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**A CURRICULUM FOR CLINICAL FORENSIC MEDICINE IN THE
UNDERGRADUATE MEDICAL PROGRAMME, UNIVERSITY OF
THE FREE STATE**

by

LEMAINÉ FOUCHÉ

*Thesis submitted in fulfilment of the requirements for the degree
Philosophiae Doctor in Health Professions Education (PhD HPE)*

in the

**DIVISION HEALTH SCIENCES EDUCATION
FACULTY OF HEALTH SCIENCES
UNIVERSITY OF THE FREE STATE
BLOEMFONTEIN**

DECEMBER 2017

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DEDICATION

I dedicate this thesis to all the young doctors who diligently do their utmost, more often than not under very difficult circumstances, to ensure that their patients get the best possible treatment.

I salute you!

ACKNOWLEDGEMENTS

Writing the acknowledgements in any thesis is probably the hardest part of the whole document. There are so many people I would like to thank for their support, guidance and influence. I would like to bow my head in a moment of gratitude and thank each of you for your role and support throughout this vital learning phase in my life. Individually I would like to thank the following people:

- My promoter, Dr Johan Bezuidenhout, Division Health Sciences Education, Faculty of Health Sciences, University of the Free State. Thank you for giving me the opportunity to complete my Ph.D. Health Professions Education (HPE). Your continuous support and expert guidance are of great value to me. I always knew that I will be well taken care of whenever I visited Bloemfontein.
- My co-promoter, Dr Chantelle Liebenberg, Department of Clinical Forensic Medicine, Faculty of Health Sciences, University of the Free State, for her kindness and assistance and the professional way to assist with the articles.
- Dr A.O. Adefuye, Lecturer, Division Health Sciences Education, with assisting in the editing and preparation of articles as submitted in this thesis to the respective journals.
- The support staff at the Division Health Sciences Education, Faculty of Health Sciences, University of the Free State, especially Elmarié Robberts and Cahrin Bester. Both of you have gone way past your job description to assist me in completing this thesis. Your friendship will forever be treasured.
- The respondents who participated in this study, for your input. Without your time and cooperation, this project would not have been possible.

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LIST OF ACRONYMS

AIDS	:	Acquired Immune Deficiency Syndrome
ARV	:	Anti-Retro-Viral
BAC	:	Blood Alcohol Concentration
CFM	:	Clinical Forensic Medicine
CHE	:	Council for Higher Education
CSDs	:	Community Service Doctors
DUI	:	Driving under the influence
GBH	:	Grievous Bodily Harm
HIV	:	Human Immunodeficiency Virus
HPCSA	:	Health Professions Council of South Africa
HSREC	:	Health Sciences Research Ethics Committee
ICD	:	International Statistical Classification of Diseases
MBChB	:	Bachelor of Medicine and Bachelor of Surgery
NQF	:	National Qualifications Framework
NICRO	:	National Institute for Crime Prevention and Rehabilitation
OBE	:	Outcomes-Based Education
OSCEs	:	Observed Structural Clinical Evaluation(s)
SA	:	South Africa
SAECK	:	Sexual Assault Examination Collection Kit
SAPS	:	South African Police Service
SAQA	:	South African Qualifications Framework
SIDS	:	Sudden Infant Death Syndrome
STD	:	Sexually Transmitted Diseases
UFS	:	University of the Free State
WHO	:	World Health Organization

SUMMARY

Key terms: Knowledge, skills, confidence, community service doctors, research, undergraduate curriculum, MBChB programme

The aim of this study was to propose a revised curriculum in clinical forensic medicine (CFM) for the Bachelor of Medicine and Bachelor of Surgery (MBChB) programme, School of Medicine, Faculty of Health Sciences, University of the Free State. This study was based on the experience and opinions of community service doctors who had graduated from this university. A thorough literature study was done on national and international curricula and practices, and reference was made to the researcher's own experience. The recommendations generated by this study can serve as a directive for programme directors of MBChB programmes at other training institutions.

