing minutes after using it?		
127	Salmeterol (Serevent)		→ 128. Does this inhaler improve your difficult breathing minutes after using it?		

PREVENTER INHALERS USUALLY USED AT HOME (Interviewer: Choose one)					
		No. of times to be taken each day		No. of puffs to be taken each time	
129	Budesonide 100		130	131	
129	Budesonide 200		130	131	
129	Budesonide (don't know the dose)		130	131	

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Capturer tick if completed.

Patient Initials:		Date:		Clinic:		Interviewer code:	
PRESCRIPTION DETAILS – Antibiotics (Visual Aid pages 30 – 31)							

Interviewer: Show patient photo's of antibiotics in visual aid (pages 30 and 31).
 First ask patient to identify the antibiotics *they received to take home today*. Complete the tables below.
 Then ask them to identify the antibiotics *they usually use at home*. Complete the second set of tables below..

139	Did you receive an antibiotic to take home today?		
	YES		→ complete the following table (Antibiotics received today)
	NO		→ skip to question 176 (this page)

ANTIBIOTICS RECEIVED TODAY (Interviewer: Check all that apply)						
		No. of times to be taken each day		No of tablets/capsules to be taken each time		No. of days to be taken for (duration of course)
140	Amoxicillin 250mg capsules (Betamox 250)		141		142	143
144	Amoxicillin 500mg capsules (Betamox 500)		145		146	147
148	Amoxicillin/calvulanic acid tablets (Bio-Amoksiklav)		149		150	151
152	Cotrimoxazole tablets (Cozole / Bactrim)		153		154	155
156	Doxycycline capsules (Doxyclin)		157		158	159
160	Erythromycin tablets (Rubimycin)		161		162	163
164	Flucloxacillin capsules (Floxapen)		165		166	167
168	Fluconazole tablets (Diflucan)		169		170	171
172	Penicillin VK tablets / Pen VK tablets (Betapen)		173		174	175

176	If you didn't receive an antibiotic today, do you usually use an antibiotic at home on a regular basis?		
	YES		→ complete the following table (Antibiotics usually used)
	NO		→ skip to question 186 (top of page 16)

ANTIBIOTICS USUALLY USED AT HOME (Interviewer: Check all that apply)						
		No. of times taken each day		No of tablets/capsules taken each time		
177	Cotrimoxazole tablets (Cozole / Bactrim)		178		179	
180	Doxycycline capsules (Doxycyclin)		181		182	
183	Fluconazole tablets (Diflucan)		184		185	

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed	Capturer tick if completed:

Patient Initials:	Date:	Clinic:	Interviewer code:
PRESCRIPTION DETAILS – Prednisone (Visual Aid page 29)			

Interviewer: Show patient photo of prednisone tablets in visual aid (page 29).
 First ask patient to identify whether they *received* prednisone to take home *today*.
 Then ask them to identify whether they *usually use* prednisone at home.

132	Did you receive any prednisone tablets to take home today?						
			No. of times to be taken each day		No of tablets to be taken each time		No. of days to be taken for (duration of course)
	YES		133		134		135
	NO	→ go to the next question					

136	Do you usually take prednisone tablets at home on a regular basis?						
			No. of times to be taken each day		No. of tablets to be taken each time		
	YES		137		138		
	NO	→ go to the next question (top of next page)					

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Capturer tick if completed.

Patient Initials:		Date:		Clinic:		Interviewer code:	
PRESCRIPTION DETAILS – Other Medication (Visual Aid pages 32 – 33)							

Interviewer: Show patient photo's of other medication in visual aid (pages 32 and 33).
 First ask patient to identify other medication(s) *they received to take home today*. Complete the table below.
 Then ask them to identify the other medication(s) *they usually use at home*. Complete the second table below..

186	Besides the inhalers, prednisone and the antibiotics, did you receive any other medication to take home with you today?		
	YES		→ complete the following table (Other medication received today)
	NO		→ skip to question 188 (this page)

OTHER MEDICATION(S) RECEIVED TODAY (Interviewer: Check all that apply)			
187	Acetic Acid Eardrops		
	Beclomethasone Nasal Spray		
	Chlorpheniramine tablets (Allergex)		
	Enalapril tablets (Renitec)		
	Mist Expectorant cough mixture		
	Nystatin suspension (Nystacid/ Canstat)		
	Oxymetazoline nasal spray (Drixine)		
	Paracetamol tablets (Painamol)		
	Paracetamol/codeine tablets (Painamol Plus)		
	Salbutamol tablets (Venteze)		
Theophylline tablets (Nuelin SA)			

188	Besides the inhalers, prednisone and the antibiotics, do you usually use any other medication at home on a regular basis?		
	YES		→ complete the following table (Other medication usually used)
	NO		→ skip to question 190 (top of page 17)

OTHER MEDICATION(S) USUALLY USED AT HOME (Interviewer: Check all that apply)			
189	Acetic Acid Eardrops		
	Beclomethasone Nasal Spray		
	Chlorpheniramine tablets (Allergex)		
	Enalapril tablets (Renitec)		
	Mist Expectorant cough mixture		
	Nystatin suspension (Nystacid/ Canstat)		
	Oxymetazoline nasal spray (Drixine)		
	Paracetamol tablets (Painamol)		
	Paracetamol/codeine tablets (Painamol Plus)		
	Salbutamol tablets (Venteze)		
Theophylline tablets (Nuelin SA)			

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:		Date:		Clinic:		Interviewer code:	
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DETAILS OF CONSULTATION cont'd

FOLLOW-UP APPOINTMENT		
190	Did the nurse ask you to return for a follow-up appointment? Interviewer: Check all that apply. Mark boxes with an X.	
	On a specific date	
	If you feel worse	
	If you don't get better	
	When you run out of medication	
	Before you run out of medication	
	No instructions	

REFERRALS		
191	Did the nurse who saw you today refer you to a doctor?	
	YES	→ go to the next question
	NO	→ skip to question 193 (top of page 18)

192	Did the nurse refer you to a doctor... Interviewer: Choose <i>one</i> . Mark appropriate box with an X.	
	in a hospital casualty or ward	
	at this clinic to be seen today	
	at this clinic for another day	
	in a hospital outpatient department	

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:		Date:		Clinic:		Interviewer code:	
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INCOME AND CHANGES DUE TO ILLNESS

Read: We would like to understand more about your visits to this clinic or any other health care provider for your current illness. If you have been ill for some time we would only like you to tell us about any visits or admissions in the last 3 months. We wish to understand what your current illness is costing you and your household, in terms of fees paid to health care providers, travel costs and lost earnings.

VISITS TO THIS CLINIC IN THE LAST 3 MONTHS

Read: We will start by going through your visits to THIS clinic in the last 3 months. We will use your folder to help you remember when you came to this clinic in the last 3 months.

193	Have you attended this clinic in the last 3 months?		
	Interviewer: Double-check this information in the folder		
	YES		→ go to the next question
	NO		→ skip to question 262 (top of page 22)

194	Are you currently attending this clinic for TB treatment?		
	Choose <i>one</i> (Mark with an X)		
	YES		→ go to the next question
	NO		→ skip to question 197 (this page)

195	When did you start your TB treatment at this clinic?		
	Interviewer: Ask patient to show you their TB treatment card		
	Date:	Month	Year

196	How many times a week do or did you attend the clinic for TB treatment?		
	Interviewer: Choose <i>one</i> (Mark with an X)		
	Once		
	Twice		
	Three times		
	Four times		
	Five times		

197	Do you have a patient-held or facility-held record with you?		
	YES		→ skip to Instructions A at the end of this page
	NO		→ go to the next question

198	Interviewer: Are you able to locate the folder?		
	YES		→ skip to Instructions A at the end of this page
	NO		→ skip to Instructions B at the end of this page

INSTRUCTIONS A (details of clinic visits using folder as a prompt):
Read: I will now go through each visit documented in your clinic folder for the last 3 months in order to refresh your memory. If you are a TB patient I will ask you about visits other than visits to collect your TB medication.
Interviewer: Open folder and locate all entries for the last 3 months. Exclude return visits for TB medication. Start with the earliest entry. Read the date of the visit and if clearly documented, the reason for attendance. Establish that the patient recalls this visit and enter date.

INSTRUCTIONS B (details of clinic visits without folder as a prompt)
Read: I would like you to tell me about all visits to this clinic in the last 3 months since....(Interviewer: provide date e.g. start of February as reference point for the patient). If you are a TB patient I will only ask you about visits other than those to collect TB medication.

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Capturer tick if completed.

Patient Initials:		Date:		Clinic:		Interviewer code:	
VISITS TO THIS CLINIC IN THE LAST 3 MONTHS cont'd							

199 200	Date of Visit 1 to this clinic in last 3 months			204	Date of Visit 2 to this clinic in last 3 months		
	Date:		Month:		Date:		Month:
201	What was the reason for attendance for clinic visit 1? Interviewer: Check all that apply.			205	What was the reason for attendance for clinic visit 2? Interviewer: Check all that apply.		
	Check-up for high blood pressure				Check-up for high blood pressure		
	Check-up for diabetes ("sugar")				Check-up for diabetes ("sugar")		
	Check-up for a respiratory problem				Check-up for a respiratory problem		
	Check-up for other problem				Check-up for other problem		
	First visit for a respiratory problem				First visit for a respiratory problem		
	First visit for other problem				First visit for other problem		
	Other (please specify):	202			Other (please specify):	206	
203	Interviewer: Enter data for another clinic visit?			207	Interviewer: Enter data for another clinic visit?		
	YES	→ go to question 204 (next block)			YES	→ go to question 208 (next block)	
	NO	→ skip to question 231 (top of page 21)			NO	→ skip to question 231 (top of page 21)	

208	Date of Visit 3 to this clinic in last 3 months			212	Date of Visit 4 to this clinic in last 3 months		
	Date:		Month:		Date:		Month:
209	What was the reason for attendance for clinic visit 3? Interviewer: Check all that apply.			213	What was the reason for attendance for clinic visit 4? Interviewer: Check all that apply.		
	Check-up for high blood pressure				Check-up for high blood pressure		
	Check-up for diabetes ("sugar")				Check-up for diabetes ("sugar")		
	Check-up for a respiratory problem				Check-up for a respiratory problem		
	Check-up for other problem				Check-up for other problem		
	First visit for a respiratory problem				First visit for a respiratory problem		
	First visit for other problem				First visit for other problem		
	Other (please specify):	210			Other (please specify):	214	
211	Interviewer: Enter data for another clinic visit?			215	Interviewer: Enter data for another clinic visit?		
	YES	→ go to question 212 (next block)			YES	→ go to question 216 (next block)	
	NO	→ skip to question 231 (top of page 21)			NO	→ skip to question 231 (top of page 21)	

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed.

Patient Initials:	Date:	Clinic:	Interviewer code:
VISITS TO THIS CLINIC IN THE LAST 3 MONTHS			

216	Date of Visit 5 to this clinic in last 3 months	220	Date of Visit 6 to this clinic in last 3 months
	Date: Month:		Date: Month:
217	What was the reason for attendance for clinic visit 5? Interviewer: Check all that apply.	221	What was the reason for attendance for clinic visit 6? Interviewer: Check all that apply.
Check-up for high blood pressure	<input type="checkbox"/>	Check-up for high blood pressure	<input type="checkbox"/>
Check-up for diabetes ("sugar")	<input type="checkbox"/>	Check-up for diabetes ("sugar")	<input type="checkbox"/>
Check-up for a respiratory problem	<input type="checkbox"/>	Check-up for a respiratory problem	<input type="checkbox"/>
Check-up for other problem	<input type="checkbox"/>	Check-up for other problem	<input type="checkbox"/>
First visit for a respiratory problem	<input type="checkbox"/>	First visit for a respiratory problem	<input type="checkbox"/>
First visit for other problem	<input type="checkbox"/>	First visit for other problem	<input type="checkbox"/>
Other (please specify):	218	Other (please specify):	222
219	Interviewer: Enter data for another clinic visit?	223	Interviewer: Enter data for another clinic visit?
YES	→ go to question 220 (next block)	YES	→ go to question 224 (next block)
NO	→ skip to question 231 (top of page 21)	NO	→ skip to question 231 (top of page 21)

224	Date of Visit 7 to this clinic in last 3 months	228	Date of Visit 8 to this clinic in last 3 months
	Date: Month:		Date: Month:
225	What was the reason for attendance for clinic visit 7? Interviewer: Check all that apply.	229	What was the reason for attendance for clinic visit 8? Interviewer: Check all that apply.
Check-up for high blood pressure	<input type="checkbox"/>	Check-up for high blood pressure	<input type="checkbox"/>
Check-up for diabetes ("sugar")	<input type="checkbox"/>	Check-up for diabetes ("sugar")	<input type="checkbox"/>
Check-up for a respiratory problem	<input type="checkbox"/>	Check-up for a respiratory problem	<input type="checkbox"/>
Check-up for other problem	<input type="checkbox"/>	Check-up for other problem	<input type="checkbox"/>
First visit for a respiratory problem	<input type="checkbox"/>	First visit for a respiratory problem	<input type="checkbox"/>
First visit for other problem	<input type="checkbox"/>	First visit for other problem	<input type="checkbox"/>
Other (please specify):	226	Other (please specify):	230
227	Interviewer: Enter data for another clinic visit?	→ now go to question 231 (top of next page)	
YES	→ go to question 228 (next block)		
NO	→ skip to question 231 (top of page 21)		

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Capturer tick if completed.

Patient Initials:	Date:	Clinic:	Interviewer code:
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VISITS TO THIS CLINIC IN THE LAST 3 MONTHS cont'd

Interviewer: Show patient transport photo's in visual aid (page 34).

231	How do you usually travel to this clinic? Use visual aid to select a mode of transport. Choose one (Mark box with an X)		
	Walk		
	Bicycle		
	Animal (e.g. donkey)		
	Taxi	232	→233. Enter amount paid for return fare to clinic by taxi: R:
	Bus	234	→235. Enter amount paid for return fare to clinic by bus: R:
	Train	236	→237. Enter amount paid for return fare to clinic by train: R:
	Private motor vehicle		
	Ambulance	238	→240. Tariff paid? Enter amount : (enter 0 if no tariff paid) R:
Other			

241	How long does it usually take you to travel to the clinic and back home again (travel time + time spent at clinic)? Choose one (Mark box with an X)		
	Overnight		→243. Enter rands spent on accommodation R: →245. Enter rands spent on food and drink R:
	Between 2 and 12 hrs		
	Less than 2 hours		

246	Does someone usually accompany/escort you to the clinic?		
	YES		→ go to the next question
	NO		→ skip to question 262 (top of page 22)

247	What is the employment status of your usual companion/escort? Choose one (Mark box with an X)		
	Employed	248	→ go to question 249 (next block)
	Self-employed	248	→ go to question 249 (next block)
	Unemployed		
	Student/Scholar	258	→259. Days unable to attend school/ college because of accompanying you to the clinic:
	Looking for work	260	→261. Days unable to look for work because of accompanying you to the clinic:
	Receiving Grant/Pension		
Other			

249	On what basis is your companion/escort employed? Choose one (Mark box with an X)		
	Casual	250	→251. Enter average no. of days worked per week
			→252. Enter average amount brought home per day (after deductions e.g. tax)
			→257. Enter no. of days unable to work to accompany you to the clinic
	Weekly	253	→254. Enter average amount brought home per week (after deductions e.g. tax)
			→257. Enter no. of days unable to work to accompany you to the clinic
	Monthly	255	→256. Enter average amount brought home per month (after deductions e.g. tax)
			→257. Enter no. of days unable to work to accompany you to the clinic

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:	Date:	Clinic:	Interviewer code:
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VISITS TO OTHER HEALTH CARE PROVIDERS IN THE LAST 3 MONTHS

Show patient: Pictures of other health care providers on visual aid

Read: We also wish to know whether you have been to *any other health care provider besides this clinic* in the last 3 months. Other health care providers include hospitals (public, private, mine), other primary care clinics besides this one, private doctors, traditional healers etc. We would like to know about *all* visits to other health care providers, whether you attended as an outpatient or were admitted. In particular, we wish to know what these visits to other health care providers are costing you and your household, in terms of fees paid to other health care providers, travel costs and lost earnings.

262	Have you been to another health care provider besides this clinic in the last 3 months?		
	YES		→ complete questions 263 – 303 (this page and the next page)
	NO		→ skip to question 468 (top of page 32)

VISIT 1 to other health care provider in the last 3 months: questions 263 - 303

263	When did you visit another health care provider other than this clinic in the last 3 months? Choose <i>one</i> (Mark with an X)											
	Jan	Feb	March	April	May	June						
	July	August	Sept	Oct	Nov	Dec						

264	On this occasion, which of the following health care providers did you visit? Use visual aid (page 35) to select a health care provider. Choose <i>one</i> (Mark box with an X)											
	Hospital (Public or Private or Mine)						→265. Enter name of hospital:					
	Other PHC Clinic											
	Mobile Clinic											
	Workplace / Mine Clinic											
	Private Doctor											
	Traditional Healer											
	Pharmacy / Chemist											
	Other											

266	What was the reason for this visit? Check all that apply. Mark boxes with X.											
	Check-up for high blood pressure											
	Check-up for diabetes ('sugar')											
	Check-up for a respiratory problem											
	Check-up for other problem											
	First visit for a respiratory problem											
	First visit for other problem											
	Other											

268	Did you stay overnight at this health care provider?											
	YES						→269. Enter number of nights:					
	NO											

270	Did the health care provider charge you for that visit/ admission (consultation fee + medication)?											
	YES						→271. How much? (consultation fee + medication): R					
	NO											

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed	Fieldworker tick if completed.	Capturer tick if completed.

Patient Initials:		Date:		Clinic:		Interviewer code:	
272	How did you travel to this health care provider for that visit / admission? Use visual aid to select a mode of transport. Choose <i>one</i> (Mark box with an X)						
	Walk						
	Bicycle						
	Animal (e.g. donkey)						
	Taxi	273		→274. Enter amount paid for return fare to HCP by taxi:		R:	
	Bus	275		→276. Enter amount paid for return fare to HCP by bus:		R:	
	Train	277		→278. Enter amount paid for return fare to HCP train:		R:	
	Private motor vehicle						
	Ambulance	279		→281. Tariff paid? Enter amount : (enter 0 if no tariff paid)		R:	
	Other						

282	How long did it take you to visit the HCP from the time you left home until the time you got back home again (travel time + time spent at HCP)? Choose <i>one</i> (Mark box with an X)						
	Overnight			→284. Enter rands spent on accommodation		R:	
				→286. Enter rands spent on food and drink		R:	
	Between 2 and 12 hrs						
	Less than 2 hours						

287	Did someone accompany you to the health care provider?						
	YES			→ go to the next question			
	NO			→ skip to question 303 (at bottom of page)			

288	What is the employment status of your companion? Choose <i>one</i> (Mark box with an X)						
	Employed	289		→ go to question 290 (next block)			
	Self-employed	289		→ go to question 290 (next block)			
	Unemployed						
	Student/Learner	299		→300. Days unable to attend school/ college because of accompanying you to HCP:			
	Looking for work	301		→302. Days unable to look for work because of accompanying you to HCP:			
	Receiving Grant/Pension						
	Other						

290	On what basis is your companion/escort employed? Choose <i>one</i> (Mark box with an X)						
	Casual	291		→292. Enter average no. of days worked per week			
				→293. Enter average amount brought home per day (after deductions e.g. tax)			
				→298. Enter no. of days unable to work to accompany you to the HCP			
	Weekly	294		→295. Enter average amount brought home per week (after deductions e.g. tax)			
				→298. Enter no. of days unable to work to accompany you to the HCP			
	Monthly	296		→297. Enter average amount brought home per month (after deductions e.g. tax)			
				→298. Enter no. of days unable to work to accompany you to the HCP			

303	Is there another visit in the last 3 months to a health care provider other than this clinic which we have not discussed?						
	YES			→go to the next question (top of page 23)			
	NO			→ skip to question 468 (top of page 32)			

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:		Date:		Clinic:		Interviewer code:	
VISITS TO OTHER HEALTH CARE PROVIDERS IN THE LAST 3 MONTHS cont'd							

VISIT 2 to other health care provider in the last 3 months: questions 304 - 344

304	When did you visit another health care provider other than this clinic in the last 3 months? Choose <i>one</i> (Mark with an X)											
	Jan		Feb		March		April		May		June	
	July		August		Sept		Oct		Nov		Dec	

305	On this occasion, which of the following health care providers did you visit? Use visual aid (page 35) to select a health care provider. Choose <i>one</i> (Mark box with an X)											
	Hospital (Public or Private or Mine)				→306. Enter name of hospital:							
	Other PHC Clinic											
	Mobile Clinic											
	Workplace / Mine Clinic											
	Private Doctor											
	Traditional Healer											
	Pharmacy / Chemist											
Other												

307	What was the reason for this visit? Check all that apply. Mark boxes with X.											
	Check-up for high blood pressure											
	Check-up for diabetes ("sugar")											
	Check-up for a respiratory problem											
	Check-up for other problem											
	First visit for a respiratory problem											
	First visit for other problem											
Other				→308. Specify:								

309	Did you stay overnight at this health care provider?											
	YES				→310. Enter number of nights:							
NO												

311	Did the health care provider charge you for that visit/ admission (consultation fee + medication)?											
	YES				→312. How much? (consultation fee + medication): R							
NO												

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:		Date:		Clinic:		Interviewer code:	
313	How did you travel to this health care provider for that visit / admission? Use visual aid to select a mode of transport. Choose <i>one</i> (Mark box with an X)						
	Walk						
	Bicycle						
	Animal (e.g. donkey)						
	Taxi	314			→315. Enter amount paid for return fare to HCP by taxi:		R:
	Bus	316			→317. Enter amount paid for return fare to HCP by bus:		R:
	Train	318			→319. Enter amount paid for return fare to HCP train:		R:
	Private motor vehicle						
	Ambulance	320			→322. Tariff paid? Enter amount : (enter 0 if no tariff paid)		R:
	Other						

323	How long did it take you to visit the HCP from the time you left home until the time you got back home again (travel time + time spent at HCP)? Choose <i>one</i> (Mark box with an X)						
	Overnight				→325. Enter rands spent on accommodation		R:
					→327. Enter rands spent on food and drink		R:
	Between 2 and 12 hrs						
	Less than 2 hours						

328	Did someone accompany you to the health care provider?						
	YES				→ go to the next question		
	NO				→ skip to question 344 (at bottom of page)		

329	What is the employment status of your companion/escort? Choose <i>one</i> (Mark box with an X)						
	Employed	330			→ go to question 331 (next block)		
	Self-employed	330			→ go to question 331 (next block)		
	Unemployed						
	Student/Learner	339			→341. Days unable to attend school/ college because of accompanying you to HCP:		
	Looking for work	342			→343. Days unable to look for work because of accompanying you to HCP:		
	Receiving Grant/Pension						
	Other						

331	On what basis is your companion/escort employed? Choose <i>one</i> (Mark box with an X)						
	Casual	332			→333. Enter average no. of days worked per week		
					→334. Enter average amount brought home per day (after deductions e.g. tax)		
					→339. Enter no. of days unable to work to accompany you to the HCP		
	Weekly	335			→336. Enter average amount brought home per week (after deductions e.g. tax)		
					→339. Enter no. of days unable to work to accompany you to the HCP		
	Monthly	337			→338. Enter average amount brought home per month (after deductions e.g. tax)		
					→339. Enter no. of days unable to work to accompany you to the HCP		

344	Is there another visit in the last 3 months to a health care provider other than this clinic which we have not discussed?						
	YES				→go to the next question (top of page 26)		
	NO				→ skip to question 468 (top of page 32)		

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (e)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (e)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:	Date:	Clinic:	Interviewer code:
VISITS TO OTHER HEALTH CARE PROVIDERS IN THE LAST 3 MONTHS cont'd			

VISIT 3 to other health care provider in the last 3 months: questions 345 - 385

345	When did you visit another health care provider other than this clinic in the last 3 months? Choose one (Mark with an X)											
	Jan		Feb		March		April		May		June	
	July		August		Sept		Oct		Nov		Dec	

346	On this occasion, which of the following health care providers did you visit? Use visual aid (page 35) to select a health care provider. Choose one (Mark box with an X)										
	Hospital (Public or Private or Mine)				--347. Enter name of hospital:						
	Other PHC Clinic										
	Mobile Clinic										
	Workplace / Mine Clinic										
	Private Doctor										
	Traditional Healer										
	Pharmacy / Chemist										
Other											

348	What was the reason for this visit? Check all that apply. Mark boxes with X.										
	Check-up for high blood pressure										
	Check-up for diabetes ('sugar')										
	Check-up for a respiratory problem										
	Check-up for other problem										
	First visit for a respiratory problem										
	First visit for other problem										
Other				--349. Specify:							

350	Did you stay overnight at this health care provider?										
	YES				--351. Enter number of nights:						
NO											

352	Did the health care provider charge you for that visit/ admission (consultation fee + medication)?										
	YES				--353. How much? (consultation fee + medication): R						
NO											

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Capturer tick if completed.

Patient Initials:		Date:		Clinic:		Interviewer code:	
354	How did you travel to this health care provider for that visit / admission? Use visual aid to select a mode of transport. Choose <i>one</i> (Mark box with an X)						
	Walk						
	Bicycle						
	Animal (e.g. donkey)						
	Taxi	355			→356. Enter amount paid for return fare to HCP by taxi:		R:
	Bus	357			→358. Enter amount paid for return fare to HCP by bus:		R:
	Train	359			→360. Enter amount paid for return fare to HCP train:		R:
	Private motor vehicle						
	Ambulance	361			→363. Tariff paid? Enter amount : (enter 0 if no tariff paid)		R:
	Other						

364	How long did it take you to visit the HCP from the time you left home until the time you got back home again (travel time + time spent at HCP)? Choose <i>one</i> (Mark box with an X)						
	Overnight				→366. Enter rands spent on accommodation		R:
					→368. Enter rands spent on food and drink		R:
	Between 2 and 12 hrs						
	Less than 2 hours						

369	Did someone accompany you to the health care provider?						
	YES				→ go to the next question		
	NO				→ skip to question 385 (at bottom of page)		

370	What is the employment status of your companion/escort? Choose <i>one</i> (Mark box with an X)						
	Employed	371			→ go to question 372 (next block)		
	Self-employed	371			→ go to question 372 (next block)		
	Unemployed						
	Student/Leamer	381			→382. Days unable to attend school/ college because of accompanying you to HCP:		
	Looking for work	383			→384. Days unable to look for work because of accompanying you to HCP:		
	Receiving Grant/Pension						
	Other						

372	On what basis is your companion/escort employed? Choose <i>one</i> (Mark box with an X)						
	Casual	373			→374. Enter average no. of days worked per week		
					→375. Enter average amount brought home per day (after deductions e.g. tax)		
					→380. Enter no. of days unable to work to accompany you to the HCP		
	Weekly	376			→377. Enter average amount brought home per week (after deductions e.g. tax)		
					→380. Enter no. of days unable to work to accompany you to the HCP		
	Monthly	378			→379. Enter average amount brought home per month (after deductions e.g. tax)		
					→380. Enter no. of days unable to work to accompany you to the HCP		

385	Is there another visit in the last 3 months to a health care provider other than this clinic which we have not discussed?						
	YES				→go to the next question (top page 28)		
	NO				→ skip to question 468 (top of page 32)		

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient initials:	Date:	Clinic:	Interviewer code:
VISITS TO OTHER HEALTH CARE PROVIDERS IN THE LAST 3 MONTHS cont'd			

VISIT 4 to other health care provider in the last 3 months: questions 386 - 426											
386	When did you visit another health care provider other than this clinic in the last 3 months? Choose <i>one</i> (Mark with an X)										
	Jan	Feb	March	April	May	June					
	July	August	Sept	Oct	Nov	Dec					
387	On this occasion, which of the following health care providers did you visit? Use visual aid (page 35) to select a health care provider. Choose <i>one</i> (Mark box with an X)										
	Hospital (Public or Private or Mine)		→388. Enter name of hospital:								
	Other PHC Clinic										
	Mobile Clinic										
	Workplace / Mine Clinic										
	Private Doctor										
	Traditional Healer										
	Pharmacy / Chemist										
Other											
389	What was the reason for this visit? Check all that apply. Mark boxes with X.										
	Check-up for high blood pressure										
	Check-up for diabetes ("sugar")										
	Check-up for a respiratory problem										
	Check-up for other problem										
	First visit for a respiratory problem										
	First visit for other problem										
	Other		→390. Specify:								
391	Did you stay overnight at this health care provider?										
	YES		→392. Enter number of nights:								
	NO										
393	Did the health care provider charge you for that visit/ admission (consultation fee + medication)?										
	YES		→394. How much? (consultation fee + medication): R								
	NO										

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials: **Date:** **Clinic:** **Interviewer code:**

395 How did you travel to this health care provider for that visit / admission? Use visual aid to select a mode of transport. Choose <i>one</i> (Mark box with an X)			
Walk			
Bicycle			
Animal (e.g. donkey)			
Taxi	396	→397. Enter amount paid for return fare to HCP by taxi:	R:
Bus	398	→399. Enter amount paid for return fare to HCP by bus:	R:
Train	400	→401. Enter amount paid for return fare to HCP train:	R:
Private motor vehicle			
Ambulance	402	→404. Tariff paid? Enter amount : (enter 0 if no tariff paid)	R:
Other			

405 How long did it take you to visit the HCP from the time you left home until the time you got back home again (travel time + time spent at HCP)? Choose <i>one</i> (Mark box with an X)			
Overnight		→407. Enter rands spent on accommodation	R:
		→409. Enter rands spent on food and drink	R:
Between 2 and 12 hrs			
Less than 2 hours			

410 Did someone accompany you to the health care provider?			
YES		→ go to the next question	
NO		→ skip to question 426 (at bottom of page)	

411 What is the employment status of your companion/escort? Choose <i>one</i> (Mark box with an X)			
Employed	412	→ go to question 413 (next block)	
Self-employed	412	→ go to question 413 (next block)	
Unemployed			
Student/Leamer	422	→423. Days unable to attend school/ college because of accompanying you to HCP:	
Looking for work	424	→425. Days unable to look for work because of accompanying you to HCP:	
Receiving Grant/Pension			
Other			

413 On what basis is your companion/escort employed? Choose <i>one</i> (Mark box with an X)			
Casual	414	→415. Enter average no. of days worked per week	
		→416. Enter average amount brought home per day (after deductions e.g. tax)	
		→421. Enter no. of days unable to work to accompany you to the HCP	
Weekly	417	→418. Enter average amount brought home per week (after deductions e.g. tax)	
		→421. Enter no. of days unable to work to accompany you to the HCP	
Monthly	419	→420. Enter average amount brought home per month (after deductions e.g. tax)	
		→421. Enter no. of days unable to work to accompany you to the HCP	

426 Is there another visit in the last 3 months to a health care provider other than this clinic which we have not discussed?			
YES		→go to the next question (top of page 30)	
NO		→ skip to question 468 (top of page 32)	

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:	Date:	Clinic:	Interviewer code:
VISITS TO OTHER HEALTH CARE PROVIDERS IN THE LAST 3 MONTHS cont'd			

VISIT 5 to other health care provider in the last 3 months: questions 427 – 467

427	When did you visit another health care provider other than this clinic in the last 3 months? Choose one (Mark with an X)											
	Jan		Feb		March		April		May		June	
	July		August		Sept		Oct		Nov		Dec	

428	On this occasion, which of the following health care providers did you visit? Use visual aid (page 35) to select a health care provider. Choose one (Mark box with an X)											
	Hospital (Public or Private or Mine)				→429. Enter name of hospital:							
	Other PHC Clinic											
	Mobile Clinic											
	Workplace / Mine Clinic											
	Private Doctor											
	Traditional Healer											
	Pharmacy / Chemist											
Other												

430	What was the reason for this visit? Check all that apply. Mark boxes with X.											
	Check-up for high blood pressure											
	Check-up for diabetes ('sugar')											
	Check-up for a respiratory problem											
	Check-up for other problem											
	First visit for a respiratory problem											
	First visit for other problem											
	Other											

432	Did you stay overnight at this health care provider?											
	YES				→433. Enter number of nights:							
NO												

434	Did the health care provider charge you for that visit/ admission (consultation fee + medication)?											
	YES				→435. How much? (consultation fee + medication): R							
NO												

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:		Date:		Clinic:		Interviewer code:	
436	How did you travel to this health care provider for that visit / admission? Use visual aid to select a mode of transport. Choose <i>one</i> (Mark box with an X)						
	Walk						
	Bicycle						
	Animal (e.g. donkey)						
	Taxi	437		→438. Enter amount paid for return fare to HCP by taxi:		R:	
	Bus	439		→440. Enter amount paid for return fare to HCP by bus:		R:	
	Train	441		→442. Enter amount paid for return fare to HCP train:		R:	
	Private motor vehicle						
	Ambulance	443		→445. Tariff paid? Enter amount : (enter 0 if no tariff paid)		R:	
	Other						

446	How long did it take you to visit the HCP from the time you left home until the time you got back home again (travel time + time spent at HCP)? Choose <i>one</i> (Mark box with an X)						
	Overnight			→448. Enter rands spent on accommodation		R:	
				→450. Enter rands spent on food and drink		R:	
	Between 2 and 12 hrs						
	Less than 2 hours						

451	Did someone accompany you to the health care provider?						
	YES			→ go to the next question			
	NO			→ skip to question 468 (top of next page)			

452	What is the employment status of your companion/escort? Choose <i>one</i> (Mark box with an X)						
	Employed	453		→ go to question 454 (next block)			
	Self-employed	453		→ go to question 454 (next block)			
	Unemployed						
	Student/Leamer	463		→464. Days unable to attend school/ college because of accompanying you to HCP:			
	Looking for work	465		→466. Days unable to look for work because of accompanying you to HCP:			
	Receiving Grant/Pension						
	Other						

454	On what basis is your companion/escort employed? Choose <i>one</i> (Mark box with an X)						
	Casual	455		→456. Enter average no. of days worked per week			
				→457. Enter average amount brought home per day (after deductions e.g. tax)			
				→462. Enter no. of days unable to work to accompany you to the HCP			
	Weekly	458		→459. Enter average amount brought home per week (after deductions e.g. tax)			
				→462. Enter no. of days unable to work to accompany you to the HCP			
	Monthly	460		→461. Enter average amount brought home per month (after deductions e.g. tax)			
				→462. Enter no. of days unable to work to accompany you to the HCP			

467	Is there another visit in the last 3 months to a health care provider other than this clinic which we have not discussed?						
	YES			→ maximum number of visits entered, go to question 468 (top of page 32)			
	NO			→ go to question 468 (top of page 32)			

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:	Date:	Clinic:	Interviewer code:
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CAREGIVER COSTS IN THE LAST 3 MONTHS

Read: We wish to understand what this illness has cost your family and friends in terms of time caring for you at home. If you have been ill for some time we would like you to tell us about the person who has cared for you in the last 3 months. If more than one person has cared for you, please tell us about the person who looked after you the most.

468	Has anyone (including family or friends) looked after you at home because of any illness in the last 3 months?		
	YES		→ go to the next question
	NO		→ skip to question 484 (top of page 33)

469	What is the employment status of your caregiver? Choose <i>one</i> (Mark box with an X)		
	Employed	470	→ go to question 471 (next block)
	Self-employed	470	→ go to question 471 (next block)
	Unemployed		
	Student/Learner	480	→481. Days unable to attend school/ college because of looking after you at home in the last 3 months
	Looking for work	482	→483. Days unable to look for work because of looking after you in the last 3 months:
	Receiving Grant/Pension		
	Other		

471	On what basis is your caregiver employed? Choose one (Mark box with an X)		
	Casual	472	→473. Enter average no. of days worked per week
			→474. Enter average amount brought home per day (after deductions e.g. tax)
			→479. Enter no. of days unable to work because of looking after you at home in the last 3 months
	Weekly	475	→476. Enter average amount brought home per week (after deductions e.g. tax)
			→479. Enter no. of days unable to work because of looking after you at home in the last 3 months
	Monthly	477	→478. Enter average amount brought home per month (after deductions e.g. tax)
			→479. Enter no. of days unable to work because of looking after you in the last 3 months

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:		Date:		Clinic:		Interviewer code:	
ECONOMIC IMPACT OF ILLNESS cont'd							

498	In the last 3 months how much income have you lost as a result of not being able to work because of any illness? Choose one (Mark with an X)						
	Less than R100						
	R100 – R500						
	R500 – R1000						
	More than R1000						

503	In the last year, have you lost your job as a result of any illness?						
	YES						→ go to the next question
	NO						→ skip to question 505 (this page)

504	When you used to work, how much money did you bring home in a usual working month (after deductions e.g. tax)? Enter amount below:						
	R..... per month						

505	In the last year what did the household do to cope with your medical costs? Interviewer: Choose all that apply. (Mark boxes with X)						
	Used own income						
	Used savings						
	Sold assets e.g animals, appliances, clothes						
	Medical Aid						
	Help from relatives						
	Help from friends						
	Borrowed money						
	Other						
	Not applicable						

506	Did the nurse who saw you today talk to you about HIV?						
	YES						
	NO						

507	Did the nurse who saw you today refer you for HIV counselling and/or testing?						
	YES						
	NO						

508	Did you have an HIV test (rapid test/ fingerprick method or drawing of blood from your arm) at the clinic today?						
	YES						
	NO						

509	Have you been tested for HIV in the past?						
	YES						
	NO						

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Please correct/complete the following question (s)	Fieldworker tick if completed:	Fieldworker tick if completed:	Capturer tick if completed:

Patient Initials:	Date:	Clinic:	Interviewer code:
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ECONOMIC IMPACT OF ILLNESS

Read: We would like to understand what the economic impact of your illness has been on you and your household. In order to do this we need to know some background about your education, employment status, history and household income. We would like to remind you that all the information you give us is confidential.

484	What was the highest standard/grade you passed at school? Choose <i>one</i> (Mark box with an X)		
	Did not attend school		
	Sub A or Grade 1		
	Sub B or Grade 2		
	Standard 1 or Grade 3		
	Standard 2 or Grade 4		
	Standard 3 or Grade 5		
	Standard 4 or Grade 6		
	Standard 5 or Grade 7		
	Standard 6 or Grade 8		
	Standard 7 or Grade 9		
	Standard 8 or Grade 10		
	Standard 9 or Grade 11		
Standard 10 or Grade 12			

485	Which of the following best describes your employment status? Choose <i>one</i> (Mark box with an X)		
	Employed	486	→ go to question 487 (next block)
	Self-employed	486	→ go to question 487 (next block)
	Unemployed		
	Student/Learner	499	→500. Days unable to attend school/ college because of <i>any</i> illness in the last 3 months
	Looking for work	501	→502. Days unable to look for work because of <i>any</i> illness in the last 3 months:
	Receiving Grant/Pension		
Other			

487	On what basis are you employed? Choose <i>one</i> (Mark box with an X)		
	Casual	488	→489. Enter average no. of days worked per week
			→490. Enter average amount brought home per day (after deductions e.g. tax)
			→497. Enter no. of days unable to work because of <i>any</i> illness in the last 3 months
	Weekly	491	→492. Enter average number of weeks worked per month
			→493. Enter average amount brought home per week (after deductions e.g. tax)
			→497. Enter no. of days unable to work because of <i>any</i> illness in the last 3 months
	Monthly	494	→495. Enter average number of months worked per year
			→496. Enter average amount brought home per month (after deductions e.g. tax)
			→497. Enter no. of days unable to work because of <i>any</i> illness in the last 3 months

COMMENTS FROM EDITOR			COMMENTS FROM DATA CAPTURER			
Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Please correct/complete the following question (s)	Fieldworker tick if completed.	Fieldworker tick if completed.	Capturer tick if completed.

Patient Initials:		Date:		Clinic:		Interviewer code:	
PATIENT CONTACT DETAILS							

510	What is your home address?						

511	Do you have a telephone at home?						
	YES			→ 512. Enter number:			
	NO						

513	Do you have a cellphone?						
	YES			→ 514. Enter number:			
	NO						

515	Do you have a work address?						
	Enter below:						

517	Do you have a work telephone number?						
	YES			→ 518. Enter number:			
	NO						

519	Do you have an alternative telephone number (friend, relative, neighbour)?						
	YES			→ 520. Enter number:			
				→ 521. Enter name of contact:			
				→ 522. Enter how you are related to this contact (son, friend, neighbour):			
	NO						

524	SCHEDULE PATIENT FOR FOLLOW-UP INTERVIEW AFTER 3 MONTHS						
	Enter date below:						
	DATE:		MONTH:		YEAR:		

END OF BASELINE INTERVIEW

ANNEX 11

Follow-up interview questionnaire- English version

LUNG HEALTH SURVEY FOLLOW-UP QUESTIONNAIRE (English version)

University of Cape Town Lung Institute
 Centre for Health Services Research and Development, University of the Free State
 Department of Community Health, University of the Free State
 Medical Research Council

Patient initials: Date: Clinic: Interviewer code:

PATIENT DETAILS

3	Enter first name:				4	Enter last name:		
5	Gender: (Mark with an X)	Male	<input type="checkbox"/>	Female	<input type="checkbox"/>			
6	Enter folder no:				7	Re-enter folder no:		

8	Do you know the year of your birth?		
	YES	<input type="checkbox"/>	9 → Enter year of birth & go to question 11:
	NO	<input type="checkbox"/>	10 → Enter age at last birthday & go to question 11:

11	Remember when we last spoke to you here at the clinic 3 months ago. Think carefully back to that day. Compared with your state of health on the day of the first interview, do you think your state of health today is... Interviewer: Choose ONE. Mark box with an X.		
	Better	<input type="checkbox"/>	
	The same	<input type="checkbox"/>	
	Worse	<input type="checkbox"/>	

SYMPTOM SEVERITY IN THE LAST MONTH

I am now going to ask you some questions about how your chest has been in the last month. You will recognize the questions from the first interview. Please think carefully about your symptoms IN THE LAST MONTH before answering each question.

12	Have you had difficulty sleeping because of difficulty in breathing and/or cough in the last month?		
	YES	<input type="checkbox"/>	→ go to the next question
	NO	<input type="checkbox"/>	→ skip to question 14

13	Select a category: (Interviewer: Choose ONE. Mark box with an X)		
	1 – 2 times per month	<input type="checkbox"/>	
	1 – 2 times per week	<input type="checkbox"/>	
	Most nights	<input type="checkbox"/>	

14	Have you has your usual chest symptoms during the day (cough, wheeze, breathlessness) in the last month?		
	YES	<input type="checkbox"/>	→ go to the next question
	NO	<input type="checkbox"/>	→ skip to question 16

15	Select a category: (Interviewer: Choose ONE. Mark box with an X)		
	1 – 2 times per month	<input type="checkbox"/>	
	1 – 2 times per week	<input type="checkbox"/>	
	Most days	<input type="checkbox"/>	

16	Has your chest problem interfered with your usual activities (e.g. work, study, housework, family or leisure activities) in the last month?		
	YES	<input type="checkbox"/>	→ go to the next question
	NO	<input type="checkbox"/>	→ skip to question 18 (top of page 2)

17	Select a category: (Interviewer: Choose ONE. Mark box with an X)		
	1 – 2 times per month	<input type="checkbox"/>	
	1 – 2 times per week	<input type="checkbox"/>	
	Most days	<input type="checkbox"/>	

Patient initials: Date: Clinic: Interviewer code:

HEALTH-RELATED QUALITY OF LIFE TODAY

Read to patient (and complete with the help of the visual aid page 4)
I also want to ask you about the state of your health TODAY. Again you will recognize the questions from the first interview. Just as before you will need to choose one box per group to describe the state of your health TODAY.

MOBILITY

18

I have no problems in walking about

I have some problems in walking about

I am confined to bed

SELF-CARE

19

I have no problems with self-care

I have some problems washing or dressing myself

I am unable to wash or dress myself

USUAL ACTIVITIES (e.g. work, study, housework, family or leisure activities)

20

I have no problems with performing usual activities

I have some problems with performing usual activities

I am unable to perform usual activities

PAIN / DISCOMFORT

21

I have no pain or discomfort

I have moderate pain or discomfort

I have severe pain or discomfort

ANXIETY / DEPRESSION

22

I am not anxious or depressed

I am moderately anxious or depressed

I am extremely anxious or depressed

Patient Initials: [] Date: [] Clinic: [] Interviewer code: []

HEALTH-RELATED QUALITY OF LIFE IN THE LAST MONTH

Read to patient (and complete with the help of the visual aid page 6)
I also want to ask you about the state of your health **IN THE LAST MONTH**. Again you will recognize the questions from the first interview. Just as before you will need to choose one box per group to describe the state of your health **IN THE LAST MONTH**.

MOBILITY

24

I have no problems in walking about

I have some problems in walking about

I am confined to bed

SELF-CARE

25

I have no problems with self-care

I have some problems washing or dressing myself

I am unable to wash or dress myself

USUAL ACTIVITIES (e.g. work, study, housework, family or leisure activities)

26

I have no problems with performing usual activities

I have some problems with performing usual activities

I am unable to perform usual activities

PAIN / DISCOMFORT

27

I have no pain or discomfort

I have moderate pain or discomfort

I have severe pain or discomfort

ANXIETY / DEPRESSION

28

I am not anxious or depressed

I am moderately anxious or depressed

I am extremely anxious or depressed

Patient Initials: _____ Date: _____ Clinic: _____ Interviewer code: _____

HEALTH-RELATED QUALITY OF LIFE TODAY cont'd

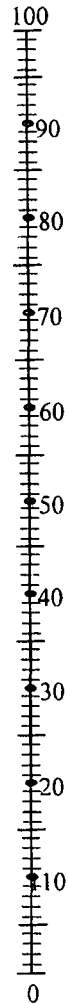
23. Read:

To help people say how good or bad a health state is, we have drawn a scale (rather like a thermometer) on which the best state you can imagine is marked 100 and the worst state you can imagine is marked 0.

We would like you to indicate on this scale, in your opinion, how good or bad your own health is TODAY. Please do this by drawing a line from the box below to whichever point on the scale indicates how good or bad your state of health is today.