The aim of first chapter was to orient the reader regarding the study in relation to the research problem, research questions, the overall goal, aim and objectives. A brief overview of the research design and methods of investigation was presented, after which the ethical considerations, the research paradigm, research design, methodology and methods were discussed. The following three chapters were written in interrelated article format, which had to adhere to requirements for peer-reviewed articles to specific journal submission requirements. The content of these articles were extrapolated from the findings of a survey by using a questionnaire as research instrument.

The findings reveal that some community service doctors lack the required competence to assess and document medico-legal cases relating to rape/sexual assault, physical assault and inebriated drivers. The findings, presented in the form of articles, were peer reviewed and have been published in the journal, South African Family Practice.

In the next chapter the researcher proposed a revised curriculum framework for CFM in the undergraduate medical training programme of the University of the Free State, based on the findings of this study on the experiences and practice of CFM by community service doctors. The framework needs to be refined further to the complete curriculum.

In developing a curriculum for CFM it is important to specify what CFM entails. The requirements of the judicial system also need to be accommodated, as it has to be

determined whether evidence is sufficient to justify prosecution. To address the present shortcomings of CFM training this study proposes that a short learning programme is developed and presented to doctors, nurses and other relevant professionals; this type of programme could assist to keep them updated with information in the field of CFM.

The last chapter provided a short overview of the study, reported the conclusions derived from the research conducted, and critically demonstrates the implications related to CFM. This chapter comments on the implications of undergraduate CFM training as it stands currently, and makes recommendations to improve CFM training.

A CURRICULUM FOR CLINICAL FORENSIC MEDICINE IN THE UNDERGRADUATE MEDICAL PROGRAMME, UNIVERSITY OF THE FREE STATE

CHAPTER 1

ORIENTATION OF THE STUDY

1.1 INTRODUCTION

In this research project, an in-depth study was done by the researcher with a view to suggesting a curriculum for Clinical Forensic Medicine (CFM) in the Bachelor of Medicine and Bachelor of Surgery (Programme for Professional Medicine) MBChB programme, School of Medicine, Faculty of Health Sciences, University of the Free State (UFS), henceforth referred to as the MBChB programme. This study was based on the experience and opinions of community-service doctors. A thorough literature study was done on national and international curricula and practices, which was guided by the researcher's own experience as a specialist in the field of CFM. In addition, a survey was conducted with a questionnaire to obtain the relevant data to inform the curriculum.

Training undergraduate medical students in CFM (which includes the evaluation, examination and documentation of the victims of physical and sexual assault as well as inebriated drivers) is a prerequisite for obtaining an MBChB qualification and later registration as medical practitioner, as set by the Subcommittee for Undergraduate Education and Training of the Medical and Dental Professions Board of South Africa (HPCSA 2005:1; Kotzé, Brits & Botes 2014a:16).

The recommendations generated by this study may serve as a directive for programme design for directors of MBChB programmes. The outcome of this study will be forwarded to the Subcommittee for Undergraduate Education and Training of the Medical and Dental Professions Board of South Africa and may be included in their prescriptions for training by the various medical schools in South Africa; and even internationally.

The aim of this chapter is to orient the reader to the study. It provides a background for the research problem, sets out the problem statement and then elaborates on the research questions, the overall goal, aim and objectives of the study. This is followed by a description of the scope of the study, and then an explanation of the value, significance and

contribution of the study. A brief overview of the research design and methods of investigation is presented after which the ethical considerations, the research paradigm, research design, methodology and methods are discussed. An explanation of the thesis via the article route is given with the respective titles of the articles. The chapter is concluded by a layout of subsequent chapters and a short, summative conclusion.