Your own state
of health today

Best
imaginable
state of health



Worst
imaginable
state of health

Patient Initials: Date: Clinic: Interviewer code:

HEALTH-RELATED QUALITY OF LIFE IN THE LAST MONTH cont'd

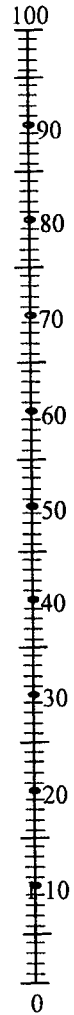
29. Read:

To help people say how good or bad a health state is, we have drawn a scale (rather like a thermometer) on which the best state you can imagine is marked 100 and the worst state you can imagine is marked 0.

We would like you to indicate on this scale, in your opinion, how good or bad your own health has been **IN THE LAST MONTH**. Please do this by drawing a line from the box below to whichever point on the scale indicates how good or bad your state of health has been **IN THE LAST MONTH**.

Your own state
of health in the
last month

Best
imaginable
state of health



Worst
imaginable
state of health

Patient Initials: Date: Clinic: Interviewer code:

VISITS BACK TO THIS CLINIC IN THE LAST 3 MONTHS

30	Interviewer: Are you conducting this interview at the patient's home or at the clinic? Choose ONE. Mark box with an X.	
	At the patient's home	→ skip to question 33 (this page)
	At the clinic	→ go to the next question

31	Including today, have you been back to the clinic (to collect meds, for a check-up, to see a nurse or doctor etc.) in the last 3 months after our first interview?	
	Interviewer: Indicate NO if the patient has not been back to the clinic after the first interview and is attending the clinic today ONLY for the purpose of the interview.	
	YES	→ go to the next question
	NO	→ skip to question 156 (top of page 14)

32	Interviewer: Have you confirmed in the folder that the patient attended the clinic in the last 3 months after the first interview?	
	YES	→ skip to question 34 (this page)
	NO	→ skip to question 34 (this page)

33	Have you been back to the clinic in the last 3 months after our first interview?	
	YES	→ go to the next question
	NO	→ skip to question 157 (page 14)

34	I would like to know about ALL your visits back to this clinic in the last 3 months after our first interview and including this visit today (if attending the clinic for reasons besides the interview). As with the first interview, we will use your folder (if available) to help refresh your memory.	
	TB Patients: I will only ask you to tell me about visits besides when you came to collect your TB medication.	
	Besides visits to collect TB medication, how many times have you been back to the clinic in the last 3 months after our first interview?	
	Enter number of times:	<input type="text"/>

Patient Initials: _____ Date: _____ Clinic: _____ Interviewer code: _____

VISITS TO THIS CLINIC IN THE LAST 3 MONTHS cont'd

<p>35 VISIT 1 BACK TO THIS CLINIC IN THE LAST 3 MONTHS</p> <p>Month of visit: _____</p>	<p>43 VISIT 2 BACK TO THIS CLINIC IN THE LAST 3 MONTHS</p> <p>Month of Visit: _____</p>																												
<p>36 What was the reason for attendance for clinic visit 1? Interviewer: Check ALL that apply.</p> <table border="1" style="width: 100%;"> <tr><td>Check-up for high blood pressure</td><td></td></tr> <tr><td>Check-up for diabetes ("sugar")</td><td></td></tr> <tr><td>Check-up for a respiratory problem</td><td></td></tr> <tr><td>Check-up for other problem</td><td></td></tr> <tr><td>First visit for a respiratory problem</td><td></td></tr> <tr><td>First visit for other problem</td><td></td></tr> <tr><td>Other (please specify):</td><td>37</td></tr> </table>	Check-up for high blood pressure		Check-up for diabetes ("sugar")		Check-up for a respiratory problem		Check-up for other problem		First visit for a respiratory problem		First visit for other problem		Other (please specify):	37	<p>44 What was the reason for attendance for clinic visit 2? Interviewer: Check all that apply.</p> <table border="1" style="width: 100%;"> <tr><td>Check-up for high blood pressure</td><td></td></tr> <tr><td>Check-up for diabetes ("sugar")</td><td></td></tr> <tr><td>Check-up for a respiratory problem</td><td></td></tr> <tr><td>Check-up for other problem</td><td></td></tr> <tr><td>First visit for a respiratory problem</td><td></td></tr> <tr><td>First visit for other problem</td><td></td></tr> <tr><td>Other (please specify):</td><td>45</td></tr> </table>	Check-up for high blood pressure		Check-up for diabetes ("sugar")		Check-up for a respiratory problem		Check-up for other problem		First visit for a respiratory problem		First visit for other problem		Other (please specify):	45
Check-up for high blood pressure																													
Check-up for diabetes ("sugar")																													
Check-up for a respiratory problem																													
Check-up for other problem																													
First visit for a respiratory problem																													
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Other (please specify):	37																												
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First visit for a respiratory problem																													
First visit for other problem																													
Other (please specify):	45																												
<p>38 On that occasion, who did you see at the clinic? Choose ONE. Mark box with an X.</p> <table border="1" style="width: 100%;"> <tr><td>A clinic nurse</td><td></td></tr> <tr><td>A doctor</td><td></td></tr> <tr><td>A clinic nurse AND a doctor</td><td></td></tr> <tr><td>None of these</td><td></td></tr> </table>	A clinic nurse		A doctor		A clinic nurse AND a doctor		None of these		<p>46 On that occasion, who did you see at the clinic? Choose ONE. Mark box with an X.</p> <table border="1" style="width: 100%;"> <tr><td>A clinic nurse</td><td></td></tr> <tr><td>A doctor</td><td></td></tr> <tr><td>A clinic nurse AND a doctor</td><td></td></tr> <tr><td>None of these</td><td></td></tr> </table>	A clinic nurse		A doctor		A clinic nurse AND a doctor		None of these													
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A doctor																													
A clinic nurse AND a doctor																													
None of these																													
<p>39 Interviewer: Did the patient indicate that he/she had seen a nurse on this occasion whether or not he/she also saw a doctor?</p> <table border="1" style="width: 100%;"> <tr><td>YES</td><td></td><td>→ go to the next question</td></tr> <tr><td>NO</td><td></td><td>→ skip to question 42</td></tr> </table>	YES		→ go to the next question	NO		→ skip to question 42	<p>47 Interviewer: Did the patient indicate that he/she had seen a nurse on this occasion whether or not he/she also saw a doctor?</p> <table border="1" style="width: 100%;"> <tr><td>YES</td><td></td><td>→ go to the next question</td></tr> <tr><td>NO</td><td></td><td>→ skip to question 50</td></tr> </table>	YES		→ go to the next question	NO		→ skip to question 50																
YES		→ go to the next question																											
NO		→ skip to question 42																											
YES		→ go to the next question																											
NO		→ skip to question 50																											
<p>40 Did the nurse tell you what was wrong with you on that occasion?</p> <table border="1" style="width: 100%;"> <tr><td>YES</td><td></td><td>→ go to the next question</td></tr> <tr><td>NO</td><td></td><td>→ skip to question 42</td></tr> </table>	YES		→ go to the next question	NO		→ skip to question 42	<p>48 Did the nurse tell you what was wrong with you on that occasion?</p> <table border="1" style="width: 100%;"> <tr><td>YES</td><td></td><td>→ go to the next question</td></tr> <tr><td>NO</td><td></td><td>→ skip to question 50</td></tr> </table>	YES		→ go to the next question	NO		→ skip to question 50																
YES		→ go to the next question																											
NO		→ skip to question 42																											
YES		→ go to the next question																											
NO		→ skip to question 50																											
<p>41 What did he/she tell you? Interviewer: Enter response below.</p> <p>_____</p>	<p>49 What did he/she tell you? Interviewer: Enter response below.</p> <p>_____</p>																												
<p>42 Interviewer: Enter data for another clinic visit?</p> <table border="1" style="width: 100%;"> <tr><td>YES</td><td>→ go to question 43 (next block)</td></tr> <tr><td>NO</td><td>→ skip to question 99 (top of page 11)</td></tr> </table>	YES	→ go to question 43 (next block)	NO	→ skip to question 99 (top of page 11)	<p>50 Interviewer: Enter data for another clinic visit?</p> <table border="1" style="width: 100%;"> <tr><td>YES</td><td>→ go to question 51 (next page)</td></tr> <tr><td>NO</td><td>→ skip to question 99 (top of page 11)</td></tr> </table>	YES	→ go to question 51 (next page)	NO	→ skip to question 99 (top of page 11)																				
YES	→ go to question 43 (next block)																												
NO	→ skip to question 99 (top of page 11)																												
YES	→ go to question 51 (next page)																												
NO	→ skip to question 99 (top of page 11)																												

Patient Initials: _____ Date: _____ Clinic: _____ Interviewer code: _____

VISITS TO THIS CLINIC IN THE LAST 3 MONTHS cont'd

51	VISIT 3 BACK TO THIS CLINIC IN THE LAST 3 MONTHS		VISIT 4 BACK TO THIS CLINIC IN THE LAST 3 MONTHS
	Month of visit: _____		Month of Visit: _____
52	What was the reason for attendance for clinic visit 3? Interviewer: Check ALL that apply.	59	What was the reason for attendance for clinic visit 4? Interviewer: Check all that apply.
	Check-up for high blood pressure <input type="checkbox"/>		Check-up for high blood pressure <input type="checkbox"/>
	Check-up for diabetes ("sugar") <input type="checkbox"/>		Check-up for diabetes ("sugar") <input type="checkbox"/>
	Check-up for a respiratory problem <input type="checkbox"/>		Check-up for a respiratory problem <input type="checkbox"/>
	Check-up for other problem <input type="checkbox"/>		Check-up for other problem <input type="checkbox"/>
	First visit for a respiratory problem <input type="checkbox"/>		First visit for a respiratory problem <input type="checkbox"/>
	First visit for other problem <input type="checkbox"/>		First visit for other problem <input type="checkbox"/>
	Other (please specify): _____ 53		Other (please specify): _____ 61
54	On that occasion, who did you see at the clinic? Choose ONE. Mark box with an X.	62	On that occasion, who did you see at the clinic? Choose ONE. Mark box with an X.
	A clinic nurse <input type="checkbox"/>		A clinic nurse <input type="checkbox"/>
	A doctor <input type="checkbox"/>		A doctor <input type="checkbox"/>
	A clinic nurse AND a doctor <input type="checkbox"/>		A clinic nurse AND a doctor <input type="checkbox"/>
	None of these <input type="checkbox"/>		None of these <input type="checkbox"/>
55	Interviewer: Did the patient indicate that he/she had seen a nurse on this occasion whether or not he/she also saw a doctor?	63	Interviewer: Did the patient indicate that he/she had seen a nurse on this occasion whether or not he/she also saw a doctor?
	YES <input type="checkbox"/> → go to the next question		YES <input type="checkbox"/> → go to the next question
	NO <input type="checkbox"/> → skip to question 58		NO <input type="checkbox"/> → skip to question 66
56	Did the nurse tell you what was wrong with you on that occasion?	64	Did the nurse tell you what was wrong with you on that occasion?
	YES <input type="checkbox"/> → go to the next question		YES <input type="checkbox"/> → go to the next question
	NO <input type="checkbox"/> → skip to question 58		NO <input type="checkbox"/> → skip to question 66
57	What did he/she tell you? Interviewer: Enter response below.	65	What did he/she tell you? Interviewer: Enter response below.
	_____		_____
58	Interviewer: Enter data for another clinic visit?	66	Interviewer: Enter data for another clinic visit?
	YES → go to question 59 (next block)		YES → go to question 67 (next page)
	NO → skip to question 99 (top of page 11))		NO → skip to question 99 (top of page 11)

LHS Follow-up Questionnaire English Version page 9

Patient Initials: _____ Date: _____ Clinic: _____ Interviewer code: _____

VISITS TO THIS CLINIC IN THE LAST 3 MONTHS cont'd

<p>67 VISIT 5 BACK TO THIS CLINIC IN THE LAST 3 MONTHS</p> <p>Month of visit: _____</p>	<p>75 VISIT 6 BACK TO THIS CLINIC IN THE LAST 3 MONTHS</p> <p>Month of Visit: _____</p>																												
<p>68 What was the reason for attendance for clinic visit 5? Interviewer: Check ALL that apply.</p> <table border="1"> <tr><td>Check-up for high blood pressure</td><td></td></tr> <tr><td>Check-up for diabetes ("sugar")</td><td></td></tr> <tr><td>Check-up for a respiratory problem</td><td></td></tr> <tr><td>Check-up for other problem</td><td></td></tr> <tr><td>First visit for a respiratory problem</td><td></td></tr> <tr><td>First visit for other problem</td><td></td></tr> <tr><td>Other (please specify):</td><td>69</td></tr> </table>	Check-up for high blood pressure		Check-up for diabetes ("sugar")		Check-up for a respiratory problem		Check-up for other problem		First visit for a respiratory problem		First visit for other problem		Other (please specify):	69	<p>76 What was the reason for attendance for clinic visit 6? Interviewer: Check all that apply.</p> <table border="1"> <tr><td>Check-up for high blood pressure</td><td></td></tr> <tr><td>Check-up for diabetes ("sugar")</td><td></td></tr> <tr><td>Check-up for a respiratory problem</td><td></td></tr> <tr><td>Check-up for other problem</td><td></td></tr> <tr><td>First visit for a respiratory problem</td><td></td></tr> <tr><td>First visit for other problem</td><td></td></tr> <tr><td>Other (please specify):</td><td>77</td></tr> </table>	Check-up for high blood pressure		Check-up for diabetes ("sugar")		Check-up for a respiratory problem		Check-up for other problem		First visit for a respiratory problem		First visit for other problem		Other (please specify):	77
Check-up for high blood pressure																													
Check-up for diabetes ("sugar")																													
Check-up for a respiratory problem																													
Check-up for other problem																													
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Other (please specify):	77																												
<p>70 On that occasion, who did you see at the clinic? Choose ONE. Mark box with an X.</p> <table border="1"> <tr><td>A clinic nurse</td><td></td></tr> <tr><td>A doctor</td><td></td></tr> <tr><td>A clinic nurse AND a doctor</td><td></td></tr> <tr><td>None of these</td><td></td></tr> </table>	A clinic nurse		A doctor		A clinic nurse AND a doctor		None of these		<p>78 On that occasion, who did you see at the clinic? Choose ONE. Mark box with an X.</p> <table border="1"> <tr><td>A clinic nurse</td><td></td></tr> <tr><td>A doctor</td><td></td></tr> <tr><td>A clinic nurse AND a doctor</td><td></td></tr> <tr><td>None of these</td><td></td></tr> </table>	A clinic nurse		A doctor		A clinic nurse AND a doctor		None of these													
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None of these																													
<p>71 Interviewer: Did the patient indicate that he/she had seen a nurse on this occasion whether or not he/she also saw a doctor?</p> <table border="1"> <tr><td>YES</td><td></td><td>→ go to the next question</td></tr> <tr><td>NO</td><td></td><td>→ skip to question 74</td></tr> </table>	YES		→ go to the next question	NO		→ skip to question 74	<p>79 Interviewer: Did the patient indicate that he/she had seen a nurse on this occasion whether or not he/she also saw a doctor?</p> <table border="1"> <tr><td>YES</td><td></td><td>→ go to the next question</td></tr> <tr><td>NO</td><td></td><td>→ skip to question 82</td></tr> </table>	YES		→ go to the next question	NO		→ skip to question 82																
YES		→ go to the next question																											
NO		→ skip to question 74																											
YES		→ go to the next question																											
NO		→ skip to question 82																											
<p>72 Did the nurse tell you what was wrong with you on that occasion?</p> <table border="1"> <tr><td>YES</td><td></td><td>→ go to the next question</td></tr> <tr><td>NO</td><td></td><td>→ skip to question 74</td></tr> </table>	YES		→ go to the next question	NO		→ skip to question 74	<p>80 Did the nurse tell you what was wrong with you on that occasion?</p> <table border="1"> <tr><td>YES</td><td></td><td>→ go to the next question</td></tr> <tr><td>NO</td><td></td><td>→ skip to question 82</td></tr> </table>	YES		→ go to the next question	NO		→ skip to question 82																
YES		→ go to the next question																											
NO		→ skip to question 74																											
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NO		→ skip to question 82																											
<p>73 What did he/she tell you? Interviewer: Enter response below.</p> <p>_____</p>	<p>81 What did he/she tell you? Interviewer: Enter response below.</p> <p>_____</p>																												
<p>74 Interviewer: Enter data for another clinic visit?</p> <table border="1"> <tr><td>YES</td><td>→ go to question 75 (next block)</td></tr> <tr><td>NO</td><td>→ skip to question 99 (top of page 11))</td></tr> </table>	YES	→ go to question 75 (next block)	NO	→ skip to question 99 (top of page 11))	<p>82 Interviewer: Enter data for another clinic visit?</p> <table border="1"> <tr><td>YES</td><td>→ go to question 83 (next page)</td></tr> <tr><td>NO</td><td>→ skip to question 99 (top of page 11)</td></tr> </table>	YES	→ go to question 83 (next page)	NO	→ skip to question 99 (top of page 11)																				
YES	→ go to question 75 (next block)																												
NO	→ skip to question 99 (top of page 11))																												
YES	→ go to question 83 (next page)																												
NO	→ skip to question 99 (top of page 11)																												

Patient Initials: _____ Date: _____ Clinic: _____ Interviewer code: _____

VISITS TO THIS CLINIC IN THE LAST 3 MONTHS cont'd

83	VISIT 7 BACK TO THIS CLINIC IN THE LAST 3 MONTHS			91	VISIT 8 BACK TO THIS CLINIC IN THE LAST 3 MONTHS		
	Month of visit:				Month of Visit:		
84	What was the reason for attendance for clinic visit 7? Interviewer: Check ALL that apply.			92	What was the reason for attendance for clinic visit 8? Interviewer: Check all that apply.		
	Check-up for high blood pressure				Check-up for high blood pressure		
	Check-up for diabetes ("sugar")				Check-up for diabetes ("sugar")		
	Check-up for a respiratory problem				Check-up for a respiratory problem		
	Check-up for other problem				Check-up for other problem		
	First visit for a respiratory problem				First visit for a respiratory problem		
	First visit for other problem				First visit for other problem		
	Other (please specify):	85			Other (please specify):	93	
86	On that occasion, who did you see at the clinic? Choose ONE. Mark box with an X.			94	On that occasion, who did you see at the clinic? Choose ONE. Mark box with an X.		
	A clinic nurse				A clinic nurse		
	A doctor				A doctor		
	A clinic nurse AND a doctor				A clinic nurse AND a doctor		
	None of these				None of these		
87	Interviewer: Did the patient indicate that he/she had seen a nurse on this occasion whether or not he/she also saw a doctor?			95	Interviewer: Did the patient indicate that he/she had seen a nurse on this occasion whether or not he/she also saw a doctor?		
	YES		→ go to the next question		YES		→ go to the next question
	NO		→ skip to question 90		NO		→ skip to question 90
88	Did the nurse tell you what was wrong with you on that occasion?			96	Did the nurse tell you what was wrong with you on that occasion?		
	YES		→ go to the next question		YES		→ go to the next question
	NO		→ skip to question 90		NO		→ skip to question 98
89	What did he/she tell you? Interviewer: Enter response below.			97	What did he/she tell you? Interviewer: Enter response below.		
90	Interviewer: Enter data for another clinic visit?			98	Interviewer: Enter data for another clinic visit?		
	YES	→ go to question 91 (next block)			YES	→ You have already entered the maximum number of clinic visits for this patient. → go to question 99 (next page)	
	NO	→ skip to question 99 (top of page 11))			NO	→ skip to question 99 (next page)	

Patient Initials: Date: Clinic: Interviewer code:

CARE RECEIVED AT THIS CLINIC IN THE LAST 3 MONTHS

99	Has a nurse at this clinic collected any phlegm/sputum samples for testing in the last 3 months after our first interview?		
	Interviewer: Show patient pictures of sputum jars in the visual aid (pages 26 - 27).		
	YES	<input type="checkbox"/>	→ 100. How many did she collect?
	NO	<input type="checkbox"/>	

101	Has a nurse at this clinic asked you to collect any phlegm/sputum samples at home in the last 3 months after our first interview?		
	Interviewer: Show patient pictures of sputum jars in the visual aid (pages 26 -27).		
	YES	<input type="checkbox"/>	→ 102. How many did she ask you to collect?
	NO	<input type="checkbox"/>	

103	Have you been diagnosed with TB in the last 3 months after our first interview?		
	YES	<input type="checkbox"/>	→ go to the next question
	NO	<input type="checkbox"/>	→ skip to question 108 (this page)

104	Where were you diagnosed with TB?		
	Interviewer: Choose ONE. Mark box with an X.		
	In a hospital	<input type="checkbox"/>	
	At this clinic	<input type="checkbox"/>	
	At another clinic	<input type="checkbox"/>	

105	Where are you receiving your TB treatment?		
	Interviewer: Choose ONE. Mark box with an X.		
	This clinic	<input type="checkbox"/>	
	Another clinic	<input type="checkbox"/>	

106	When did you start your TB treatment at this clinic?			
	Interviewer: Ask patient to show you their TB treatment card if available			
	Date:	<input type="text"/>	Month	<input type="text"/>
			Year	<input type="text"/>

107	How often do or did you attend the clinic for TB treatment?		
	Interviewer: Choose ONE. Mark box with an X.		
	Once	<input type="checkbox"/>	Once every 2 weeks
	Twice	<input type="checkbox"/>	Once every 3 weeks
	Three times	<input type="checkbox"/>	Once a month
	Four times	<input type="checkbox"/>	
	Five times (Every day)	<input type="checkbox"/>	

108	Have you had any blood tests in the last 3 months after our first interview?		
	YES	<input type="checkbox"/>	
	NO	<input type="checkbox"/>	

109	Have you had a chest X-ray in the last 3 months after our first interview?		
	YES	<input type="checkbox"/>	→ 110. How many Chest X-Rays have you had?
	NO	<input type="checkbox"/>	

LHS Follow-up Questionnaire English version page 12

Patient Initials: _____ Date: _____ Clinic: _____ Interviewer code: _____

CARE RECEIVED AT THIS CLINIC IN THE LAST 3 MONTHS con'td

111	Has a nurse at the clinic referred you to a doctor (at the clinic or elsewhere) in the last 3 months after our first interview?		
	YES		→ go to the next question
	NO		→ skip to question 116 (this page – Smoking)

112	Did the nurse refer you to a doctor at (insert name of clinic) clinic?		
	YES		→ go to the next question
	NO		→ skip to question 115 (this page)

113	Have you seen the doctor yet?		
	YES		→ 114. How many times in the last 3 months?
	NO		

115	Did the nurse refer you to a doctor at another clinic or hospital?		
	YES		→ remember to record all details of visits to doctors in other primary care clinics under: VISITS TO OTHER HEALTH CARE PROVIDERS BESIDES THIS ONE IN THE LAST 3 MONTHS (Page 19)
	NO		

SMOKING

116	Have you ever smoked?		
	YES		→ go to the next question
	NO		→ skip to question 125 (top of page 13)

117	Do you smoke currently?		
	YES		→ go to the next question
	NO		→ skip to question 123 (this page)

118 to 120	On average how many of the following items do you smoke per day? Mark appropriate boxes and enter average number smoked per day. Enter 0 for those items not smoked. Check ALL that apply.		
	Shop-bought cigarettes	118	Enter no. smoked per day:
	Hand-rolled cigarettes	119	Enter no. smoked per day:
	Pipefuls of tobacco	120	Enter no. smoked per day:

121	Has a nurse at this clinic advised you to reduce or quit smoking in the last 3 months after our first interview?		
	YES		
	NO		

122	Which of the following best describes your thoughts about stopping smoking now? Interviewer: Read all 3 statements to patient and ask them to choose ONE. See visual aid page 24.		
	I will stop smoking		→ skip to question 125 (top of page 13)
	I plan to stop smoking but not now		→ skip to question 125 (top of page 13)
	I do not plan to stop smoking soon		→ skip to question 125 (top of page 13)

123	When did you stop smoking?		
	Before the first interview		→ skip to question 125 (top of page 13)
	After the first interview		→ go to the next question

124	Has a nurse at this clinic advised you to reduce or quit smoking in the last 3 months after our first interview?		
	YES		
	NO		

LHS Follow-up Questionnaire English version page 13

Patient Initials: Date: Clinic: Interviewer code:

TRAVEL TO THIS CLINIC IN THE LAST 3 MONTHS

125	Thinking back, in the last 3 months how have you usually travelled to the clinic? Use visual aid to select a mode of transport. Choose ONE. Mark box with an X.		
	Walk		
	Bicycle		
	Animal (e.g. donkey)		
	Taxi	126	→127. Enter amount paid for return fare to the clinic by taxi: R:
	Bus	128	→129. Enter amount paid for return fare to the clinic by bus: R:
	Train	130	→131. Enter amount paid for return fare to the clinic train: R:
	Private motor vehicle		
	Ambulance	132	→133. Tariff paid? Enter amount : (enter 0 if no tariff paid) R:
	Other		

135	How long did it usually take you to visit the clinic and back home again (travel time + time spent at the clinic)? Choose ONE. Mark box with an X.		
	Overnight		→137. Enter rands spent on accommodation R: →139. Enter rands spent on food and drink R:
	Between 2 and 12 hrs		
	Less than 2 hours		

140	Thinking back in the last 3 months, has someone usually accompanied you to the clinic?		
	YES		→ go to the next question
	NO		→ skip to question 169 (top of page 15)

141	What is the employment status of your usual companion/escort? Choose one (Mark box with an X)		
	Employed	142	→ go to question 143 (next block)
	Self-employed	142	→ go to question 143 (next block)
	Unemployed		→ skip to question 169 (top of page 15)
	Student/Leamer	152	→153. Days unable to attend school/ college because of accompanying you to HCP: (then skip to question 169, top of page 15)
	Looking for work	154	→155. Days unable to look for work because of accompanying you to HCP: (then skip to question 169, top of page 15)
	Receiving Grant/Pension		→ skip to question 169 (top of page 15)
	Other		→ skip to question 169 (top of page 15)

143	On what basis is your companion/escort employed? Choose one (Mark box with an X)		
	Casual	144	→145. Enter average no. of days worked per week
			→146. Enter average amount brought home per day (after deductions e.g. tax)
			→151. Enter no. of days unable to work to accompany you to the HCP: (then skip to question 169, top of page 15)
	Weekly	147	→148. Enter average amount brought home per week (after deductions e.g. tax)
			→151. Enter no. of days unable to work to accompany you to the HCP: (then skip to question 169, top of page 15)
	Monthly	149	→150. Enter average amount brought home per month (after deductions e.g. tax)
			→151. Enter no. of days unable to work to accompany you to the HCP: (then skip to question 169, top of page 15)

LHS Follow-up Questionnaire English version page 14

Patient Initials: Date: Clinic: Interviewer code:

PATIENTS WHO HAVE NOT BEEN BACK TO THIS CLINIC IN THE LAST 3 MONTHS

156	Interviewer: Have you confirmed in the folder that the patient did not attend the clinic in the last 3 months after the first interview?		
	YES	<input type="text"/>	
	NO	<input type="text"/>	

157	Have you been diagnosed with TB in the last 3 months after our first interview?		
	YES	<input type="text"/>	→ go to the next question
	NO	<input type="text"/>	→ skip to question 160 (this page - Smoking)

158	Where were you diagnosed with TB? Interviewer: Enter clinic/hospital name below.	<input type="text"/>	
		<input type="text"/>	

159	Where are you receiving your TB treatment? Interviewer: Enter clinic/hospital name below.	<input type="text"/>	
		<input type="text"/>	

SMOKING

160	Have you ever smoked?		
	YES	<input type="text"/>	→ go to the next question
	NO	<input type="text"/>	→ skip to question 169 (top of page 15)

161	Do you smoke currently?		
	YES	<input type="text"/>	→ go to the next question
	NO	<input type="text"/>	→ skip to question 167 (this page)

162 to 164	On average how many of the following items do you smoke per day? Enter average number smoked per day. Enter 0 for those items not smoked. Check ALL that apply.		
	Shop-bought cigarettes	162	Enter no. smoked per day:
	Hand-rolled cigarettes	163	Enter no. smoked per day:
	Pipefuls of tobacco	164	Enter no. smoked per day:

165	Has a nurse at this clinic advised you to reduce or quit smoking in the last 3 months after our first interview?		
	YES	<input type="text"/>	
	NO	<input type="text"/>	

166	Which of the following best describes your thoughts about stopping smoking now? Interviewer: Read all 3 statements to patient and ask them to choose ONE.		
	I will stop smoking	<input type="text"/>	→ skip to question 169 (top of page 15)
	I plan to stop smoking but not now	<input type="text"/>	→ skip to question 169 (top of page 15)
	I do not plan to stop smoking soon	<input type="text"/>	→ skip to question 169 (top of page 15)

167	When did you stop smoking?		
	Before the first interview	<input type="text"/>	→ skip to question 169 (top of page 15)
	After the first interview	<input type="text"/>	→ go to the next question

168	Has a nurse at this clinic advised you to reduce or quit smoking in the last 3 months after our first interview?		
	YES	<input type="text"/>	
	NO	<input type="text"/>	

LHS Follow-up Questionnaire English version page 15

Patient Initials: Date: Clinic: Interviewer code:

MEDICATION

169	Interviewer: Are you conducting this interview at the patient's home or at the clinic?		
	At the patient's home	<input type="checkbox"/>	→ skip to question 230 (top of page 17)
	At the clinic	<input type="checkbox"/>	→ go to the next question

170	Have you come to the clinic today just for the purpose of this interview or also to see a nurse/doctor?		
	Just for the purpose of the interview	<input type="checkbox"/>	→ skip to question 230 (top of page 17)
	Also to see a nurse/doctor	<input type="checkbox"/>	→ go to the next question

MEDICATION RECEIVED TODAY

INHALERS RECEIVED TODAY

Interviewer: Show patient photo's of inhalers in visual aid (pages 28 and 29).

171	Did you receive an inhaler to take home today?		
	YES	<input type="checkbox"/>	→ complete the following 2 tables (Reliever & Preventer inhalers)
	NO	<input type="checkbox"/>	→ skip to question 187 (this page)

RELIEVER INHALERS THAT YOU ARE USING NOW (Interviewer: Check ALL that apply).

				YES	NO
172	Fenoterol (Berotec)	<input type="checkbox"/>	→ 173. Does this inhaler improve your difficult breathing minutes after using it?		
174	Fenoterol/Ipratropium (Duovent)	<input type="checkbox"/>	→ 175. Does this inhaler improve your difficult breathing minutes after using it?		
176	Ipratropium (Atrovent)	<input type="checkbox"/>	→ 177. Does this inhaler improve your difficult breathing minutes after using it?		
178	Salbutamol (Asthavent)	<input type="checkbox"/>	→ 179. Does this inhaler improve your difficult breathing minutes after using it?		
180	Salbutamol/Ipratropium (Combivent)	<input type="checkbox"/>	→ 181. Does this inhaler improve your difficult breathing minutes after using it?		
182	Salmeterol (Serevent)	<input type="checkbox"/>	→ 183. Does this inhaler improve your difficult breathing minutes after using it?		

PREVENTER INHALERS THAT YOU ARE USING NOW (Interviewer: Choose ONE).

		No. of times taken each day	No. of puffs taken each time	
184	Budesonide 100	<input type="checkbox"/>	185	186
184	Budesonide 200	<input type="checkbox"/>	185	186
184	Budesonide (don't know the dose)	<input type="checkbox"/>	185	186

PREDNISONE RECEIVED TODAY

Interviewer: Show patient photo's of prednisone tablets in visual aid (page 29).

187	Interviewer: Did the patient receive any Prednisone tablets to take home today?						
			No. of times to be taken each day	No. of tablets to be taken each time		No. of days to be taken for	
	YES	<input type="checkbox"/>	188	<input type="checkbox"/>	189	<input type="checkbox"/>	190
	NO	<input type="checkbox"/>	→ go to the next question (top of page 16)				

Patient Initials: _____ Date: _____ Clinic: _____ Interviewer code: _____

ANTIBIOTICS RECEIVED TODAY

Interviewer: Show patient photo's of antibiotics in visual aid (pages 30 and 31).

191	Interviewer: Did the patient receive an antibiotic on the chart to take home today?		
	YES		→ complete the following table (Antibiotics that you are using now)
	NO		→ skip to question 228 (this page)

ANTIBIOTICS RECEIVED TODAY (Interviewer: Check ALL that apply)

		No. of times to be taken each day	No of tablets/capsules to be taken each time	No. of days to be taken for (Duration of course)
192	Amoxicillin 250mg capsules (Betamox 250)	193	194	195
196	Amoxicillin 500mg capsules (Betamox 500)	197	198	199
200	Amoxicillin/clavulanic acid tablets (Bio-Amoksiklav)	201	202	203
204	Cotrimoxazole tablets (Cozole / Bactrim)	205	206	207
208	Doxycycline capsules (Doxyclin)	209	210	211
212	Erythromycin tablets (Rubimycin)	213	214	215
216	Flucloxacillin capsules (Floxapen)	217	218	219
220	Fluconazole tablets (Diflucan)	221	222	223
224	Penicillin VK tablets / Pen VK tablets (Betapen)	225	226	227

OTHER MEDICATION RECEIVED TODAY

228	Interviewer: Besides the inhalers, prednisone and antibiotics, did the patient receive any other medication shown on the chart to take home today?		
	YES		→ complete the following table (Other medication received today)
	NO		→ skip to question 230 (top of page 17)

OTHER MEDICATION RECEIVED TODAY (Interviewer: Check ALL that apply)

229	Acetic Acid Eardrops		
	Beclomethasone Nasal Spray		
	Chlorpheniramine tablets (Allergex)		
	Enalapril tablets (Renitec)		
	Mist Expectorant cough mixture		
	Nystatin suspension (Nystacid/ Canstat)		
	Oxymetazoline nasal spray (Drixine)		
	Paracetamol tablets (Painamol)		
	Paracetamol/codeine tablets (Painamol Plus)		
	Salbutamol tablets (Venteze)		
Theophylline tablets (Nuelin SA)			

LHS Follow-up Questionnaire English version page 17

Patient Initials: Date: Clinic: Interviewer code:

MEDICATION THAT YOU ARE USING NOW

INHALERS THAT YOU ARE USING NOW

Interviewer: Show patient photo's of inhalers in visual aid (pages 28 and 29).

230	Are you currently using an inhaler(s) at home?		
	YES		→ complete the following 2 tables (Reliever & Preventer inhalers)
	NO		→ skip to question 247 (this page)

RELIEVER INHALERS THAT YOU ARE USING NOW (Interviewer: Check ALL that apply).				YES	NO
231	Fenoterol (Berotec)		→ 232. Does this inhaler improve your difficult breathing minutes after using it?		
233	Fenoterol/Ipratropium (Duovent)		→ 234. Does this inhaler improve your difficult breathing minutes after using it?		
235	Ipratropium (Atrovent)		→ 236. Does this inhaler improve your difficult breathing minutes after using it?		
237	Salbutamol (Asthavent)		→ 238. Does this inhaler improve your difficult breathing minutes after using it?		
239	Salbutamol/Ipratropium (Combivent)		→ 240. Does this inhaler improve your difficult breathing minutes after using it?		
241	Salmeterol (Serevent)		→ 242. Does this inhaler improve your difficult breathing minutes after using it?		

243	Interviewer: Is the patient using a preventer inhaler at home?		
	YES		→ complete the following table (Preventer inhalers)
	NO		→ skip to question 247 (this page)

PREVENTER INHALERS THAT YOU ARE USING NOW (Interviewer: Choose ONE).					
			No. of times taken each day		No. of puffs taken each time
244	Budesonide 100		245		246
244	Budesonide 200		245		246
244	Budesonide (don't know the dose)		245		246

PREDNISONE THAT YOU ARE USING NOW

Interviewer: Show patient photo's of prednisone tablets in visual aid (page 29).

247	Interviewer: Is the patient using Prednisone tablets at home on a regular basis (this means daily or almost every day)?					
				No. of times taken each day		No. of tablets taken each time
	YES		248		249	
	NO	→ go to the next question (top of page 18)				

LHS Follow-up Questionnaire English version page 18

Patient Initials: Date: Clinic: Interviewer code:

ANTIBIOTICS THAT YOU ARE USING NOW

Interviewer: Show patient photo's of antibiotics in visual aid (pages 30 and 31).

250	Interviewer: Is the patient using any of the antibiotics on the chart at home on a regular basis?		
	YES	<input type="checkbox"/>	→ complete the following table (Antibiotics that you are using now)
	NO	<input type="checkbox"/>	→ skip to question 278 (this page)

ANTIBIOTICS THAT YOU ARE USING NOW (Interviewer: Check ALL that apply)					
			No. of times taken each day		No of tablets/capsules taken each time
251	Amoxicillin 250mg capsules (Betamox 250)	<input type="checkbox"/>	252	<input type="checkbox"/>	253
254	Amoxicillin 500mg capsules (Betamox 500)	<input type="checkbox"/>	255	<input type="checkbox"/>	256
257	Amoxicillin/clavulanic acid tablets (Bio-Amoksiklav)	<input type="checkbox"/>	258	<input type="checkbox"/>	259
260	Cotrimoxazole tablets (Cozole / Bactrim)	<input type="checkbox"/>	261	<input type="checkbox"/>	262
263	Doxycycline capsules (Doxyclin)	<input type="checkbox"/>	264	<input type="checkbox"/>	265
266	Erythromycin tablets (Rubimycin)	<input type="checkbox"/>	267	<input type="checkbox"/>	268
269	Flucloxacillin capsules (Floxapen)	<input type="checkbox"/>	270	<input type="checkbox"/>	271
272	Fluconazole tablets (Diflucan)	<input type="checkbox"/>	273	<input type="checkbox"/>	274
275	Penicillin VK tablets / Pen VK tablets (Betapen)	<input type="checkbox"/>	276	<input type="checkbox"/>	277

OTHER MEDICATION THAT YOU ARE USING NOW

278	Interviewer: Besides the inhalers, prednisone and antibiotics, is the patient using any other medication shown on the chart?		
	YES	<input type="checkbox"/>	→ complete the following table (Other medication that you are using now)
	NO	<input type="checkbox"/>	→ skip to question 280 (top of page 19)

OTHER MEDICATION THAT YOU ARE USING NOW (Interviewer: Check ALL that apply)					
279	Acetic Acid Eardrops	<input type="checkbox"/>			
	Beclomethasone Nasal Spray	<input type="checkbox"/>			
	Chlorpheniramine tablets (Allergex)	<input type="checkbox"/>			
	Enalapril tablets (Renitec)	<input type="checkbox"/>			
	Mist Expectorant cough mixture	<input type="checkbox"/>			
	Nystatin suspension (Nystacid/ Canstat)	<input type="checkbox"/>			
	Oxymetazoline nasal spray (Drixine)	<input type="checkbox"/>			
	Paracetamol tablets (Painamol)	<input type="checkbox"/>			
	Paracetamol/codeine tablets (Painamol Plus)	<input type="checkbox"/>			
	Salbutamol tablets (Venteze)	<input type="checkbox"/>			
Theophylline tablets (Nuelin SA)	<input type="checkbox"/>				

LHS Follow-up Questionnaire English version page 19

Patient Initials: Date: Clinic: Interviewer code:

VISITS TO OTHER HEALTH CARE PROVIDERS IN THE LAST 3 MONTHS

Show patient: Pictures of other health care providers on visual aid

Read: As in the first interview, we wish to know whether you have been to any other health care provider *besides this clinic* in the last 3 months after the last interview. Other health care providers include hospitals (public, private, mine), other primary care clinics besides this one, private doctors, traditional healers etc. We would like to know about *all* visits to other health care providers, whether you attended as an outpatient or were admitted.

280	Have you been to another health care provider besides this clinic in the last 3 months after our first interview?		
	YES		→ go to the next question
	NO		→ skip to question 487 (top of page 29)

281	How many times have you been to another health care provider besides this clinic in the last 3 months after our first interview?		
	Interviewer: Enter number below. Then enter details for the visits.		

VISIT 1 to other health care provider in the last 3 months: questions 282 - 322

282	When was your first visit to another health care provider other than this clinic in the last 3 months after our first interview?											
	Choose <i>ONE</i> (Mark with an X).											
	Jan		Feb		March		April		May		June	
July		August		Sept		Oct		Nov		Dec		

283	On this occasion, which of the following health care providers did you visit?		
	Use visual aid (page 35) to select a health care provider. Choose <i>one</i> (Mark box with an X)		
	Hospital (Public or Private or Mine)		→284. Enter name of hospital:
	Other PHC Clinic		
	Mobile Clinic		
	Workplace / Mine Clinic		
	Private Doctor		
	Traditional Healer		
Pharmacy / Chemist			
Other			

285	What was the reason for this visit?		
	Check all that apply. Mark boxes with X.		
	Check-up for high blood pressure		
	Check-up for diabetes ("sugar")		
	Check-up for a respiratory problem		
	Check-up for other problem		
	First visit for a respiratory problem		
	First visit for other problem		
Other		→286. Specify:	

287	Did you stay overnight at this health care provider?		
	YES		→288. Enter number of nights:
	NO		

289	Did the health care provider charge you for that visit/ admission (consultation fee + medication)?		
	YES		→290. How much? (consultation fee + medication): R
	NO		

LHS Follow-up Questionnaire English version page 20			
Patient initials:		Date:	Clinic: Interviewer code:
291	How did you travel to this health care provider for that visit / admission? Use visual aid to select a mode of transport. Choose <i>one</i> (Mark box with an X)		
	Walk		
	Bicycle		
	Animal (e.g. donkey)		
	Taxi	292	→293. Enter amount paid for return fare to HCP by taxi: R:
	Bus	294	→295. Enter amount paid for return fare to HCP by bus: R:
	Train	296	→297. Enter amount paid for return fare to HCP train: R:
	Private motor vehicle		
	Ambulance	298	→300. Tariff paid? Enter amount : (enter 0 if no tariff paid) R:
	Other		
301	How long did it take you to visit the HCP from the time you left home until the time you got back home again (travel time + time spent at HCP)? Choose <i>one</i> (Mark box with an X)		
	Overnight		→303. Enter rands spent on accommodation R: →305. Enter rands spent on food and drink R:
	Between 2 and 12 hrs		
	Less than 2 hours		
306	Did someone accompany you to the health care provider?		
	YES		→ go to the next question
	NO		→ skip to question 322 (at bottom of page)
307	What is the employment status of your companion? Choose <i>one</i> (Mark box with an X)		
	Employed	308	→ go to question 309 (next block)
	Self-employed	308	→ go to question 309 (next block)
	Unemployed		→ skip to question 322 (bottom of page)
	Student/Learner	318	→319. Days unable to attend school/ college because of accompanying you to HCP: (then go to question 322)
	Looking for work	320	→321. Days unable to look for work because of accompanying you to HCP: (then go to question 322)
	Receiving Grant/Pension		→ skip to question 322 (bottom of page)
	Other		→ skip to question 322 (bottom of page)
309	On what basis is your companion/escort employed? Choose <i>one</i> (Mark box with an X)		
	Casual	310	→311. Enter average no. of days worked per week
			→312. Enter average amount brought home per day (after deductions e.g. tax)
			→317. Enter no. of days unable to work to accompany you to the HCP
	Weekly	313	→314. Enter average amount brought home per week (after deductions e.g. tax)
			→317. Enter no. of days unable to work to accompany you to the HCP
	Monthly	315	→316. Enter average amount brought home per month (after deductions e.g. tax)
			→317. Enter no. of days unable to work to accompany you to the HCP
322	Is there another visit in the last 3 months (after our first interview) to a health care provider other than this clinic which we have not discussed?		
	YES		→go to the next question (top of page 21)
	NO		→ skip to question 487 (top of page 29)

Patient Initials: Date: Clinic: Interviewer code:

VISITS TO OTHER HEALTH CARE PROVIDERS IN THE LAST 3 MONTHS cont'd

VISIT 2 to other health care provider in the last 3 months: questions 323 - 363

323	When was your second visit to another health care provider other than this clinic in the last 3 months? Choose ONE. Mark with an X.											
	Jan		Feb		March		April		May		June	
	July		August		Sept		Oct		Nov		Dec	

324	On this occasion, which of the following health care providers did you visit? Use visual aid (page 35) to select a health care provider. Choose ONE. Mark box with an X.										
	Hospital (Public or Private or Mine)				→325. Enter name of hospital:						
	Other PHC Clinic										
	Mobile Clinic										
	Workplace / Mine Clinic										
	Private Doctor										
	Traditional Healer										
	Pharmacy / Chemist										
Other											

326	What was the reason for this visit? Check all that apply. Mark boxes with X.										
	Check-up for high blood pressure										
	Check-up for diabetes ("sugar")										
	Check-up for a respiratory problem										
	Check-up for other problem										
	First visit for a respiratory problem										
	First visit for other problem										
Other											

328	Did you stay overnight at this health care provider?										
	YES				→329. Enter number of nights:						
NO											

330	Did the health care provider charge you for that visit/ admission (consultation fee + medication)?										
	YES				→331. How much? (consultation fee + medication): R						
NO											

LHS Follow-up Questionnaire English version page 22

Patient Initials: _____ Date: _____ Clinic: _____ Interviewer code: _____

332	How did you travel to this health care provider for that visit / admission? Use visual aid to select a mode of transport. Choose <i>one</i> (Mark box with an X)		
	Walk		
	Bicycle		
	Animal (e.g. donkey)		
	Taxi	333	→334. Enter amount paid for return fare to HCP by taxi: R:
	Bus	335	→336. Enter amount paid for return fare to HCP by bus: R:
	Train	337	→338. Enter amount paid for return fare to HCP train: R:
	Private motor vehicle		
	Ambulance	339	→341. Tariff paid? Enter amount : (enter 0 if no tariff paid) R:
	Other		

342	How long did it take you to visit the HCP from the time you left home until the time you got back home again (travel time + time spent at HCP)? Choose <i>one</i> (Mark box with an X)		
	Overnight		→344. Enter rands spent on accommodation R: →346. Enter rands spent on food and drink R:
	Between 2 and 12 hrs		
	Less than 2 hours		

347	Did someone accompany you to the health care provider?		
	YES		→ go to the next question
	NO		→ skip to question 363 (at bottom of page)

348	What is the employment status of your companion? Choose <i>one</i> (Mark box with an X)		
	Employed	349	→ go to question 350 (next block)
	Self-employed	349	→ go to question 350 (next block)
	Unemployed		→ skip to question 363 (bottom of page)
	Student/Learner	359	→360. Days unable to attend school/ college because of accompanying you to HCP: (then go to question 363)
	Looking for work	361	→362. Days unable to look for work because of accompanying you to HCP: (then go to question 363)
	Receiving Grant/Pension		→ skip to question 363 (bottom of page)
	Other		→ skip to question 363 (bottom of page)

350	On what basis is your companion/escort employed? Choose <i>one</i> (Mark box with an X)		
	Casual	351	→352. Enter average no. of days worked per week
			→353. Enter average amount brought home per day (after deductions e.g. tax)
			→358. Enter no. of days unable to work to accompany you to the HCP
	Weekly	354	→355. Enter average amount brought home per week (after deductions e.g. tax)
			→358. Enter no. of days unable to work to accompany you to the HCP
	Monthly	356	→357. Enter average amount brought home per month (after deductions e.g. tax)
			→358. Enter no. of days unable to work to accompany you to the HCP

363	Is there another visit in the last 3 months (after our first interview) to a health care provider other than this clinic which we have not discussed?		
	YES		→go to the next question (top of page 23)
	NO		→ skip to question 487 (top of page 29)

Patient Initials: Date: Clinic: Interviewer code:

VISITS TO OTHER HEALTH CARE PROVIDERS IN THE LAST 3 MONTHS cont'd

VISIT 3 to other health care provider in the last 3 months: questions 364 - 404

364	When was your third visit to another health care provider other than this clinic in the last 3 months? Choose ONE. Mark with an X.											
	Jan		Feb		March		April		May		June	
	July		August		Sept		Oct		Nov		Dec	

365	On this occasion, which of the following health care providers did you visit? Use visual aid (page 35) to select a health care provider. Choose ONE. Mark box with an X.											
	Hospital (Public or Private or Mine)						→366. Enter name of hospital:					
	Other PHC Clinic											
	Mobile Clinic											
	Workplace / Mine Clinic											
	Private Doctor											
	Traditional Healer											
	Pharmacy / Chemist											
	Other											

367	What was the reason for this visit? Check all that apply. Mark boxes with X.											
	Check-up for high blood pressure											
	Check-up for diabetes ("sugar")											
	Check-up for a respiratory problem											
	Check-up for other problem											
	First visit for a respiratory problem											
	First visit for other problem											
	Other						→368. Specify:					

369	Did you stay overnight at this health care provider?											
	YES						→370. Enter number of nights:					
NO												

371	Did the health care provider charge you for that visit/ admission (consultation fee + medication)?											
	YES						→372. How much? (consultation fee + medication): R					
NO												

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Patient initials: _____ Date: _____ Clinic: _____ Interviewer code: _____

373	How did you travel to this health care provider for that visit / admission? Use visual aid to select a mode of transport. Choose <i>one</i> (Mark box with an X)		
	Walk		
	Bicycle		
	Animal (e.g. donkey)		
	Taxi	374	→375. Enter amount paid for return fare to HCP by taxi: R:
	Bus	376	→377. Enter amount paid for return fare to HCP by bus: R:
	Train	378	→379. Enter amount paid for return fare to HCP train: R:
	Private motor vehicle		
Ambulance	380	→382. Tariff paid? Enter amount : (enter 0 if no tariff paid) R:	
Other			

383	How long did it take you to visit the HCP from the time you left home until the time you got back home again (travel time + time spent at HCP)? Choose <i>one</i> (Mark box with an X)		
	Overnight		→385. Enter rands spent on accommodation R: →387. Enter rands spent on food and drink R:
	Between 2 and 12 hrs		
	Less than 2 hours		

388	Did someone accompany you to the health care provider?		
	YES		→ go to the next question
	NO		→ skip to question 404 (at bottom of page)

389	What is the employment status of your companion? Choose <i>one</i> (Mark box with an X)		
	Employed	390	→ go to question 391 (next block)
	Self-employed	390	→ go to question 391 (next block)
	Unemployed		→ skip to question 404 (bottom of page)
	Student/Learner	400	→401. Days unable to attend school/ college because of accompanying you to HCP: (then go to question 404)
	Looking for work	402	→403. Days unable to look for work because of accompanying you to HCP: (then go to question 404)
	Receiving Grant/Pension		→ skip to question 404 (bottom of page)
	Other		→ skip to question 404 (bottom of page)

391	On what basis is your companion/escort employed? Choose <i>one</i> (Mark box with an X)		
	Casual	392	→393. Enter average no. of days worked per week
			→394. Enter average amount brought home per day (after deductions e.g. tax)
			→399. Enter no. of days unable to work to accompany you to the HCP
	Weekly	395	→396. Enter average amount brought home per week (after deductions e.g. tax)
			→399. Enter no. of days unable to work to accompany you to the HCP
	Monthly	397	→398. Enter average amount brought home per month (after deductions e.g. tax)
			→399. Enter no. of days unable to work to accompany you to the HCP

404	Is there another visit in the last 3 months (after our first interview) to a health care provider other than this clinic which we have not discussed?		
	YES		→go to the next question (top of page 25)
	NO		→ skip to question 487 (top of page 29)

Patient Initials: _____ Date: _____ Clinic: _____ Interviewer code: _____

VISITS TO OTHER HEALTH CARE PROVIDERS IN THE LAST 3 MONTHS cont'd

VISIT 4 to other health care provider in the last 3 months: questions 405 - 445

405	When was your fourth visit to another health care provider other than this clinic in the last 3 months? Choose ONE. Mark with an X.											
	Jan		Feb		March		April		May		June	
	July		August		Sept		Oct		Nov		Dec	

406	On this occasion, which of the following health care providers did you visit? Use visual aid (page 35) to select a health care provider. Choose ONE. Mark box with an X.										
	Hospital (Public or Private or Mine)				→407. Enter name of hospital:						
	Other PHC Clinic										
	Mobile Clinic										
	Workplace / Mine Clinic										
	Private Doctor										
	Traditional Healer										
	Pharmacy / Chemist										
Other											

408	What was the reason for this visit? Check all that apply. Mark boxes with X.										
	Check-up for high blood pressure										
	Check-up for diabetes ("sugar")										
	Check-up for a respiratory problem										
	Check-up for other problem										
	First visit for a respiratory problem										
	First visit for other problem										
	Other										

410	Did you stay overnight at this health care provider?										
	YES				→411. Enter number of nights:						
	NO										

412	Did the health care provider charge you for that visit/ admission (consultation fee + medication)?										
	YES				→413. How much? (consultation fee + medication): R						
	NO										

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Patient initials:		Date:	Clinic:
			Interviewer code:
414	How did you travel to this health care provider for that visit / admission? Use visual aid to select a mode of transport. Choose <i>one</i> (Mark box with an X)		
	Walk		
	Bicycle		
	Animal (e.g. donkey)		
	Taxi	415	→416. Enter amount paid for return fare to HCP by taxi: R:
	Bus	417	→418. Enter amount paid for return fare to HCP by bus: R:
	Train	419	→420. Enter amount paid for return fare to HCP train: R:
	Private motor vehicle		
	Ambulance	421	→423. Tariff paid? Enter amount : (enter 0 if no tariff paid) R:
	Other		
424	How long did it take you to visit the HCP from the time you left home until the time you got back home again (travel time + time spent at HCP)? Choose <i>one</i> (Mark box with an X)		
	Overnight		→426. Enter rands spent on accommodation R: →428. Enter rands spent on food and drink R:
	Between 2 and 12 hrs		
	Less than 2 hours		
429	Did someone accompany you to the health care provider?		
	YES		→ go to the next question
	NO		→ skip to question 445 (at bottom of page)
430	What is the employment status of your companion? Choose <i>one</i> (Mark box with an X)		
	Employed	431	→ go to question 432 (next block)
	Self-employed	431	→ go to question 432 (next block)
	Unemployed		→ skip to question 445 (bottom of page)
	Student/Learner	441	→442. Days unable to attend school/ college because of accompanying you to HCP: (then go to question 445)
	Looking for work	443	→444. Days unable to look for work because of accompanying you to HCP: (then go to question 445)
	Receiving Grant/Pension		→ skip to question 445 (bottom of page)
	Other		→ skip to question 445 (bottom of page)
432	On what basis is your companion/escort employed? Choose <i>one</i> (Mark box with an X)		
	Casual	433	→434. Enter average no. of days worked per week →435. Enter average amount brought home per day (after deductions e.g. tax) →440. Enter no. of days unable to work to accompany you to the HCP
	Weekly	436	→437. Enter average amount brought home per week (after deductions e.g. tax) →440. Enter no. of days unable to work to accompany you to the HCP
	Monthly	438	→439. Enter average amount brought home per month (after deductions e.g. tax) →440. Enter no. of days unable to work to accompany you to the HCP
445	Is there another visit in the last 3 months (after our first interview) to a health care provider other than this clinic which we have not discussed?		
	YES		→ go to the next question (top of page 27)
	NO		→ skip to question 487 (top of page 29)

Patient Initials: Date: Clinic: Interviewer code:

VISITS TO OTHER HEALTH CARE PROVIDERS IN THE LAST 3 MONTHS cont'd

VISIT 5 to other health care provider in the last 3 months: questions 446 - 486

446	When was your fifth visit to another health care provider other than this clinic in the last 3 months? Choose ONE. Mark with an X.									
	Jan	Feb	March	April	May	June				
	July	August	Sept	Oct	Nov	Dec				

447	On this occasion, which of the following health care providers did you visit? Use visual aid (page 35) to select a health care provider. Choose ONE. Mark box with an X.									
	Hospital (Public or Private or Mine)					→448. Enter name of hospital:				
	Other PHC Clinic									
	Mobile Clinic									
	Workplace / Mine Clinic									
	Private Doctor									
	Traditional Healer									
	Pharmacy / Chemist									
Other										

449	What was the reason for this visit? Check all that apply. Mark boxes with X.									
	Check-up for high blood pressure									
	Check-up for diabetes ('sugar')									
	Check-up for a respiratory problem									
	Check-up for other problem									
	First visit for a respiratory problem									
	First visit for other problem									
Other					→450. Specify:					

451	Did you stay overnight at this health care provider?									
	YES					→452. Enter number of nights:				
NO										

453	Did the health care provider charge you for that visit/ admission (consultation fee + medication)?									
	YES					→454. How much? (consultation fee + medication): R				
NO										

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Patient initials:		Date:		Clinic:		Interviewer code:	
455	How did you travel to this health care provider for that visit / admission? Use visual aid to select a mode of transport. Choose <i>one</i> (Mark box with an X)						
	Walk						
	Bicycle						
	Animal (e.g. donkey)						
	Taxi	456		→457. Enter amount paid for return fare to HCP by taxi:		R:	
	Bus	458		→459. Enter amount paid for return fare to HCP by bus:		R:	
	Train	460		→461. Enter amount paid for return fare to HCP train:		R:	
	Private motor vehicle						
	Ambulance	462		→464. Tariff paid? Enter amount : (enter 0 if no tariff paid)		R:	
	Other						
465	How long did it take you to visit the HCP from the time you left home until the time you got back home again (travel time + time spent at HCP)? Choose <i>one</i> (Mark box with an X)						
	Overnight			→467. Enter rands spent on accommodation		R:	
				→469. Enter rands spent on food and drink		R:	
	Between 2 and 12 hrs						
	Less than 2 hours						
470	Did someone accompany you to the health care provider?						
	YES			→ go to the next question			
	NO			→ skip to question 486 (at bottom of page)			
471	What is the employment status of your companion? Choose <i>one</i> (Mark box with an X)						
	Employed	472		→ go to question 473 (next block)			
	Self-employed	472		→ go to question 473 (next block)			
	Unemployed			→ skip to question 486 (bottom of page)			
	Student/Leamer	482		→483. Days unable to attend school/ college because of accompanying you to HCP: (then go to question 486)			
	Looking for work	484		→485. Days unable to look for work because of accompanying you to HCP: (then go to question 486)			
	Receiving Grant/Pension			→ skip to question 486 (bottom of page)			
	Other			→ skip to question 486 (bottom of page)			
473	On what basis is your companion/escort employed? Choose <i>one</i> (Mark box with an X)						
	Casual	474		→475. Enter average no. of days worked per week			
			→476. Enter average amount brought home per day (after deductions e.g. tax)				
			→481. Enter no. of days unable to work to accompany you to the HCP				
	Weekly	477		→478. Enter average amount brought home per week (after deductions e.g. tax)			
			→481. Enter no. of days unable to work to accompany you to the HCP				
	Monthly	479		→480. Enter average amount brought home per month (after deductions e.g. tax)			
			→481. Enter no. of days unable to work to accompany you to the HCP				
486	Is there another visit in the last 3 months (after our first interview) to a health care provider other than this clinic which we have not discussed?						
	YES			→ Interviewer: You have already entered the maximum number of HCP visits. Please proceed.			
	NO			→ skip to question 487 (top of page 29)			

Patient initials: Date: Clinic: Interviewer code:

CAREGIVER COSTS IN THE LAST 3 MONTHS

Read: For those of you who have been ill in the last 3 months, we wish to understand what the illness has cost your family and friends in terms of time caring for you at home. We would like you to tell us about the person who has cared for you IN THE LAST 3 MONTHS after our first interview. We only want to know about people who have looked after you because of poor health, not because of any other reasons. If more than one person has cared for you, please tell us about the person who looked after you the most.

487	Has anyone (including family or friends) looked after you at home because of any illness in the last 3 months?		
	YES		→ go to the next question
	NO		→ skip to question 442 (top of page 28)

488	What is the employment status of your caregiver? Choose one (Mark box with an X)		
	Employed	489	→ go to question 490 (next block)
	Self-employed	489	→ go to question 490 (next block)
	Unemployed		→ skip to question 503 (top of page 30)
	Student/Learner	499	→500. Days unable to attend school/ college because of looking after you at home in the last 3 months (then go to question 503 – top of page 30)
	Looking for work	501	→502. Days unable to look for work because of looking after you in the last 3 months: (then go to question 503 – top of page 30)
	Receiving Grant/Pension		→ skip to question 503 (top of page 30)
	Other		→ skip to question 503 (top of page 30)

490	On what basis is your caregiver employed? Choose one (Mark box with an X)		
	Casual	491	→492. Enter average no. of days worked per week
			→493. Enter average amount brought home per day (after deductions e.g. tax)
			→498. Enter no. of days unable to work because of looking after you at home in the last 3 months
	Weekly	494	→495. Enter average amount brought home per week (after deductions e.g. tax)
			→498. Enter no. of days unable to work because of looking after you at home in the last 3 months
	Monthly	496	→497. Enter average amount brought home per month (after deductions e.g. tax)
→498. Enter no. of days unable to work because of looking after you in the last 3 months			

Patient Initials: Date: Clinic: Interviewer code:

ECONOMIC IMPACT OF ILLNESS

Read: We would like to understand what the economic impact of your illness has been on you and your household in the last 3 months after the first interview. In order to do this we need to ask some more questions about your employment status and income. We would like to remind you that all the information you give us is confidential.

503 Which of the following best describes your employment status? Choose <i>one</i> (Mark box with an X)			
Employed	504		→ go to question 505 (next block)
Self-employed	504		→ go to question 505 (next block)
Unemployed			→ skip to question 521 (this page)
Student/Learner	517		→518. Days unable to attend school/ college because of <i>any</i> illness in the last 3 months (then go to question 521 – this page)
Looking for work	519		→520. Days unable to look for work because of <i>any</i> illness in the last 3 months: (then go to question 521 – this page)
Receiving Grant/Pension			→ skip to question 521 (this page)
Other			→ skip to question 521 (this page)

505 On what basis are you employed? Choose one (Mark box with an X)			
Casual	506		→507. Enter average no. of days worked per week
			→508. Enter average amount brought home per day (after deductions e.g. tax)
			→515. Enter no. of days unable to work because of <i>any</i> illness in the last 3 months
Weekly	509		→510. Enter average number of weeks worked per month
			→511. Enter average amount brought home per week (after deductions e.g. tax)
			→515. Enter no. of days unable to work because of <i>any</i> illness in the last 3 months
Monthly	512		→513. Enter average number of months worked per year
			→514. Enter average amount brought home per month (after deductions e.g. tax)
			→515. Enter no. of days unable to work because of <i>any</i> illness in the last 3 months

516 In the last 3 months how much income have you lost as a result of not being able to work because of any illness? Interviewer: Choose <i>ONE</i> . Mark box with an X.			
No income lost			
Less than R100			
R100 – R500			
R501 – R1000			
More than R1000			

521 In the last 3 months after our first interview, have you lost your job as a result of any illness?			
YES			→ go to the next question
NO			→ skip to question 523 (top of page 31)

522 When you used to work, how much money did you bring home in a usual working month (after deductions e.g. tax)? Interviewer: Enter amount below.			
R.....per month			

Patient Initials: Date: Clinic: Interviewer code:

ECONOMIC IMPACT OF ILLNESS cont'd

523	In the last year what did the household do to cope with your medical costs?	
	Interviewer: Choose <i>all</i> that apply. (Mark boxes with X)	
	Used own income	<input type="checkbox"/>
	Used savings	<input type="checkbox"/>
	Sold assets e.g animals, appliances, clothes	<input type="checkbox"/>
	Medical Aid	<input type="checkbox"/>
	Help from relatives	<input type="checkbox"/>
	Help from friends	<input type="checkbox"/>
	Borrowed money	<input type="checkbox"/>
Other	<input type="checkbox"/>	
Not applicable	<input type="checkbox"/>	

524	Has a nurse at this clinic spoken to you about HIV in the last 3 months after the first interview?	
	YES	<input type="checkbox"/>
	NO	<input type="checkbox"/>

525	Has a nurse at this clinic referred you for HIV counselling and/or testing in the last 3 months after the first interview?	
	YES	<input type="checkbox"/>
	NO	<input type="checkbox"/>

526	Have you had an HIV test (rapid test/ fingerprick method or drawing of blood from your arm) in the last 3 months after the first interview?	
	YES	<input type="checkbox"/>
	NO	<input type="checkbox"/>

Patient Initials: Date: Clinic: Interviewer code: **PATIENT SATISFACTION WITH SERVICES PROVIDED AT THE CLINIC**

Finally we would like to ask you some questions about what you think of the care you receive at this clinic. The following questions all ask what you think of your last visit to the clinic nurse. If you have not been back to this clinic in the last 3 months think back to the consultation with the nurse on the day of our first interview. We would like to remind you that your answers will be kept entirely confidential and will not be shown to any of the clinic staff so feel free to say what you wish.

The following questions are all set out in the same way. Some of the questions will appear similar. This is deliberate. For each question you will be asked to select and answer that is closest to what you think. You may only choose *ONE* answer per question.

"Neutral" means that you have no feelings either way.

527	I was totally satisfied with my visit to the nurse/clinic. Interviewer: Choose <i>ONE</i> . Mark the box with an <i>X</i> .				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
528	The nurse was very careful to check everything when examining me. Interviewer: Choose <i>ONE</i> . Mark the box with an <i>X</i> .				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
529	I follow the nurse's advice because I think he/she is absolutely right. Interviewer: Choose <i>ONE</i> . Mark the box with an <i>X</i> .				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
530	I felt able to tell this nurse about very personal things. Interviewer: Choose <i>ONE</i> . Mark the box with an <i>X</i> .				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
531	The time I was able to spend with the nurse was a bit too short. Interviewer: Choose <i>ONE</i> . Mark the box with an <i>X</i> .				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
532	The nurse told me everything about my treatment? Interviewer: Choose <i>ONE</i> . Mark the box with an <i>X</i> .				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
533	Some things about my consultation with the nurse could have been better. Interviewer: Choose <i>ONE</i> . Mark the box with an <i>X</i> .				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
534	There are some things the nurse does not know about me. Interviewer: Choose <i>ONE</i> . Mark the box with an <i>X</i> .				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
535	The nurse examined me very thoroughly. Interviewer: Choose <i>ONE</i> . Mark the box with an <i>X</i> .				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree

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Patient Initials: Date: Clinic: Interviewer code:

PATIENT SATISFACTION WITH SERVICES PROVIDED AT THE CLINIC cont'd

536	I thought the nurse took notice of me as a person. Interviewer: Choose ONE. Mark the box with an X.				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
537	The time I was allowed to spend with the nurse was not long enough to deal with everything I wanted. Interviewer: Choose ONE. Mark the box with an X.				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
538	I understand my illness much better after seeing the nurse. Interviewer: Choose ONE. Mark the box with an X.				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
539	The nurse was interested in me as a person, not just my illness. Interviewer: Choose ONE. Mark the box with an X.				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
540	The nurse knows all about me. Interviewer: Choose ONE. Mark the box with an X.				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
541	I felt the nurse really knew what I was thinking. Interviewer: Choose ONE. Mark the box with an X.				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
542	I wish it had been possible to spend a little longer with the nurse. Interviewer: Choose ONE. Mark the box with an X.				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
543	I was not completely satisfied with my visit to the nurse. Interviewer: Choose ONE. Mark the box with an X.				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
544	I found it difficult to tell the nurse about some private things. Interviewer: Choose ONE. Mark the box with an X.				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
545	Compared with the care provided by the nurses at the clinic 3 months ago, do you think the care provided by the nurses now is... Interviewer: Choose ONE. Mark box with an X.				
	Better				
	The same				
	Worse				

	Finally, do you have any other comments or thoughts on the care you receive at this clinic? Remember this information will not be shown to any clinic staff members and will be kept entirely confidential so feel free to say what you wish.				
546	Number of positive points raised				
547	Number of negative points raised				

Thank you very much for participating in our study and returning to the clinic today for the follow-up interview. The results of the study will be used to improve primary care services for patients with respiratory illnesses. Please accept this food parcel as a sign of our appreciation for your participation.

ANNEX 12

Photographs

CONSULTATION DETAILS

QUESTION 94

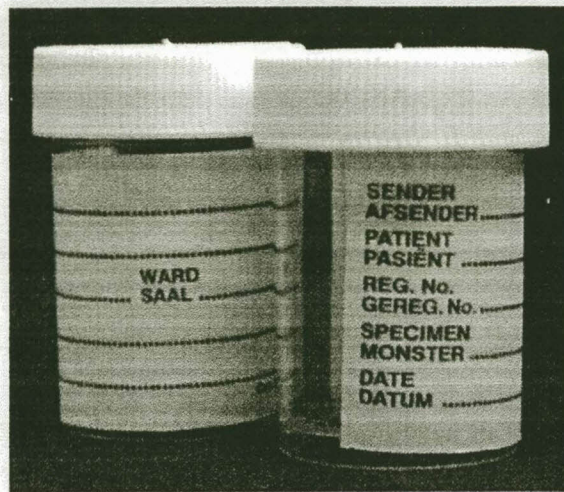
Did the nurse who you saw today collect any phlegm/sputum samples for testing?

Het die verpleegkundige, wie jou vandag gesien het, enige slym/sputumproefmonsters geneem vir toetsing?

Na mooki ya o boneng kajeno o nkile dikgohlela bakeng sa diteko?

Ingaba unesi/umongikazi oyewambona namhlanje uyewaqokelela isikhohlela sakho ukuzesikwazi ukuyokuxilongwa?

Ingabe unesi obonane naye namhlanje ukuthathe izikhwehlela ukuze ziyohlolwa?



CONSULTATION DETAILS

QUESTION 96

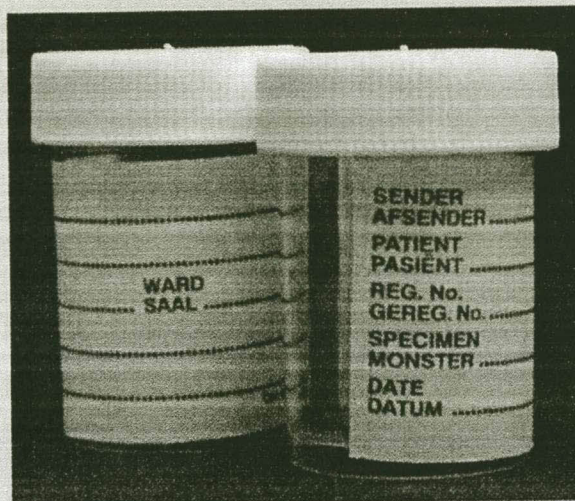
Did the nurse who you saw today ask you to collect any phlegm/sputum samples at home?

Het die verpleegkundige, wie jou vandag gesien het, vir jou gevra om slym/sputumproefmonsters tuis te neem?

Na mooki ya o boneng kajeno oo kopile hore o ilo tshwela dikgohlela lapeng?

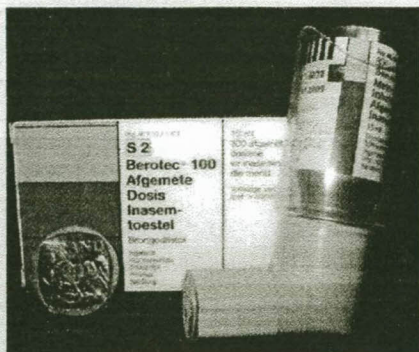
Ingaba unesi/umongikazi oyewambona namhlanje uyewakucela uqokelele izikhohlela ekhaya zezikwazi ukuxilongwa?

Ingabe unesi obonane naye namhlanje ukucele ukuthi uze nesikhwehlela ekhaya?



PRESCRIPTION DETAILS

RELIEVER INHALERS



Generic Name : Fenoterol
Trade Name : Berotec



Generic Name : Fenoterol/Ipratropium
Trade Name : Duovent



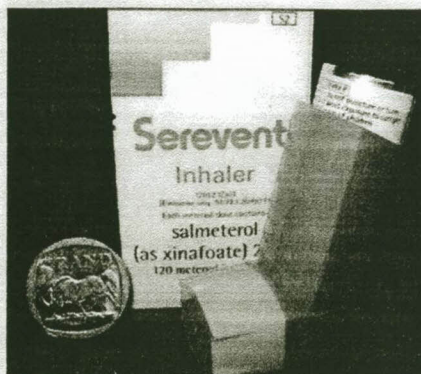
Generic Name : Ipratropium
Trade Name : Atrovent



Generic Name : Salbutamol
Trade Name : Asthavent



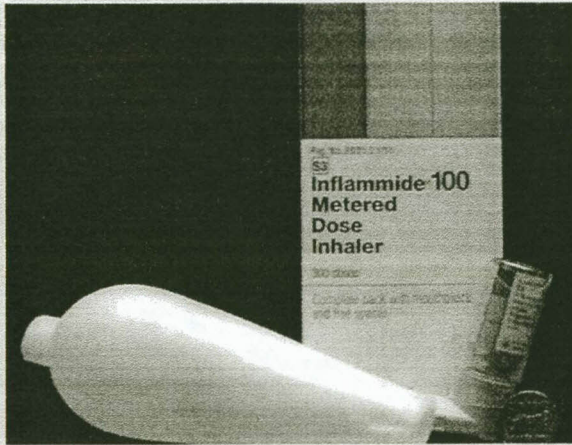
Generic Name : Salbutamol/Ipratropium
Trade Name : Combivent



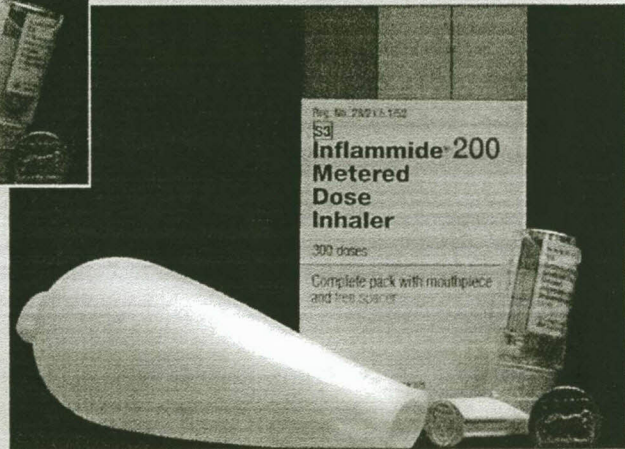
Generic Name : Salmeterol
Trade Name : Serevent

PRESCRIPTION DETAILS

PREVENTER INHALERS

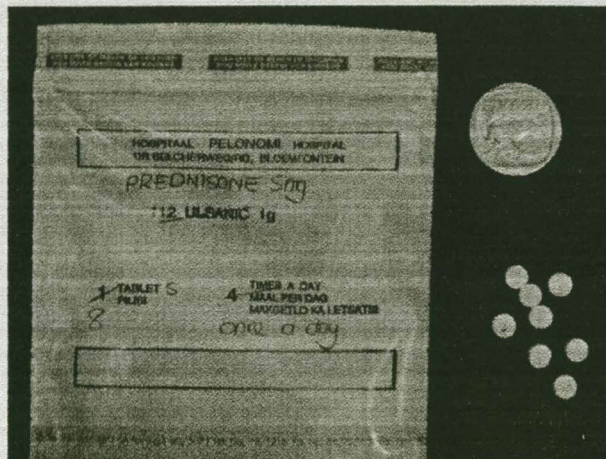


Generic Name : Budesonide 100
Trade Name : Inflammide



Generic Name : Budesonide 200
Trade Name : Inflammide 200

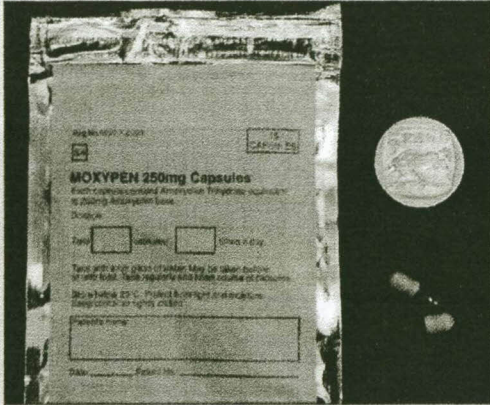
PREDNISONE TABLETS



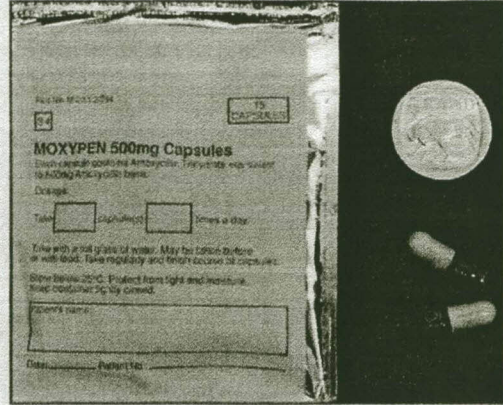
Generic Name : Prednisone
Trade Name : Be-Tabs Prednisone/Predeltin

PRESCRIPTION DETAILS

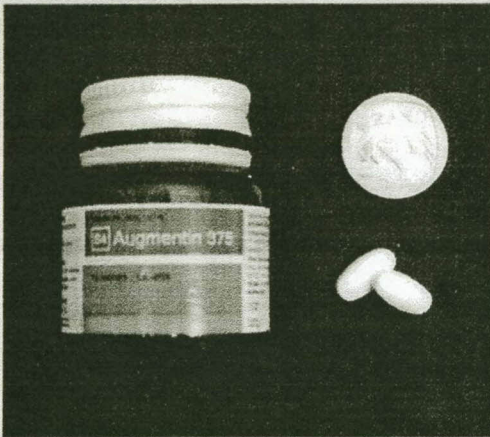
ANTIBIOTICS



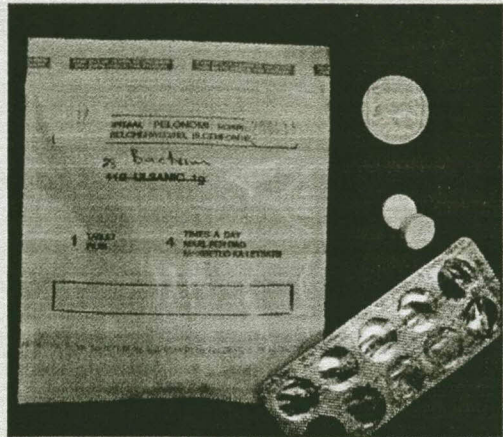
Generic Name : Amoxicillin 250 mg
Trade Name : Betamox 250



Generic Name : Amoxicillin 500 mg
Trade Name : Betamox 500



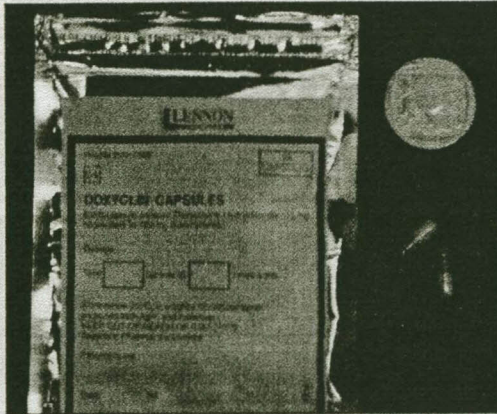
Generic Name : Amoxicillin/Clavulanic Acid
Trade Name : Bio-Amoksiklav/Augmentin



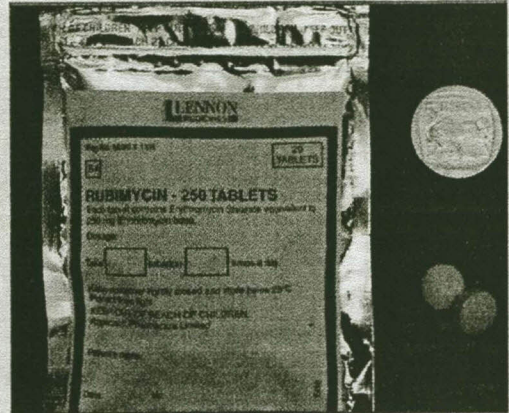
Generic Name : Cotrimoxazole
Trade Name : Cozole/Bactrim

PRESCRIPTION DETAILS

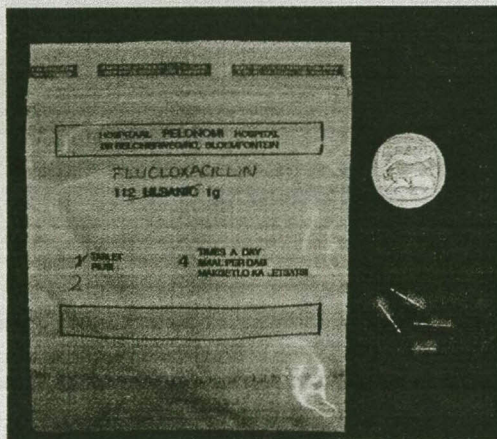
ANTIBIOTICS (continued)



Generic Name : Doxycycline
Trade Name : Doxycyclin



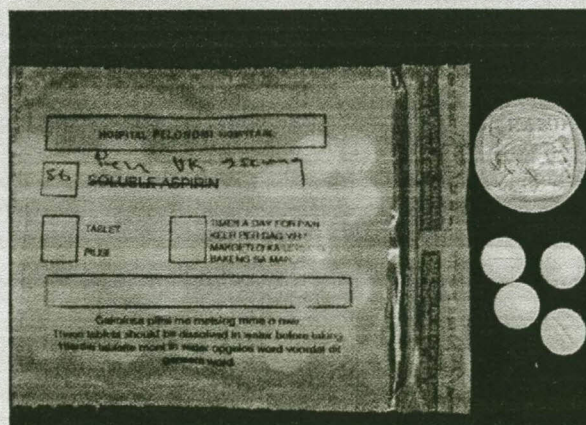
Generic Name : Erythromycin
Trade Name : Rubimycin



Generic Name : Flucloxacillin
Trade Name : Floxapen



Generic Name : Fluconazole
Trade Name : Diflucan



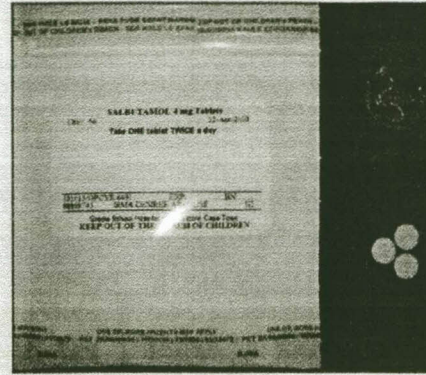
Generic Name : Pen VK (Phenoxymethyl penicillin)
Trade Name : Betapen

PRESCRIPTION DETAILS

OTHER: TABLETS



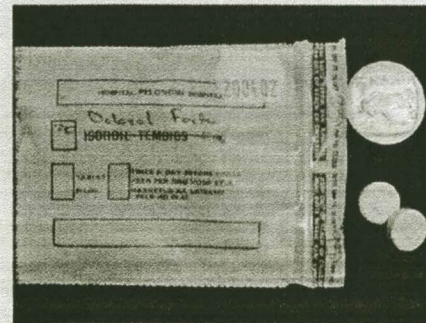
Generic Name : Theophylline
Trade Name : Nuelin SA



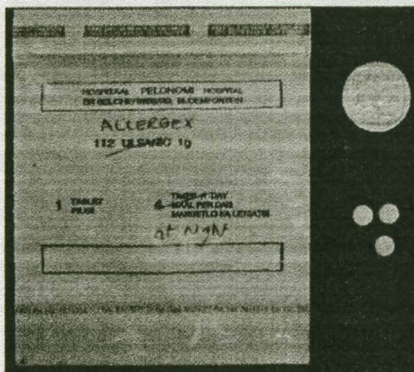
Generic Name : Salbutamol
Trade Name : Venteze



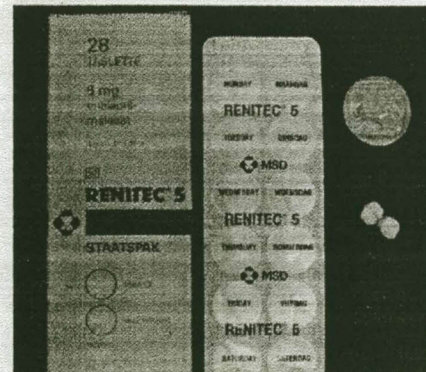
Generic Name : Paracetamol
Trade Name : Painamol



Generic Name : Paracetamol/Codeine
Trade Name : Painamol Plus/Betacod/
Dolorol Forte



Generic Name : Chlorpheniramine
Trade Name : Allergex



Generic Name : Enalapril
Trade Name : Renitec

PRESCRIPTION DETAILS

OTHER: NASAL SPRAYS



Generic Name : Oxymetazoline
Trade Name : Drixine



Generic Name : Beclomethasone
Trade Name : Beclate

OTHER: EAR DROPS



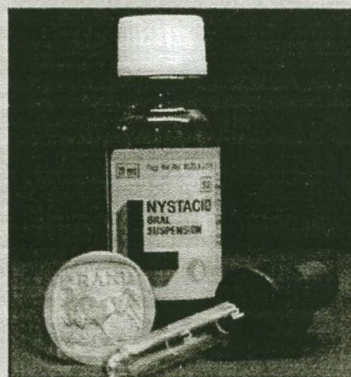
Generic Name : Acetic Acid Eardrops
Trade Name : Acetic Acid Eardrops

OTHER: COUGH MIXTURE



Generic Name : Mist Expectorant
Trade Name : Mist Expectorant

OTHER: ORAL SUSPENSION



Generic Name : Nystatin
Trade Name : Nystacid/Canstat

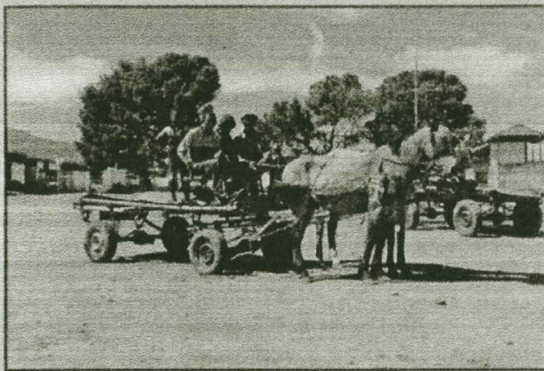
TRANSPORT TO CLINICS & OTHER HEALTH CARE PROVIDERS



Walking



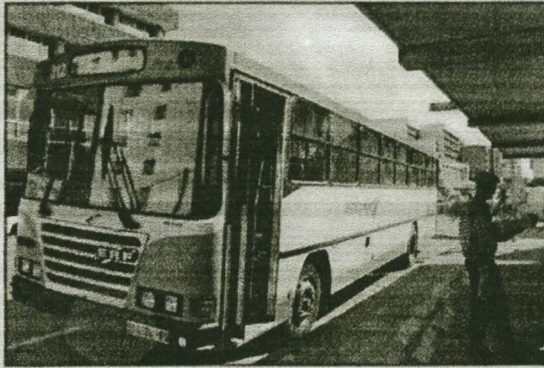
Bicycle



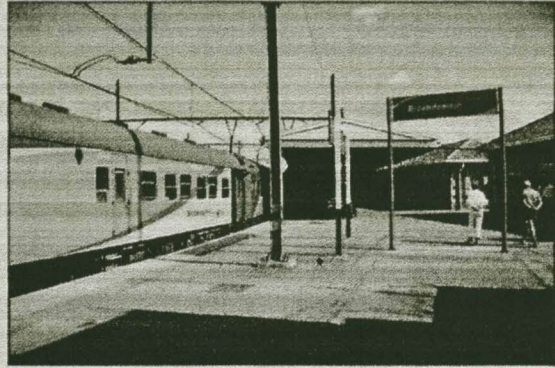
Animal, e.g. Donkey



Taxi



Bus



Train



Private Motor Vehicle



Ambulance

OTHER HEALTH CARE PROVIDERS



Hospital



Other Primary Care Clinic



Mobile Clinic



Workplace/Mine Clinic



Private Doctor



Traditional Healer



Pharmacy/Chemist

ANNEX 13

Notification of deceased patients as follow-up form- English version

LUNG HEALTH SURVEY 2003

**University of Cape Town Lung Institute
Department of Community Health, University of the Free State
Centre for Health Services Research and Development, University of the
Free State
Medical Research Council**

FOLLOW-UP FIELDWORK

NOTIFICATION OF DECEASED PATIENTS AT FOLLOW-UP

Clinic where patient was recruited:.....
First name of patient:.....
Last name (surname) of patient:.....
Date of birth:.....
Folder number:.....
Date of death of patient:.....
Place of death (if hospital, give name):.....
If known, supply reason for death:.....
.....

Please donate the patient's food parcel to the surviving relatives.

Fax completed forms to Dr. Lara Fairall (021 4066878) before end of fieldwork in clinic.

ANNEX 14

A list of responsibilities of the field workers

List of responsibilities of the field workers

1. Field worker

The tasks of the fieldworker/interviewer comprise the following:

- Becoming thoroughly familiar with the questionnaire as well as the procedure to identify and establish contact with the targeted respondents (in close cooperation with the team leader).
- Conduct interviews of respondents selected by the team leader/selector.
- Visit all selected respondents to conduct follow-up interviews after three months.
- Take responsibility for the first level of quality control; this entails accepting responsibility for the quality and completeness of the questionnaires.
- Return to a respondent if the information on the questionnaire is found to be inadequate by the team leader, supervisor and/or researcher.
- Maintain a high standard of courtesy and meet the ethical standards of the project.
- Maintain the anonymity and confidentiality of all information gleaned from interviews and never to compromise the safety of any respondent or co-fieldworker.
- Communicate all problems and queries to the team leader/supervisor.
- Keep the data safe before handing it over to the team leader/supervisor.
- Briefly record experiences/constraints regarding the fieldwork task and communicate these to the team leader/supervisor/researcher.
- Will be answerable to the team leader/selector

2. Team leader/Selector

The team leader/selector will assume overall responsibility of the data collection process in all clinics assigned to his/her team. His/her tasks will include but not be restricted to:

- Being responsible for all logistics arrangements on behalf of the team he/she is assigned to.
- Being responsible for conducting selection of potential patients to be included in the cohort and assigning them to the field workers for interviews.
- Being responsible for ensuring that data collected on daily basis is either transmitted to a central research base or safely stored for transmission on agreed upon frequencies.

- Coordination of travel and accommodation arrangements of team members at all times.
- Allocate number of respondents to be interviewed evenly among team members.
- Keep record of interviews conducted by each field worker.
- The team leader/selector will remain with the team he/she is assigned to throughout the data collection process.
- The team leader/selector will be answerable to the supervisor.

3. Supervisor

The supervisor will be overall responsible for smooth administrative and logistical operation of teams assigned to him/her by region. Responsibilities will include but not restricted to:

- Conducting a minimum of two visits to each clinic, the first one being prior to field work in order to arrange for office space and accommodation of field workers, and the second one mainly for trouble shooting.
- To monitor on weekly basis the process of data collection and ensure that the collected data is transmitted to the researchers on an agreed upon frequency.
- To liaise with the researchers for solving any administrative or technical problem that may arise during the course of data collection process.
- To settle any dispute that may arise amongst the field workers and/or with health facility management.
- The supervisor will be answerable to the Director, CHSRD UFS.

ANNEX 15-1

Part 1- First post-intervention survey training manual

**THE FREE STATE
LUNG HEALTH SURVEY**

**RESEARCH TRAINING AND FIELDWORK
MANUAL**

**University of Cape Town Lung Institute
Department of Community Health, University of the Free State
Centre for Health Services Research and Development, University of
the Free State**

April 2003

FREE STATE LUNG HEALTH SURVEY

1. Overview

1.1 Origin

Lung diseases are very common in South Africa and their prevalence is increasing due to the HIV epidemic. Respiratory conditions account for 1 in 3 visits to primary care in this country. For this reason it is essential to evaluate how they are being treated in primary care so that services can be planned accordingly.

Common respiratory conditions include TB, upper and lower respiratory tract infections and obstructive lung disease (asthma / COPD).

Research shows that pneumonia is one of the leading causes of death in adult South Africans and that TB is the leading cause of death in South Africans living with HIV/AIDS. Both of these conditions are treatable if recognised and treated early, with potential to save lives and reduce the burden of illness in patients with HIV/AIDS.

The quality of healthcare provided at primary care clinics is crucial in treating lung disease since this is the first port of call for most patients. Currently this health care is of poor quality forcing many patients to bypass clinics (especially in emergency cases) and seek care elsewhere, often at great expense.

This survey aims to measure the quality of care provided to patients with respiratory problems in primary care, and quantify the economic implications for the patient and their household.