1.2 BACKGROUND TO THE STUDY

Since the very beginning of mankind there has been a need for forensic pathology services. Genesis 4:8 says, "Cain attacked his brother Abel and killed him" (Bible New International Version 2011:online). As time passed, the level of personal violence as seen in cases of sexual and general assault has increased and has escalated worldwide. Steven Pinker (2017:online) "charts the decline of violence from Biblical times to the present, and argues that, though it may seem illogical and even obscene, given Iraq and Darfur, we are living in the most peaceful time in our species' existence". Although this is true the reality still remains that the level of violence in the world and especially in South Africa remains unacceptably high (Otto 2017:1).

It is expected of all South African medical graduates, once they have completed their internship, to do a year of community service. Once they have fulfilled this requirement as stipulated in the regulations of the Health Professions Act (Act No. 56 of 1974) (Government Notice No. R.688 as amended by G.N.R. 498 of May 2000 and G.N. R.69 of 22 January 2002). These graduates can register as independent medical practitioners (RSA 1994:1-3).

The National Department of Health introduced community service by means of regulations in the Health Professions Act (Act No. 56 of 1974) (Government Notice No R.688 as amended by G.N.R. 498 of May 2000 and G.N.R. 69 of 22 January 2002). This was done to provide and improve healthcare in rural areas of South Africa. Community service is performed in rural health facilities that have been approved for this purpose and a list of the facilities where community service may be performed was published in G.N.R.793 of 12 June 1998 (RSA 1994:1-3).

The duty of a community service doctor is to deliver primary healthcare which includes CFM (Child 2016:online). CFM includes the assessment, examination, documentation and treatment of patients who report being raped or sexually assaulted, and physically assaulted as well as evaluating possibly inebriated drivers – this is also known as medico-legal

examinations. These medico-legal examinations entail a very detailed history-taking with regard to the incident, a thorough general examination (especially in the case of possibly inebriated drivers, as there is a vast number of natural causes which simulate inebriation), a detailed examination of any wounds, as well as documentation (i.e. descriptions of abrasions, bruises, cuts, lacerations; and measurements of lengths, widths; exact anatomical positions, etc.). A successfully completed J88/SAPS 308 (A) form must accompany the patient to court (copies of which are attached as Appendix A) (Kotzé, Brits & Botes 2014b:33-36; RSA 1994:1-3).

It is emphasised by Kotzé *et al.* (2014b:32) that it is important to note that the majority, if not all of these incidents (rape or sexual assault, physical assault and inebriated drivers) end up in a court of law. It is also important to note that due to overburdened court programmes, it could take two or more years before the doctor involved is required to appear in court (personal experience) (Theophilopoulos & Tuson 2016:1-18). It is therefore of the utmost importance that the necessary forms are completed to the best of the doctor's ability, because that is all he/she will have to strengthen his/her testimony and to ensure successful prosecution. However, poor and incomplete or inaccurate documentation could lead to an increase in the number of acquittals of perpetrators, resulting in injustice being done to victims (Meintjes-Van der Walt 2001:378; De Wet, Oosthuizen & Visser 2011:171).

Curricula for forensic medicine education are continually reviewed or developed by several countries to stay up to date with national requirements. These requirements in the South African context are determined by the HPCSA. According to Dr George Paul (2000:online) of the University of Malaysia, Kuala Lumpur, the undergraduate Forensic Medicine curriculum has been progressively whittled down through repeated amendments of the undergraduate syllabus. In the United Kingdom, Prof Peter Vanezis (2004:s9) is of the opinion and said that "there has been a decline in the knowledge of forensic medicine of medical graduates as some of the forensic medicine academic departments have either been closed or downgraded".

"The unenviable rates of violent crime in South Africa such as sexual assault, physical assault, domestic violence and child abuse and neglect, as well as transportation injuries and the recent growth in awareness of abuses of human rights and civil liberties and the need for and appropriate implementation of human rights policies also raised the profile of CFM as a specialist field of study. CFM directs attention to the condition of detentions of

prisoners and to the application of justice to victim and suspect. The necessity for specialists in the field is evident, but expansion and growth of this specialist area depends on specialised training in forensic evidence collection, criminal procedures in-depth knowledge of medical law, ethical practice and legal testimony expertise”(SAQA 2016:1).