It will run over a period of 6 months (May to November 2003) and 2000 patients will be interviewed twice, once at baseline and again after a 3 month period. Data on the care received, health-related quality of life, use of alternative health care providers and the economic implications for the patient and their household will be collected.

The 6 month survey period is essential when dealing with respiratory problems to avoid interviewing patients only during a 'flu epidemic or any other period where respiratory conditions are known to worsen (e.g. asthma in spring). This could lead to "skewed" data and not provide a balance picture of respiratory disease throughout the year.

1.2 DEFINITIONS

Respiratory System

The respiratory system is divided into the upper respiratory tract (everything above the vocal cords – nose, sinuses, throat, and tonsils) and lower respiratory tract (everything below the vocal cords - large airways called bronchi and the 2 lungs).

Common Respiratory Symptoms

The 2 most common respiratory symptoms are cough and difficult breathing.

Cough

This can be dry or productive of sputum. Sputum or phlegm is mucus or slime which originates from the lungs and should not be confused with watery saliva. Sputum can be clear, yellow or green or even blood-stained. Patients can also cough up frank blood.

Difficult Breathing

Difficult breathing includes the feeling of a tight chest, wheezy breathing and shortness of breath. The shortness of breath must occur at rest or on usual exertion such as walking fast on the flat or with activities of daily living like dressing etc. It does not include the shortness of breath that occurs on heavy exercise like running.

Wheeze and Tight Chest

Some lung diseases like asthma result in narrowing of the airways in the lung causing airflow to become obstructed. In these cases air is forced through the narrowed airways producing a whistling sound called a wheeze. Patients may report this symptom or the wheeze may be audible to those around them. This is often but not always accompanied by a feeling of discomfort or tightness in the chest and patients often report a "tight chest".

Respiratory illnesses

These include all illness that involves part of the respiratory system. The Respiratory system is often the site of many common infections. These can either affect the upper respiratory tract (nose, sinuses, throat, tonsils) or the lower respiratory tract (large airways called bronchi or lungs). Common respiratory infections managed at primary care clinics include:

- The common cold (nose and throat)
- 'Flu (nose and throat)
- Sinusitis (infection of the sinuses)
- Pharyngitis (sore throat)
- Tonsillitis (infection of the tonsils)
- Laryngitis (infection of the vocal cords resulting in a hoarse voice)
- Acute Bronchitis (infection of the large airways or bronchi)
- Pneumonia (infection of the lung tissue itself)

The respiratory system is also the site of many chronic diseases. Again these can involve both the upper and lower respiratory tracts. Common chronic respiratory conditions managed at primary care clinics include:

- Hayfever or Allergic Rhinitis (nose and sinuses; rhinitis means nose)
- Asthma (small airways situated deep inside the lungs)
- COPD which stands for Chronic Obstructive Pulmonary Disease (airways and lung tissue)
- Chronic Bronchitis (inflammation of the large airways or bronchi usually due to smoking)
- Emphysema (destruction of the lung tissue usually due to smoking)

Asthma

This is an inflammatory disease that involves the small airways deep inside the lungs. These airways are inflamed and swollen, causing them to be narrowed and making it difficult to breathe. The condition tends to run in families and is associated with allergic diseases like hayfever, eczema (skin) and food allergies. Patients with asthma suffer from cough (especially at night), shortness of breath when performing light activity, wheeze and often complain of a feeling of tightness in their chest. Severe asthmatics experience symptoms every day but milder asthmatics may have long periods of feeling well interspersed with attacks of cough, wheeze, tight chest and shortness of breath. Asthma symptoms can be controlled with inhaler medication.

COPD or Chronic Obstructive Pulmonary Disease

- Obstructive means that the airways are narrowed and so the normal flow of air through them is obstructed.
- Pulmonary is the medical term for conditions relating to the lung.

COPD is a common abbreviation used in primary care and refers to patients with chronic bronchitis and/or emphysema. COPD is usually due to smoking but can also be caused by long-term exposure to dusty environments like mining underground. These patients usually present with a persistent cough often productive of phlegm (mucus). They also complain of feeling short of breath with light activity and may complain of a wheeze or tight chest. The symptoms are very similar to those of asthma but, unlike asthmatics, these patients tend to have symptoms every day of the year and are often older with a background of smoking.

In fact the symptoms of asthma and COPD are very similar. "Asthma" is a popular term in the community (and easier than "COPD") and many patients with COPD will tell you that in fact they have asthma when this is not necessarily true.

Tuberculosis (TB)

TB is a chronic infection of the lung which takes months to clear on treatment. It is caused by a germ which is transmitted through respiratory secretions on coughing and sneezing. But, unlike colds and flu, TB is quite difficult to catch and really only occurs in people who have been exposed to it on a daily basis for some time.

It is a curable infection but requires at least 6 months of treatment. Patients who have TB more than once, tend to be run-down and often have another disease which prevents their bodies from fighting infections properly like HIV/AIDS. These patients are usually treated for 9 months with additional injections in the first 2 months.

2. The fieldworker/interviewer

It cannot be overemphasised that the fieldworker/interviewer occupies a central position in this project, as he/she is the one who collects the information from the respondents. Therefore, the success of the project depends to a great extent on the quality of each fieldworker/interviewer's work.

The tasks of the fieldworkers/interviewers comprise the following:

- Becoming thoroughly familiar with the questionnaire as well as the procedure to identify and establish contact with the targeted respondents (in close cooperation with the fieldwork manager).
- Visit all selected respondents and conduct interviews.
- Take responsibility for the first level of quality control; this entails accepting responsibility for the quality and completeness of the questionnaires.
- Return to a respondent if the information on the questionnaire is found to be inadequate by the editor, fieldwork manager and/or researcher.
- Maintain a high standard of courtesy and meet the ethical standards of the project.
- Maintain the anonymity and confidentiality of all information gleaned from interviews and never compromise the safety of any respondent or co-fieldworker.
- Communicate all problems and queries to the fieldwork manager/editor.
- Keep the data safe before handing it over to the manager/editor.
- Briefly record experiences/constraints regarding the fieldwork task and communicate these to the manager/editor/researcher.

2.1 Training of fieldworkers/interviewers

Although some people are more skilful at interviewing than others, one can become a good interviewer through practice. Training will comprise of theoretical information and practical experience. The training manual and questionnaire should be carefully studied before each training session. Write down any questions, and these can be discussed during the training session. Interviewers can learn a lot from each other by asking questions.

During the training, the questionnaire sections, questions and instructions will be discussed in detail. It is important that you understand the questions and how to ask them before embarking on your first real interview. Practice reading the questionnaire out loud to another person several times so that you can become comfortable reading the questions aloud. This is an important assignment and prepares you for role-playing, during which you will interview another trainee. Later you will conduct a practice interview at a clinic during which you will interview real patients with respiratory diseases. You will be required to check and edit the questionnaire just as you would do during the actual fieldwork.

Your training as an interviewer does not end when the formal training period has been completed. Each time your fieldwork manager/editor meets with you to discuss your work in the field, your training is being continued. The formal training merely provides you with basic knowledge and information regarding the research process and questionnaires. Continued observation and supervision during the actual fieldwork complete the training process. This is especially important during the first few days of fieldwork. If you are uncertain about anything, discuss it with your fieldwork manager/editor.

2.2 Supervision of interviewers

Training is a continuous process. Observation and supervision throughout the fieldwork are a part of the training and data collection process. Your fieldwork manager/editor will play a very important part in continuing your training and ensuring the quality of the data. Your fieldwork manager/editor will:

- Do spot checks to ensure that you interviewed the identified respondents.
- Meet with you on a regular basis to discuss any problems.

Any fieldworker/interviewer, who is not performing at the level necessary to produce high quality data, may be released from service.

3. Project regulations

Your presence, interest, participation and co-operation are of the utmost importance over the next few months. During this time you will be provided with the necessary information, training, tools and support to accomplish your task. The following regulations have been generated to ensure that the workload is equally divided and the support equally shared.

- You have a very important task to perform during the fieldwork. If you are chosen to be an interviewer, and accept the position, your presence is required for each day of fieldwork.
- Except for illness, any person who is absent during any part of the training or fieldwork (i.e. whole day or part of a day) without permission will be dismissed.
- There is a great deal of work to be completed over the next few months; therefore late arrivals will not be tolerated during the training sessions or fieldwork.
- Your conduct must at all times be professional and your behaviour must be pleasant when dealing with the public. We are only able to do our work with the good will and cooperation of the people we interview. Therefore, any team member who is consistently overly aggressive, abrupt or disrespectful towards people in the field may be dismissed.
- Conduct all work required of you in terms of the agreement undertaken. The scope and type of work may change from time to time.
- Complete the training session preceding the fieldwork.
- Become thoroughly familiar with the different research instruments.
- Conduct practice fieldwork during the training session.
- It is critical that the data gathered during the fieldwork be both accurate and valid. Spot checks will be conducted to control for inaccurate and invalid data. Interviewers may be dismissed at any time during the fieldwork if their performance is considered inadequate.
- Provide missing or faulty information, should the quality of the data be found unacceptable.
- The data gathered is confidential and must not be discussed with anyone, including your fellow interviewers. Interviewers breaking this rule may be dismissed.

Furthermore, it is expected that no fieldworker/interviewer will:

- Neglect his/her duty, due to poor performance.
- Refuse to adhere to instructions given by the researchers.
- Be under the influence of alcohol or drugs while performing his/her duty.
- Be out of contact for a period of more than three days.
- Behave in such a manner that is prejudicial to the maintenance of good order.
- Attempt to use violence while performing his/her tasks.

4. Interviewing

4.1 Conducting the interview

The ability to conduct a successful interview is an art. It should not be treated as a mechanical process. Each interview provides us with new information, therefore we need to make it as interesting and pleasant as possible. The art of interviewing develops with practice, however, there are a few basic guidelines followed by every successful interviewer.

4.1.1 Building rapport with the respondent

You (fieldworker/interviewer) and the respondent are strangers, and one of your main tasks as an interviewer is to establish rapport with the respondent. The respondent's willingness to co-operate with you will depend on his/her first impression of you. Ensure that your appearance is neat and your manner friendly when you introduce yourself.

4.1.2 Make a good first impression

When you first approach the respondent, do all that you can to make him/her feel at ease. Start the interview with a smile and a greeting such as "Good afternoon. How are you?". Then proceed with your introduction.

An example of a good introduction is:

"My name is _____. I'm a fieldworker from _____. We are conducting research about the health services available to patients with respiratory conditions. I would like to talk to you and ask you some questions."

4.1.3 Always have a positive approach

Do not have an apologetic manner and use words such as "Are you too busy?", "Would you spare a few minutes?" or "Would you mind answering some questions?". Such questions invite refusal before you even start. Instead, tell the respondent "I would like to ask you a few questions" or "I would like to talk with you for a few minutes".

4.1.4 Stress confidentiality of responses when necessary

If the respondent is not eager to answer questions or asks what the data will be used for, explain that the information you collect will be kept confidential and all information will be pooled to write a report. Do not discuss specifics about other interviews that you have conducted or show completed questionnaires to other interviewers or supervisors in front of a respondent or any other person.

4.1.5 Answer all the respondent's questions frankly

The respondents may ask some questions about the research, or how he/she has been selected for the interview before he/she agrees to be interviewed. Be direct and pleasant in your answer. The

respondent may also want to know how long the interview will take. If she asks, tell her that the interview usually takes about 45 minutes.

4.2 Tips in conducting interviews

4.2.1 Be neutral throughout the interview

Most people are polite and will try to give answers that they think you want to hear. Therefore, it is very important that you are absolutely neutral when you ask the questions. Do not ever let your facial expression or the tone of your voice allow the respondent to think that he/she has given the right or wrong answer.

The questions are all carefully formulated to be neutral, so that they do not suggest that one answer is preferable to another answer. If you fail to read the complete question, you may destroy this neutrality. Therefore, it is important that you read the whole question as it is written. If the respondent gives an ambiguous answer, probe in a neutral way, by asking questions such as "Can you explain a little more?" "I did not quite hear you. Could you please tell me again?" "There is no hurry. Take a moment to think about it?"

4.2.2 Never suggest answers to the respondent

If the respondent's answer is not relevant, do not prompt her by saying something like "I suppose you mean that ... is that right?" Usually, she will agree with your interpretation of her answer, even if that was not what she meant. Rather probe in such a way that the respondent himself/herself comes up with the relevant answer.

4.2.3 Do not change the wording or sequence of the questions

The wording and sequence of the questions in the questionnaire must be maintained. If the respondent misunderstood the question, repeat the question slowly and clearly. If she still does not understand, you may reword the questions, but be careful not to change the meaning of the original question. Provide only the minimum information to get an appropriate answer.

4.2.4 Handle hesitant respondents tactfully

There will be times when the respondent says "I don't know", gives an irrelevant answer, acts bored, contradicts something she has already said or refuses to answer the question. Spend a few moments talking about things unrelated to the interview (e.g. his/her family, the weather, etc.).

If the respondent is giving irrelevant or elaborate answers, listen to what she has to say and do not stop him/her abruptly or rudely. Try to steer him/her gently back to the original question. Maintain a good atmosphere throughout the interview. The best atmosphere is one in which the respondent sees the interviewer as a friendly, sympathetic and responsive person who does not intimidate him/her, and to whom he/she can say anything. If the respondent is reluctant or unwilling to answer a question, try to overcome this reluctance by explaining once again that the same question is asked of other respondents and that the answers will all be merged together. If she still refuses, write "REFUSED" next to the

questions and proceed as if nothing has happened. On the PDA you will find a R (for Refused to answer) button in the lower left corner. When you have completed the interview, you can try to obtain the missing information at the end, but do not push too hard for an answer. Remember that the respondent cannot be forced to give an answer.

4.2.5 Do not form expectations

You must not form expectations about the ability and knowledge of the respondents. At the same time, remember that differences between you and the respondents can influence the interview. If the respondent feels that you are different from him/her, he/she may be afraid or mistrustful. Always behave and speak in such a way that he/she feels at ease and comfortable talking to you.

4.2.6 Do not hurry the interview

Ask the questions slowly so that the respondent understands. Once the question has been asked, pause and give her time to think. If the respondent feels hurried, or is not allowed to formulate his/her own opinion, he/she may answer, "I don't know" or give an inaccurate answer. If you think that the respondent is answering without thinking to speed up the interview, say to him/her "There is no hurry, your opinion is very important, so please consider your answers completely".

4.3 Language of the interview

The questionnaires have been translated into the language that you will need to conduct the interview in. There may, however, be times you will have to slightly change the wording of the questions to fit the local dialects and culture. It is very important not to change the meaning of the questions when you rephrase it.

5. Fieldwork

5.1 Supplies

Before leaving for the field, ensure that you have adequate supplies for the day's work. These supplies include:

- Your targas bag containing your PDA, modum, rechargeable batteries, thermometer and digital watch.
- A sufficient supply of paper questionnaires to serve as back-up in the event that you encounter technical failure of the PDA.
- A sufficient supply of the paper consent forms
- Your copy of the training manual
- Letter of introduction
- A clipboard
- Pencils (sharpeners and erasers) to fill in the questionnaires
- A briefcase or bag in which to carry the questionnaires
- Any personal items that you will require to be comfortable given the circumstances and area in which you are working.

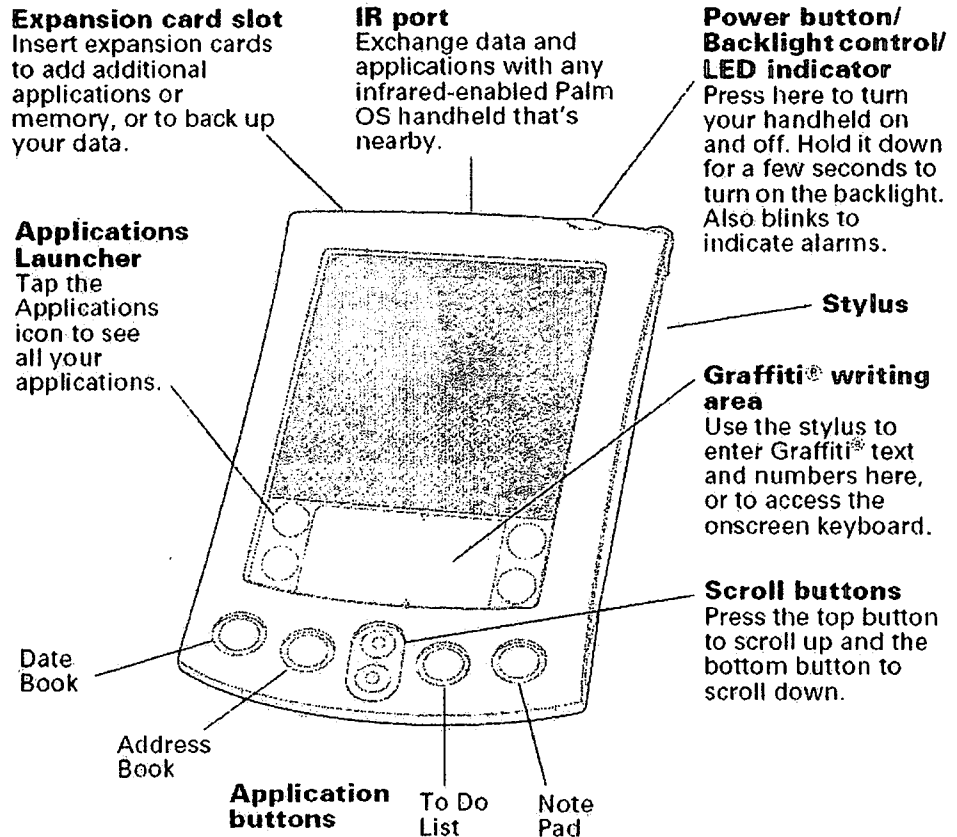
5.2 Checking completed questionnaires

The fieldworkers must check each questionnaire once the interview has been completed. This should be done before the patient leaves the clinic to ensure that every appropriate question has been asked, that all answers are clear and reasonable and that your handwriting is legible. Also check that the skip instructions have been correctly followed. You can make minor corrections, but the respondent must clarify serious errors. Apologise, explain that you made an error and ask the questions again. Do not recopy questionnaires. The answers need to be clear and readable, it is not necessary that the questionnaire itself be neat. Each time you rewrite the answers on a new questionnaire, you increase the chance of an error. Explain anything out of the ordinary by writing by in the margins or at the back of the questionnaire. These explanations are helpful to the fieldwork manager/editor when checking the questionnaires. Explanations are also read in the office and used to resolve problems encountered during coding the questionnaires.

THE PDA (PERSONAL DIGITAL ASSISTANT)

Getting Started

Your Palm m500 series handheld



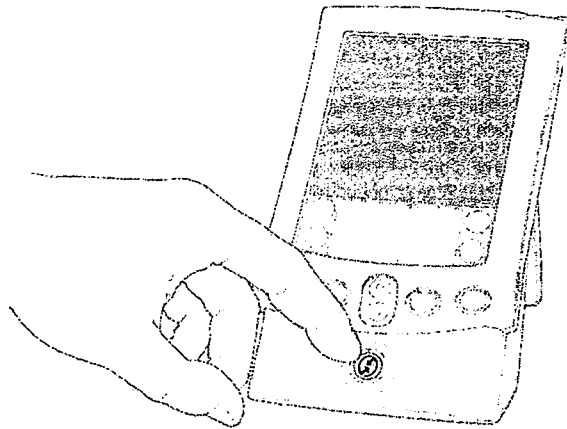
Charging your handheld

Just place your handheld in the cradle for two hours for an initial charge before you use it. Then place it in the cradle for a few minutes each day to recharge the battery to full capacity. If your handheld shuts down because the battery has fully discharged, you still have about a week to recharge the battery before you lose the data on your

Synchronizing data: Performing the first HotSync operation

The HotSync process automatically synchronizes — that is, exchanges and updates — data between your handheld and Palm Desktop software. Changes you

make on your handheld or Palm Desktop software appear in both places after a HotSync operation.



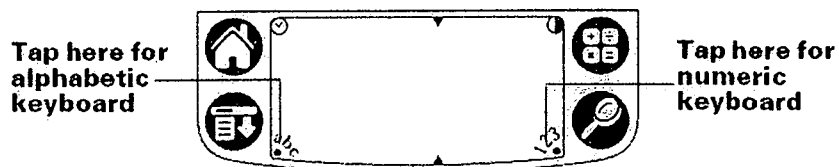
1. Place your handheld on the HotSync cradle.
2. Press the HotSync button on the cradle.
3. Wait for a message on your handheld indicating that the process is complete.

Tip: To remove your handheld from the cradle, rock it gently forward, then lift.

Entering Data

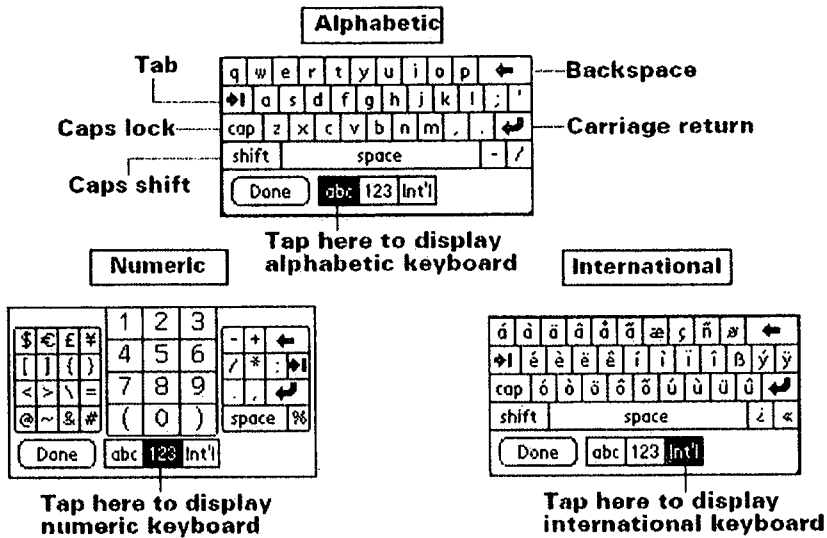
There are several ways to enter data into your handheld: the onscreen keyboards, Graffiti ® writing.

Entering data with the onscreen keyboards 1. Open any application (such as Address Book). 2. Tap any record, or tap New. 3. Tap “ abc” or tap “ 123” to open an onscreen keyboard.



Note: Graffiti writing area shown with contrast adjustment. Some models do not use contrast adjustment.

4. Tap the characters to enter text and numbers.

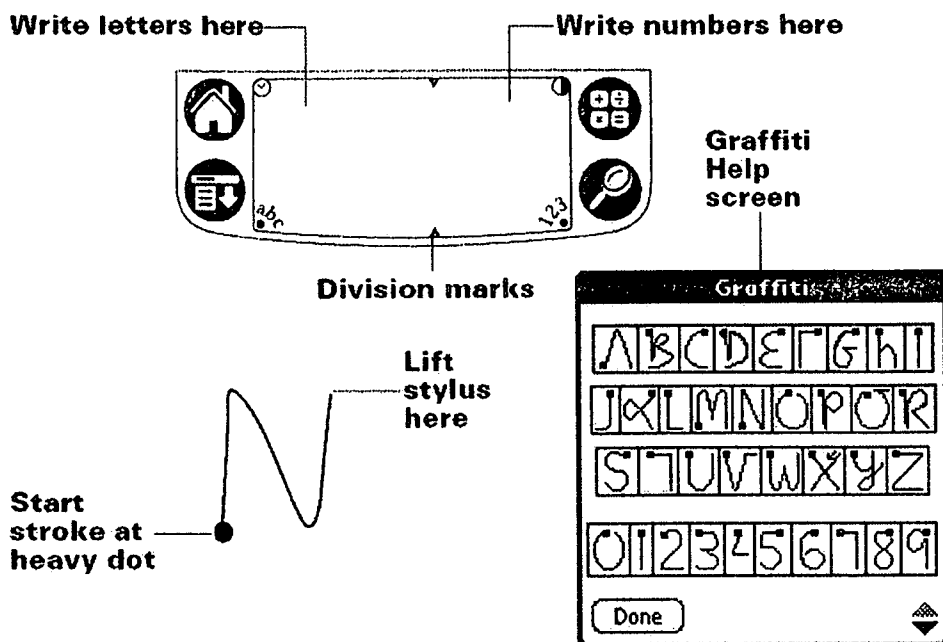


5. Tap Done to close the onscreen keyboard.

Entering data with Graffiti writing

Graffiti characters are similar to uppercase letters that are formed with a single-stroke. Your writing turns into text wherever the blinking cursor appears on the handheld screen. Graffiti writing is easy, fun, accurate, and fast (up to 30 words per minute). It's worth taking a few minutes to learn.

1. Open any application (except Note Pad).
2. Tap any record, or tap New.
3. Tap the line where you want the text to appear.
4. Write Graffiti characters in the Graffiti writing area.



Graffiti tips

- To display Graffiti Help (shown above), tap the Menu icon , tap Edit, and then tap Graffiti Help.
- Write big and press firmly. Draw strokes that nearly fill the Graffiti writing area to improve accuracy.
- To delete characters, set the insertion point to the right of the character you want to delete and make the backspace stroke (a line from right to left) in the Graffiti writing area.
- Write at natural speed. Writing too slowly can generate errors.
- Do not write on a slant. Vertical strokes should be parallel to the sides of the Graffiti writing area.
- Install the Graffiti writing game, Giraffe, to practice writing.

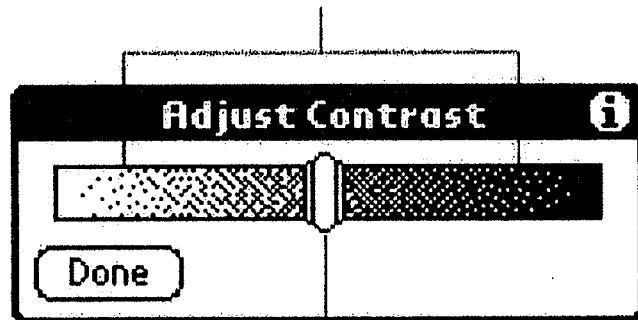
Get to Work

Adjusting the screen.

If lighting conditions make it difficult to see the information on your handheld, you can use the backlight to adjust your screen. On Palm™ m500 series handhelds that use contrast adjustment, you can also use the contrast control to adjust your screen. Using the backlight 1. Press the power button for about two seconds. Release the button when the backlight turns on. 2. Press the power button for about two seconds to turn off the backlight.

Note: The backlight also turns off automatically after a period of inactivity defined by the Auto- off setting. See “Setting General preferences” later in this chapter for details. Adjusting the contrast 1. If your m500 series handheld uses contrast adjustment, tap the Contrast icon in the upper- right corner of the Graffiti® writing area. 2. Adjust the contrast setting.

Tap to left or right of slider to make small adjustments



Drag slider to make large adjustments

Tip: You can also use the up and down scroll buttons on the front of your handheld to adjust the contrast setting.

3. Tap Done.

SCREENING PATIENTS AT THE CLINIC

Who must you interview?

The screening criteria select patients on the basis of respiratory symptoms. The patient does not need to be attending the clinic for these symptoms but may be there for another reason e.g. a patients attending for a blood pressure check up but who has a chronic cough would qualify.

The selection criteria are as follows:

1. All patients must be 15 years or older. This means children will *not* be tagged before the nurse consultation for interviewing afterwards. This criteria is checked again at the time of entering the date of birth or if this is not known age at last birthday before starting the interview.
2. All patients *must have been seen by a nurse on the day of the interview*. They may also have been seen by a doctor, but must definitely have been seen by a nurse. Do not interview patients who have only been seen by a doctor. This will apply to those clinics where nurses and doctors see patients. Usually all patients are first seen by a nurse and then referred on to a doctor, but in clinics where the doctor only visits on certain days, there may be patients who have been asked to attend specifically to see the doctor and so won't be seen by a nurse on that day.
3. The remaining criteria are based on *symptoms and signs of respiratory disease*.

Patients who qualify fall into one of the following groups:

1. Difficult breathing today or in the last 6 months.
 2. Cough of more than 1 week's duration.
 3. Cough of less than 1 week's duration but the second/more episode in the last 6 months.
 4. Cough of less than 1 week's duration but with a marker of severe disease (temperature ≥ 38 degrees Celsius, respiratory rate ≥ 30 breaths per min)
4. What is *difficult breathing*?

Difficult breathing includes the feeling of a tight chest, wheezy breathing and shortness of breath. The shortness of breath must occur at rest or on usual exertion such as walking fast on the flat or with activities of daily living like dressing etc. It does not include the shortness of breath that occurs on heavy exercise like running.

Patients usually understand the term if you use short phrases like tight chest, wheeze, shortness of breath to explain it.

HOW TO SELECT PATIENTS FOR INTERVIEWING

IN WAITING ROOM (BEFORE CONSULTATION)

24 Hour Clinic:

1. Arrive as early as possible at the clinic.
2. Ask clerk to identify the first booked patient (patient attending for a check-up or to collect repeat medication) to arrive at the clinic that day.
3. Starting with first booked patient, ask each patient individually and *in the sequence that they are standing or sitting in the waiting area*, the screening questions below.

8am – 5pm clinic:

1. Arrive as early as possible at the clinic.
2. As patients enter the door ask each patient individually and in sequence of entering the clinic the screening questions below.

Screening Questions (to be asked before the patient sees the nurse/doctor)

Ask patient the following (repeat word for word):

1. *How old are you?*
If patient is 15 years or older ask:
2. *Do you have a cough and/or difficult breathing / tight chest / shortness of breath today or have you had any of these problems in the last 6 months?*

If patient answers yes, select patients for further screening according to the targets which have been set for your clinic (these will be given to you during training or before you start fieldwork in a particular clinic).

3. Exclude those patients who are too ill to participate and require immediate emergency treatment:
 - * unconscious patients
 - * patients who are not breathing
 - * patients who are unable to talk
 - * patients who are psychotic (clearly hallucinating, manic and unable to sit still, aggressive)
4. Explain to the patient that we are conducting a lung health study and would appreciate their help. Ask them to meet an interviewer at the interviewing station after their consultation today and to bring their folder with them.

AT INTERVIEWING STATION (POST CONSULTATION)

Start the questionnaire on the PDA. Within a minimum of 1 question (and a maximum of 9 including taking the patient's respiratory rate and temperature you will know if the patient has qualified). The PDA will alert you every time the patient answers a question which results in a patient qualifying for the full interview.

Stop the questionnaire, consent the patient (including sign the consent forms) and then continue.

The PDA screen display will disappear if you do not use it for some time (like when you are consenting the patient). Press the power button to restart the interview. The last screen you entered will appear.

If you are using the paper questionnaire you will notice it comes in 2 parts: the screening questions on pages 1 and 2, and the remainder of the questionnaire (pages 3 – 35). This is to avoid you having to waste complete questionnaires on patients who do not qualify.

You will notice that you are not required to complete patient contact details for patients you screen, but who fail to qualify for the full interview.

THE QUESTIONNAIRE EXPLAINED

BEFORE STARTING

You will notice that the numbers that appear in the paper questionnaire are often out of sequence and seem to follow an illogical order. This is because the questions match those in the PDA and the PDA version of the questionnaire differs in design to that of the paper questionnaire.

For example the PDA is unable to accommodate tables which are used frequently in paper questionnaires. Instead the PDA asks items in a table as a sequence of questions, branching off to more details when one of the options is selected. For this reason the questions appear more straightforward on the PDA as the non-applicable options are "hidden". The disadvantage is that the accompanying paper version is very cumbersome, long and difficult to follow (77 pages in all). For this reason we have designed a paper version containing tables etc to facilitate easy completion in the event that you are forced to fall back on paper. The trade-off is that the sequence of numbers in this paper version has been disrupted. The PDA numbers have been retained to allow the paper data to be captured and reconciled with the PDA data you upload.

DATE OF INTERVIEW

You enter this by clicking on the displayed date. A calendar will appear with the option TODAY in the lower right of the screen. Click on this and it will automatically register the date for you.

In the paper version, you must write the date at the top of each page, together with the patient's initials, clinic name and interviewer code (see later). This enables pages to be reconciled before data capture in the event that they become separated.

Patient Initials:	JS	Date:	12/5/2003	Clinic:	Welkom	Interviewer code:	3915
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INTERVIEWER CODE

This is a 4 digit code. The first 2 digits denote the clinic and can be obtained from the list below. The second 2 digits are your own personal identification code and will be assigned to you during the training week.

CLINIC NAME	LOCATION	CODE
Albert Luthuli Clinic	Wesselsbron	01
AM Kruger Clinic	Odendaalsrus	02
Bethlehem Clinic	Bethlehem	03
Bohlokong Clinic	Bethlehem	04
Boithusong	Odendaalsrus	05
Bophelong Clinic	Odendaalsrus	06
Bophelong Clinic	Kroonstad	07
Bothaville Clinic	Bothaville	08
Botshabelo B Clinic	Botshabelo	09
Botshabelo J Clinic	Botshabelo	10
Botshabelo U & S Clinic	Botshabelo	11

Hill Street Clinic	Kroonstad	12
Hoopstad Clinic	Hoopstad	13
K- Maile Clinic	Bothaville	14
Khotalong Clinic	Virginia	15
Koppies (Kganya) Clinic	Koppies	16
Ma-Haig Clinic	QwaQwa	17
Marakong Clinic	QwaQwa	18
Matlakeng Clinic	Zastron	19
Mpohadi Clinic	Bethlehem	20
Namahali Clinic	QwaQwa	21
Osizweni Clinic	Sasolburg	22
Paballong Clinic	QwaQwa	23
PAX Clinic	Viljoenskroon	24
Petrusburg Clinic	Petrusburg	25
Phahameng Clinic	Frankfort	26
Phomolong Clinic	Henneman	27
Phuthaditjhaba	QwaQwa	28
Reitz Clinic	Reitz	29
Riverside Clinic	QwaQwa	30
Seeisoville Clinic	Kroonstad	31
Tebang Clinic	QwaQwa	32
Thabong Clinic	Welkom	33
Thusanong Clinic	Sasolburg	34
Thusanong Clinic	Kroonstad	35
Tseki Clinic	Witsieshoek	36
Tshepong Clinic	Welkom	37
Tumahole Clinic	Parys	38
Welkom Clinic	Welkom	39
Wepener Clinic	Wepener	40

PATIENT DETAILS (Questions 3 – 7, Page 1)

First enter the patient's first name, surname, gender and folder number. Take care when entering the folder number, transcribing 2 – 4 digits at a time. If not folder is available you may leave this blank (but only if you really have made a concerted effort to locate the folder). If you really can't locate the folder, you may click NEXT on the PDA.

PATIENT DETAILS							
3	Enter first name:	John			4	Enter surname:	Smith
5	Gender (mark with an X):	Male	<input checked="" type="checkbox"/>	Female			
6	Enter folder no:	8763421			7	Re-enter folder no:	8763421

Questions 8 – 11 (Page 1)

Patients should be considered for the study if they are 15 years or older.

In Question 8 you ask the patient their date of birth. If they are 15 years or older they will tell you that they were born in 1986 or before. These patients should be considered for inclusion. Enter their date of birth. Do not use the "date of birth"

recorded on the folder to complete this question as this has often been incorrectly documented.

If they are 14 years or younger they will tell you that they were born in 1987 or after. These patients should **not** be considered for inclusion in the study. Do not continue with the questionnaire.

If patients do not know their date of birth you must default to question 10 and ask them their age at their last birthday. You do this on the PDA by clicking on the DON'T KNOW button in the lower left of the screen. If you have already entered their date of birth you may skip this question and go to question 12. The PDA will do this automatically.

8	What is your date of birth? If you don't know your date of birth, enter age at last birthday.						
9	Date:	26	Month	10	Year	1970	→ 1987 or after? → do not continue
11	Age at last birthday:						→ 14 years or younger? → do not continue

Question 12 (Page 1)

You must *not* consider patients who have previously completed the full questionnaire. You may consider patients you have screened previously but who did not qualify for the full questionnaire at that stage, but who have now returned to the clinic.

For example a patient attends the clinic on Monday with a cough. He doesn't qualify for the full questionnaire because he has no difficult breathing, a cough of less than a week's duration, no past cough in the last 6 months and no marker of severe disease. On Friday he returns to the clinic. He now reports that his cough has been ongoing for more than 7 days. Therefore this patient now qualifies for the study and the full questionnaire can be completed, once you have consented the patient.

12	Have you participated in this study before (full questionnaire ± 1 hour)?		
	YES		→ do not continue
	NO	X	→ go to the next question

Questions 13 – 14 (Page 1)

Most clinics are staffed by nurses and doctors only visit once or twice a week. In these clinics you may come across patients who have been asked to attend on these days specifically to see a doctor. Usually they will not see a nurse again on that day. These patients who have been seen only by a doctor, and not by a nurse as well on the day of the interview, must *not* be considered for inclusion in the study.

Patients should be considered for inclusion in the study if they have been seen by a nurse (usually a nursing practitioner) on the day of the interview.

Some patients may have also seen a doctor. This usually occurs when the nurse has asked the doctor for a second opinion. These patients must be considered for inclusion in the study.

13	Were you seen ONLY by a doctor today?		
	YES		→ do not continue
	NO	X	→ go to the next question

14	Were you seen by a nurse/nursing sister today?		
	YES	X	→ go to the next question
	NO		→ do not continue

Question 15 (Page 1)

Difficult breathing is defined in the glossary. You must use the terms tight chest, shortness of breath and wheeze to illustrate to the patient what exactly difficult breathing entails.

Patients who report difficult breathing on the day of the interview qualify for the study and full questionnaire. Stop the screening process and consent the patient before continuing with the questionnaire.

After you have done this, skip question 16 and continue with question 17. The PDA will not lose your data when you stop to consent the patient. Click the grey power button on the top right to recommence with the interview.

15	Do you have difficult breathing (tight chest, shortness of breath, wheeze) today?		
	YES	X	→ CONSENT → skip to question 17
	NO		→ go to the next question

Question 16 (Page 1)

Difficult breathing is defined in the glossary. You must use the terms tight chest, shortness of breath and wheeze to illustrate to the patient what exactly difficult breathing entails.

Patients who report difficult breathing in the last 6 months, *even if they are not symptomatic on the day of the interview*, qualify for the study and full questionnaire. Stop the screening process, and consent the patient before continuing with the rest of the questionnaire.

After you have done this, continue with question 17.

16	Have you had difficult breathing (tight chest, shortness of breath, wheeze) in the last 6 months?		
	YES	X	→ CONSENT → go to the next question
	NO		→ go to the next question

Question 17 (Page 2)

This is a relatively straightforward question. It is worthwhile pointing out that cough need not be the reason for attending the clinic today in order to answer yes. You must enter yes for any patient with a cough on the day of the interview, regardless of whether it was the reason for them coming to the clinic today or not.

17	Do you have a cough today?		
	YES	X	→ go to the next question
	NO		→ do not continue

Questions 18 - 19 (Page 2)

This is an extremely important question. The study is looking at the delay between onset of respiratory symptoms like cough and an accurate diagnosis of TB. The longer people are symptomatic in the community without being diagnosed and treated, the greater the chance that more people will be infected with TB. This study will look at the average delay between onset of symptoms and diagnosis in the Free State and is therefore an essential part of planning TB services. It is therefore extremely important that you pay particular attention to this question.

Ask the patient the question and then allow a silent pause. Jumping in with suggestions like 3 weeks, 2 days will lead the patient and give you an unreliable answer. Be patient. Allow the patient time to think and give you a considered response.

If the patient is really at a loss you can ask then whether their symptoms have been troubling them for a matter of days, weeks, months or years. Allow them to select a category and again wait for them to produce a spontaneous answer.

If it is a matter of weeks or months and the patient is still struggling to recall the exact duration, you may use notable calendar highlights to help them remember. Example: "Did this difficult breathing start before or after Easter?" A calendar with the Public Holidays highlighted is included in the visual aid to help you (pages 2 - 3).

Beware of the patient who answers "last of last week/month/year" or "the day before the day before yesterday". These are colloquial expressions and do not reflect actual duration accurately. Prompt these patients with days, months, weeks or years.

Once you have obtained an answer, mark the relevant category (days or weeks or months or years) and enter the number alongside. The PDA will skip to a screen which says "Enter number" when you select a category.

18	For how long have you been coughing?		
	Choose <i>one</i> option and enter number.		
	Days		→ 19. Enter number:
	Weeks	X	→ 19. Enter number: 2
	Months		→ 19. Enter number:
	Years		→ 19. Enter number:

Question 20 (Page 1)

This question is directed at you, the interviewer, and should be completed based on the response to the previous question (Questions 18 – 19: duration of cough). Do not be tempted to use a shortcut and substitute asking patients if they have been coughing for 7 days or longer instead of “For how long have you been coughing?” This will lead the patient and provide you with an unreliable answer.

Patients who have been coughing for 7 days or longer qualify for the study and full questionnaire. Stop the screening process and consent the patient before continuing with the questionnaire.

After you have done this, skip question 21 and continue with question 22.

Question 21 (Page 1)

Patients qualify for the study if they have been coughing for less than 7 days, but have had a similar episode or episodes in the last 6 months. Stop the screening process and consent the patient if you haven’t already done so before continuing with the questionnaire.

After you have done this, continue with question 22.

21	Have you had another episode of cough like this one in the last 6 months?		
	YES	X	· CONSENT if haven't already → go to the next question
	NO		→ go to the next question

Questions 22 - 23 (Page 2)

The respiratory rate is how fast the patient is breathing and is measured in breaths per minute. A high respiratory rate is an indicator of respiratory disease.

How to measure a respiratory rate:

1. Count the number of breaths over *1 full minute*.
2. Wait for the second function on your digital watch to register “00” before starting.
3. Watch the patient’s chest in the area of the sternal notch (this is the area just above your ribcage in the centre of your throat, visible above the patient’s collar) and count “1” every time you see this area rise. This corresponds to one breath.
4. Count the number of times the chest rises over the full minute. Stop when the second function of your watch registers “00” again. Note the number of breaths per minute.

Breathing is controlled automatically by your brain. It can come under voluntary control like when you hold your breath when swimming under water. As soon as you tell someone that you will be counting how fast they are breathing they become conscious of their breathing and control switches from “automatic” to “voluntary”. This may lead to a false result and you risk not capturing their normal respiratory rate.

This can be avoided by “masking” what you are doing. Most patients are familiar with the procedure of taking a pulse rate. This involves feeling for the pulse on the inside of the wrist (the pulse can be found on the “thumb” side) while watching your watch. We recommend that you pretend to take the patient’s pulse and while doing so count the respiratory rate.

Try out this exercise with a friend:

1. Tell him/her you are first going to measure their pulse rate. Pretend to measure their pulse while counting their respiratory rate. Remember this respiratory rate.
2. Now tell them you are going to measure how fast they are breathing. This time watch their chest without pretending to take the pulse rate.
3. How does the first measurement compare with the second one?

You will note that patients tend to breathe faster when they are conscious of the fact that you are measuring how fast they breathe.

Patients with a respiratory rate of 30 breaths per minute or more, qualify for the study and full questionnaire if they haven’t done so already. Question 23 is directed at you, the interviewer, and should be completed based on the respiratory rate noted in Question 22. If the respiratory rate is 30 breaths per minute or more stop the screening process, consent the patient if you haven’t done so already and then continue with the questionnaire (question 24: temperature).

22	Interviewer: What is the respiratory rate?		
	Count number of breaths over 1 full minute.		
	Enter Respiratory Rate (breaths/min)	22	

23	Interviewer: What is the respiratory rate?		
	29 breaths / minute or less	X	→ go to the next question
	30 breaths / minute or more		→ CONSENT if haven't already → go to the next question

Questions 24 – 26 (Page 2)

A high temperature indicates an infection, which may be respiratory in nature. Normal body temperature is 37 degrees Celsius.

How to measure the patient’s temperature using a digital thermometer:

1. Take the thermometer out of the plastic holder.
2. Ensure that the metallic tip is clean (wash / wipe between patients)
3. Switch the thermometer on by pressing down the power button.
4. The thermometer will beep when it is switched on.
5. The screen will first display 188.8, indicating that the LCD screen is working.
6. Within seconds it will display a flashing “L degrees Celsius” indicating that it is ready to be used.
7. If the “L degrees Celsius” stops flashing, push the power button and start again.

8. Place the metallic tip under the tongue of the patient and instruct him/her to close his/her mouth. Ask the patient not to bite the thermometer.
9. Wait for the thermometer to start beeping. This will take approximately 30 seconds.
10. When the thermometer stops beeping, remove it from the patient's mouth and read the temperature.
11. Switch off the power button when finished.
12. Rinse the metal probe and replace in the plastic holder.

The thermometer is battery-powered but one battery has sufficient power to take 4000 temperatures.

Note the temperature in the space provided. Question 25 is directed at you, the interviewer, and should be completed based on the temperature recorded in Question 24. If the temperature is 38 degrees Celsius or more, stop the screening process, consent the patient if you haven't done so already and then continue with the questionnaire (Question 27: More questions on difficult breathing).

NB: If the patient has a temperature of 37.9 degrees Celsius or less and has not qualified on a previous criteria (i.e you have not already consented the patient) the patient *does not qualify* for the interview. Do not continue.

24	Interviewer: What is the patient's temperature? Take the temperature with the thermometer.	
	Enter Temperature (in degrees Celsius)	37.5

25	Interviewer: Is the temperature 38 degrees Celsius or more?	
	37.9 Celsius or less	X → Patient consented already? → continue with question 27 → Patient not yet consented? → do not continue
	38 Celsius or more	→ CONSENT if haven't already → complete full questionnaire → go to question 27 (top of page 3)

MORE QUESTIONS ON DIFFICULTY BREATHING (Questions 27 – 34, Page 3)

Questions 27 - 28 (Page 3)

These are repeats of the screening questions to determine whether you should complete further questions on difficulty breathing. If the patient has either difficulty breathing today, or has had difficulty breathing in the last 6 months you must complete the questions in this section. If the patient reports no difficulty breathing at all you can skip these questions and go to Question 35 at the top of page 4 (More Questions on Cough).

27	Do you have difficult breathing (tight chest, shortness of breath, wheeze) today?	
	YES	→ skip to question 29
	NO	X → go to the next question

28	Have you had difficult breathing (tight chest, shortness of breath, wheeze) in the last 6 months?	
	YES	X → go to the next question
	NO	→ Skip to Question 35 (top of page 4)

Questions 29 – 30 (Page 3)

This asks the patient about the duration of their difficulty breathing. As with cough duration, this is a particularly important question. Please see Question 19 for instructions.

Question 31 (Page 3)

Patients with asthma usually have intermittent symptoms meaning that they have periods where they feel quite normal. Patients with chronic bronchitis and emphysema tend to have persistent symptoms meaning that they are never have “normal” days without symptoms. The severity of these symptoms usually worsens with every passing year. This question asks patients to distinguish between difficult breathing which is persistent (“continuously, so that your breathing is never quite right”) vs. difficult breathing which is intermittent (“repeatedly, but it always gets completely better”).

Indicate which option applies by marking the adjacent box with an X.

31	Does this difficult breathing trouble you continuously, so that your breathing is never quite right, or does it trouble you repeatedly but always gets completely better?	
	Continuously	
	Repeatedly	X

Question 32 (Page 3)

Patients with heart failure may also report difficult breathing. Usually they only have symptoms on physical exertion (like walking fast on the flat or uphill) but not at rest. On the other hand, patients with lung disease often have shortness of breath on physical exertion as well as at rest.

This question asks patients to distinguish between difficult breathing “only when walking on the flat or uphill” vs. “when resting (sitting etc)”.

Indicate which option applies by marking the adjacent box with an X.

32	Does this difficulty breathing trouble you only when walking fast on the flat or uphill or also when resting?	
	Only when walking fast / uphill	
	When resting (sitting etc.)	X

Question 33 (Page 3)

See glossary for definition of wheeze.

Please stress to patient that we want to know about “this current illness” meaning their present state of health. We want to know about these symptoms whether or not they were the reason the patient came to the clinic today.

Indicate which option applies by marking the adjacent box with an X.

34	Does your chest wheeze (make a whistling sound) when you breathe with your current illness?	
	YES	X
	NO	

MORE QUESTIONS ON COUGH (Questions 35 – 42, Page 4)

Question 35 (Page 4)

This is a repeat of one of the screening questions to determine whether you should complete further questions on cough. If the patient has cough on the day of the interview, you must complete the questions in this section. If the patient reports no cough you can skip these questions and go to Question 43 at the top of page 5 (Other Symptoms of this Current Illness).

35	Do you have a cough today?		
	YES	<input checked="" type="checkbox"/>	→ go to the next question
	NO	<input type="checkbox"/>	→ skip to question 43 (top of page 5)

Questions 36 – 37 (Page 4)

See glossary for explanation of a dry and productive coughs. Patient may not understand the terms “phlegm” or “slime” but responded quite well to the phrase “solid-like” during the piloting of this questionnaire (“Do you produce something solid-like when you cough?”).

Please stress to patient that we want to know about “this current illness” meaning their present state of health. We want to know about these symptoms whether or not they were the reason the patient came to the clinic today.

Phlegm or slime may be different colours. Clear or white sputum usually indicates chronic bronchitis or asthma. Yellow or green sputum often indicates an infection.

Do not confuse sputum with saliva. If in doubt you may want to clarify this with the patient (“Are you sure this is not saliva from your mouth?”).

Indicate which option applies by marking the adjacent box with an X.

36	Are you coughing up phlegm or slime with your current illness?		
	YES	<input checked="" type="checkbox"/>	→ go to the next question
	NO	<input type="checkbox"/>	→ skip to question 38

37	What colour is your phlegm / slime with this current illness? Choose <i>one</i> option.		
	Clear / White	<input type="checkbox"/>	
	Yellow / Green	<input checked="" type="checkbox"/>	
	Other	<input type="checkbox"/>	

Question 38 (Page 4)

Patients may cough up different amounts of blood from cupfuls of frank blood to blood specks in the sputum.

If the patient reports coughing up any amount of blood (from a blood specks in the sputum to pink sputum to frank blood) you must indicate “yes”.

38	Are you coughing up blood with this current illness?	
	YES	X
	NO	

Question 39 – 40 (Page 4)

There are several types of chest pain. Many patients complain of a central dull pain on coughing when they have bronchitis. This should not be confused with pleuritic pain or the sharp pain which occurs on breathing in deeply (or coughing) and which is a sign of pneumonia or TB. These questions ask first about this pain on coughing and then about this pain on breathing in deeply.

Please stress to patient that we want to know about “this current illness” meaning their present state of health. We want to know about these symptoms whether or not they were the reason the patient came to the clinic today.

39	Do you experience sharp chest pain on coughing with this current illness?	
	YES	X
	NO	

40	Do you experience sharp chest pain on breathing in deeply with this current illness?	
	YES	X
	NO	

Question 42 (Page 4)

Establishing the duration of cough is a very important part of the medical history for patients with respiratory illnesses. This question asks whether the nurse the patient saw today carried out this important task.

Indicate which option applies by marking the adjacent box with an X.

42	Did the nurse who saw you today ask you for how long you have been coughing?	
	YES	X
	NO	

OTHER SYMPTOMS OF THIS CURRENT ILLNESS (Questions 43 – 53, Page 5)

Question 43 (Page 5)

Patients with TB have severe night sweats so that their pajamas or bedclothes become wet with sweat. Often the clothes are become so wet that they need to get up in the middle of the night and change.

This question asks patients whether they are having such night sweats with their current illness.

Please stress to the patient that we want to know about “this current illness” meaning their present state of health. We want to know about these symptoms whether or not they were the reason the patient came to the clinic today.

Indicate which option applies by marking the adjacent box with an X.

43	With this current illness, do you sweat a lot at night so that your pajamas or bed clothes are wet?	
	YES	
	NO	X

Question 44 (Page 5)

Runny or blocked noses occur with many common respiratory tract infections like the common cold.

Please stress to the patient that we want to know about "this current illness" meaning their present state of health. We want to know about these symptoms whether or not they were the reason the patient came to the clinic today.

Indicate which option applies by marking the adjacent box with an X.

44	Do you have a runny or blocked nose with this current illness?	
	YES	X
	NO	

Question 45 (Page 5)

A sore throat occurs with many common respiratory tract infections like the common cold.

Please stress to the patient that we want to know about "this current illness" meaning their present state of health. We want to know about these symptoms whether or not they were the reason the patient came to the clinic today.

Indicate which option applies by marking the adjacent box with an X.

45	Do you have a sore throat with this current illness?	
	YES	X
	NO	

Question 46 (Page 5)

Please stress to patient that we want to know about "this current illness" meaning their present state of health. We want to know about these symptoms whether or not they were the reason the patient came to the clinic today.

Ears which leak pus usually indicate infection in that ear, usually a chronic infection. Patients with leaking ears often complain that their ear(s) is "wet". There may also be pain (earache) and hearing loss but we *only* want to know whether the ear is "leaking".

Please stress to the patient that we want to know about "this current illness" meaning their present state of health. We want to know about these symptoms whether or not they were the reason the patient came to the clinic today.

Indicate which option applies by marking the adjacent box with an X.

46	Is your ear leaking pus with your current illness?	
	YES	
	NO	X

Question 47 (Page 5)

Weight loss is a sign of many different illnesses like TB, emphysema and other non-respiratory illnesses like cancer. It may precede other symptoms like cough and patients may not realise that they are connected.

Therefore, we have not used the phrase "this current illness" in this question but have rather left it more open by using the phrase "these days".

Indicate which option applies by marking the adjacent box with an X.

47	Are you losing weight these days?	
	YES	X
	NO	

Question 48 (Page 5)

If the patient is on TB therapy at the time of the interview, or is being tested for TB or even has just been told that he/she might have TB recently you must indicate yes.

Indicate which option applies by marking the adjacent box with an X.

48	Has a nurse or doctor told you that you might have TB recently?	
	YES	
	NO	X

Question 49 (Page 5)

"This illness" refers to the patient's current illness or present state of health. It can refer to illnesses other than those for which the patient has come to the clinic today.

This point is particularly important for patients who are currently receiving TB therapy or being tested for TB. We want to know whether these patients have ever had TB *before* the current episode.

Indicate which option applies by marking the adjacent box with an X.

49	Before this illness now, have you ever had TB before?	
	YES	X
	NO	

Questions 50 – 51 (Page 5)

We want to know whether patients have been exposed to the dusty environments of working underground in a mine.

If the patient has worked as a clerk, cleaner etc in a mine (on the surface) you must indicate no. If the patient has worked as a miner underground you must indicate yes and enter the number of years worked in the main in the space provided.

Indicate which option applies by marking the adjacent box with an X.

50	Have you ever worked underground in a mine?		
	YES	X	→ 51. For how many years? 7
	NO		

Question 52 (Page 5)

Breathlessness at rest or while talking is a sign of severe respiratory disease. These patients can be recognised because they appear "out of breath", breathe fast when sitting quietly and are unable to speak in full sentences without stopping to breathe.

This is a question directed at you, the interviewer. If you note any of these signs in the patient you must indicate yes.

Indicate which option applies by marking the adjacent box with an X.

52	Interviewer: Is the patient breathless now during the interview (e.g. breathless while seated, breathless while talking, unable to speak in full sentences without stopping to breathe)?		
	YES	X	
	NO		

Question 53 (Page 5)

During normal quiet breathing you cannot make out the muscles in the neck. Patients with respiratory disease tend to use these muscles to help them expand their rib-cage. In these patients you will see that the neck muscles stand out, are easy to see and appear strained.

If you can see the patient's neck muscles standing out when they breathe while sitting quietly with you during the interview, you must indicate yes.

Indicate which option applies by marking the adjacent box with an X.

53	Interviewer: Is the patient straining his/her neck muscles in order to breathe?		
	YES		
	NO	X	

SYMPTOM SEVERITY IN THE LAST MONTH (Questions 54 – 59, Page 6)

We want to know the frequency of chest symptoms during the day and night and the impact on the patient's usual activities.

Please note that the time frame for these questions is *the last month*. You must emphasise this to the patient.

If the patient answers yes to the questions you need to prompt the patient with the three response categories (1 to 2 times per month *or* 1-2 times per week *or* most

nights/days). After prompting the patient with these categories allow a silent pause and time for patient to answer. If necessary, repeat the response categories.

Questions 54 – 55 (Page 6)

Difficulty in sleeping can be because of many reasons including waking up frequently to pass water. Patients who have difficulty sleeping specifically because of difficulty in breathing and cough must answer yes to this question. Patients who have difficulty sleeping for other reasons must answer no to this question.

Have you had difficulty in sleeping because of difficulty in breathing and/or cough in the last month?			
54	YES		→ go to the next question
	NO	X	→ skip to question 56
Select a category:			
55	1 – 2 times per month		
	1 – 2 times per week		
	Most nights		

Questions 56 – 57 (Page 6)

If a patient reports any of the three symptoms in brackets, you must answer yes to the question. It is not necessary for patients to have all three symptoms to answer yes to the question.

Have you has your usual chest symptoms during the day (cough, wheeze, breathlessness) in the last month?			
56	YES	X	→ go to the next question
	NO		→ skip to question 58
Select a category:			
57	1 – 2 times per month		
	1 – 2 times per week	X	
	Most days		

Questions 58 – 59 (Page 6)

Usual activities include work, study, housework, family or leisure activities. If the patient has been limited in any of these usual activities by their chest symptoms in the last month, you must indicate yes.

Has your chest problem interfered with your usual activities (e.g. work, study, housework, family or leisure activities) in the last month?			
58	YES	X	→ go to the next question
	NO		→ skip to question 60 (top of page 7)
Select a category:			
59	1 – 2 times per week		
	1 – 2 times per month		
	Most days	X	

HEALTH-RELATED QUALITY OF LIFE (Questions 60 – 71, Pages 7 – 10)

These questions measure how health problems impact on quality of life, specifically on mobility, self care, usual activities, pain/discomfort and anxiety/depression. There are two parts to measuring the quality of life, the first part is to ask how health problems impact these specific areas and the second part is to ask a patient to give an overall rating on their general health related quality of life (on the scale which resembles a thermometer).

The questions are first asked for the state of the patient's health on the day of the interview and then repeated for the state of the patient's health during the last month. It is extremely important to stress this difference to the patient. First ask them to concentrate on their health status today and complete all the questions. Then ask them to cast their minds back to the last month and repeat the questions

Questions 60 – 64 (today – Page 7) and 66 – 70 (last month – Page 9)

For each facet of quality of life you will see three statements, each corresponding to a level of severity. The first statement always reflects no problem, the second statement a moderate problem and the third statement a severe problem. These will be laid out on the visual aid in a horizontal format, with the no problem statement on the far left and the extreme problem on the far right, setting up a type of scale with no problem on one end and extreme problem on the opposite end. You will notice that each statement has a corresponding block but that there are two blocks between the statements.

For each facet of the level of quality of life, you must read all three statements to the patient and allow the patient time to digest them. The patient must indicate to you which block best describes their health status. If they feel that none of the three statements accurately captures their health status and that rather they fall somewhere in between two statements, they may choose the block between those two statements as shown below.

MOBILITY				
60	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	I have no problems in walking about		I have some problems in walking about	I am confined to bed

You may *not* explain the wording of the response categories to the patient because you risk introducing your own set of values into the question. What we want to know is how the patient perceives their own quality of life and how they would judge themselves compared to other people's standards.

If the patient asks you what you mean, repeat the categories *word for word*. You may not give any examples as this will lead the patient and compromise their answer. This is particularly relevant to the pain/discomfort and anxiety/depression question where patients are asked to distinguish between moderate and extreme states. It is up to the patient to decide what he/she considers moderate and what he/she considers to be extreme and then choose. Giving examples disrupts this process.

A note on the PDA. The PDA does not allow sufficient screen space for you to view the options for each category in their entirety. For this reason, and to help the patient visualise the exercise, we have laid out the full versions (in all 5 languages, both for quality of life today and for quality of life in the last month) in the visual aid. Please use this to complete these questions.

Questions 65 (today – Page 8) and 71 (last month – Page 10)

This question is designed to assess the patient's *overall* health related quality of life using a "thermometer". Explain to the patient that at the bottom of the thermometer is the worst state that they can imagine. Be sensitive to the fact the patient might imagine this state as being worse than death. This will differ from patient to patient and so do not illustrate this end of the scale with examples like death or extreme suffering. It is up to the patient (and not you) to decide what they think is their worst state of health.

Explain to the patient that at the top of the thermometer is the best state that they can imagine. Be sensitive to the fact the patient might imagine this state as being worse than better than normal. This will differ from patient to patient and so do not illustrate this end of the scale with examples like being filled with vitality and energy. It is up to the patient (and not you) to decide what they think is their best state of health.

Be sensitive to the fact that "normal" for the patient may be anywhere on this scale. *Do not suggest to the patient that halfway between the 2 points (reading = 50) indicates "normal"*. If you do this you will find that most patients choose 50. If the patient requires clarification, rather say something like "normal for you may be anywhere on this scale".

After explaining how the scale works to the patient, ask the patient to indicate to the point on the scale where they feel best describes how they feel today. On the paper questionnaire mark this point. On the PDA record the number pointed out on the scale (the "thermometer reading"). As with the statement part of quality of life, you will repeat this process for the last month.

SMOKING (Page 11, Questions 72 – 90)

The first two questions (72. ever smoked and 73. smoke currently) establish whether the patient is a never smoker, current smoker or ex-smoker.

If the answer to both questions is no, the patient is a non-smoker and the questions are not applicable. Skip all the questions in this section and go to the top of the next page

(Details of the Consultation) and question 91. The PDA will automatically skip to this section for you.

If the patient answers yes to both questions he/she is a current smoker. Proceed immediately to the next question (74 to 76. number cigarettes, pipes etc smoked per day) and complete questions 74 to 81. You will then be instructed to skip to the next page.

If the patient answers yes to the first question (72. ever smoked) and no to the second question (73. smoke currently) then he/she is an ex-smoker. Skip to question 82 on the same page and complete questions 82 – 90 which brings you to the end of the page and section.

72	Have you ever smoked?		
	YES	X	→ go to the next question
	NO		→ skip to question 91 (top of page 12)

73	Do you smoke currently?		
	YES		→ go to the next question
	NO	X	→ skip to question 82(this page)

Questions 74 – 76 and 88 – 90 (Page 11)

This asks on average how many cigarettes and pipes the patient smokes (or used to smoke) per day. Go through each item and mark the adjacent box if it applies. Then enter the average no. smoked per day alongside. You must check all that apply. The PDA will ask you each item individually. If the patient does not use one of these items you may choose the N/A button (N button in the lower left of your screen).

74 to 76	On average how many of the following items do you smoke per day?		
	Mark appropriate boxes and enter average number smoked per day. Check all that apply.		
	Shop-bought cigarettes	X	→ 74. Enter no. smoked per day: 10
	Hand-rolled cigarettes	X	→ 75. Enter no. smoked per day: 2
	Pipefuls of tobacco		→ 76. Enter no. smoked per day:

Questions 77, 82 and 85 (Page 11)

These questions ask the patients when they started smoking, and in the case of the ex-smokers when they stopped. Patients tend to remember the age at which they started smoking and the year in which they stopped (e.g. "I started smoking when I was 14 years and I stopped 5 years ago in 1998"). For this reason you may enter the age or year for both of these dates. Indicate which one you prefer to enter by marking the box adjacent and entering the details alongside. The PDA will ask you to choose which one you enter and will then proceed to a screen which asks you to enter the details (Enter age or Enter year).

77	When did you start smoking regularly (at least one cigarette / pipe per day)?		
	Interviewer: You may enter the age OR the year:		
	AGE	X	→ 78. Enter age: 14
	YEAR		→ 79. Enter year:

Questions 93 and 94 (Page 12)

These questions ask the patient whether the nurse told them what was wrong, and if so, what she said. Patients who have a good idea from the nurse what the problem is tend to do better and so this is an indicator of the quality of care provided at the clinic.

These may be sensitive questions especially if the patient has attended for a sexually transmitted infection or has HIV/AIDS. Be gentle and patient with these questions. If the patient does tell what the nurse said record this in the patient's words in the space provided. Do not rephrase what he/she says in your own words.

94	What did she tell you?	
	Interviewer: Probe with examples like cold, 'flu, asthma, TB, high blood etc. Enter response below:	
	<i>High blood and sores in my mouth.</i>	

Questions 95 – 98 (Page 12)

This asks whether the patient had any sputum collected for tests. Usually but not always this is taken to look for TB, so we are particularly keen to know how well the clinics are screening the community for TB.

Usually the first sample is taken that day at the clinic and the patient is given an empty container to take home and cough into the following day, and then return to the clinic. For this reason we first ask whether samples were collected at the clinic, and then whether they have received instructions to collect further samples at home. Patients may not be familiar with the term "phlegm / sputum samples" but they are familiar with the containers in which this is collected. Use the pictures of these containers in the visual aid (pages 26 and 27) to help you.

95	Did the nurse who you saw today collect any phlegm / sputum samples for testing?		
	Interviewer: Show patient examples of sputum jars in visual aid (page)		
	YES	X	→ 96. How many did she collect? 1
	NO		

97	Did the nurse who you saw today ask you to collect any phlegm / sputum samples at home?		
	Interviewer: Show patient examples of sputum jars in visual aid.		
	YES	X	→ 98. How many did she ask you to collect? 1
	NO		

Question 99 (Page 12)

This asks whether the patient had any blood taken at the clinic today. In many clinics, there is the facility to do this at the clinic. However, in some clinics, patients may be referred to a nearby hospital for blood tests. We want to know whether the blood was physically taken at the clinic on the day of the interview. Do not answer YES if the patient has been referred elsewhere for testing, but the blood was not actually taken at the clinic.

99	Did the nurse who saw you today take any blood for tests?	
	YES	X
	NO	

Question 81 (Page 11)

This question asks current smokers to weigh up their feelings about quitting. Read all three statements in full to the patient first, and ask them to choose which one best describes their thoughts about stopping smoking now. Do not rush the patient. They will need time to consider the statements first before making their decision. Once they have made a decision, mark the adjacent box. You can only mark one box.

On the PDA you will notice that the statements may not be displayed in full. For this reason they are provided in the visual aid (in all 5 languages) on pages 24 and 25.

81	Which of the following best describes your thoughts about stopping smoking now?	
	Interviewer: Read all 3 statements to patient and ask them to choose one.	
	I will stop smoking	→ skip to question 91 (top of page 12)
	I plan to stop smoking but not now	X → skip to question 91 (top of page 12)
	I do not plan to stop smoking soon	→ skip to question 91 (top of page 12)

DETAILS OF CONSULTATION (Page 12, Questions 91 – 99)

These questions ask patients about their treatment they received at the clinic today, on the day of the interview. Please stress to the patient that we only want to know about tests etc. done that day, the day of the interview.

Question 91 (Page 12)

This asks the patient why they are here at the clinic today, on the day of the interview. Patients either are at the clinic to attend a check-up usually for a chronic disease like high blood pressure or diabetes (these appointments are known as “check-ups” or “booked” visits), or for a new problem like recent onset of ‘flu symptoms etc. Go through each item on the list and indicate whether the patient has attended the clinic today for that reason or not. You must mark all the options that apply. If there is an “other” reason you must mark the box next to “other” and enter the reason alongside.

Just a word about “respiratory” -- this refers to all conditions involving the respiratory tract from colds and ‘flu to asthma, bronchitis and TB. You will need to explain this to the patient.

You will not see the “other” option in the list presented by the PDA. If this applies click on NEXT and the PDA will present a second screen to you with provision for you to enter this “other” reason.

91	What was the reason for coming to the clinic today?	
	Interviewer: Check all that apply. Mark boxes with an X.	
	Check-up for high blood pressure.	X
	Check-up for diabetes (“sugar”)	
	Check-up for a respiratory problem	X
	Check-up for other problem	
	First visit for a respiratory problem	
First visit for other problem		
	Other	X → 92. Specify: <i>check-up for epilepsy</i>

PRESCRIPTION DETAILS (Pages 13 – 16, Questions 100 – 189)

This has potential to be a particularly difficult section to complete, as both fieldworker and patient can be intimidated by the task of remembering and recording the names of medications.

We have tried to simplify this by only asking whether the patient takes any of the medication displayed in the visual aid. We do not need to know the details of any other drugs which the patient may have received.

We want to know about 4 different types of drugs:

1. Inhaler medication (particularly relevant for patients with respiratory problems)
2. Prednisone
3. Antibiotics
4. Other medications commonly used for respiratory problems.

The questions are structured in such a way that you first ask the patient whether they received any of these medications today, and then whether they usually use any of these medications at home.

The idea is that you start by asking the patient to look at the pictures of the inhalers in the visual aid (pages 28 – 29). You then ask them whether they received any of the inhalers on the chart today. In most instances they will have this medication with them, so the process involves matching what they have with them with inhalers on the chart. Once you have done this, you can move to the questionnaire and work systematically through the questions on the inhalers received today.

You then ask the patient whether they usually use any of these inhalers at home. They may usually use an inhaler but not have received one at the clinic today because they still had sufficient medication at home, or they came for another reason. On the other hand, the medication they received at the clinic today may be their usual medication. If this is the case you do not need to record all the details all over again (NB).

You then repeat this process for the prednisone tablets, the antibiotics and the other medications. This will take you up to question 189 and the end of page 16.

Inhalers (Page 13, Questions 100 – 131)

There are 2 types of inhalers or pumps. The first type is called the reliever inhalers because they provide relief immediately when the chest is tight (“open the chest”). The reliever inhalers are:

Fenoterol (Fe-no-te-rol)

Trade name: Berotec.

Used for asthma and emphysema / bronchitis.

Fenoterol / Ipratropium (Fe-no-te-rol / I-pra-tro-pium)

Trade name: Duovent

A combination drug used mainly for patients with severe asthma and emphysema.

Ipratropium (I-pra-tro-pium)

Trade name: Atrovent

Used mainly for patients with emphysema.

Salbutamol (Sal-but-a-mol)

Trade name: Asthavent or Ventolin.

The most common reliever inhaler used for asthma and emphysema.

Salbutamol/Ipratropium (Sal-but-a-mol / I-pra-tro-pium)

Trade name: Combivent

A combination drug used mainly for patients with severe asthma and emphysema.

Salmeterol (Sal-met-e-rol)

Trade name: Serevent

Similar to salbutamol but lasts longer. Used for severe asthma or emphysema.

The preventer inhalers do not open the chest immediately when tight, but rather prevent asthma symptoms when used regularly on a daily basis. They do not cure asthma but “prevent” the symptoms hence the name. There is only one type of preventer inhaler available in the Free State public service, but it comes in 2 strengths (100 and 200). It is easily recognizable to patients because it comes in a big box which also contains a spacer. This is a plastic bottle shaped device used with the inhaler. It increases the amount of drug which reaches the airways.

Budesonide (Bu-des-o-nide)

Trade name : Inflammide

Preventer inhaler used for asthma.

Reliever Inhalers (questions 101 – 112 and 117 – 128)

If the patient uses a reliever inhaler, indicate the name by placing an X in the adjacent box. You must then complete the question alongside about difficult breathing. You must check all the inhalers the patient uses, and ask the difficulty breathing question for each one.

The PDA will ask you to indicate whether the patient uses an inhaler or not *separately for each inhaler* on the chart. If you indicate YES it will automatically skip to the difficult breathing question before returning to the list of inhalers.

A word of caution – patients may not be familiar with the terms “reliever” and “preventer”. Ask them instead to identify medication from the chart.

RELIEVER INHALERS RECEIVED TODAY (Interviewer: Check all that apply)				YES	NO
101	Fenoterol (Berotec)	X	→ 102. Does this inhaler improve your difficult breathing minutes after using it?	X	
103	Fenoterol/Ipratropium (Duovent)	X	→ 104. Does this inhaler improve your difficult breathing minutes after using it?		X

Preventer Inhalers (Questions 113 - 115 and 129 – 131)

These inhalers are very expensive and for this reason we want to know all the details about how the patients are using them.

Ask patients using Budesonide whether they know if they are on the 100 or 200 strength inhaler. Some patients may not know. For these patients mark Budesonide (don't know the dose). Then ask them how many times they use the inhaler per day,

and lastly how many puffs they use at a time. This will enable us to calculate how many inhalers they would need in a year and give us an indication of cost.

PREVENTER INHALERS USUALLY USED AT HOME (Interviewer: Choose one)					
			No. of times to be taken each day		No. of puffs to be taken each time
129	Budesonide 100		130		131
129	Budesonide 200	x	130	2	131 2
129	Budesonide (don't know the dose)		130		131

Prednisone (Page 14, Questions 132 – 138)

Prednisone (pred-ni-sone) is an anti-inflammatory medication used for asthma and sometimes emphysema. It is also used for other chronic disorders like in patients who have had a kidney transplant.

Patients with asthma or emphysema either receive it when they have a bad attack or sometimes, in very severe cases, take it every day to prevent symptoms.

They are easily recognizable because they are small white tablets. When used for attacks they are usually taken 8 at a time, once in the morning.

First determine whether the patient received prednisone today. If yes, enter the number of times it is to be taken each day, the number of tablets at a time and the number of days it will be taken for.

132	Did you receive any prednisone tablets to take home today?							
			No. of times to be taken each day		No. of tablets to be taken each time		No. of days to be taken for (duration of course)	
	YES	X	133	1	134	8	135	7
	NO		→ go to the next question					

Then ask if the patient usually uses prednisone on a regular basis. If yes, again enter the number of times it is to be taken each day and the number of tablets to be taken at a time. You will note that you are not required to enter the duration of the course because if the patient uses it regularly at home, it is taken every day.

136	Did you usually take prednisone tablets at home on a regular basis?					
			No. of times to be taken each day		No. of tablets to be taken each time	
	YES	X	137	1	138	1
	NO		→ go to the next question (top of next page)			

Antibiotics (Page 15, questions 139 – 185)

Again you follow the same procedure as with the inhalers and the prednisone, first asking about antibiotics received today and then about those usually used. Remember that patients might not realize that the packet of tablets in their hands is an antibiotic; rather compare the medication they have with that on the chart.

Amoxicillin (A-mox-i-cil-lin)

Trade name: Betamox, Amoxil

This is a very commonly used antibiotic especially for respiratory tract infections (sinusitis etc). It comes in 2 strengths, 250 and 500. Both are purple and blue capsules but the 500 is twice the size of the 250.

Amoxicillin / clavulanic acid (A-mox-i-cil-lin / clav-u-lan-ic acid)

Trade name: Bio-Amoksiklav, Augmentin

This is used less commonly for respiratory tract infections. It comes in a bottle.

Cotrimoxazole (Co-tro-mox-a-zole)

Trade name: Cozole, Bactrim

This is used for respiratory tract infections but also for patients with HIV. When taken every day it prevents some of the infections people with HIV/AIDS get as their immune system becomes progressively weaker.

It comes in a blister pack. Patients often know exactly what you mean when you say "the one in tin foil". Don't confuse it with other medications which come in blister packs especially paracetamol which has a similar appearance (large round white tablet).

Doxycycline (Dox-y-cy-cline)

Trade name : Doxycilin.

Can be used for many different types of infections some of them respiratory (bronchitis). Patients with damaged lungs sometimes get very frequent infections and use Doxycycline every day to prevent these.

Erythromycin (Ery-thro-my-cin)

Trade name: Rubimycin

Used for respiratory tract infections especially in patients who are allergic to penicillin. Rubimycin tablets are hard to miss -- they are a neon pink!

Flucloxacillin (Flu-clox-a-cil-lin)

Trade name: Floxapen

A form of penicillin used for infections in the ear and of the skin. Smallish capsules.

Fluconazole (Flu-con-a-zole)

Trade name : Diflucan

Used for fungal infections like thrush both of the mouth and of the vagina.

Fluconazole is usually reserved for patients with HIV as they get very bad thrush of the foodpipe which can prevent them from swallowing. Often patients with HIV/AIDS take this every day. It comes in a plastic bottle and the tablets are pink and squarish in shape.

Penicillin VK (Pen-i-cil-lin VK)

Trade name: Betapen.

This has a very long name which is a bit of a mouthful (phenoxymethylpenicillin) so is called Pen VK for short.

Used for a wide range of infections but most frequently for tonsillitis and pneumonia.

Once again you will need to indicate whether the patient has received the medication or not, how many times it is to be taken each day, the number of tablets at a time and the duration of the course.

You will notice that for "antibiotics usually used at home" you will not need to fill in details of the course duration, as these are usually taken every day. Also, only 3 of these antibiotics are used as regular medication explaining why the lists for "received today" and "usually used" are different.

The PDA will ask you to indicate YES or NO to each of these antibiotics in turn. If you indicate YES, it will automatically skip to the questions about no. of times per day, duration of course etc.

ANTIBIOTICS RECEIVED TODAY (Interviewer: Check all that apply)								
			No. of times to be taken each day		No of tablets/capsules to be taken each time		No. of days to be taken for (duration of course)	
140	Amoxicillin 250mg capsules (Betamox 250)	X	141	3	142	2	143	5

Other Medication (Page 16, Questions 186 – 189)

This asks about a variety of other medications commonly used for respiratory problems. Follow the procedure as before, but this time you only need indicate whether the items are "received today" or "usually used". We do not require more detailed information for these. The items are displayed in the visual aid according to whether they are tablets, nasal sprays etc, but listed in alphabetical order.

The items appear in a single list on the PDA. You must check all the items that apply.

Acetic Acid Eardrops
Used to dry out leaking ears.

Beclomethasone Nasal Spray (Be- clo-me-tha-son)
Trade name: Beclate
This is used for the treatment of hayfever and "sinus". It comes in a little brown glass bottle.

Chlorpheniramine (Chlor-phe-ni-ra-mine)
Trade name: Allergex
This is an anti-histamine used for allergies, hayfever and sometimes the itch of eczema. It comes as small yellow tablets.

Enalapril (E-na-la-pril)
Trade names: Renitec, Hypace
This is a blood pressure medication. The reason that we want to know about it is that it causes a troublesome cough as a side-effect. It comes in a blister ("tin-foil") pack with the days of the week written on the packaging.

Mist Expectorant (Mist Ex-pec-to-rant)
Trade name: same
This is cough mixture.

Nystatin suspension (Ny-sta-tin)
Trade names: Nystacid, Canstat
This is a suspension for thrush in the mouth. It comes with a little dropper for patients to suck up a ml at a time. This is then dropped into the mouth and rinsed around.

	Before you run out of medication		
	No instructions		

Questions 191 – 192 (Page 17)

This asks whether the nurse referred the patient to a doctor. This doctor may either be at the clinic itself and available the day of the interview (“at this clinic to be seen today”) or coming to the clinic later in the week in which case the patient will have to return to see him/her. The nurse may also have referred the patient to a doctor in a hospital. This may either be on an urgent basis when the patient is transferred immediately (“in a hospital casualty or ward”) or to see a doctor at a clinic (“in a hospital outpatient department”). Check carefully which option applies and mark the adjacent box with a X.

REFERRALS			
191	Did the nurse who saw you today refer you to a doctor?		
	YES	X	→ go to the next question
	NO		→ skip to question 193 (top of page 18)

192	Did the nurse refer you to a doctor... Interviewer: Choose <i>one</i> . Mark appropriate box with an X.		
	in a hospital casualty or ward		
	at this clinic to be seen today		
	at this clinic for another day	X	
	in a hospital outpatient department		

INCOME AND CHANGES DUE TO ILLNESS

This is a long section and you will find it a challenging one to complete. Essentially illness has many economic implications from the obvious like paying to go to a private doctor to the more subtle like missing an opportunity to spend time looking for a job.

We have divided it up into different sections as follows:

1. The costs associated with attending this clinic in the last 3 months.
2. The costs of attending other health care providers in the last 3 months.
3. The costs of a caregiver in the last 3 months.
4. Economic Impact of illness.

We are using a time frame of 3 months because firstly, it is difficult to remember all the details of what you spent when, and what healthcare providers you have visited over longer periods. Secondly it will allow us to compare it with a second 3 month period between the baseline interview and the follow-up.

It may be useful to know when this 3 month time period started when you are in a particular clinic, to help the patients visualize the exact time frames e.g. In 3 months time the Bloemfontein team will be doing the baseline questionnaire at Botshabelo U & S. It would be good to say to your patients “we want to know about all your visits to this clinic in the last 3 months, since mid-April and the Easter weekend”. You will immediately see a smile light up on the patient’s face as they will now visualize the time period you are talking about. You too can feel confident knowing that the information you then elicit from the patient is reliable, and is really about the last 3 months.

Oxymetazoline Nasal Spray (Oxy-meta-zo-line)

Trade name: Drixine

This is a decongestant nasal spray used mainly for patients with sinusitis.

Paracetamol (Pa-ra-ce-ta-mol)

Trade names: Painamol, Panado

This is the most common painkiller in primary care.

Paracetamol/codeine (Pa-ra-ce-ta-mol / co-deine)

Trade names :Painamol Plus, Betacod, Dolorol forte

This is slightly stronger than paracetamol alone and commonly used in primary care.

Salbutamol (Sal-but-a-mol)

Trade name: Venteze

This is the same as the reliever inhaler but in tablet form. Venteze tablets are easy to recognize as they are lilac in colour.

Theophylline (The-oph-yl-line)

Trade name: Nuelin SA

This is a medication used for asthma and emphysema.

OTHER MEDICATION(S) RECEIVED TODAY (Interviewer: Check all that apply)		
	Acetic Acid Eardrops	
	Beclomethasone Nasal Spray	
	Chlorpheniramine tablets (Allergex)	
	Enalapril tablets (Renitec)	
187	Mist Expectorant cough mixture	X
	Nystatin suspension (Nystacid/ Canstat)	
	Oxymetazoline nasal spray (Drixine)	X
	Paracetamol tablets (Painamol)	X
	Paracetamol/codeine tablets (Painamol Plus)	
	Salbutamol tablets (Venteze)	
	Theophylline tablets (Nuelin SA)	

DETAILS OF CONSULTATION cont'd (Page 17, Questions 190 – 192)

These questions round off the information about the details of the patient's visit to the clinic on the day of the interview.

Question 190 (Page 17)

First ask the patient whether they have been asked to return to the clinic by the nurse. If yes, ask them when. Patients will often tell you when their medication runs out etc. Allow them to volunteer an answer, as chances are it will be the same as one on the list, saving you time. If not able to volunteer this information read through the list and mark where appropriate. You must check all that apply.

FOLLOW-UP APPOINTMENT		
190	Did the nurse ask you to return for a follow-up appointment? Interviewer: Check all that apply. Mark boxes with an X.	
	On a specific date	
	If you feel worse	X
	If you don't get better	
	When you run out of medication	X

You start with visits to this clinic. Work very systematically here and you will be fine. The PDA has an advantage here as all the skips (and there are many) are automatic ensuring that you don't miss out any data unnecessarily. If you have to resort to paper, please ensure that your team leader edits this section very carefully as it is possible to miss sections without realizing it.

VISITS TO THIS CLINIC IN THE LAST 3 MONTHS

Here you can use the patient's folder to assist you. The folder should be used to help, not to confuse you or the patient. All you need to extract from the folder are the dates of the visits in the last 3 months, and if you feel confident the reason for attendance. *Do not try to fill in the details of the visit required from the notes in the folder as you will struggle.* Visits are poorly documented at the best of times, writing can be illegible and there are usually many abbreviations. All you should aim to achieve by looking in the folder is to see if and when the patient attended the clinic in the last 3 months.

This can be used to prompt the patient: "I see you came to the clinic in mid-May. Can you remember that visit? Can we discuss it now?"

You may want to prompt the patient further by providing the reason for attendance. This is usually the first line of the entry and is usually a symptom: "I see you came to the clinic in mid-May with a cough. Can you remember that visit? Can we discuss it now?"

Be sensitive when prompting with the reason for attendance. NEVER prompt with sensitive diagnoses or symptoms like HIV, sexually transmitted disease, discharge from penis, beaten up by husband etc. This requires common sense to recognize these diagnoses/symptoms and sensitivity not to mention them. If you do mention sensitive diagnoses, you will find yourself immediately alienated from the patient, and the rest of the interview will be very difficult.

Question 193

First establish whether the patient has been to the clinic in the last 3 months. You must double check the patient's answer by looking in the folder if available. Remember that recalling exactly when you were last at a clinic is a difficult task. If you find a discrepancy between what the patient has told you and what is in the folder, have understanding and be patient.

193	Have you attended this clinic in the last 3 months?		
	Interviewer: Double-check this information in the folder		
	YES	X	→ go to the next question
	NO		→ skip to question 262 (top of page 22)

Questions 197 and 198

Obviously, if the folder is at hand and you are able to prompt the patient with the information it contains, then the information is likely to be more reliable than just asking the patient to recall the visits on their own. We need to know this information when we analyse the data, so have asked you to record the presence or absence of a folder. The instructions you give the patient will differ depending on whether there is a folder available or not.

197	Do you have a patient-held or facility-held record with you?		
	YES		→ skip to Instructions A at the end of this page
	NO	X	→ go to the next question

198	Interviewer: Are you able to locate the folder?		
	YES	X	→ skip to Instructions A at the end of this page
	NO		→ skip to Instructions B at the end of this page

Questions 194 - 196

The aim of this section is to collect all the data about all visits to the clinic in the last 3 months. Provision has been made for you to enter a maximum of 8 visits both in the PDA and in the paper version. Obviously patients on TB treatment will have been to the clinic more than this in the last 3 months. To avoid having to enter each visit individually we first establish whether the patient has received treatment for TB in the last 3 months, when this started and how many times they visit per week to collect medication.

This information is readily available from the TB Treatment card which the patient carries with them. Ask the patient if you can see this card as it will make collecting this information straightforward.

You are required to enter information for non-TB medication visits to the clinic for TB patients. Usually these are rare as other problems are dealt with by the TB sisters who see the patients regularly. You must establish from the patient if they have been any other visits to the clinic besides those to collect TB meds. If they came to the clinic for an entirely separate reason like seeing the doctor to check on their high blood pressure, you must complete one of the blocks for a visit on pages 19-20.

194	Are you currently attending this clinic for TB treatment?		
	Choose one (Mark with an X)		
	YES	X	→ go to the next question
	NO		→ skip to question 197 (this page)

195	When did you start your TB treatment at this clinic?					
	Interviewer: Ask patient to show you their TB treatment card					
	Date:	24	Month	4	Year	2003

196	How many times a week do or did you attend the clinic for TB treatment?		
	Interviewer: Choose one (Mark with an X)		
	Once		
	Twice		
	Three times		
	Four times		
Five times	X		

Questions 199 – 230 (Pages 19 – 20)

Here you must complete one "block" for each visit. First enter the date of this visit from the folder. If you are without the folder and the patient doesn't know the date, you may leave this out but *you must enter the month*. If you don't know the date click on DON'T KNOW on the PDA in the lower left of the screen.

Then establish what the reason was for that visit. Follow the same process as for the reason for attendance at the clinic today (question 91, page 12), on the day of the

interview. You must enter more than one reason if applicable. If the reason is "other" enter this reason in the space provided. If "other" on the PDA press NEXT to bring up screen with provision for you to enter this reason.

Finally ask the patient whether there is another clinic visit in the last 3 months which you have not yet discussed. If yes, enter a separate block for the second, and third, and fourth visits etc. If no further visits skip to question 231 and the top of page 21.

199 200	Date of Visit 1 to this clinic in last 3 months				204	Date of Visit 2 to this clinic in last 3 months			
	Date:	22	Month:	Feb		Date:	16	Month:	March
201	What was the reason for attendance for clinic visit 1? Interviewer: Check all that apply.				205	What was the reason for attendance for clinic visit 2? Interviewer: Check all that apply.			
	Check-up for high blood pressure					Check-up for high blood pressure			
	Check-up for diabetes ("sugar")					Check-up for diabetes ("sugar")			
	Check-up for a respiratory problem	X				Check-up for a respiratory problem	X		
	Check-up for other problem					Check-up for other problem			
	First visit for a respiratory problem					First visit for a respiratory problem			
	First visit for other problem					First visit for other problem			
	Other (please specify):	202	X	toothache		Other (please specify):	206		
203	Interviewer: Enter data for another clinic visit?				207	Interviewer: Enter data for another clinic visit?			
	YES	→ go to question 204 (next block)				YES	→ go to question 208 (next block)		
	NO	→ skip to question 231 (top of page 21)				NO	→ skip to question 231 (top of page 21)		

Questions 231 – 330 (Page 21)

This section is about how the patient usually travels to the clinic. Since most patients live reasonably close to the clinic they tend to use the same means of transport every time they have to come to the clinic. Show the patient the pictures of the different types of transport in the visual aid (page 34) and asked them to point out how they *usually* travel to the clinic. They may only select one option. Mark this option with an X in the adjacent box.

In the case of public transport (taxi, bus, train) you must then proceed to ask them how much they usually pay to travel to the clinic and back home again using this form of transport. Emphasise that we want the cost of a return journey, not just one way to the clinic. Enter the amount in Rands.

It is unlikely that a patient usually travels by ambulance to their local clinic. In the event that they do travel by ambulance you must ask them whether they had to pay a tariff for the service and if yes, how much. Enter the amount in Rands in the space provided.

The PDA asks this question somewhat differently. First ask the patient to select their usual form of transport using the visual aid. The PDA will then ask you, one by one, whether the patient travels by bus, taxi etc. When you reach the option the patient has selected, enter YES and it will skip automatically to a question about the fare for the return journey for that particular mode of transport. Enter the amount in Rands and press NEXT. The PDA will automatically skip to the question about travel time (241).

231	How do you usually travel to this clinic?			
	Use visual aid to select a mode of transport. Choose <i>one</i> (Mark box with an X)			
	Walk			
	Bicycle			
	Animal (e.g. donkey)			
	Taxi	232	X	→233. Enter amount paid for return fare to clinic by taxi: R: 15
	Bus	234		→235. Enter amount paid for return fare to clinic by bus: R:
	Train	236		→237. Enter amount paid for return fare to clinic by train: R:
	Private motor vehicle			
	Ambulance	238		→240. Tariff paid? Enter amount : (enter 0 if no tariff paid) R:
Other				

Questions 240 – 244 (Page 21)

This asks about time away from home or work because of a visit to the clinic. It asks the patient about the total time spent attending the clinic meaning that we want to know how many hours it takes them from the time they leave home until the time they return home again (so called door-to-door time). This includes time spent travelling and the time spent at the clinic itself.

Some patients may need to travel overnight to attend a clinic especially if they are coming from a neighbouring country (Lesotho) or province (Eastern Cape). You must ask these patients if they spend money on accommodation when travelling overnight. If yes, enter the amount in Rands in the space provided. You must also ask them to estimate how much they usually spent food and drink when travelling overnight. Enter the amount in the space provided.

The PDA will automatically skip to these questions on money spent on accommodation and food and drink if you the “overnight” option for question 241.

241	How long does it usually take you to travel to the clinic and back home again (travel time + time spent at clinic)?			
	Choose <i>one</i> (Mark box with an X)			
	Overnight		X	→243. Enter rands spent on accommodation R: 60
				→245. Enter rands spent on food and drink R: 25
	Between 2 and 12 hrs			
	Less than 2 hours			

Questions 245 – 257 (Page 21)

These questions ask whether the patient is usually accompanied when visiting the clinic. This is particularly important for elderly or frail patients who may be too unwell to attend on their own.

Often, family members or friends take time out from their daily lives, including work, to take sick relatives or friends to a clinic. This has obvious cost implications as these people are missing work, and losing productive time at home to help. These are the costs we want to capture with these questions.

Note that the word companion is used to denote the person who accompanies the patient to the clinic. It does *not* refer to the patient’s spouse or partner.

NB: If the patient is usually accompanied to the clinic the companion may actually be with the patient on the day of the interview and it will save time if you ask the companion these questions. Note that the companion might be waiting at the pharmacy for medication or just outside the clinic. If the patient tells you that they are with someone on the day of the interview arrange for this person to be called.

If more than one person accompanies the patient to the clinic enter data for the main adult companion only.

Question 246 asks about the employment status of the patient's usual companion or escort. Go through all the options on the list with the patient and choose one. Mark the adjacent box with an X. If the companion is employed you will then be asked to go onto the next block (questions 249 - 257). If the usual companion or escort is a student/learner or looking for work you must then proceed to ask the patient (or companion if present) how many days on average they miss of either activity when accompanying the patient to the clinic. Enter the number in the space provided.

Questions 249 - 257 attempt to capture the loss (either to the companion his/herself or to their employer) incurred by the companion accompanying the patient to the clinic. It first establishes on what basis (casual, weekly or monthly) the companion is employed. Choose one option and mark the adjacent box.

In the case of casual workers you must establish 3 facts: the average number of days worked per week, the average amount of money brought home for each day worked and the typical number of days of work the companion misses in order to accompany the patient to the clinic.

In the case of weekly and monthly workers you must establish the amount brought home per week (or per month) and the typical number of days of work the companion misses in order to accompany the patient to the clinic.

247	What is the employment status of your usual companion/escort? Choose one (Mark box with an X)				
	Employed	248	X	→ go to question 249 (next block)	
	Self-employed	248		→ go to question 249 (next block)	
	Unemployed				
	Student/Scholar	258		→259. Days unable to attend school/ college because of accompanying you to the clinic:	
	Looking for work	260		→261. Days unable to look for work because of accompanying you to the clinic:	
	Receiving Grant/Pension Other				
249	On what basis is your companion/escort employed? Choose one (Mark box with an X)				
	Casual	250	X	→251. Enter average no. of days worked per week	2
				→252. Enter average amount brought home per day (after deductions e.g. tax)	R60
				→257. Enter no. of days unable to work to accompany you to the clinic.	1
	Weekly	253		→254. Enter average amount brought home per week (after deductions e.g. tax)	
				→257. Enter no. of days unable to work to accompany you to the clinic	
	Monthly	255		→256. Enter average amount brought home per month (after deductions e.g. tax)	
→257. Enter no. of days unable to work to accompany you to the clinic					

VISITS TO OTHER HEALTH CARE PROVIDERS IN THE LAST 3 MONTHS

(Questions 262 – 467, Pages 22 – 31)

This section aims to capture the costs incurred because of attending other providers besides the clinic you are physically conducting the interview in. Other health care providers include all types of hospitals (Public, Private and Mining), other primary care clinics besides the one you are conducting the interview in, mobile clinics, workplace clinics, mine clinics, private doctors, traditional healers and pharmacies or chemists.

When patients receive poor quality healthcare in primary care, they are forced to go elsewhere like hospitals and private GPs. We are attempting to capture the cost of receiving care outside of the primary care clinics.

There is provision for you to enter 5 visits to health care providers (HCPs) other than the clinic (you are conducting the interview in) in the last 3 months. You must therefore prioritise “big” visits like hospital admissions as these are very costly. If a patient has been to a pharmacy 5 times and admitted to the nearby hospital once, be sure to document the hospital admission and rather leave out one of the pharmacy visits. Other ‘big’ items may include visits to a traditional healer (where patients may spend a few days). If there are any visit to HCPs where the patient has had to spent a few days be sure to document the details for these visits.

Each visit is recorded over 2 pages, and most of it is the same as the information collected for visits to “this” clinic.

Question 262 (Page 22)

This asks the patient whether he/she has been to another health care provider besides “this” clinic in the last 3 months. Show the patient the pictures of the health care providers in the visual aid and ask them whether they have attended any of these in the last 3 months. If the patient says no, mark an X in the adjacent box and skip to question 468 and the top of page 32 (Caregiver costs in the last 3 months). If the patient says yes, indicate this with an X in the adjacent box and establish what health care provider(s) he/she has been to. Remember to prioritise hospital admissions (this is usually quite a dramatic event in the patient’s life and he/she usually remembers the details well) and any visit to a provider where the patient was admitted or spent a couple of days. Proceed to question 263 and start to enter the details of this visit/admission.

262	Have you been to another health care provider besides this clinic in the last 3 months?		
	YES	X	→ complete questions 263 – 303 (this page and the next page)
	NO		→ skip to question 468 (top of page 32)

Question 263 (page 22)

First establish during which month the patient attended the HCP. Since all the 3 months time periods for the survey fall within 2003 there is no need to record the year. Mark the appropriate month by placing an X in the adjacent space (February shown in the example below). The PDA will present you with a drop-down list. Click on the selected month and press NEXT.

medication he dispenses. The total charge is R100 and the question is completed as follows:

270	Did the health care provider charge you for that visit/admission (consultation fee + medication)?		
	YES	X	→271. How much? (consultation fee + medication): R 100
	NO		

Questions 272 – 281 (Page 23)

This is a repeat of the transport questions for this clinic (Questions 231 – 330). The transport questions are asked for each visit to a HCP as the mode of transport to different HCPs may vary (e.g. ambulance to hospital, walk to pharmacy, private motor vehicle to traditional healer etc).

Questions 282 – 286 (Page 23)

Again this is a repeat of questions 241 – 245 (Page 21) – time spent away from home to visit the HCP. The information is collected separately for each visit to another HCP.

Questions 287 – 302 (Page 23)

These questions about persons accompanying the patient to the HCP are also asked separately for each HCP visit as events like hospital admissions often result in special arrangements in families to accompany sick patients to HCPs. If more than one person accompanied the patient to the HCP, enter details for the main adult companion.

Again note that the term "companion" is used to denote the person accompanying the patient to the HCP. It does *not* refer to the patient's spouse or partner.

Question 303 (Page 23)

This is a check question to see whether there are any other visits to HCPs that still must be discussed. If yes, go to question 304 and the top of the next page and collect data for the next visit. If no further visits need to be recorded, skip to question 468 and the top of page 32 (Caregiver Costs in the last 3 months).

303	Is there another visit in the last 3 months to a health care provider other than this clinic which we have not discussed?		
	YES		→ go to the next question (top of page 23)
	NO	X	→ skip to question 468 (top of page 32)

CAREGIVER COSTS IN THE LAST 3 MONTHS (Questions 468 – 483, Page 32)

This sections attempts to capture the lost work or opportunity to work of people who care for the patient at home.

Many patients with longstanding illnesses have caregivers in the family who help look after them at home and assist with bathing etc. These caregivers may also accompany patients to the clinics or other HCPs but we have already captured those costs. Here we are attempting to qualify how much time they are spending *caring for the patient at home*.

Again the time frame is the last 3 months.

If the patient has more than one caregiver, limit the patient to the person who spends the most time looking after him/her.

If no-one has looked after the patient at home, answer "no" to question 468 and skip to question 484 at the top of page 33.

468	Has anyone (including family or friends) looked after you at home because of any illness in the last 3 months?		
	YES		→ go to the next question
	NO	X	→ skip to question 484 (top of page 33)

Questions 469 – 483 (Page 32)

These questions are similar to those for companions to "this clinic" (288 – 302, Page 23) and other HCPs (329 – 343, Page 25).

The only difference is that they ask you to enter the number of days unable to work in the last 3 months because of caring for the patient at home (instead of accompanying the patient to the clinic/HCP).

470	On what basis is your caregiver employed? Choose one (Mark box with an X)			
	Casual	472		→473. Enter average no. of days worked per week
				→474. Enter average amount brought home per day (after deductions e.g. tax)
				→479. Enter no. of days unable to work because of looking after you at home in the last 3 months
	Weekly	475		→476. Enter average amount brought home per week (after deductions e.g. tax)
				→479. Enter no. of days unable to work because of looking after you at home in the last 3 months
	Monthly	477	X	→478. Enter average amount brought home per month (after deductions e.g. tax) R650
				→479. Enter no. of days unable to work because of looking after you in the last 3 months 8

ECONOMIC IMPACT OF ILLNESS (Questions 484 – 504, Pages 33 – 34)

These questions capture the literacy level of the patient (important for interpreting health-related quality of life data) and information of the patient's employment status and work missed due to any illness.

Question 484 (Page 33)

This is important in terms of interpreting the health-related quality of life data. You must stress to the patient that we want to know about the last grade/standard they passed at school. This may not necessarily correspond to the grade/standard they were enrolled in when they left school. Mark the appropriate option by placing an X in the adjacent box.

484	What was the highest standard/grade you passed at school? Choose one (Mark box with an X)		
	Did not attend school		
	Sub A or Grade 1		
	Sub B or Grade 2		
	Standard 1 or Grade 3		

Standard 2 or Grade 4		
Standard 3 or Grade 5		
Standard 4 or Grade 6		
Standard 5 or Grade 7		
Standard 6 or Grade 8		
Standard 7 or Grade 9		
Standard 8 or Grade 10	X	
Standard 9 or Grade 11		
Standard 10 or Grade 12		

Questions 485 – 502 (Page 33)

These questions are similar to those that you have encountered previously for companions to “this” clinic/ other HCPs, and caregivers. There are some subtle changes. Here we want to know about the total number of days of work missed (or school missed, or days looking for work missed) in the last 3 months (instead of days missed because of accompanying the patient to the clinic/HCP or looking after the patient at home). We want to know about work missed because of *any* illness. We do not differentiate between work missed because of a respiratory problem vs. a non-respiratory problem or worked missed for the reason the patient is attending the clinic vs. work missed for other health reasons. Having said this, we do not want to know about work missed for any reason besides ill health (e.g. leave, compassionate leave to attend funerals etc).

Since this is now the actual patient we are talking about, we want their employment data in more detail. You will now be required to complete average number of days per week worked (casual workers), weeks per month (weekly workers) or months per year (monthly workers). You must also complete the average amount brought home per day (casual workers), per week (weekly workers) or per month (monthly workers). Finally you must enter the number of days the patient has been unable to work because of illness in the last 3 months.

Remember you may only choose one option (casual, or weekly or monthly). Then enter the above information for that option.

The PDA will first instruct you to ask the (employed) patient on what basis they are employed. Once you have established this, the PDA will ask you whether the patient is employed on a casual, weekly or monthly basis in the form of a sequence of separate questions. When you enter “yes” to the option the patient selected, it will automatically skip to the 3 questions

486	On what basis are you employed? Choose one (Mark box with an X)			
	Casual	488		→489. Enter average no. of days worked per week
				→490. Enter average amount brought home per day (after deductions e.g. tax)
				→497. Enter no. of days unable to work because of any illness in the last 3 months
	Weekly	491		→492. Enter average number of weeks worked per month
				→493. Enter average amount brought home per week (after deductions e.g. tax)
				→497. Enter no. of days unable to work because of any illness in the last 3 months
	Monthly	494	X	→495. Enter average number of months worked per year
				→496. Enter average amount brought home per month (after deductions e.g. tax)
				→497. Enter no. of days unable to work because of any illness in the last 3 months
				5
				R780
				2

Question 498 (Page 34)

This asks the patient to estimate the amount of income they have lost as the result of not being able to work because of illness in the last 3 months. Allow the patient to volunteer this information spontaneously first. You may only choose one category.

The example below shows a patient who volunteers that he has lost R200 in the last 3 months because of inability to work because of illness.

498	In the last 3 months how much income have you lost as a result of not being able to work because of any illness? Choose one (Mark with an X)		
	Less than R100		
	R100 – R500	X	
	R500 – R1000		
	More than R1000		

Questions 503 – 504 (Page 34)

This asks the patient whether they have lost a job in the last year as a result of illness. Note that the timeframe used here is different to the standard 3 months used elsewhere. If the patient answers yes, proceed to question 504 and enter the average amount the patient used to bring home in a usual working month. If the patient answers no, skip to question 505. The PDA will skip automatically.

503	In the last year, have you lost your job as a result of any illness?		
	YES	X	→ go to the next question
	NO		→ skip to question 505 (this page)

504	When you used to work, how much money did you bring home in a usual working month (after deductions e.g. tax)? Enter amount below:	
	R...850.... per month	

Question 504 (Page 34)

This asks how the household has adapted in order to pay the medical costs incurred by the patient. Read all the options to the patient and mark all those that apply. You will need to explain the term "assets" to the patient. Assets are any possessions (from

animals to appliances to clothes to more substantial items like houses) that can be exchanged to redeem debt. For example if the patient's household has had to sell their hi-fi etc to pay a doctor's bill, this is considered an asset and you must mark this option.

In the event that the patient has not incurred costs on the household, check "not applicable" (you will find this as one of the buttons in the lower left of the screen on the PDA).

505	In the last year what did the household do to cope with your medical costs? Interviewer: Choose all that apply. (Mark boxes with X)	
	Used own income	<input checked="" type="checkbox"/>
	Used savings	
	Sold assets e.g animals, appliances, clothes	<input checked="" type="checkbox"/>
	Medical Aid	<input checked="" type="checkbox"/>
	Help from relatives	
	Help from friends	
	Borrowed money	
	Other	
	Not applicable	

Questions 506 – 509 (Page 34)

These questions all concern HIV and, because of their sensitive nature, have been left to the end of the questionnaire to enable you to have established a rapport with the patient by this time, and so as not to compromise the rest of the questionnaire.

The first question is really a gentle introduction to the topic, so that patients do not feel threatened by immediately confronting them with questions about whether they have been referred for testing or even tested.

Even if the nurse simply provided education as to how HIV is transmitted, this is sufficient to answer yes to this question.

506	Did the nurse who saw you today talk to you about HIV?	
	YES	<input checked="" type="checkbox"/>
	NO	

The next question asks whether the patient was referred for counselling and/or testing. Many clinics now have trained lay counsellors attached to them, and most nurses prefer to refer patients to them first for counselling before being tested.

507	Did the nurse who saw you today refer you for HIV counselling and/or testing?	
	YES	<input checked="" type="checkbox"/>
	NO	

There are 2 methods available at clinic level for testing for HIV. The first is the rapid test method which involves putting a drop of the patient's blood onto a strip (similar to those used to test blood sugar in diabetics) and waiting 2 minutes before reading the result. This method forms part of the VCCT programme (Voluntary Counselling and Testing) and the strips should be available in most clinics. A positive result (the patient has HIV) is followed up with a conventional blood test where blood is drawn

from a vein in the arm and sent away to the laboratory. If the patient has had either of these methods of testing, you must answer yes to this question.

508	Did you have an HIV test (rapid test/ fingerprick method or drawing of blood from your arm) at the clinic today?		
	YES	X	
	NO		

The final question establishes whether the patient has been tested in the past, and is the most sensitive of all these questions. Be aware of this when you ask it, and treat the response neutrally.

508	Have you been tested for HIV in the past?		
	YES	X	
	NO		

Questions 510 – 523 (Page 35)

These are the patient's contact details. Bear in mind that you are to schedule a follow-up interview with the patient for 3 months from the date of this interview. If the patient doesn't arrive at this follow-up interview, you will be required to chase up the patient. Complete and accurate contact details are therefore to your advantage. Remember this when collecting them.

You will give the patient a reminder card with the date of the follow-up interview on it. This card also "primes" the patient for the second interview, telling him/her that many of the questions about quality of life, clinic attendance etc will be repeated at this time. They will be asked to bring their regular medication with them in order to facilitate completion of the prescription section.

END OF BASELINE INTERVIEW

ANNEX 15-II

Part 2- First post-intervention survey training manual

**THE FREE STATE
LUNG HEALTH SURVEY**

**RESEARCH TRAINING AND FIELDWORK MANUAL
(Part 2)**

**University of Cape Town Lung Institute
Department of Community Health, University of the Free State
Centre for Health Services Research and Development,
University of the Free State
Medical Research Council, Cape Town
April 2003**

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2. Sampling.....page 3
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4. PDA: How to upload and common problems..... page 10
5. PDA: When to uploadpage 20

1. INTERVIEWER CODES

Please find your individual interviewer code in the table below. When asked to enter your interviewer code, enter the code for the clinic in which you are working (2 digit code) first followed by your personal interviewer code (2 digit code). The PDA will not allow you to proceed unless you have entered these 4 digits. Remember to write these four digits at the top of each page in the paper questionnaire in the space provided.

INTERVIEWER NAME	TEAM	CODE
Gladys Moeti	Welkom	01
Francinah Mokhurumetso	Welkom	02
Tshidi Ngcezulla	Welkom	03
Joyce Porotloane	Welkom	04
MaClark Pule	Bothaville	05
Suzan Matsela	Bothaville	06
Rosina Bouwer	Bothaville	07
Lerato Lungwane	QwaQwa	08
Nrateng Selai	QwaQwa	09
Thulani Mazibuko	QwaQwa	10
Baasanya Motikoe	Bethlehem	11
'Mathapelo Montsitsi	Bethlehem	12
Zanele Moloi	Bethlehem	13
Agnes Mosia	Bethlehem	14
Victoria Rammile	Bloemfontein	15
Sylvia Moloele	Bloemfontein	16
Tankiso Rammile	Bloemfontein	17
Innocentia Duma	Bloemfontein	18
Dinah Makgoe	Parys	19
Ingrid Mosogé	Parys	20
Puleng Mokhobo	Parys	21
Josh Nocanda	Parys	22

2. SAMPLING: HOW TO SELECT PATIENTS FOR INTERVIEWING BEFORE CONSULTATION

From the fast track queue for ill patients:

- Select every patient who answers "yes" to:
"Do you have or had you had any difficult breathing and/or cough today or in the last 6 months?"
- Exclude patients who are clearly too ill to complete an hour long interview. Clear examples of patients who are too ill to participate are:
 - unconscious patients
 - patients who are not breathing
 - patients who are unable to talk
 - patients who are psychotic

TB TARGETS

CLINIC NAME	LOCATION	SAMPLE	
		General Patients	Patients on TB treatment
Tseki Clinic	Witsieshoek		
Riverside Clinic	QwaQwa	38	12
Tebang Clinic	QwaQwa	43	7
Namahali Clinic	QwaQwa	42	8
Pabalong Clinic	QwaQwa	38	12
Phuthaditjhaba	QwaQwa	38	12
Mpohadi Clinic	Bethlehem	44	6
Bethlehem Clinic	Bethlehem	48	2
Reitz Clinic	Reitz	43	7
Marakong Clinic	QwaQwa	39	11
Bohlokong Clinic	Bethlehem	45	5
Ma-Haig Clinic	QwaQwa	43	7
Botshabelo B Clinic	Botshabelo		
Petrusburg Clinic	Petrusburg	46	4
Botshabelo U & S Clinic	Botshabelo	42	8
Botshabelo J Clinic	Botshabelo	37	13
Matlakeng Clinic	Zastron	38	12
Wepener Clinic	Wepener	48	2
Phahameng Clinic	Frankfort	45	5
Tumahole Clinic	Parys	43	7
PAX Clinic	Viljoenskroon	50	0
Thusanong Clinic	Sasolburg	43	7
Osizweni Clinic	Sasolburg	48	2
Koppies (Kganya) Clinic	Koppies	47	3
Hill Street Clinic	Kroonstad	49	1
K- Maile Clinic	Bothaville		
Albert Luthuli Clinic	Wesselsbron	34	16
Boithusong	Odendaalsrus	39	11
Hoopstad Clinic	Hoopstad	41	9
Bothaville Clinic	Bothaville	48	2
Bophelong Clinic	Odendaalsrus	38	12
Seeisoville Clinic	Kroonstad	40	10
Thusanong Clinic	Kroonstad		
Welkom Clinic	Welkom	40	10
Tshepong Clinic	Welkom	31	19
Phomolong Clinic	Henneman	28	22
Khotalong Clinic	Virginia	32	18
AM Kruger Clinic	Odendaalsrus	45	5

From the general queue:

- On arrival obtain the headcount from the previous day. If you are interviewing on a Monday use the headcount for the previous Thursday.
- Use the tables on the next page to work out how often you should select a patient who answers "yes" to difficult breathing (DB) and/or cough (today or in the last 6 months) in the general queue.
- Example: You determine that you should select every 3rd patient for interviewing. Ask every patient in the general queue about difficult breathing and/or cough (today or in the last 6 months). Ask every 3rd patient who answers "yes" to meet the interviewing team after their consultation with the nurse today.

SELECTION OF PATIENTS FROM THE GENERAL QUEUE.

WITH 2 INTERVIEWERS	
Headcount from previous day (General queue)	Select Patients who answer yes to DB / cough
0 - 70 patients	Every patient
71 - 140 patients	Every second patient
141 - 210 patients	Every third patient
211 - 280 patients	Every fourth patient
281 - 360 patients	Every fifth patient
361 - 430 patients	Every sixth patient
431 - 500 patients	Every seventh patient

WITH 3 INTERVIEWERS	
Headcount from previous day (General queue)	Select Patients who answer yes to DB / cough
Upto 110 patients	Every patient
111 - 220 patients	Every second patient
221 - 330 patients	Every third patient
431 - 540 patients	Every fourth patient

From the fast track TB queue

- This will differ from clinic to clinic based on the number of patients attending for TB treatment at each clinic
- You will receive specific instructions for each clinic.
- Team leader to identify on what day of the week, most patients attend the TB service at that particular clinic. This day is to be set aside for interviewing TB patients and reaching your "TB target".

Thabong Clinic	Welkom	34	16
Bophelong Clinic	Kroonstad	45	5

NOTES:

1. The screening process occurs in 2 parts, a brief screen before the patient sees the nurse (responsibility of the team leader) and a more thorough screen after the patient sees the nurse (responsibility of the interviewer).
2. Before the patient sees the nurse they are selected for further screening by the team leader. All patients with cough *and/or* difficult breathing qualify at this stage. This means that patients with difficult breathing alone qualify, as do patients with cough alone as well as patients with both symptoms.
3. Patients may have no symptoms on the day of the interview, but have had symptoms in the last 6 months. This is particularly relevant when you are screening patients attending for TB treatment.
4. Note the headcounts used to work out your sampling strategy as well as the headcount for the day of fieldwork on the form provided. This is the responsibility of the Team Leader and should be filed in the arch-lever file provided. This allows us to adjust the data if the patients you interview do not represent the people attending the clinic.

What do you do if the Headcount is not available?

If the headcount is unavailable estimate the number of patients in the queue by counting the number in one row and multiplying this by the number of rows (e.g. 8 patients per row X 8 rows = 64 patients). Use this figure as a guide to determine how many patients must be sent through to the interviewers. Bear in mind that you need to select 18 patients to complete 10 interviews per day (when you have 2 interviewers available) and 27 patients to complete 15 interviews per day (when you have 3 interviewers).

What do you do if you have selected insufficient patients on a day?

You may find that you have selected too few patients to complete the target number of interviews on a specific day by selecting 1 in 2, 1 in 3 etc with cough and/or difficult breathing today and/or last 6 months. If this is the case select more patients the following day e.g. on Day 1 you selected 1 in 2 patients for your team of 2 interviewers (with a target of 10 interviews for the day) but only managed to complete 7 interviews. The following day the same number of patients attend the clinic. In order to select sufficient patients you now select every patient with cough/difficult breathing instead of every second patient.

3. EDITING NOTES

The following points have been raised during the first days of data collection. It is important that both team leaders and interviewers read through each point carefully so that mistakes are corrected early during the fieldwork.

1. Entering the name of the clinic

Top of every page on paper questionnaire
Question 2 on PDA

The full name of the clinic must be entered. This applies particularly to the Botshabelo Clinics (B, U & S, J), Bophelong Clinics (Kroon and Odendaalsrus) and the Thusanong Clinics (Kroon and Sasol) so that we can easily identify to which clinic a respondent belongs.

2. Scratching out incorrect answers

When working on paper questionnaires please ensure that incorrect answers are clearly scratched out by using one clear line to cross out the incorrect answer. These changes must be initialed (sign your initials next to a scratched out question) so that they are not queried at the time of data capture.

3. Entering "written" (textural) data

Textural data is that data that must be written out or typed into the PDA e.g. Specify other reason for attendance. Please ensure that all such information is recorded in English even when using a non-English questionnaire or PDA version.

4. Repeated Questions

Questions (15 & 28), (16 & 29), (17 & 36), (34&41), (34 & 42)

You will notice that certain questions are repeated in the screening section and the second part of the questionnaire (e.g. cough today, difficult breathing). This is to ensure that patients with either or both symptoms answer further questions about their symptoms (e.g. coughing patients answer questions about coughing up sputum, blood etc. Patients with difficult breathing answer questions about whether this occurs continuously or repeatedly etc.)

The questions about chest pain on breathing in deeply and wheeze are repeated under the cough section and difficult breathing section. This is so that patients with only one of these symptoms (either cough only or difficult breathing only) are asked about pain on breathing in deeply and wheeze.

5. Health-Related Quality of Life

Questions 61 – 65 and 67 - 71

Be sure to only mark one of the five blocks for each question (mobility, self-care etc). If the patient has indicated a block "between" statements (a block which has no statement attached to it), mark that block. Do not mark both blocks on either side of this statement.

6. Year in which patient stopped/started smoking

Questions 80, 85 and 88

When entering the year in which the patient stopped/started smoking be sure to enter the full year. For example if the patient reports that he/she stopped smoking 5 years ago, enter "1998". Do not enter "5".

7. Reason for visit to this clinic and other health care providers

Questions (92 & 93), (202 & 203), (206 & 207), 210 & 211), (214 & 215), (218 & 219), (222 & 223), (226 & 227), (230 & 231), (267 & 268), (308 & 309), (349 & 350), (390 & 391), (431 & 432).

When specifying the other reason for attendance to this clinic (today or for any of the visits in the last 3 months) or other health care providers (any visit in the last 3 months), remember to record the reason in English. Probe the patient so that you record specific data. Reasons like "Special Treatment", "Other treatment" are not specific and require further clarification.

Remember that you may record more than one reason for any visit. Check all the options that apply.

8. "Other" medication

Questions 187 - 190

The "Other" Medication only applies to the "Other" medications in your visual aid. If the patient has received medication depicted in the "Other Medication" section of the visual aid you must answer yes, and mark the medications in the multi-select list (check all options that apply). If the patient has not received "Other" medications depicted in the visual aid, but has received other medication (i.e. medication which is not depicted in the visual aid), indicate no. Remember we are only interested in certain medications used for patients with respiratory problems.

9. Antibiotics

Questions 140 - 186

Know your antibiotics well. During editing I noticed that a patient receiving Amoxicillin was documented as receiving Flucloxacillin and that some antibiotics had been written on the "Other Medication" page but not completed on the "Antibiotic" page. If you are unsure, open the

packet the patient has received, and look at the actual capsules/tablets so that you can compare these with the photos in the visual aid.

10. Visits to this clinic in the last 3 months

Questions 194 - 231

In this section, it first asks you to enter the details of the patient's visits for TB treatment (When did you start TB treatment, How often do you attend for TB treatment etc...). Therefore you must *not* record TB visits in the space for recording the 8 visits to this clinic in the last 3 months because we will end up double-counting the visits for TB medication. Also, patients attend regularly for TB medication and you will run out of space for recording these visits as we have only provided space for you to record 8 visits to this clinic in the last 3 months.

11. Transport and usual companion to this clinic

Questions 232 - 262

You must complete these questions whether the patient has been to the clinic in the last 3 months or not. Remember that the patient is at the clinic on the day of the interview, so we want to know how the patient travelled there and whether anyone accompanied him/her.

12. Time unable to work for companion

Questions 258, 299, 340, 381, 422, 463

During the first few days of editing I noticed that some patients had responded that their companions had missed up to 2 days of work even though the visit to the clinic/other HCP had lasted less than 1 day, or even less than 2 hours. In such cases, please probe the patient and/or companion if available to ensure that this information is correct e.g. "Are you sure that you missed 2 days of work? The visit only lasted a few hours?" Remember to record only days of actual work missed. Days of leave do not count.

13. Money lost by patient in the last 3 months

Question 499

Here I noticed that some patients were responding that they had lost money in the last 3 months as a result of not being able to work, even though they had answered that they were unemployed, and had not lost a job in the last year. If you do get such answers, make sure you probe carefully to establish what is really going on in terms of their employment.

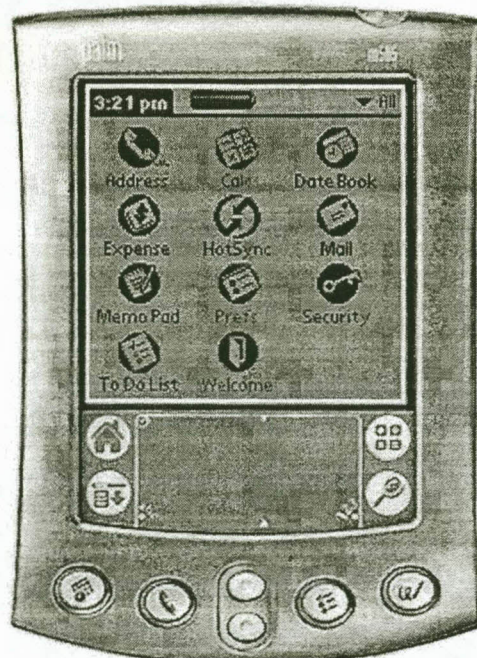
4. PDA: UPLOADING AND COMMON PROBLEMS

PDA: HOW TO UPLOAD

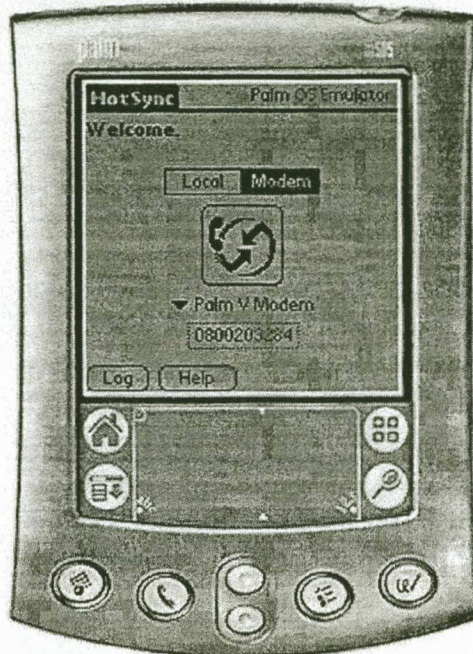
1. Insert fully-charged rechargeable batteries (orange and green penlight batteries) into back of modem.

NB: The modem has no means of showing you how full the batteries are, so ensure that you fit fully charged batteries before you upload. This will entail charging your batteries overnight. The re-charger will indicate when the batteries are fully charged (re-charger light will go green).

2. Take telephone line and insert jack into modem ensuring that you hear it "click" in.
3. Insert other end of telephone line into wall jack once you have disconnected phone. Again ensure that you hear this "click" in. Do not insert the jack into the telephone itself.
4. Insert PDA into modem so that the screen is facing you. Again ensure that you hear it "click" in.
5. Go to home page and select HotSync icon in centre of screen.

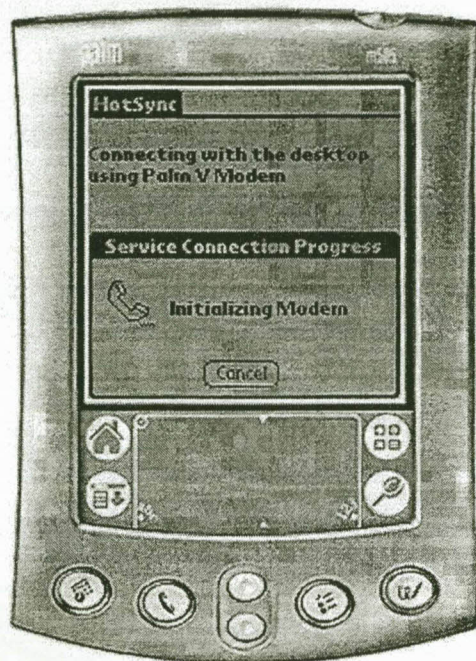


6. PDA will now display HotSync screen. Ensure that the "modem" button and not the "local" button is selected. When selected it will display a dark background and a telephone will appear on the HotSync icon.



7. Ensure that Palm Modem is selected. This is displayed immediately below the HotSync icon and next to a drop-down arrow. The toll-free number appears below this.
8. To upload your completed interviews click on the Hot Sync button located on the bottom section of the modem (not the PDA) in the centre. Alternatively you may click on the HotSync icon on the PDA screen itself.

9. The PDA screen will display the screen below while uploading your data to Cape Town. The average upload takes less than 1 minute for 5 completed questionnaires.

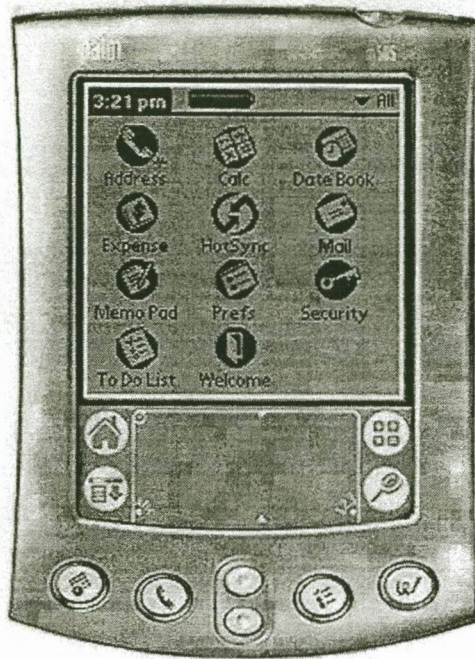


10. Do not press "Cancel" while the PDA is uploading.
11. When the PDA has finished uploading it will display the HotSync Screen again.
12. Press on the 2 buttons on either side of the modem to release the PDA from the modem.

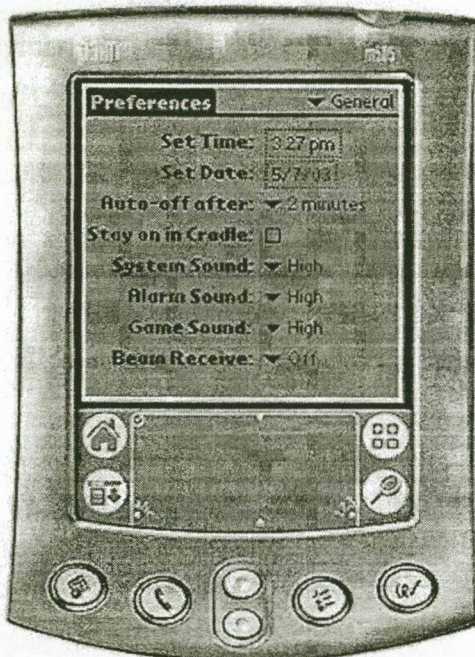
PDA PROBLEM 1: DIGITIZER (CALIBRATION)

This occurs when the touch pad of the PDA screen and the display are out of alignment. The result is that the PDA will not select the button you have touched with the stylus.

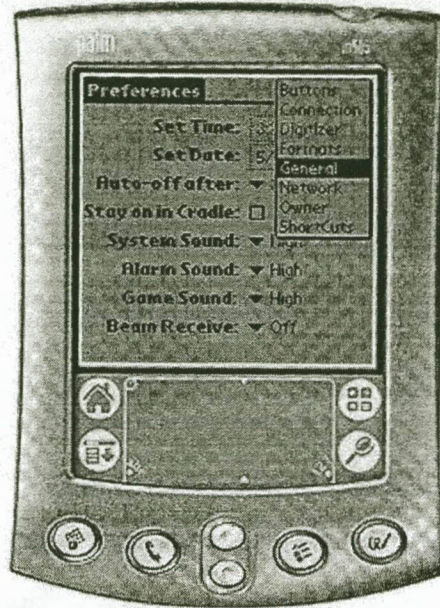
This can be corrected by resetting the Digitizer. This must be checked before starting an interview. If correct at the start, you will have no problems during the interview. Remember the PDA buttons should respond to light pressure. If you having to press too hard, you may need to reset the Digitizer.



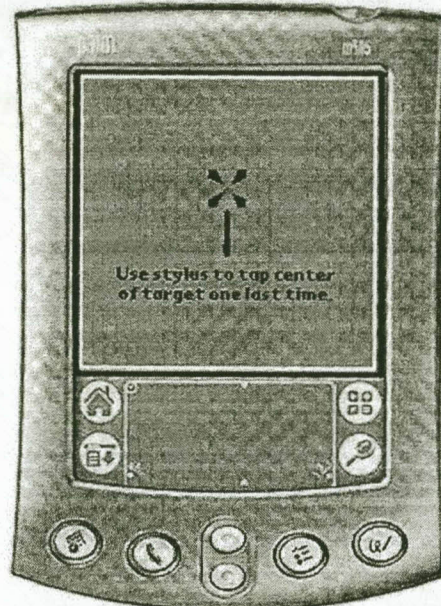
PDA will now display Preferences screen.



2. To activate the digitizer select the drop down menu located in the top right hand corner (by clicking on the drop-down arrow) and select the Digitizer menu item from the menu



3. The PDA will now display the digitizer screen

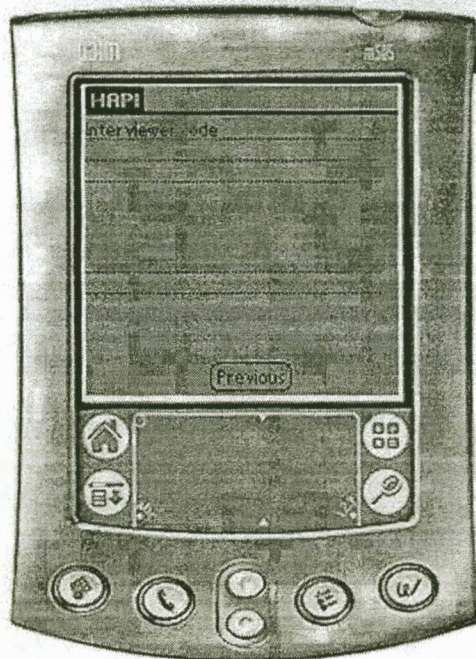


4. To complete this operation tap the middle of the target with the stylus. Continue doing this until the target disappears. You will need to do this 3 times (once in the top right of the screen, once in the bottom left of the screen and lastly in the centre of the screen). Once finished the Preferences screen will be displayed.

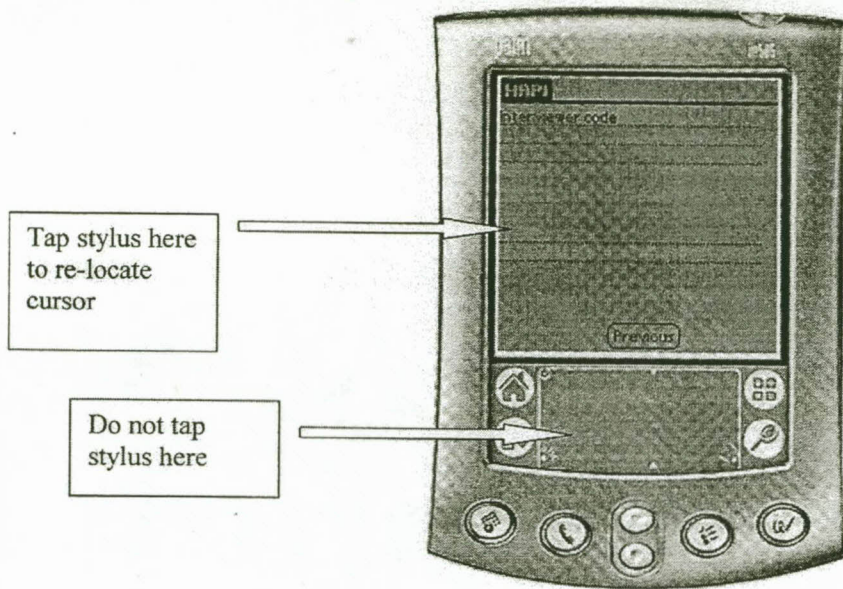
5. To return to the Home page press on home.

PDA PROBLEM 2: LOST CURSOR

Whenever you need to enter data (numbers, word etc) you need to make sure you can see the cursor. If you cannot see the cursor you have "lost" your cursor. The PDA will not allow you to enter data unless you recover the cursor. Below is an example of a screen where the cursor has been lost.



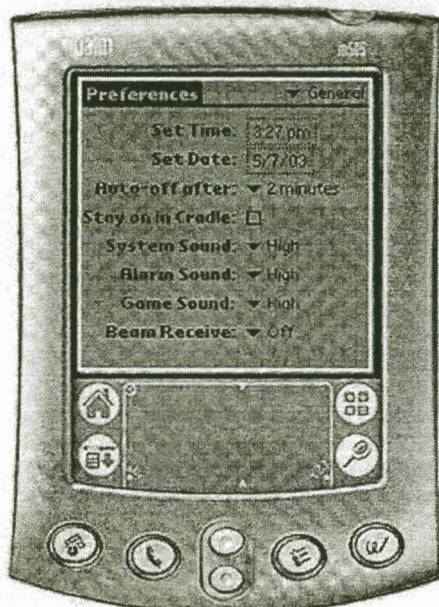
1. Reactivate the cursor by touching that part of the screen where you would usually see the entered data being displayed (see arrow on screen below).
2. The cursor will re-appear and you can then proceed to enter data. It will not re-appear if you touch the Graffiti pad.



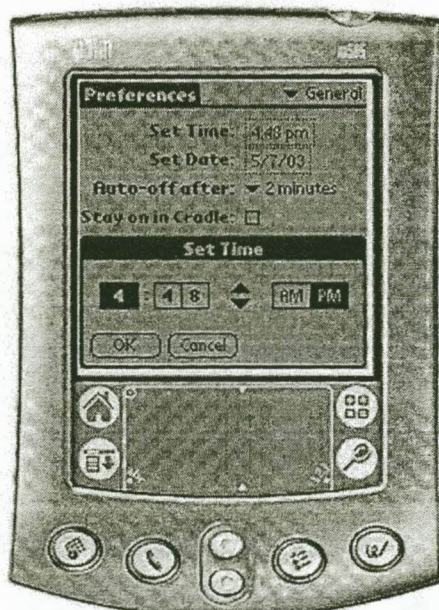
PDA PROBLEM 3: SCREEN BACKLIGHT

1. The PDA can display the screen with and without a back-light. The back-light lights up the screen but uses a lot of power, meaning that you may run out of power in the middle of an interview and risk losing data.
2. You must ensure that the back-light remains off when interviewing.
3. You can switch the back-light on and off by holding down the power button for 2 seconds.

2. Click on the drop-down arrow next to "General" in the top right hand corner. A drop-down list will be displayed. Select "Date & Time".
3. The PDA will display the Date and Time screen as below:



4. Select the time by clicking on the actual time displayed. The PDA will then display the time screen as below:

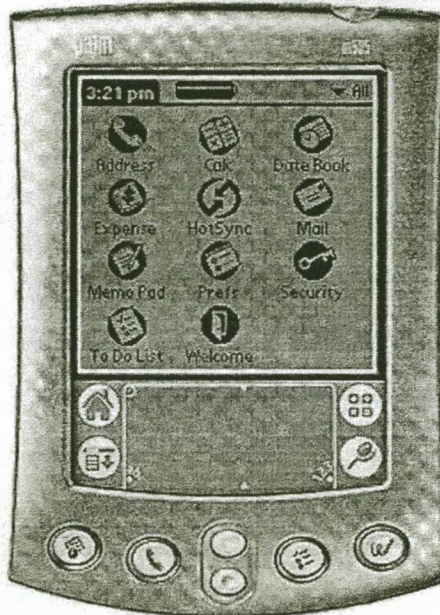


5. Change the time by selecting on the hour button and using the arrow to increase or decrease until you reach the desired hour. Then click on

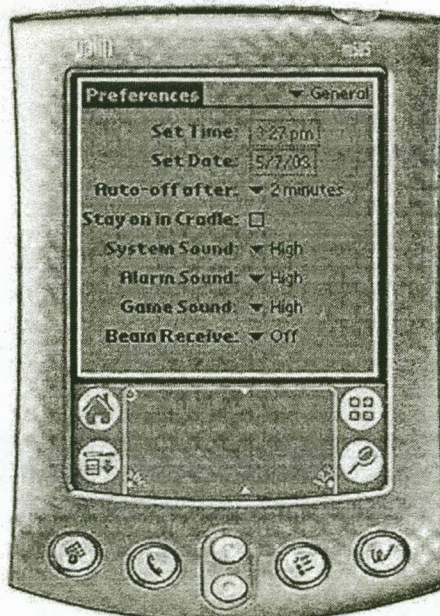
PDA PROBLEM 4: SETTING THE DATE AND TIME

You can set the date and time on your PDA. This means that the correct date will automatically be displayed when recording the date of interview.

1. Go to the PDA page and select the "Prefs" icon.

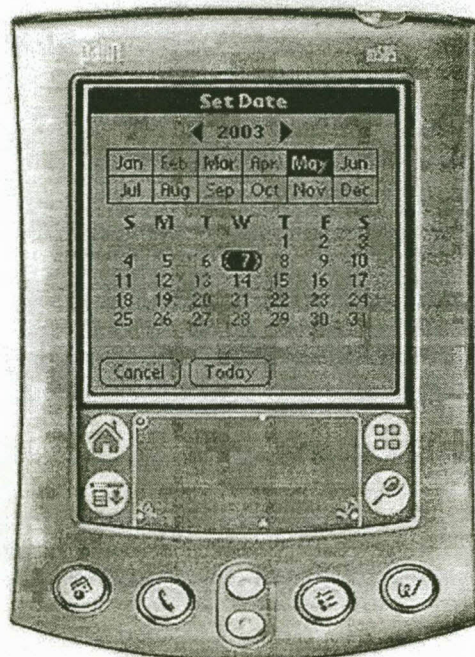


2. PDA will now display Preferences screen.



each minute button and increase/decrease until you reach the desired minute display. Ensure that the AM/PM button is correctly selected.

6. Then click on OK. The PDA will return you to the Date and Time screen displaying your new settings.
7. Select the Date by clicking on the actual date displayed on the Date and Time screen. The PDA will then display the date screen as below:



8. Change the year by selecting the arrow buttons on either side of the year. The left arrow button will decrease the year and the right arrow button will increase the year. Do this until you have reached the desired year.
9. Change the month by selecting the desired month.
10. Change the day by selecting the desired day. Once you have selected the desired day, the PDA will return to you to the Preferences page.
11. Click on home to return to the home page.

4. SCHEDULE FOR UPLOADING

We are in the process of setting up a separate toll-free line for each team so that each team has access to the line at any time and can upload data without encountering an engaged signal. These lines will be up and running by mid June.

In the interim we have 2 lines which will be shared by the 6 teams. In order to avoid encountering an engaged signal please use the schedule for uploading below. The number you need to dial is already preloaded onto your PDA. If you do encounter an engaged signal, try to upload a little later.

Week 12 – 17 May	
Team	Time Window for Uploading
QwaQwa (@ Riverside Clinic)	3pm – 5pm
Bloemfontein (@ Petrusburg Clinic)	4pm – 8pm
Welkom (@ Welkom Clinic)	5pm – 8pm
Parys (@ Phahameng Clinic)	1pm – 3pm
Bethlehem (@ Mpohadi Clinic)	2pm – 4pm
Week 19 – 24 May	
Team	Time Window for Uploading
Bethlehem (@ Petsana/Reitz)	12 noon – 4pm
Bothaville (@ Bothaville Clinic)	Anytime
Parys (@ Thusanong – Sasolburg)	4pm – 8pm
Week 2 – 6 June	
Team	Time Window for Uploading
Parys (@ Osizweni Clinic)	Anytime
Bothaville (@ Hoopstad Clinic)	12 noon – 4pm
Bethlehem (@ Marakong Clinic)	4pm – 8pm

ANNEX 16

Follow-up training manual

**THE FREE STATE
LUNG HEALTH SURVEY**

**Follow-up Questionnaire
Fieldwork Manual**

**University of Cape Town Lung Institute
Department of Community Health, University of the Free State
Centre for Health Services Research and Development,
University of the Free State
Medical Research Council**

July 2003

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GENERAL COMMENTS ON FIELDWORK COMPLETED TO DATE

On the whole, the fieldwork already completed has been of a high quality and no group has recruited less than the 50 patients per clinic. Well done!

The Data Capturers at the MRC are impressed with the completeness and quality of the paper questionnaires. Every single PDA interview which has been completed has been successfully uploaded to Cape Town.

There are only a few comments I would like to make.

DURATION OF INTERVIEW

There are 2 factors which play a role in prolonging an interview (other than a long questionnaire to start off with!). The first factor is related to **interviewer delays** caused by writing down information, following skip instructions, writing in identifying features (initials etc.) at the top of each page etc. These delays have largely been minimized by the use of the PDA. This means that the interviewers are now extremely efficient. The advantages of the PDA system are that it allows you to focus your attention on the patient (and not a paper questionnaire) and prevents the patient's attention from wandering while you are writing or following skip instructions.

The second factor contributing to the duration of an interview are **patient delays**. These occur because many (usually most) questions require the patient to reflect on past states of health, visits to the clinic or other health care providers, duration of symptoms etc. This "thinking" can be visualized as a sort of intellectual gymnastics and takes time. You cannot speed this process up by being an efficient interviewer. **A good interviewer slows this process down**, giving the patient enough time to consider the questions being asked and how to respond.

My concern is that the efficiency of the PDA tempts interviewers to rush patients through the interview, preventing them from having time to consider questions and responses. Remember that patients may feel intimidated by the technology and your speed on it, and feel pushed to respond prematurely to questions. It is up to you to create the sense that you have all day to interview the patient, and that you are really interested in what they have to say. Gentle probing ("Are you sure?", "Do you need time to think about it") slows down the pace of the interview.

The baseline and follow-up interview should take **no less than 30 minutes**. If you do take less than this, you need to reconsider your interviewing style and whether the patient was not being rushed.

The temptation to rush through the questionnaire will be great during the follow-up, partly because there will be a queue of patients waiting to be interviewed by you (since the patients will mostly be coming back to the clinic only to see you) and partly because the patient will be familiar with most of the questions. Be very conscious about taking time to interview.

MONDAY READINESS

The fieldwork has many logistical considerations which need to be sorted out before Monday morning and the start of fieldwork in a new (or in the case of follow-up, old) clinic.

A disproportionate number of interviews completed on paper are conducted on Mondays than any other day of the week. Paper questionnaires incur many costs (additional editing, transport back to Cape Town, data capturing etc.) which could have been avoided with the PDA. Common excuses for completing interviews on paper are:

1. Leaving PDAs at home.
2. HAPI being erased off the PDA (See PDA problems)
3. PDAs not being charged.

Please ensure that your PDAs will be at the clinic on the Monday (even if another member of the Team has taken them home for uploading), that they have been charged and that you carry the power lead and extension set with you (so that you can charge them at the clinic if necessary).

GOOD CLINICS AND BAD CLINICS

Many of you have remarked on the services available at the clinics used for fieldwork, especially if they have been poor.

It can be very tempting to become involved in a debate with clinic staff about poor quality services especially when you have been exposed to different levels of services at different clinics. You must resist this. Remember you are there to observe and document.

If nursing staff become aware that you are unimpressed with the services provided at the clinic, you risk being treated as hostile and you risk changing the regular practices of the clinic for the duration of your fieldwork.

Remember that you are there to capture the clinic's usual practice, no matter how good or how bad. Retaining the status of an objective observer improves the validity of your observations and ultimately their ability to change practices in the future.

COMMON PDA PROBLEMS AND HOW TO SOLVE THEM

Most of these were included in Part 2 of the Baseline Training Manual distributed in the first week of fieldwork. Subsequently a few problems have been raised. These are covered here.

1. LOSING HAPI

Several fieldworkers have had the unfortunate experience of having HAPI erased from their PDAs. This can be caused by 2 problems.

The first is that the PDA has been stored with a flat battery. Some power is required to prevent the programmes loaded onto the PDA from being erased. After approximately one week a PDA with a flat battery will erase the programmes (including any completed interviews which have not yet been uploaded). Please ensure that the PDA is stored fully charged.

The second reason is that the reset button has been inadvertently pushed. The reset button is a very small button recessed on the back of the PDA. You need to stick a pencil or sharp object into it to push it. Pushing the reset button wipes out any programmes (including any completed interviews which have not yet been uploaded). Children are often tempted to push sharp objects into tiny holes and so must not be allowed to play with your PDA.

So how do you avoid HAPI from being erased from your PDA?

Never push your reset button.

Never give your PDA to someone else to play with.

Upload as often as possible so that if your battery does run out and erase HAPI, you have not lost any completed interviews.

Store your PDA charged.

Don't store your PDA! (use the address book, the diary etc for your own personal use)

Inform the MRC as soon as you detect that HAPI has been deleted from your PDA. Monday morning at the clinic is too late!

2. UPLOADING FROM A TELKOM PRE-PAID PHONE

Some fieldworkers have encountered difficulties when uploading from a pre-paid Telkom phone.

This is because the palm requires a completely "open" line and the prepaid system requires that you enter a pin number after dialing the phone number.

This "pin" system can be disabled by completing the following steps:

1. From the Telkom pre-paid telephone, dial *#55
2. Press 3 for Personal Options
3. Follow the voice prompts to disable the pin code.

WHO MUST BE INTERVIEWED AT FOLLOW-UP

Everyone who was interviewed at baseline! Most of you have asked the patients to return to the clinic for the follow-up interview. If a patient does not return to the clinic it is your responsibility to trace the patient (to their home if necessary) ***during the week of follow-up fieldwork.***

There may be some patients who have died during the 3 month interval between interviews. It is your responsibility to inform your Team Leader (and the Team Leader the Supervisor) of any such cases. You must try and ascertain when and where the patient died from the relatives, so that hospital records can be reviewed in order to determine the cause of death.

NB: Patients who are interviewed at the clinic must only be interviewed AFTER any consultation (or appointment to collect medication) which has been scheduled for the same day as the follow-up interview.

The follow-up interview aims to capture all healthcare events during the 3 month interval between interviews. This includes the day of the follow-up interview right up until the start of the interview. Patients may also be scheduled for follow-up care at the clinic on the day of the follow-up interview. Please ensure that you interview these patients after their consultation and document the details of this visit (and any medication prescribed ± patient satisfaction with the consultation).

RE-INTERVIEWING AND QUALITY CONTROL

This section is included to remind you of the re-interviewing process which, together with editing, comprise the quality control measures designed to ensure consistently high quality data.

20% of all patients should be re-interviewed assuming that the average fieldworker interviews approximately 5 patients per day. If the interviewer interviews more than this number, the number of patients re-interviewed rises accordingly.

The questions to be used for re-interviewing are pre-determined at the start of every new month of fieldwork and distributed to the supervisors. It is the responsibility of the Team Leader to ensure that they have sufficient copies of the new re-interviewing questions before starting any new fieldwork.

Please bear in mind that different questions will be used for baseline and follow-up questionnaires and that some teams will complete both baseline and follow-up interviews during the same month. Team Leaders must please ensure that they have copies of the re-interviewing questions for both baseline and follow-up interviews.

The re-interviewing responses must be compared with the original responses and any discrepancies discussed with the relevant interviewer. This process of feedback is meant to serve as a means for discussing the questionnaire and ways to improve the reliability of responses (allowing patients more time to consider their responses, more thorough probing etc.). The feedback process should not be delayed so that the interviewer and Team Leader forget the details of the patient interviewed.

In the case of paper questionnaires, re-interviewing feedback can be completed on the same day.

In the case of PDA interviews, the original responses will be sent back to each team via the supervisor at the end of the week of fieldwork. It is the responsibility of the Team Leader to ask the supervisor for these original responses.

What do we do if the patient gave the interviewer and the Team Leader different answers to the same question?

Many questions have what we call a low test-retest reliability. This is because, on reflection, the patient may have revised his/her answer (e.g. duration of symptoms). The Team Leader should explore discrepant answers with the interviewer, but be aware that sometimes the patients may really have given them different answers.

Questions about clearly defined facts (like date of birth, level of education etc) have a high test-retest reliability and should not differ.

Taking armpit (axillary) not oral (mouth) temperatures.

Recent intake of a cold beverage.

Loose fit of the thermometer under the tongue.

Not waiting for the thermometer to complete the reading (taking it out of the mouth before you hear a "bleep" sound).

If you do encounter a subnormal temperature, please re-take it preferably with a second thermometer. If persistently low you may enter the sub-normal reading.

Questions which ask about similar "things" (paper and PDA)

Some of the questions in the interview seem very similar. This is deliberate and designed to test the logic of the responses (or what we refer to as "internal consistency").

Logical responses can be improved by remembering patient's previous responses (build up a visual picture of the patient and their health in your mind as you interview) and probing when faced with inconsistent responses.

For example if a patient reports that he his chest problem has interfered with his usual activities in the last month (Symptom Severity in the last month), you would expect that he would report problems with his usual activities during the health-related quality of life in the last month section. If he doesn't it is your responsibility to probe and ask why not, since he has already told you that he has had problems.

This requires that the interviewer be very familiar with the questionnaire in order to identify inconsistent responses and investigate.

Reasons for attendance (clinic and other HCP visits) (paper and PDA versions)

If you choose to enter the patient's reason for attendance under the "other" option, please provide specific information.

See instructions under the "Follow-up Questionnaire Explained" for further details (page 27).

Employment Status

You may only choose one option to describe the employment status of companions to this clinic, companions to other HCPs, caregivers and the patient him/herself. Many fieldworkers have checked more than one option. Choose the option that best fits the patient's description of their employment status, and which has the greatest potential to be affected by illness or by accompanying a patient to a health care provider.

COMMON MISTAKES MADE IN THE BASELINE QUESTIONNAIRE

These are included here because there are many similarities between the baseline and follow-up questionnaires.

Identifying features written at the top of pages (paper version only)

Please ensure that the patient's initials, date of interview, clinic and interviewer code are clearly entered at the top of each page of the paper questionnaire. Be sure to write the full name of the clinic as some clinics (Botshabelo B, U & S, J for example can be easily confused.)

Patient initials (paper version only)

Initials often don't tally with the patients' first and last names or only one letter has been filled in.

Initials = the first letter of the patient's first/Christian name +
 first letter of the patient's last name/surname.

For example my name is Lara Fairall. My initials are L.F. Please ensure that these are correctly filled in as they are used to reconcile any pages which may become separated.

Interviewer Codes (paper and PDA versions)

These are often filled in incorrectly especially on the PDA where we rely on the code to identify the clinic where the patient was recruited.

Instructions for filling in the interviewer code are repeated in this manual. Please enter the 2 digit clinic code first, then your 2 digit interviewer code.

Folder numbers (paper and PDA versions)

Despite the fact that many clinics have disorganized systems for filing, usually a unique identifying number appears on the folder. Please attempt to locate this number and record it, even if it means discussing the clinic's system with the clinic clerk at the start of every week.

Some teams have resorted to entering dates of birth. Please investigate whether unique folder numbers don't exist and record them instead. If not, dates of birth can be used.

Folder numbers will be required for linking sputum results with interview responses so please make an effort to record them correctly.

Temperatures (paper and PDA versions)

Many fieldworkers have reported subnormal temperatures for patients. All temperatures below 36 degrees Celsius must be considered subnormal.

Common reasons for subnormal temperatures include:

For example a part-time student may also be looking for work. However, days of college missed (as opposed to days looking for work) constitute the greater loss incurred by accompanying a sick relative to a health care provider.

When do companions, caregivers and patients miss work/school/looking for work? (paper and PDA versions)

Many interviewers are faced with long complex stories of companions, caregivers etc who work part-time and accompany the patient to the clinic or look after the patient at home. If the companion/caregiver actually missed planned work/school/time spent looking for work because of accompanying the patient to the clinic or looking after the patient at home then this should be counted as days of work/school/looking for work missed.

If a companion/caregiver works or studies part-time and used free time to accompany the patient or look after them at home (but does not miss any of their planned activities) it should **not** be counted as time missed. For example a companion who works on a Monday and Wednesday but accompanies the patient to the clinic on a Tuesday does not miss any work. Should the patient fall ill unexpectedly on a Tuesday and the same companion accompany the patient to the clinic for an emergency visit, then the companion must be documented as missing work.

Caregivers (paper and PDA versions)

Many fieldworkers have documented that the patients interviewed have caregivers. Be sure to establish that the caregiver is looking after the patient at home because of poor health and not for any other reason

THE WORK STUDY

Introduction

The major cost of caring for respiratory patients at primary care level is the staff time they consume and the medication they are prescribed. The cost of the medication is being captured by the baseline and follow-up questionnaires. The work study captures the staff time consumed by respiratory patients.

A work study is an observational study in which the time required to complete a specific task (in our case a consultation) is measured.

The Lung Health Survey Work Study will be completed by the Team Leader. It entails being stationed outside a **nurse (not doctor) consultation room** and briefly interviewing patients before they are seen by the nurse (to establish whether they have a respiratory problem or not) and then noting the time they enter and exit the consultation room.

This will be carried out during **2-sessions** on specified days.

On what days do I complete a work study session?

The "rhythm" of clinic life is known to vary during the week (for example Mondays are usually always busier than Fridays) and for this reason each clinic has been **randomly allocated** 2 week days on which a work study session must be completed.

These days have been specified for each clinic and the work study must not be completed on other days because of convenience. Please find below the days on which the work study must be completed for each clinic:

CLINIC NAME	LOCATION	Day 1 of Work Study	Day 2 of Work Study
Albert Luthuli Clinic	Wesselsbron	Tuesday	Wednesday
AM Krüger Clinic	Odendaalsrus	Monday	Friday
Bethlehem Clinic	Bethlehem	Wednesday	Thursday
Bohlokong Clinic	Bethlehem	Monday	Friday
Boithusong	Odendaalsrus	Wednesday	Thursday
Bophelong Clinic	Odendaalsrus	Monday	Friday
Bophelong Clinic	Kroonstad	Wednesday	Thursday
Bothaville Clinic	Bothaville	Tuesday	Wednesday
Botshabelo-B Clinic	Botshabelo	Tuesday	Wednesday
Botshabelo J Clinic	Botshabelo	Wednesday	Thursday
Botshabelo U & S Clinic	Botshabelo	Wednesday	Thursday
Hill Street Clinic	Kroonstad	Wednesday	Thursday
Hoopstad Clinic	Hoopstad	Tuesday	Wednesday
K- Maile Clinic	Bothaville	Wednesday	Thursday
Khotalong Clinic	Virginia	Monday	Tuesday
Koppies (Kganya) Clinic	Koppies	Monday	Tuesday
Ma-Haig Clinic	QwaQwa	Tuesday	Wednesday
Marakong Clinic	QwaQwa	Monday	Tuesday
Matlakeng Clinic	Zastron	Thursday	Friday

Mpohadi Clinic	Bethlehem	Monday	Friday
Namahali Clinic	QwaQwa	Thursday	Friday
Osizweni Clinic (replaced with Sasolburg Town Clinic)	Sasolburg	Monday	Tuesday
Pabalong Clinic	QwaQwa	Thursday	Friday
PAX Clinic	Viljoenskroon	Monday	Tuesday
Petrusburg Clinic	Petrusburg	Thursday	Friday
Phahameng Clinic	Frankfort	Thursday	Friday
Phomolong Clinic	Henneman	Monday	Friday
Phuthaditjhaba	QwaQwa	Tuesday	Wednesday
Reitz Clinic	Reitz	Thursday	Friday
Riverside Clinic	QwaQwa	Monday	Tuesday
Seeisoville Clinic	Kroonstad	Monday	Tuesday
Tebang Clinic	QwaQwa	Thursday	Friday
Thabong Clinic	Welkom	Wednesday	Thursday
Thusanong Clinic	Sasolburg	Monday	Friday
Thusanong Clinic	Kroonstad	Tuesday	Wednesday
Tseki Clinic	Witsieshoek	Monday	Friday
Tshepong Clinic	Welkom	Wednesday	Thursday
Tumahole Clinic	Parys	Monday	Friday
Welkom Clinic	Welkom	Monday	Tuesday
Wepener Clinic	Wepener	Thursday	Friday

How long is one work study session?

One session must last **at least 3 hours** or a **maximum of 50 patients seen**. Usually this corresponds well with a morning or afternoon session of consultations.

What do I tell the nurse?

You will be stationed outside a nurse's consultation room and so must ask the permission of the nurse to time her consultations. It is a difficult task to put the nurse at ease and make her feel that she is not being examined. Try something like the following:

"Hello. I am from the University of the Free State. We are interviewing respiratory patients we recruited at this clinic 3 months ago. As part of the follow-up fieldwork I would like to time your consultations today to see how much of your time respiratory patients take as opposed to non-respiratory patients. The timing will not interfere with your usual clinical practice in any way. I will station myself outside your room and ask each patient you see a few questions before they enter your room. I will also note the time they enter and leave your room."

Who do I interview?

Everyone! Old and young. Respiratory and non-respiratory. The questions used for the work study are similar to those used for inclusion in the main study, although you will not be required to select out patients or consent these patients.

It is not good practice to demonstrate a bias (preference) towards some patients directly outside the nurse's consultation room (by only recording the time in and out of those patients who would have qualified for the main survey). For this reason please ask all patients waiting outside the nurse's room the questions and note the time they enter and leave the room.

This will mean asking some children the questions. But be sensible, don't choose to station yourself outside the room of a nurse only seeing children that day. We are primarily interested in adult patients.

What do I ask the patient?

The same questions used to decide on whether a patient was suitable for inclusion in the main survey. These have been included in a new questionnaire (on PDA and paper) for the work study.

Note that you do not need to record the patient's name. Please ensure patients that this information cannot be identified as belonging to them in any way.

The questions are shown below. You will note that you can skip the difficult breathing last 6 months question (question 4) if the patient reports difficult breathing today.

Also, you can skip the cough duration and recurrent cough questions (questions 6 and 7) if the patient does not have a cough today. Please take the respiratory rate and temperature of **all** patients.

PATIENT 1					
1	Enter gender: (Mark appropriate box with an X).				
	Male:		Female:		
2	What is your date of birth? If you don't know your date of birth, enter age at last birthday.				
	Year				
	Age at last birthday:				
3	Do you have difficult breathing (tight chest, shortness of breath, wheeze) today?	YES	→ skip to question 5		
		NO	→ go to the next question		
4	Have you had difficult breathing (tight chest, shortness of breath, wheeze) in the last 6 months?	YES			
		NO			
5	Do you have a cough today?	YES	→ go to the next question		
		NO	→ skip to question 8		
6	For how long have you been coughing?				
	Days		→ Enter number:		
	Weeks		→ Enter number:		
	Months		→ Enter number:		
	Year		→ Enter number:		
7	Have you had another episode of cough like this one in the last 6 months?	YES			
		NO			
8	Team Leader: Enter Respiratory Rate				
9	Team Leader: Enter Temperature				
10	Time patient entered consultation room (24 hour clock)		:		
11	Time patient exited consultation room (24 hour clock)		:		

Do I need to consent these patients?

No, but you should ask for verbal permission to ask them a few questions and take their vital signs (pulse and temperature – remember we “mask” the respiratory rate by telling the patient we are taking his/her pulse).

Do not interview or time patients who refuse verbal consent.

How do I time consultations?

The **start of the consultation** is defined as the time at which the patient enters the consultation room.

The **end of the consultation** is defined as the time at which the patient leaves the consultation room.

You will be primarily using the PDA to complete the work study. The time is automatically captured by the PDA. All you have to do is press “enter” the moment the patient walks into the consultation room on the screen that says: Enter time patient enters consultation room. The same applies for when the patient leaves the room.

If you experience technical difficulties with the PDA and need to resort to the paper back-up you must use the digital watch provided (to time the respiratory rate) to time the consultation. Note the time the patient enters and leaves the room using a 24-hour clock. This means that a time of 1:30pm is noted as 13h30. The digital watch uses a 24 clock display. You may not time the consultation using the stop watch function on the watch.

In order to prevent rushing through the questions during the short time period during which one patient leaves and the next patient enters the consultation room, you must “screen” the next patient in the queue while the first patient is busy in the consultation room. You will note that the PDA first asks you questions for the first patient, then the time the first patient enters the consultation room, then the questions for the second patient, then the time the first patient leaves the consultation room, and then the time the second patient enters the consultation room and so on. It has been designed to replicate the natural flow of patients in and out of a consultation room.

What about patients who are seen more than once during one work study session?

Often patient may be sent for investigations (urine test etc.) by the nurse after the first consultation and return again to discuss the results and decide on a plan. Treat these returning patients as completely **new entries**. We are looking at the total time consumed by respiratory patients.

THE FOLLOW-UP QUESTIONNAIRE EXPLAINED

BEFORE STARTING

You will notice that the numbers that appear in the paper questionnaire often appear to skip questions and seem to follow an illogical order. This is because the questions numbers match those in the PDA (although you will notice that question numbers are not displayed on the PDA).

The PDA has a lot of extra questions (often directed towards you, the interviewer) which do not appear on the paper version. This is because the PDA is unable to accommodate tables which are used frequently in paper questionnaires. Instead the PDA asks items in a table as a sequence of questions, branching off to more details when one of the options is selected. For this reason the questions appear more straightforward on the PDA as all non-applicable options are "hidden" or automatically skipped. The disadvantage is that the accompanying paper version is very cumbersome, long and difficult to follow (77 pages in all). For this reason we have designed a separate paper version containing tables etc to facilitate easy completion in the event that you are forced to fall back on paper. The trade-off is that the sequence of numbers in this paper version has been disrupted. The PDA numbers have been retained to allow the paper data to be captured and pooled with the other PDA data you upload.

TIME FRAMES

The time frame to which most questions refer is the period between the 2 interviews, ***from the moment the patient left the baseline interview until the start of the follow-up interview.***

This means that questions about referrals, sputum tests etc apply to everything that has happened in the period between the 2 interviews. For example you will be required to capture details of visits, referrals etc. for patients who, after the first interview, were transferred immediately to hospital. You will also be required to capture all the details of any tests or investigations completed on the day of the follow-up interview should the patient also be attending the clinic nurse/doctor.

Most of the questions will be familiar to you. Questions about symptoms severity, health-related quality of life, medication currently being used, visits to this clinic, visits to other health care providers and investigations are all repeated.

The **time-frame for visits to the clinic, visits to other health care providers and investigations** is the **3 month period** between the 2 interviews starting immediately after the baseline interview and ending just before the follow-up interview.

The **time-frame for symptom severity and health-related quality of life** is the **last month** before the follow-up questionnaire. The quality of life questions are also asked for the actual day of the follow-up interview.

Ensure that patients understand the period the questions refer to exactly before answering questions.

PATIENT INITIALS

These have frequently not been filled in correctly during the first wave of fieldwork.

Initials = the first letter of the patient's first/Christian name + first letter of the patient's last name/surname.

For example my name is Lara Fairall. My initials are L.F. Please ensure that initials are filled in correctly and tally with the patient's first name and last name. Initials **must** appear on every page of the paper questionnaire, so that any pages which become separated can be reconciled with the rest of a completed questionnaire. This means writing the initials on the top of every page even when pages have been skipped.

DATE OF INTERVIEW

You enter this by clicking on the displayed date. A calendar will appear with the option TODAY in the lower right of the screen. Click on this and it will automatically register the date for you.

In the paper version, you must write the date at the top of each page, together with the patient's initials, clinic name and interviewer code (see later).

Patient initials: Date: Clinic: Interviewer code:

INTERVIEWER CODE

Again this has often been incorrectly captured (especially on PDA questionnaires) during the first wave of fieldwork.

This is a 4-digit code. The **first 2 digits** denote the **clinic** and can be obtained from the list below. The **second 2 digits** are your own **personal identification code** and were assigned to you during the first training week.

CLINIC NAME	LOCATION	CODE
Albert Luthuli Clinic	Wesselsbron	01
AM Kruger Clinic	Odendaalsrus	02
Bethlehem Clinic	Bethlehem	03
Bohlokong Clinic	Bethlehem	04
Boithusong	Odendaalsrus	05
Bophelong Clinic	Odendaalsrus	06
Bophelong Clinic	Kroonstad	07
Bothaville Clinic	Bothaville	08
Botshabelo B Clinic	Botshabelo	09
Botshabelo J Clinic	Botshabelo	10
Botshabelo U & S Clinic	Botshabelo	11
Hill Street Clinic	Kroonstad	12
Hoopstad Clinic	Hoopstad	13

K- Maile Clinic	Bothaville	14
Khotalong Clinic	Virginia	15
Koppies (Kganya) Clinic	Koppies	16
Ma-Haig Clinic	QwaQwa	17
Marakong Clinic	QwaQwa	18
Matlakeng Clinic	Zastron	19
Mpohadi Clinic	Bethlehem	20
Namahali Clinic	QwaQwa	21
Osizweni Clinic (replaced with Sasolburg Town Clinic)	Sasolburg	22
Pabalong Clinic	QwaQwa	23
PAX Clinic	Viljoenskroon	24
Petrusburg Clinic	Petrusburg	25
Phahameng Clinic	Frankfort	26
Phomolong Clinic	Henneman	27
Phuthaditjhaba	QwaQwa	28
Reitz Clinic	Reitz	29
Riverside Clinic	QwaQwa	30
Seesoville Clinic	Kroonstad	31
Tebang Clinic	QwaQwa	32
Thabong Clinic	Welkom	33
Thusanong Clinic	Sasolburg	34
Thusanong Clinic	Kroonstad	35
Tseki Clinic	Witsieshoek	36
Tshepong Clinic	Welkom	37
Tumahole Clinic	Parys	38
Welkom Clinic	Welkom	39
Wepener Clinic	Wepener	40

INTERVIEWER NAME	TEAM	CODE
Gladys Moeti	Welkom	01
Francinah Mokhurumetso	Welkom	02
Tshidi Ngcezulla	Welkom	03
Joyce Porotloane	Welkom	04
MaClark Pule	Bothaville	05
Suzan Matsela	Bothaville	06
Rosina Bouwer	Bothaville	07
Lerato Lungwane	QwaQwa	08
Nrateng Selai	QwaQwa	09
Thulani Mazibuko	QwaQwa	10
Baasanya Motikoe	Bethlehem	11
'Mathapelo Montsitsi	Bethlehem	12
Zanele Moloji	Bethlehem	13
Agnes Mosia	Bethlehem	14
Victoria Rammile	Bloemfontein	15
Sylvia Moloole	Bloemfontein	16
Tankiso Rammile	Bloemfontein	17
Innocentia Duma	Bloemfontein	18
Dinah Makgoe	Parys	19
Ingrid Mosoge	Parys	20
Puleng Mokhobo	Parys	21
Josh Ncanda	Parys	22

PATIENT DETAILS

Page 1 : Questions 3 - 10

First enter the patient's first name, surname, gender and folder number. Take care when entering the folder number, transcribing 2 – 4 digits at a time. You will be asked to enter the folder number twice. If not folder is available you may leave this blank (but only if you really have made a concerted effort to locate the folder). If you really can't locate the folder, you may click the "N" button ("next") on the PDA or enter the patient's full date of birth.

Please attempt to locate a unique identifying number on each folder, as we will be tracing laboratory results for patients and therefore need their folder numbers. If in doubt ask the clinic clerk to help you locate the folder number.

PATIENT DETAILS							
3	Enter first name:	<i>John</i>			4	Enter last name:	<i>Smith</i>
5	Gender: (Mark with an X)	Male	<input checked="" type="checkbox"/>	Female			
6	Enter folder no:	<i>8763421</i>			7	Re-enter folder no:	<i>8763421</i>

Questions 8 – 10

Patients were considered for the study if they were 15 years or older.

The year of birth (or age at last birthday if the patient is unable to remember the year of their birth) is one of a few information elements (including name, gender and folder number) which enable us to identify patients so that we can compare how they have changed from one point of data collection (the baseline questionnaire) to the next (the follow-up questionnaire).

You must enter either the year of birth (if known) or the age at the last birthday. The PDA will skip age at last birthday if the year of birth is entered. If the patient doesn't know the year of their birth click on the "D" button ("don't know") and the PDA will default to the age at the last birthday question. It is not necessary to complete both the year-of birth and age at last birthday on the paper questionnaire.

8	Do you know the year of your birth?		9	→ Enter year of birth & go to question 11:
	YES		10	→ Enter age at last birthday & go to question 11: 46
	NO	<input checked="" type="checkbox"/>		

TRANSITION ASSESSMENT

Page 1: Question 11

This question asks the patient to compare their health on the day of the follow-up interview with their health 3 months ago on the day of the baseline interview. It is what we term a "transition assessment".

First set the scene for the patient: "Remember when we last spoke to you here at the clinic 3 months ago. Think carefully back to that day."

Read all the response categories ("Better", "The same", "Worse") to the patient slowly, pausing between each one. Ask the patient to choose one category. Mark the box with an **X**.

You must **give the patient time** to consider their state of health 3 months ago, their state of health today and how it has or hasn't changed. This exercise requires "intellectual gymnastics" and cannot be rushed. Remember to create the impression that you have all day to complete this interview. This will put the patient at ease and allow him/her to think back to the day of the baseline interview.

If a patient is quick to respond you may want to probe with comments like "Are you sure", "Have you had enough time to think about it?" Encourage the patient to take their time when giving a response.

11	Remember when we last spoke to you here at the clinic 3 months ago. Think carefully back to that day. Compared with your state of health on the day of the first interview, do you think your state of health today is... Interviewer: Choose ONE. Mark box with an X.	
	Better	X
	The same	
	Worse	

SYMPTOM SEVERITY IN THE LAST MONTH
Page 1: Questions 12 - 17

These questions are a repeat from the baseline questionnaire and ask about the frequency (this means how often something occurs) of chest symptoms during the day and at night and their impact on the patient's usual activities.

Please note that the time frame for these questions is **the last month**. This refers to the last month leading up to the follow-up questionnaire. You **must** emphasise this to the patient.

If the patient answers yes to the questions you need to prompt the patient with the three response categories (1 to 2 times per month or 1-2 times per week or most nights/days). After prompting the patient with these categories allow a silent pause and time for patient to think and then answer. If necessary, repeat the response categories.

Questions 12 - 13

Difficulty in sleeping can occur because of many reasons including waking up frequently to pass water. Patients who have difficulty sleeping specifically because of difficulty in breathing and cough must answer yes to this question. Patients who have difficulty sleeping for other reasons must answer no to this question. If necessary probe to clarify that the difficulty in sleeping is because of difficulty in breathing and/or cough and not for other reasons (itchy skin rash, loud music nearby etc.)

The questions are first asked for the state of the patient's health on the day of the follow-up interview and then repeated for the state of the patient's health during the last month.

It is extremely important to stress this difference to the patient. First ask them to concentrate on their health status today and complete all the questions. Then ask them to cast their minds back to the last month and repeat the questions.

Questions 18 – 22 (today – Page 2) and 24 – 28 (last month – Page 4)

For each facet of quality of life you will see three statements, each corresponding to a level of severity.

The first statement always reflects no problem, the second statement a moderate problem and the third statement a severe problem. These will be laid out on the visual aid in a horizontal format, with the no problem statement on the far left and the extreme problem on the far right, setting up a type of scale with no problem on one end and extreme problem on the opposite end. You will notice that each statement has a corresponding block but that there are two blocks without statements between them.

For each facet of the level of quality of life, you must read all three statements to the patient and allow the patient time to digest and understand them. The patient must indicate to you which block best describes their health status. If they feel that none of the three statements accurately captures their health status and that rather they fall somewhere in between two statements, they may choose the block between those two statements as shown below.

Example: A patient with mobility problems who feels he falls between "no problems" and "some problems".

MOBILITY				
18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	I have no problems in walking about		I have some problems in walking about	I am confined to bed

12	Have you had difficulty sleeping because of difficulty in breathing and/or cough in the last month?		
	YES		→ go to the next question
	NO	X	→ skip to question 14
Select a category: (Interviewer: Choose ONE. Mark box with an X)			
13	1 – 2 times per month		
	1 – 2 times per week		
	Most nights		

Questions 14 - 15

This question asks about the frequency of chest symptoms during the day. Chest symptoms include cough, wheeze (whistling sound in the chest) and breathlessness (shortness of breath, tight chest). If a patient reports **any** of the three symptoms in brackets, you must answer yes to the question. It is not necessary for patients to have all three symptoms to answer yes to the question.

14	Have you has your usual chest symptoms during the day (cough, wheeze, breathlessness) in the last month?		
	YES	X	→ go to the next question
	NO		→ skip to question 16
Select a category: (Interviewer: Choose ONE. Mark box with an X)			
15	1 – 2 times per month		
	1 – 2 times per week	X	
	Most days		

Questions 16 - 17

Usual activities include work, study, housework, family or leisure activities. If the patient has been limited in **any** of these usual activities by their chest symptoms in the last month, you must indicate yes.

16	Has your chest problem interfered with your usual activities (e.g. work, study, housework, family or leisure activities) in the last month?		
	YES	X	→ go to the next question
	NO		→ skip to question 18 (top of page 2)
Select a category: (Interviewer: Choose ONE. Mark box with an X)			
17	1 – 2 times per month		
	1 – 2 times per week		
	Most days	X	

HEALTH-RELATED QUALITY OF LIFE

Pages 2 – 5: Questions 18 – 29

These questions measure how health problems impact on different aspects of daily life, specifically on mobility, self care, usual activities, pain/discomfort and anxiety/depression. There are two parts to measuring the quality of life, the first part is to ask how health problems impact these specific areas and the second part is to ask a patient to give an overall rating on their general health related quality of life (on the scale which resembles a thermometer).

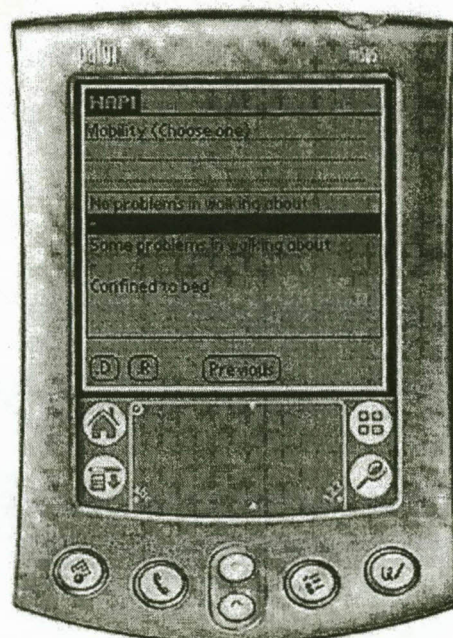
You may **not** explain the wording of the response categories to the patient because you risk introducing your own set of values into the question. What we want to know is how the patient perceives their own quality of life and not how they would judge themselves compared to other people's standards.

If the patient asks you what you mean, repeat the categories **word for word**. You may not give any examples as this will lead the patient and compromise their answer. This is particularly relevant to the pain/discomfort and anxiety/depression question where patients are asked to distinguish between moderate and extreme states. It is up to the patient to decide what he/she considers moderate and what he/she considers to be extreme and then choose. Giving examples misleads a patient and disrupts their own process of deciding what they believe to be no problem, moderate and severe.

The PDA does not allow sufficient screen space for you to view the response categories as whole sentences. For this reason, and to help the patient visualise the exercise, we have laid out the full versions (in all 5 languages, both for quality of life today and for quality of life in the last month) in the visual aid. Please use this to complete these questions.

Also, the PDA does not have a system whereby the blocks could be easily depicted on the screen. We have therefore compromised and inserted "dashes" between statements to depict those categories which fall between statements.

The same patient with a problem with mobility falling somewhere between "no problem" and "some problems" would therefore be depicted on the PDA as follows:



Questions 23 (today – Page 3) and 29 (last month – Page 5)

This question is designed to assess the patient's *overall* health related quality of life using a "thermometer". Explain to the patient that at the bottom of the thermometer is the worst state that they can imagine. Be sensitive to the fact the patient might imagine this state as being worse than death. This will differ from patient to patient and so do not illustrate this end of the scale with examples like death or extreme suffering. It is up to the patient (and not you) to decide what they think is their worst state of health.

Explain to the patient that at the top of the thermometer is the best state that they can imagine. Be sensitive to the fact the patient might imagine this state as being better than normal. This will differ from patient to patient and so do not illustrate this end of the scale with examples like being filled with vitality and energy. It is up to the patient (and not you) to decide what they think is their best state of health.

Be sensitive to the fact that "normal" for the patient may be *anywhere* on this scale. **Do not suggest to the patient that halfway between the 2 points (reading = 50) indicates "normal"**. If you do this you will find that most patients choose 50. If the patient requires clarification, rather say something like "normal for you may be anywhere on this scale".

After explaining how the scale works to the patient, ask the patient to indicate to the point on the scale where they feel best describes how they feel today. On the paper questionnaire mark this point. On the PDA record the number pointed out on the scale (the "thermometer reading"). As with the statement part of quality of life, you will repeat this process for the last month.

VISITS BACK TO THIS CLINIC IN THE LAST 3 MONTHS
Pages 6 – 10 : Questions 30 – 98

These questions establish whether the patient has returned to the clinic during the period between the 2 interviews, including on the day of the follow-up assessment, and take into account whether you are conducting the interview at the clinic or at the patient's home. You will be required to trace patients who don't return to the clinic for the follow-up interview to their homes if necessary.

Note that you are required to record here only the details of visits to the exact same clinic where the patient was initially recruited. If the patient has been to a different clinic during the period between interviews, you will record the details of those visits under the section: "Visits to other health care providers besides this clinic".

We collect information on the availability of the clinic folder at the time of the interview because, interviews where you have been able to use the patient's folder to check-up on visits back to the clinic, tend to contain more reliable information than when you have not had access to the folder to check up on details.

Question 30 (Page 6)

In the event that the patient does not return to the clinic for the follow-up interview, you will be required to follow-up the patient at home. The phrasing of future questions asking whether the patient has returned to the clinic between interviews depends on where you are conducting the follow-up interview. Choose one option and mark the box with an X.

If you are conducting the interview at the patient's home skip the next 2 questions and continue with question 33 (same page). If you are conducting the interview at the clinic proceed to the next question.

30	Interviewer: Are you conducting this interview at the patient's home or at the clinic? Choose ONE. Mark box with an X.	
	At the patient's home	→ skip to question 33 (this page)
	At the clinic	X → go to the next question

Question 31 (Page 6)

This question establishes whether a patient, being interviewed at the clinic, has been back to the clinic **for any reason** between the 2 interviews.

Remember that some patients may be attending the clinic for care as well as for the follow-up interview. These patients must be interviewed after they have seen the nurse/doctor so that you can capture the details of that consultation.

You must indicate no only if the patient hasn't been back to the clinic at all between the 2 interviews, **and** is only at the clinic for the purpose of the follow-up interview. If the patient has been back to the clinic at all, even if only to collect medication (without seeing a nurse/doctor) you must indicate yes.

If the patient has not been back to the clinic at all, you must skip all the questions about care received at the clinic in the last 3 months and proceed to question 156 at the top of page 14 (Patients who have not been back to the clinic in the last 3 months).

31	Including today, have you been back to the clinic (to collect meds, for a check-up, to see a nurse or doctor, etc.) in the last 3 months after our first interview? Interviewer: Indicate NO if the patient has not been back to the clinic after the first interview and is attending the clinic today ONLY for the purpose of the interview.	
	YES	X → go to the next question
	NO	→ skip to question 156 (top of page 14)

Question 32 (Page 6)

This asks you to confirm in the folder that the patient has been back to the clinic in the last 3 months. Remember that we treat information about clinic visits etc. as being more reliable when it has been double-checked with folder entries.

If the folder is available please check that the patient has been back to the clinic after the baseline interview. If the folder contains no documentation of a visit during this time period, please probe the patient about exactly when he/she returned to the clinic. Bear in mind that the patient may well have

returned to the clinic between interviews but that the visit may not have been documented.

It is worthwhile noting the number of visits after the baseline interview documented in the folder. This will assist you when later you are required to enter the details of all visits between interviews.

32	Interviewer: Have you confirmed in the folder that the patient attended the clinic in the last 3 months after the first interview?		
	YES	X	→ skip to question 34 (this page)
	NO		→ skip to question 34 (this page)

Question 33 (Page 6)

This question establishes whether a patient, being interviewed at home, has been back to the clinic **for any reason** between the 2 interviews.

You must indicate no only if the patient hasn't been back to the clinic at all between the 2 interviews. If the patient has been back to the clinic at all, even if only to collect medication (without seeing a nurse/doctor) you must indicate yes.

If the patient has not been back to the clinic at all, you must skip all the questions about care received at the clinic in the last 3 months and proceed to question 157 at the top of page 14 (Patients who have not been back to the clinic in the last 3 months).

33	Have you been back to the clinic in the last 3 months after our first interview?		
	YES	X	→ go to the next question
	NO		→ skip to question 157 (page 14)

Question 34 (Page 6)

Here you are required to capture all the details of every visit back to the clinic between the 2 interviews, including any visits on the day of the interview itself (hence the importance of interviewing these patients after they have been seen by the nurse/doctor).

As with the baseline interview, you do not have to record the details of visits to collect TB medication, as you will only be allowed to capture details for 8 visits. Patients who are being treated for TB are likely to have attended the clinic more than 8 times in a 3 month period.

You can use the folder to help the patient remember the number of visits back to the clinic during the 3 month period. Again bear in mind that some pages may be missing, and that some visits may not have been documented.

Enter the number of times the patient has been back to the clinic between interviews (but exclude visits to collect TB medication).

For example: At baseline you interviewed a patient with a longstanding cough. He was asked to collect sputum at home for testing for TB. He subsequently returned once to the clinic to return the sputum, and again a week later for the results where he was informed that he had tested positive for TB. He was

then asked to report to the TB clinic the following day to commence treatment. He has since attended twice a week for TB medication.

Total number of non-TB medication visits between interviews = 2.

34	I would like to know about ALL your visits back to this clinic in the last 3 months after our first interview and including this visit today (if attending the clinic for reasons besides the interview). As with the first interview, we will use your folder (if available) to help refresh your memory.	
	TB Patients: I will only ask you to tell me about visits besides when you came to collect your TB medication.	
	Besides visits to collect TB medication, how many times have you been back to the clinic in the last 3 months after our first interview?	
	Enter number of times:	2

VISITS TO THIS CLINIC IN THE LAST 3 MONTHS
Pages 7 – 10: Questions 35 – 98

Here you are asked to record details of all non-TB medication visits back to the clinic in the 3 month period between interviews (right after the last interview ended up until right before the follow-up interview starts).

You will record 2 clinic visits per page on the paper questionnaire and both the paper questionnaire and the PDA format permit you to complete details for up to 8 clinic visits.

Remember only to record details of visits back to the same clinic (where you first interviewed the patient). You are required to capture any visits to other primary care clinics under the section: Visits to Health Care Providers besides this clinic in the last 3 months.

You are first required to enter the date (month only) of the visit back to the clinic.

You are next required to enter the reason for attendance **in the patient's own words**. Many interviewers recorded the reason for attendance from the notes. Please do not do this. We are interested primarily in why the patient sought care, not what the nurse or doctor made of the patient's symptoms. For example a patient may seek care because of a cough for 2 weeks. On examination the nurse finds a skin rash and records it in the notes but makes no mention of the cough. If you ask the patient why they attended the clinic on that occasion you will be told that it was because of a cough. If you relied on the notes you would record the skin rash but exclude the cough which was the real reason for the patient attending.

Patients usually attend the clinic either for a check-up (usually for a chronic disease like high blood pressure or diabetes - these appointments are known as "check-ups" or "booked" visits), or for a new problem like recent onset of 'flu symptoms etc. Go through each item on the list and indicate whether the patient attended the clinic on that occasion for that reason or not. You must mark all the options that apply with an **X**. If there is an "other" reason you must mark the box next to "other" and enter the reason alongside. You may check all the boxes that apply as well as enter an "other" reason. You will not

see the "other" option in the list presented by the PDA. If this applies click on the "N" ("Next") button and the PDA will present a second screen to you with space for you to enter this "other" reason.

Probe the patient who seems not to know why they attended the clinic on a particular occasion. Most patients have some understanding of why they came to the clinic on a particular day. Do not be tempted to resort to the patient notes.

Try to qualify entries as far as possible. For example, "to collect medication" is very non-specific whereas "to collect asthma medication" provides very specific and exact information as to the reason for attendance. Similarly, "check-up" is also very non-specific whereas "check-up for high blood pressure" provides exact reliable data. This often requires probing the patient for more information and is the hallmark of a qualified and expert interviewer.

Remember that most patients will be unfamiliar with the term "respiratory" and it is your responsibility to explain it to the patients. "Respiratory" refers to all conditions involving the respiratory tract (ears, nose and throat, airways and lungs) from colds and flu to asthma, bronchitis and TB.

The next question is different to the baseline interview, and asks whether the patient saw a nurse, doctor or both on that occasion. You may be required to probe the patient who responds that he/she saw *only* a nurse or a doctor on that occasion ("Are you sure?", "Did you not also see a doctor?", "Did you not also see a nurse?"). You may choose one option. Mark the relevant box with an **X** and proceed to the next question.

The next question asks you, the interviewer, whether the patient saw a nurse (\pm a doctor) on that occasion. This is because we want to understand more about the quality of nurse consultations (whether the nurse informed the patient of their diagnosis or assessment etc.). If yes proceed to the next question. If no skip the following 2 questions (go to: Interviewer: Enter data for another visit?).

The next 2 questions ask you first to establish whether the nurse informed the patient about what was wrong with them (Enter Yes or No) and if yes asks you to enter what the nurse told the patient. Again remember that you must use the patient's own words to record what the nurse told him/her. Coming away from a consultation with a good understanding of your health problem is a marker of good quality care.

Finally you will be asked whether you want to enter details of another clinic visit. If yes proceed to the next block (either adjacent or on the next page). If no, skip to question 99 at the top of page 11 (Care received at this clinic in the last 3 months).

VISIT 1 BACK TO THIS CLINIC IN THE LAST 3 MONTHS	
35	Month of visit: <i>June</i>
36	
What was the reason for attendance for clinic visit 1? Interviewer: Check ALL that apply.	
Check-up for high blood pressure	<i>X</i>
Check-up for diabetes ("sugar")	
Check-up for a respiratory problem	<i>X</i>
Check-up for other problem	
First visit for a respiratory problem	
First visit for other problem	
Other (please specify):	37
<i>Collect results of TB tests</i>	
38	
On that occasion, who did you see at the clinic? Choose ONE. Mark box with an X.	
A clinic nurse	<i>X</i>
A doctor	
A clinic nurse AND a doctor	
None of these	
39	
Interviewer: Did the patient indicate that he/she had seen a nurse on this occasion whether or not he/she also saw a doctor?	
YES	<i>X</i> → go to the next question
NO	→ skip to question 42
40	
Did the nurse tell you what was wrong with you on that occasion?	
YES	<i>X</i> → go to the next question
NO	→ skip to question 42
41	
What did he/she tell you? Interviewer: Enter response below.	
<i>That I was clear of TB.</i>	
42	
Interviewer: Enter data for another clinic visit?	
YES <i>X</i>	→ go to question 43 (next block)
NO	→ skip to question 99 (top of page 11))

CARE RECEIVED AT THIS CLINIC IN THE LAST 3 MONTHS
Page 11: Questions 99 – 109

These questions ask about investigations (and in the case of TB their results) completed at the clinic in the 3 month period between the 2 interviews. They are similar to the questions asked about the consultation at the time of the baseline interview.

Questions 99 and 100 (Page 11)

This asks whether the patient had any sputum collected for tests. Usually (but not always) this is taken to look for TB, so we are particularly keen to know how well the clinics are screening the community for TB.

Usually the first sample is taken on the day of the consultation at the clinic and the patient is given an empty container to take home and cough into the following day, and then return to the clinic. For this reason we first ask whether samples were physically collected at the clinic, and then whether they had received instructions to collect further samples at home. Patients may not be familiar with the term "phlegm / sputum samples" but they are familiar with the containers in which this is collected. Use the pictures of these containers in the visual aid (pages 26 and 27) to help you.

If the patient has either had sputum samples collected at the clinic itself, or received instructions to collect samples at home, indicate yes and enter the number of samples collected or asked to be collected.

99	Has a nurse at this clinic collected any phlegm/sputum samples for testing in the last 3 months after our first interview? Interviewer: Show patient pictures of sputum jars in the visual aid (pages 26 - 27).		
	YES	X	→ 100: How many did she collect? 2
	NO		

101	Has a nurse at this clinic asked you to collect any phlegm/sputum samples at home in the last 3 months after our first interview? Interviewer: Show patient pictures of sputum jars in the visual aid (pages 26 - 27).		
	YES	X	→ 102: How many did she ask you to collect? 1
	NO		

Questions 103 - 107 (Page 11)

These questions ask the patient whether they have been diagnosed with TB during the 3 month period between interviews, and if yes, for some basic details of their diagnosis and treatment. It is important to collect this information here as we have purposely excluded it from the visits back to the clinic in the last 3 months.

First you will ask all patients who have been back to the clinic in the 3 month period between interviews whether they have been diagnosed with TB after the baseline interview. If yes you will be required to complete the next 4 questions. If no you may skip to question 108 (same page).

For those patients who have been diagnosed with TB after the baseline interview, enter where they were diagnosed with TB (Choose one option), where they are currently receiving their TB treatment (Choose one option), when they started their TB treatment (this information is usually on the TB treatment card which most TB patients carry with them at all times) and how often they attend the clinic for treatment.

Patients may have started off attending the clinic every day but then move to once a week etc. Choose the category which best describes the patient's

attendance patterns during the 3 month period between interviews.
Remember that you may only choose one option.

103	Have you been diagnosed with TB in the last 3 months after our first interview?		
	YES	<input checked="" type="checkbox"/>	→ go to the next question
	NO	<input type="checkbox"/>	→ skip to question 108 (this page)

104	Where were you diagnosed with TB? Interviewer: Choose ONE. Mark box with an X.		
	In a hospital	<input type="checkbox"/>	
	At this clinic	<input checked="" type="checkbox"/>	
	At another clinic	<input type="checkbox"/>	

105	Where are you receiving your TB treatment? Interviewer: Choose ONE. Mark box with an X.		
	This clinic	<input checked="" type="checkbox"/>	
	Another clinic	<input type="checkbox"/>	

106	When did you start your TB treatment at this clinic? Interviewer: Ask patient to show you their TB treatment card if available					
	Date:	<i>18</i>	Month	<i>June</i>	Year	<i>2003</i>

107	How often do or did you attend the clinic for TB treatment? Interviewer: Choose ONE. Mark box with an X.		
	Once	<input type="checkbox"/>	Once every 2 weeks
	Twice	<input checked="" type="checkbox"/>	Once every 3 weeks
	Three times	<input type="checkbox"/>	Once a month
	Four times	<input type="checkbox"/>	
	Five times (Every day)	<input type="checkbox"/>	

Question 108 (Page 11)

We want to know whether patients who have received care at the clinic in the 3 month period between interviews have had any blood tests taken, regardless of whether they were taken at the clinic or elsewhere. Many clinics do not have the facilities to do blood tests and may refer patients elsewhere for testing. We want to know about *all* blood tests (not just those taken at the clinic) since it is likely that any blood tests completed are in some way linked to a consultation at the clinic where the nurse has referred the patient for further assessment or investigations.

This differs to the baseline interview where we were only interested in any blood tests actually done at the clinic on the day of that interview. Bear in mind that some patients may have been referred on for a blood test on the day of the baseline interview and had it a day or 2 later. The place to capture those tests is here.

108	Have you had any blood tests in the last 3 months after our first interview?		
	YES	<input checked="" type="checkbox"/>	
	NO	<input type="checkbox"/>	

Question 109 (Page 11)

This asks whether the patient had any Chest X-Rays (at the clinic or elsewhere) in the 3 month period between interviews. Chest X-Rays are an

important but expensive investigation commonly carried out in patients with respiratory diseases.

Patients may not be familiar with the term "Chest X-Ray" (although most are) but will recognise the process of having a Chest X-Ray taken which is depicted in the visual aid on page 37 together with an example of a Chest X-Ray film (add-on visual aid page). If the patient answers yes ask him/her how many times they went for an X-Ray (so that we can determine the costs of these investigations). Be aware that one Chest-Xray involves many views which are not to be mistaken as number of X-Rays. The number of times the patients reports having an X-Ray taken in the 3 month period between interviews is what must be entered.

109	Have you had a chest X-ray in the last 3 months after our first interview?		
	YES	X	→ 110. How many Chest X-Rays have you had? 2
	NO		

Question 111 (Page 12)

The following 4 questions all ask about the nurse referring the patients to doctors during the 3 month period between interviews. We distinguish between doctors at the clinic itself (who attend usually once or twice a week) and doctors outside of the clinic.

First ask the patients whether a nurse at the clinic referred him/her to any doctor (at the clinic or outside of the clinic) in the 3 months between interviews. If the patient answers yes, you will be required to proceed to the next question. If the patient answers no you must skip to question 116 (same page – smoking).

111	Has a nurse at the clinic referred you to a doctor (at the clinic or elsewhere) in the last 3 months after our first interview?		
	YES	X	→ go to the next question
	NO		→ skip to question 116 (this page – Smoking)

Questions 112 - 114 (Page 12)

Now establish whether the patient has been referred to a doctor at the same clinic (insert the name of the clinic into the question) during the 3 month period between interviews. If yes, you must proceed to the next question and establish whether the patient has already been seen by the doctor and if so, the number of times the doctor saw the patient.

If the patient has not been referred to a doctor at the same clinic (but rather a doctor outside the clinic) indicate no and skip to question 115.

112	Did the nurse refer you to a doctor at (insert name of clinic) clinic?		
	YES	X	→ go to the next question
	NO		→ skip to question 115 (this page)
113	Have you seen the doctor yet?		
	YES	X	→ 114. How many times in the last 3 months? 2
	NO		

Question 115 (Page 12)

Here you ask the patient whether the patient was referred to a doctor at another clinic or in a hospital. If you have followed the instructions carefully the answer to this question should always be yes. The PDA (and paper questionnaire) will then remind you that you will later be required to enter the details of any such referral visits/admissions that have taken place under: visits to other health care providers besides this clinic in the last 3 months.

Bear in mind that a patient may have been referred to a doctor outside the clinic but is still waiting for the appointment. In this case indicate yes to questions 115, but do not record the details of the visit since it has not taken place in the 3 month period between interviews.

115	Did the nurse refer you to a doctor at another clinic or hospital?		
	YES		→ remember to record all details of visits to doctors in other primary care clinics under: VISITS TO OTHER HEALTH CARE PROVIDERS BESIDES THIS ONE IN THE LAST 3 MONTHS (Page 17)
	NO		

SMOKING

Page 12 : Questions 116 – 124 ; Page 14 : Questions 160 – 168

You will notice that the smoking questions are repeated twice in the questionnaire. This is so that both patients who have been back to the clinic in the 3 month period between interviews as well as patients who haven't are asked these questions.

The first two questions (116 /160. Ever smoked? & 117/161. Smoke currently?) are repeats of questions in the baseline interview, and establish whether the patient is a never smoker, current smoker or ex-smoker.

If the patient has never smoked (no to question 116/160) you may skip the questions in this section. Go either to question 125 (top of page 13) or 169 (top of page 15).

If the patient has smoked but is not currently smoking (yes to question 116/160; no to question 117/161) skip to question 123/167.

SMOKING			
116	Have you ever smoked?		
	YES	X	→ go to the next question
	NO		→ skip to question 125 (top of page 13)
117	Do you smoke currently?		
	YES	X	→ go to the next question
	NO		→ skip to question 80 (this page)

Questions 118 – 120 (Page 12) & 162 – 164 (Page 14)

This asks on average how many cigarettes (shop-bought or manufactured and hand-rolled) and pipes the patient smokes per day. Go through each item and enter the average no. smoked per day alongside. You must check all that

apply. The PDA will ask you each item individually. If the patient does not use one of these items you may enter zero or, if completing a PDA interview, choose the "N" button ("Not applicable") in the lower left of your screen.

118 to 120	On average how many of the following items do you smoke per day? Mark appropriate boxes and enter average number smoked per day. Enter 0 for those items not smoked. Check ALL that apply.		
	Shop-bought cigarettes	118	Enter no. smoked per day: 2
	Hand-rolled cigarettes	119	Enter no. smoked per day: 5
	Pipefuls of tobacco	120	Enter no. smoked per day: 0

Question 121 (Page 12) and 165 (Page 14)

This asks whether a nurse at the clinic has provided smoking cessation advice (advised the patient to reduce or quit smoking). Again the time frame is the 3 month period between interviews and does not include any advice given during the consultation which preceded the baseline interview (and which was captured during the baseline interview).

I have noticed that, despite anti-smoking advice being recorded under "What did the nurse tell you?" for individual consultations, this question has been answered as no. If the patient receives any advice to reduce or quit smoking (temporarily or permanently) you must indicate yes to this question.

121	Has a nurse at this clinic advised you to reduce or quit smoking in the last 3 months after our first interview?	
	YES	X
	NO	

Question 122 (Page 11) and Question 166 (Page 14)

This question asks current smokers to weigh up their feelings about quitting. Read all three statements in full to the patient first, and ask them to choose which one best describes their thoughts about stopping smoking now. Do not rush the patient. They will need time to consider the statements first before making their decision. Once they have made a decision, mark the adjacent box. You can only mark one box.

On the PDA you will notice that the statements may not be displayed in full. For this reason they are provided in the visual aid (in all 5 languages) on pages 24 and 25.

You must then skip the questions for ex-smokers (123+124 and 167+168) and proceed to question 125 (top of page 13) or 169 (top of page 15).

122	Which of the following best describes your thoughts about stopping smoking now? Interviewer: Read all 3 statements to patient and ask them to choose ONE. See visual aid page 24.	
	I will stop smoking	→ skip to question 125 (top of page 13)
	I plan to stop smoking but not now	X → skip to question 125 (top of page 13)
	I do not plan to stop smoking soon	→ skip to question 125 (top of page 13)

Question 123 (Page 12) and Question 167 (Page 14)

This asks patients whether they stopped smoking before or after the baseline interview. If they stopped after the baseline interview, we would like to

MEDICATION**Pages 15 – 18: Questions 169 – 279**

This section is set out differently compared with the baseline interview, since the follow-up interview is not linked to a consultation, although patients *might* have come back to the clinic to see a doctor/nurse or collect medication on the day of the follow-up interview.

Because of this we first establish whether the patient is being interviewed at the clinic and, if yes, if their visit to the clinic is in *anyway* linked to receiving care (see a nurse/doctor, collect medication). If the patient has received care from the clinic, they may have received medication to take home, and we want to capture the details of this prescription.

169	Interviewer: Are you conducting this interview at the patient's home or at the clinic?		
	At the patient's home		→ skip to question 230 (top of page 17)
	At the clinic	<input checked="" type="checkbox"/>	→ go to the next question
170	Have you come to the clinic today just for the purpose of this interview or also to see a nurse/doctor?		
	Just for the purpose of the interview		→ skip to question 230 (top of page 17)
	Also to see a nurse/doctor	<input checked="" type="checkbox"/>	→ go to the next question

As with the baseline interview, we have limited our drugs of interest to those used for common respiratory problems. These are:

1. Inhaler medication
2. Prednisone
3. Antibiotics
4. Other medications commonly used for respiratory problems.

If the medication the patient has received today or is using now at home does not appear on the visual aid, we don't need to know about it.

In the baseline interview (where you knew that all the patients had already seen a nurse that day) you showed the patient the relevant items on the visual aid and then asked them a) whether they had received the item today and b) if not received today, do they regularly use the item at home.

Depending on what items they used, you were also required to complete "sub-questions" related to that particular drug: ("Does your difficulty breathing improve when you use this inhaler?" for reliever inhalers; "How many tablets must you take at a time?" for prednisone and antibiotics and so on).

The follow-up interview questions are structured a little differently. Not all patients will have seen a nurse/doctor on the day of the interview and so, to avoid asking *all* patients about medication received today, you first capture the details of the medication patients who did see a nurse/doctor received today, and then ask about medication they are currently using at home.

We have used the phrase "medication that you are using now" to capture medication that patients use on a regular basis at home. In some cases this may be every day or nearly every day (e.g. Budesonide, Theophylline tablets).

establish if them quitting was in any way related to smoking cessation advice received at the clinic. If they stopped smoking before the baseline interview, skip to question 125 (top of page 13) or 169 (top of page 15). If they stopped smoking after the baseline interview, proceed to the next question and see instructions for questions 121 and 165.

123	When did you stop smoking?		
	Before the first interview		→ skip to question 125 (top of page 13)
	After the first interview	X	→ go to the next question

TRAVEL TO THIS CLINIC IN THE LAST 3 MONTHS
Page 13: Questions 125 – 155

These are repeats of questions contained in the baseline interview and should be completed by all patients who have been back to the clinic in the 3 month period between interviews.

Please see instructions in Training Manual for baseline questionnaire.

PATIENTS WHO HAVE NOT BEEN BACK TO THIS CLINIC IN THE LAST 3 MONTHS
Page 14: Questions 156 – 159

The first question asks you, the interviewer, to confirm in the folder that patients who report not being back to the clinic in the 3 month period between interviews really haven't been back to the clinic. This applies only to patients who are being interviewed at the clinic where you will have access to their folders.

You then ask these patients whether they haven't being diagnosed or treated for TB after the first interview, and, if yes, record where they were diagnosed and where they are receiving treatment.

PATIENTS WHO HAVE NOT BEEN BACK TO THIS CLINIC IN THE LAST 3 MONTHS			
156	Interviewer: Have you confirmed in the folder that the patient did not attend the clinic in the last 3 months after the first interview?		
	YES	X	
	NO		
157	Have you been diagnosed with TB in the last 3 months after our first interview?		
	YES	X	→ go to the next question
	NO		→ skip to question 160 (this page - Smoking)
158	Where were you diagnosed with TB?		
	Interviewer: Enter clinic/hospital name below. <i>Botshabelo Hospital</i>		
159	Where are you receiving your TB treatment?		
	Interviewer: Enter clinic/hospital name below. <i>Tiger River Clinic</i>		

In others it may be less regular (e.g. Salbutamol inhaler only when the chest is tight).

The questions (and "sub-questions") asked for each medication type are otherwise the same as in the baseline interview, except that we have included all the antibiotics in the section "Medication that you are using now" (Follow-up questionnaire) vs. only cotrimoxazole, doxycycline and fluconazole under "Medication usually used" (Baseline questionnaire).

Inhalers (Page 15, Questions 171 – 186 and Page 17, Questions 230 - 246)

There are 2 types of inhalers or pumps. The first type is called the reliever inhalers because they provide relief immediately when the chest is tight ("open the chest"). The reliever inhalers are:

Fenoterol (Fe-no-te-rol)

Trade name: Berotec.

Used for asthma and emphysema / bronchitis.

Fenoterol / Ipratropium (Fe-no-te-rol / I-pra-tro-pium)

Trade name: Duovent

A combination drug used mainly for patients with severe asthma and emphysema.

Ipratropium (I-pra-tro-pium)

Trade name: Atrovent

Used mainly for patients with emphysema.

Salbutamol (Sal-but-a-mol)

Trade name: Asthavent or Ventolin.

The most common reliever inhaler used for asthma and emphysema.

Salbutamol/Ipratropium (Sal-but-a-mol / I-pra-tro-pium)

Trade name: Combivent

A combination drug used mainly for patients with severe asthma and emphysema.

Salmeterol (Sal-met-e-rol)

Trade name: Serevent

Similar to salbutamol but lasts longer. Used for severe asthma or emphysema.

The preventer inhalers do not open the chest immediately when tight, but rather prevent asthma symptoms when used regularly on a daily basis. They do not cure asthma but "prevent" the symptoms, hence the name. There is only one type of preventer inhaler available in the Free State public service, but it comes in 2 strengths (100 and 200). It is easily recognizable to patients because it comes in a big box which also contains a spacer. This is a plastic bottle shaped device used with the inhaler. It increases the amount of drug which reaches the airways.

Budesonide (Bu-des-o-nide)

Trade name : Inflammide

Preventer inhaler used for asthma.

Reliever Inhalers (Page 15, Questions 172 – 183 and Page 17, Questions 231 – 242)

If the patient uses a reliever inhaler, indicate the name by placing an **X** in the adjacent box. You must then complete the question alongside about difficult breathing. You must check **all** the reliever inhalers the patient uses, and ask the difficulty breathing question for each one.

The PDA will ask you to indicate whether the patient uses an inhaler or not **separately for each inhaler** on the chart. If you indicate YES it will automatically skip to the difficult breathing question before returning to the list of inhalers.

A word of caution – patients may not be familiar with the terms "reliever" and "preventer". Ask them instead to identify medication from the chart.

RELIEVER INHALERS THAT YOU ARE USING NOW (Interviewer: Check ALL that apply).				YES	NO
172	Fenoterol (Berotec)	X	→ 173. Does this inhaler improve your difficult breathing minutes after using it?		X
174	Fenoterol/Ipratropium (Duovent)	X	→ 175. Does this inhaler improve your difficult breathing minutes after using it?	X	

Preventer Inhalers (Page 15, Questions 184 – 186; Page 17 Questions 243 to 246)

These inhalers are very expensive and for this reason we want to know all the details about how the patients are using them.

Ask patients using Budesonide whether they know if they are on the 100 or 200 strength inhaler. Some patients may not know. For these patients mark Budesonide (don't know the dose). Then ask them how many times they use the inhaler per day, and lastly how many puffs they use at a time. This will enable us to calculate how many inhalers they would need in a year and give us an indication of cost.

PREVENTER INHALERS RECEIVED TODAY (Interviewer: Choose ONE):						
			No. of times taken each day		No. of puffs taken each time	
184	Budesonide 100		185		186	
184	Budesonide 200	X	185	2	186	1
184	Budesonide (don't know the dose)		185		186	

Prednisone (Page 14, Questions 132 – 138)

Prednisone (pred-ni-son-e) is an anti-inflammatory medication used for asthma and sometimes emphysema. It is also used for other chronic disorders like in patients who have had a kidney transplant.

Patients with asthma or emphysema either receive it when they have a bad attack or sometimes, in very severe cases, take it every day to prevent symptoms.

They are easily recognizable because they are small white tablets. When used for attacks they are usually taken 8 at a time, once in the morning.

If the patient received prednisone today, enter the number of times it is to be taken each day, the number of tablets at a time and the number of days it will be taken for.

187	Interviewer: Did the patient receive any Prednisone tablets to take home today?				
			No. of times to be taken each day	No. of tablets to be taken each time	No. of days to be taken for
	YES	X	188 7	189 8	190 10
	NO		→ go to the next question (top of page 16)		

If the patient is using prednisone at home on a regular basis, enter the number of times it is to be taken each day and the number of tablets to be taken at a time. You will note that you are not required to enter the duration of the course because if the patient uses it regularly at home, it is usually taken every day.

247	Interviewer: Is the patient using Prednisone tablets at home on a regular basis (this means daily or almost every day)?				
			No. of times taken each day	No. of tablets taken each time	
	YES	X	248 7	249 7	
	NO		→ go to the next question (top of page 18)		

Antibiotics (Page 16, questions 191 – 227)

Again you follow the same procedure as with the inhalers and the prednisone, first asking about antibiotics received today and then about those "that they are using now at home". Remember that patients might not realize that the packet of tablets in their hands is an antibiotic; rather compare the medication they have with that on the chart.

Amoxicillin (A-mox-i-cil-lin)

Trade name: Betamox, Amoxil

This is a very commonly used antibiotic especially for respiratory tract infections (sinusitis etc). It comes in 2 strengths, 250 and 500. Both are purple and blue capsules but the 500 is twice the size of the 250.

Amoxicillin / clavulanic acid (A-mox-i-cil-lin / clav-u-lan-ic acid)

Trade name: Bio-Amöksiklav, Augmentin

This is used less commonly for respiratory tract infections. It comes in a bottle.

Cotrimoxazole (Co-tri-mox-a-zole)

Trade name: Cozole, Bactrim

This is used for respiratory tract infections but also for patients with HIV. When taken every day it prevents some of the infections people with HIV/AIDS get as their immune system becomes progressively weaker. It comes in a blister pack. Patients often know exactly what you mean when you say "the one in tin foil". Don't confuse it with other medications which come in blister packs, especially paracetamol which has a similar appearance (large round white tablet).

Doxycycline (Dox-y-cy-cline)

Trade name : Doxycilin.

Can be used for many different types of infections some of them respiratory (bronchitis). Patients with damaged lungs sometimes get very frequent infections and use Doxycycline every day to prevent these.

Erythromycin (Ery-thro-my-cin)

Trade name: Rubimycin

Used for respiratory tract infections especially in patients who are allergic to penicillin. Rubimycin tablets are hard to miss – they are a neon pink!

Flucloxacillin (Flu-clox-a-cil-lin)

Trade name: Floxapen

A form of penicillin used for infections in the ear and of the skin. Smallish capsules.

Fluconazole (Flu-con-a-zole)

Trade name : Diflucan

Used for fungal infections like thrush both of the mouth and of the vagina. Fluconazole is usually reserved for patients with HIV as they get very bad thrush of the foodpipe which can prevent them from swallowing. Often patients with HIV/AIDS take this every day. It comes in a plastic bottle and the tablets are pink and squarish in shape.

Penicillin VK (Pen-i-cil-lin VK)

Trade name: Betapen.

This has a very long name which is a bit of a mouthful (phenoxymethylpenicillin) so is called Pen VK for short.

Used for a wide range of infections but most frequently for tonsillitis and pneumonia.

Once again you will need to indicate whether the patient has received the medication or not, how many times it is to be taken each day, the number of tablets at a time and the duration of the course.

You will notice that for "antibiotics that you are using now" you will not need to fill in details of the course duration, as these are usually taken every day.

The PDA will ask you to indicate YES or NO to each of these antibiotics in turn. If you indicate YES, it will automatically skip to the questions about no. of times per day, duration of course etc.

ANTIBIOTICS RECEIVED TODAY (Interviewer: Check ALL that apply)								
			No. of times to be taken each day		No. of tablets/capsules to be taken each time		No. of days to be taken for (Duration of course)	
192	Amoxicillin 250mg capsules (Betamox 250)		193		194		195	
196	Amoxicillin 500mg capsules (Betamox 500)	X	197	3	198	7	199	5
200	Amoxicillin/clavulanic acid tablets (Bio-Amoksiklav)		201		202		203	

Other Medication (Page 16, Questions 228 – 229, Page 18 Questions 278 – 279)

This asks about a variety of other medications commonly used for respiratory problems. Follow the procedure as before, but this time you only need indicate whether the items are "received today" or "that you are using now". We do not require more detailed information for these. The items are displayed in the visual aid according to whether they are tablets, nasal sprays etc, but listed in alphabetical order.

The items appear in a single list on the PDA. You must check all the items that apply.

Acetic Acid-Eardrops

Used to dry out leaking ears.

Beclomethasone Nasal Spray (Be- clo-me-tha-son-e)

Trade name: Beclate

This is used for the treatment of hayfever and "sinus". It comes in a little brown glass bottle.

Chlorpheniramine (Chlor-phe-ni-ra-mine)

Trade name: Allergex

This is an anti-histamine used for allergies, hayfever and sometimes the itch of eczema. It comes as small yellow tablets.

Enalapril (E-na-la-pril)

Trade names: Renitec, Hypace

This is a blood pressure medication. The reason that we want to know about it is that it causes a troublesome cough as a side-effect. It comes in a blister ("tin-foil") pack with the days of the week written on the packaging.

Mist Expectorant (Mist Ex-pec-to-rant)

Trade name: same

This is cough mixture.

Nystatin suspension (Ny-sta-tin)

Trade names: Nystacid, Ganstat

This is a suspension for thrush in the mouth. It comes with a little dropper for patients to suck up a ml at a time. This is then dropped into the mouth and rinsed around.

Oxymetazoline Nasal Spray (Oxy-meta-zo-line)

Trade name: Drixine

This is a decongestant nasal spray used mainly for patients with sinusitis.

Paracetamol (Pa-ra-ce-ta-mol)

Trade names: Painamol, Panado

This is the most common painkiller in primary care.

Paracetamol/codeine (Pa-ra-ce-ta-mol / co-deine)

Trade names: Painamol Plus, Betacod, Dolorol forte

This is slightly stronger than paracetamol alone and commonly used in primary care.

Salbutamol (Sal-but-a-mol)

Trade name: Venteze

This is the same as the reliever inhaler but in tablet form. Venteze tablets are easy to recognize as they are lilac in colour.

Theophylline (The-oph-yl-line)

Trade name: Nuelin SA

This is a medication used for asthma and emphysema.

OTHER MEDICATION RECEIVED TODAY (Interviewer: Check ALL that apply)		
229	Acetic Acid Eardrops	
	Beclomethasone Nasal Spray	X
	Chlorpheniramine tablets (Allergex)	X
	Enalapril tablets (Renitec)	
	Mist Expectorant cough mixture	
	Nystatin suspension (Nystacid/ Canstat)	
	Oxymetazoline nasal spray (Drixine)	
	Paracetamol tablets (Painamol)	X
	Paracetamol/codeine tablets (Painamol Plus)	
	Salbutamol tablets (Venteze)	
	Theophylline tablets (Nuelin SA)	

VISITS TO OTHER HEALTH CARE PROVIDERS IN THE LAST 3 MONTHS
Pages 19 – 28: Questions 280 – 486

This is laid out almost exactly as it appears in the baseline questionnaire and so I will not go into detailed explanations here.

Remember that there is provision for you to enter 5 visits to health care providers (HCPs) other than the clinic (you are conducting the interview in) in the 3 month interval between interviews. You must therefore prioritise "big" visits like hospital admissions as these are very costly. If a patient has been to a pharmacy 5 times and admitted to the nearby hospital once, be sure to document the hospital admission and rather leave out one of the pharmacy visits. Other "big" items may include visits to a traditional healer (where patients may spend a few days). If there are any visit to HCPs where the patient has had to spend a few days be sure to document the details for these visits.

As before each visit is recorded over 2 pages.

The timeframe is particularly important and should be explained again to the patient. It includes all events between the 2 interviews from the moment the patient left the first interview to the moment they stepped into the follow-up interview.

Be aware that HCP visits may fall at these outer limits of the 3 month period of interest. For example a sick patient may have gone directly from the baseline interview to hospital. That admission must be recorded in the follow-up questionnaire. Another patient may have visited a private doctor on the morning of the follow-up interview. That visit must be documented here.

Unlike the baseline questionnaire, you will be asked to enter the total number of visits to all other health care providers besides the clinic before entering the details for each visit.

280	Have you been to another health care provider besides this clinic in the last 3 months after our first interview?		
	YES	<input checked="" type="checkbox"/>	→ go to the next question
	NO	<input type="checkbox"/>	→ skip to question 487 (top of page 29)

281	How many times have you been to another health care provider besides this clinic in the last 3 months after our first interview? Interviewer: Enter number below. Then enter details for the visits.		
	2		

CAREGIVER COSTS IN THE LAST 3 MONTHS

Page 29: Questions 487 – 502

This section attempts to capture lost work or opportunity to work of people who care for the patient at home during the 3 month interval between the 2 interviews.

To date approximately 90% of the completed interviews reflect that the patient does have a caregiver at home. Please ensure that this person is caring for the patient **because of poor health** and not because of other reasons. People who are fulfilling usual family roles (like mothers who look after husbands and children) and who are not specifically looking after the patient because of illness are not considered caregivers for the purpose of this interview. Likewise family or friends who help out during busy or stressful times (like funerals, exams etc) but not because of illness are also not considered caregivers.

Remember that you want to capture carer time, not companion time (which is captured under travel to the clinic or other HCP visits). Often this can be difficult to tease out as the same person is both carer and clinic/HCP companion. Try to understand how much days they devote to visits to the clinic/other HCP and how many days they devote to caring for the patient at home. This time should only be captured if the carer is missing their usual activity (work, school, looking for work) to care for the patient at home.

Remember that patients often have more than one caregiver; limit the patient to the person who spends the most time looking after the patient.

ECONOMIC IMPACT OF ILLNESS

Pages 30 – 31: Questions 503 - 523

The employment questions are repeated at follow-up since many people are employed seasonally and economic circumstances (and therefore the impact of illness on them) tend to change often in our communities.

You may need to explain this to patients who appear to be losing interest towards the end of the interview and are irritated that you are asking them the same questions as at baseline.

Remember that you may **only choose one option** to describe employment status. Choose the option that "best" described the patient's employment status.

Only enter the number of days unable to work/attend school/look for work **because of illness**, not for any other reason. Do not count days on annual leave, days away to attend funerals, study leave etc.

The questionnaire instructs the interviewer to complete question 516 (income lost in the last 3 months) for all patients who indicate that they receive an income (employed, self-employed). You do not need to collect this information from patients who do not indicate that they receive an income dependent on the ability to work (unemployed, student/learner, receiving grant/pension, other). For these unemployed (non-income generating) patients skip to question 521 (lost a job in the last 3 months?).

Both employed and unemployed patients (i.e. all patients) should be asked whether they have lost a job in the 3 month interval between the 2 interview, and if yes, how much they used to earn when still employed. Again we only want to know about jobs that have been lost **as a result of any illness** (not just respiratory illnesses). You will need to probe the patient and investigate why they lost to job to ensure that it was lost as a result of illness and not for other reasons (retrenchment, poor performance, moved towns etc).

This section ends with the same question about what the household did to cope with any medical costs incurred by the patient (if any). The difference is that at baseline the question asked about the last year; at follow-up the question only refers to the 3 month interval between the 2 interviews. Be sure to emphasise this to the patient.

Again, you may need to indicate Not Applicable (the last option on the paper version; the "N" button in the lower left screen of the PDA) if the patient did not incur any medical costs during the 3 month period. Keep your thinking caps on here – patients who report visits to private doctors, traditional healers, pharmacies etc must get the money from somewhere!

Again the sensitive questions about HIV have been left to the end of the questionnaire to enable you to have established a rapport with the patient by this time, and so as not to compromise the rest of the questionnaire.

Remember to reassure the patient that we are not interested in the result of any HIV tests that might or might not have had, only whether the health services are offering counselling and testing. Treat all responses with a neutral expression (even if patients confess to being HIV positive) and you will gain their trust.

Please note that even if a patient chooses to disclose his/her HIV status to you, you may not disclose it to anyone else (including your colleagues) without his/her permission. This survey is unlike clinical practice where health professionals might have to disclose a patient's HIV status to a colleague (provided the patient has given his/her consent for this) in order to ensure effective care is provided to that patient. As a researcher you have no requirement to share this information with anyone. Respect the privacy of patients who disclose their status to you; it is indicative of the trust you gained as a good interviewer. Don't share this private information with others.

Note that the time-frame is the 3 month interval between the 2 questionnaires. The question "Have you been tested for HIV in the past?" is omitted as it has already been asked in the baseline questionnaire.

PATIENT SATISFACTION WITH SERVICES PROVIDED AT THE CLINIC Pages 32 - 33: Questions 527 - 547

The first 18 questions are from a questionnaire called the *Consultation Satisfaction Questionnaire* which is used to rate satisfaction with General Practitioners in Britain. It has been widely tested (\pm 12 000 interviews) and has been translated into other languages (although this is the first time it has been translated into Sotho!). It has also been used to rate the care provided by nurse practitioners.

Do not tell the nurse that you are asking patients to rate their satisfaction with the care provided by the nurses at the clinic. You will immediately create a negative and critical environment in which you will find it difficult to work!

At the same time, it is your task to establish exactly how satisfied patients really are with the care the nurses provide at the clinic. In order to do this successfully you need to ensure that the nurses don't feel "put on the spot" (do not tell them that this forms part of the interview, ensure privacy when interviewing patients) and ensure that the information you receive from the patient remains extremely confidential. Reassure the patient that all comments will remain confidential and will not be shared with the clinic staff in any way. It follows that you must not show or discuss any of the responses with the clinic staff. Do not indicate your dissatisfaction with clinic services in any way. Remember you are there as a scientific observer to record what the patients report. Becoming involved in the clinic debate strips you of your

observer status and compromises your reports. Document poor service delivery but don't discuss it!

The Consultation Satisfaction Questionnaire (CSQ) asks patients to reflect back on a single consultation, their last consultation with the clinic nurse whether it be the morning of the follow-up interview, the consultation on the day of the baseline interview (if the patient has not been back to the clinic at all in the last 3 months) or at some time between these 2 days. The patient should reflect on this consultation before attempting to answer any of the questions. **Take time** to establish that the patient is thinking back to one particular consultation, and that it is the last time they saw the nurse.

The layout of the questions should also be explained to the patient before starting. Tell the patient that you are going to read them a number of statements describing their last consultation with the clinic nurse. You are then going to ask them to rate how they feel about the statement – whether they agree, strongly agree, disagree, strongly disagree or feel neutral (This is known as a Likert Scale and is used to assess many forms of satisfaction from consumer services to healthcare). Explain the concept "neutral" to the patient; that you have no feelings either way.

Then read each statement one by one to the patient and asked them to rate how they feel on the scale. Allow the patient time to think. Some of the questions may appear repetitive. This is deliberate and improves the reliability of the questionnaire. Click on the chosen category on the PDA or mark the box with an X.

530	I felt able to tell this nurse about very personal things. Interviewer: Choose ONE. Mark the box with an X.				
	Strongly Agree	Agree X	Neutral	Disagree	Strongly disagree

The second last question asks the patient to compare the quality of care now provided by the nurses at the clinic with the care provided 3 months ago at the time of the baseline interview. This is another transition assessment. This time we are assessing the quality of care, not the patient's health status.

Remember these transition assessments require intellectual gymnastics and are usually time consuming.

During the survey you may become aware that patients often tolerate very poor quality of services and are reluctant to complain. This is particularly prevalent in impoverished communities where people receive free services like primary healthcare ("a bad service is better than no service at all"). This may prevent patients from being entirely honest about their satisfaction with services. This is not deliberate dishonesty but rather because patients don't want to appear ungrateful.

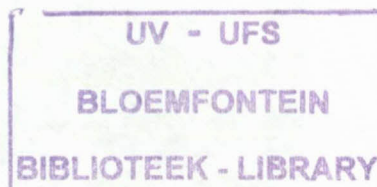
Often it helps if you appear not to be recording the details of what they have to say. This is the reasoning behind the last 2 questions (Number of positive points raised, Number of negative points raised). You must physically appear to have stopped recording what the patient has to say about the service at the clinic. Put the questionnaire or PDA down, the pen or stylus away and ask the

patient whether they have any other comments or thoughts about the care they receive at the clinic. Learn this question off by heart; **do not read it off the questionnaire or PDA**. The patient must not know that you will record what they have to say.

Reserved patients may at this point really open up to you and let you know what he/she **really thinks** of the care at the clinic. Don't write anything down while the patient is speaking. Instead mentally count up the number of positive things the patient relates, as well as the number of negatives (we call the negative whinge-counting). After you have said goodbye and thank you to the patient enter the number of positive points and the number of negative points. The picture obtained from the Consultation Satisfaction Questionnaire and from your positive and negative point counts may well be very different. We will let you know at the end of the survey.

	Finally, do you have any other comments or thoughts on the care you receive at this clinic? Remember this information will not be shown to any clinic staff members and will be kept entirely confidential so feel free to say what you wish.	
546	Number of positive points raised	4
547	Number of negative points raised	3

END OF FOLLOW-UP QUESTIONNAIRE



ANNEX 17

May 2003 re-interview questionnaire

ANNEX 9

FREE STATE LUNG HEALTH SURVEY RE-INTERVIEWING QUESTIONS FOR MAY 2003

1. Question 19:

English: For how long have you been coughing? (days, weeks, months years)
Sotho: Ke nako e kae o kgohlola?
Afrikaans: Hoe lank hoes jy al?
Zulu: Sekuyisikhathi esingakanani ukhwehlela?
Xhosa: Kudala kangakanani ukhohlela?

Original Response:..... Re-interviewing
response:.....

Reason for
Difference:.....
.....

Corrective
Action:.....
.....

2. Question 232:

English: How do you usually travel to this clinic?
Sotho: O tšwaetse ho tla ka eng kliniking?
Afrikaans: Hoe kom jy gewoonlik by hierdie kliniek?
Zulu: Ujwayele ukuhamba ngani uma uza kulomtholampilo?
Xhosa: Udla ngokufika/ngokuzá njani kulekliniki?

Original Response:..... Re-interviewing
response:.....

Reason for
Difference:.....
.....

Corrective Action:.....
.....

3. Question 263:

English: Have you been to another health care provider besides this clinic in the last 3 months?
Sotho: Na o kile wa ya sebakeng se seng sa bophelo bo ntle le kliniking ena dikgweding tse 3 tse fetileng?
Afrikaans: Was jy gedurende die afgelope 3 maande by 'n ander gesondheidsorgvoorsiener behalwe hierdie kliniek?
Zulu: Uke waya kwenye indawo yezempilo kwezinyanga ezintathu ezendule ngaphandle kwalomtholampilo (kliniki)?
Xhosa: Ingaba likhona elinye iziko lezempilo ubukhe waya kulo kwezinyanga zintathu ziqithileyo?

Original Response:..... Re-interviewing response:
.....

Reason for Difference:
.....
.....

Corrective
Action:.....
.....

4. Question 469:

English: Has anyone (including family or friends) looked after you at home because of any illness in the last 3 months?

Sótho: Na ho na le motho (ho kenyelletswa ba lelapa le metswalle) ya neng ao hlokomela lapeng ka lebaka la hokula ho itseng dikgweding tse 3 tse fetileng?

Afrikaans: Het enige iemand (insluitende familie of vriende) jou die afgelope 3 maande tuis versorg, as gevolg van enige siekte?

Zulu: Ingabe ubekhona umuntu (umndeni noma umngani) obekukunakela ekhaya ngenxa yokugula kwakho kulezinyanga ezintathu ezendlule?

Xhosa: Ingaba ukhona umntu (kusapho nezihlobo) oyewakukhathalela okanye waku jonga usekhayeni ngexana lengulo, noba yeyiphina, kwezinyanga zintathu ziqithileyo?

Original Response:..... Re-interviewing response:.....

Reason for Difference:
.....

Corrective Action:
.....

5. Enter Question number of your choice:

Original Response:..... Re-interviewing response:
.....

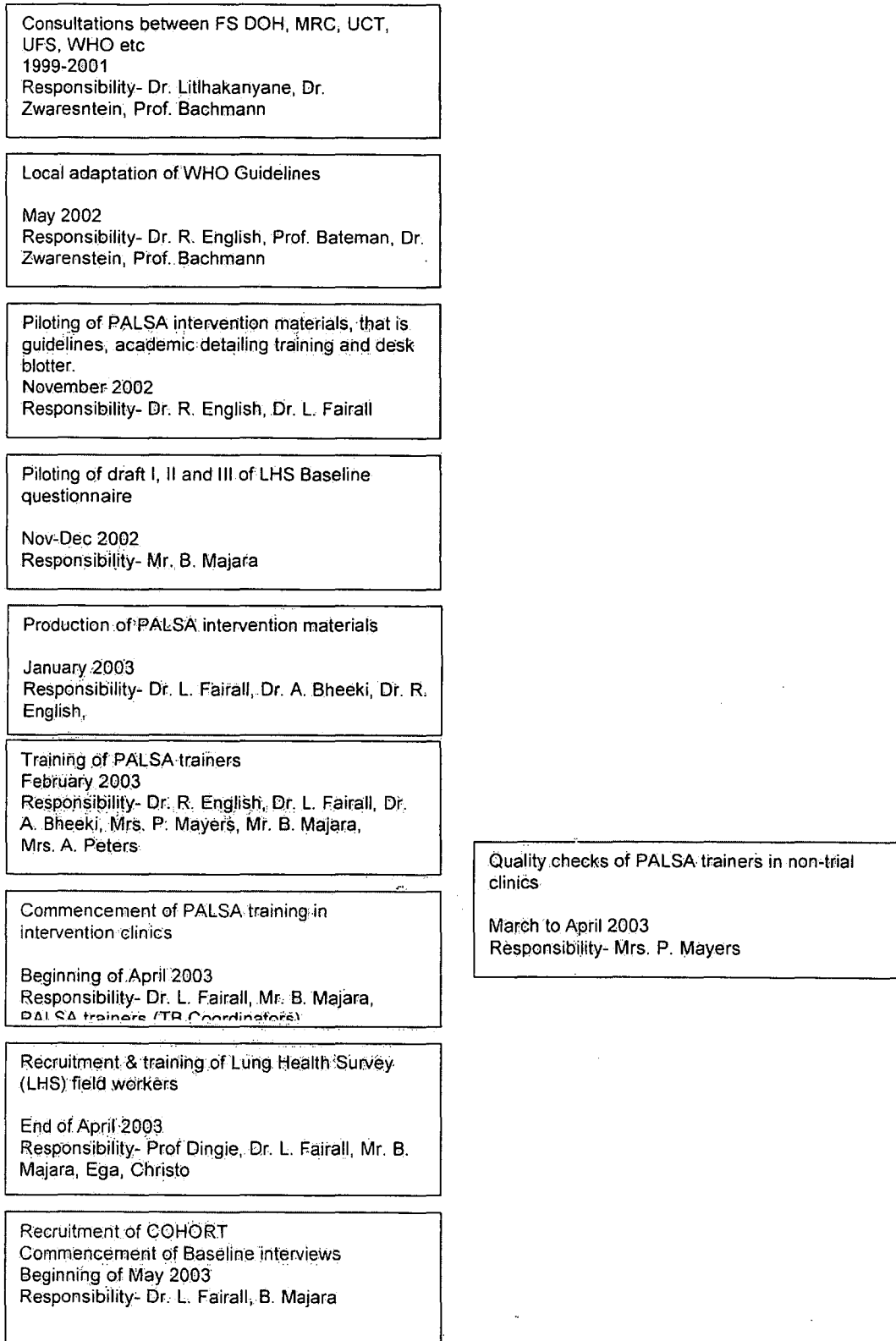
Reason for Difference:
.....

Corrective Action:
.....

ANNEX 18

PALSA project flow chart

PALSA PROJECT FLOW CHART



Continuation of PALSA intervention clinics training

July 2003

Responsibility- Dr. L. Fairall, Mr. B. Majara, PALSA trainers

Piloting of the Follow-up questionnaire

Mid July 2003

Responsibility- B. Majara

Training of LHS field workers on F/U questionnaire

End of July 2003

Responsibility- Dr. L. Fairall, Mr. B. Majara

Continuation of Baseline interviews and Commencement of F/U interviews

August 2003

Responsibility- Dr. L. Fairall, Mr. B. Majara

Completion of data collection

November 2003

Responsibility- Dr. L. Fairall, Mr. B. Majara

Data coding/cleaning/analysis

Dec '03 to Feb '04

Responsibility- Prof. Bachmann, Prof. Joubert, Dr. Zwarenstein, Dr. Fairall, Mr. Majara

Presentation of trial results to stakeholders

Mar '04 to July '04

Responsibility- Prof. Batemann, Prof. Bachmann, Dr. Zwarenstein, Dr. English, Dr. Fairall, Mr. Majara, Mrs. Peters

Thesis reports/articles writing

Mar '04- Nov '04

Responsibility- Dr. English, Dr. Fairall, Mr. Majara