For the purposes of this study, only the requirements of the HPCSA with regard to undergraduate training that pertain to CFM was investigated. In a letter to Prof J.B.C. Botha, at that time the head of the Department of Forensic Medicine at the UFS, dated 11 April 2005, the Subcommittee for Undergraduate Education and Training of the Medical and Dental Professions Board resolved that:

- The importance of undergraduate medical students being taught and learning about CFM must be acknowledged; and
- Undergraduate students in medicine would receive exposure to CFM (HPCSA 2005:1).

The question that can be asked is whether the “placement” of CFM within the curriculum should be reviewed, as there is an increase in the incidence of sexual assault, physical assault and inebriated drivers being reported but the majority of these cases are lost in the court of law due to errors in medico-legal documentation and technical aspects relating to forensic investigation (Abrahams, Mathews, Jewkes, Martin & Lombard 2012:1-4).

In the UFS five-year MBChB programme curriculum, training in CFM takes place during the module METH 3714 (Human diversity and legal ethics), during the fourth and fifth semesters (Semester 4 starts in the 2nd Semester of year 2); the content of CFM is integrated in this 16-credit module (UFS 2017a:1-11). The aims and objectives of this module are to guide students so that they are able to combine development of skills and knowledge in bio-ethics and health law with patient care; demonstrate basic principles of clinical genetics; use clinical reasoning to apply ethical principles in clinical genetics; know and apply essential knowledge contained in the various acts related to healthcare in practical situations; demonstrate competency when dealing with complicated situations relating to personal, interpersonal and professional relationships; demonstrate competency when dealing with difficult or controversial decisions relating to beginning and end-of-life situations; demonstrate competency and knowledge in managing and supporting patients exposed to acts of violence; and obtain and demonstrate basic knowledge about court procedures and appearance (UFS 2017a:1-11).

The following sessions are presented as part of the module: Human adaptation, The impact of the Bill of Rights on medical practice in South Africa, Burnout, Principles of medical ethics, The Older Persons Act, Confidentiality, Genetic counselling and related skills, Soft-tissue injury, Social media in medical practice, Approach to birth defects, Implications of new genetics and ethical considerations, Family life cycle, Accountability after informed consent, The effect of disease on the family, The doctor and family, Alcohol medico-legal documentation, End-of-life decisions, The six elements of delictual liability, Management of common symptoms in terminal illness, Pain management in the cancer patient, Symptom control in terminal patients, Death and dying, Palliative care in children, Child abuse, Munchausen by proxy, Elderly abuse and Sudden Infant death Syndrome (SIDS), Examination and management of sexual assault victims, Court appearance and procedure-related deaths, AIDS and HIV counselling, Harassment in medical practice, Gunshot wounds and complications of injuries, and Certificates (UFS 2017a:1-11).

It is evident from the module guide that only four hours are spent on CFM. According to Dr Liebenberg, a senior lecturer at the Department of Forensic Medicine UFS, more time should be allocated to teaching students CFM (2017: personal communication). Potgieter (2017: personal communication) concurred and added that this training needs to be done later in the programme. At this early point of the programme when the module is offered to students they do not yet have a holistic view of medicine and are not ready for this type of training. The module also includes mortuary visits and student's frame of reference are not yet adapted to this environment.

According to Mofolo (2011:1), in a letter to the HPCSA, violent crime is suffocating South Africa; there are outcries for the government to take action against perpetrators. Mofolo states:

"Yet, Clinical Forensic Medicine (CFM), the sub-discipline responsible for victim empowerment with regard to domestic violence, other gender based violence, driving while under the influence of alcohol or drugs and sexual abuse of children and adults seems to be overlooked in training programmes on both undergraduate and postgraduate levels in South African universities".

Due to fear of court appearance and inadequate confidence when managing medico-legal cases, the medical fraternity is failing, to a large extent, to support the fight against crime (Mofolo 2011:1; Dada & Clarke 2000:19).

In order to gain deeper insight into the necessity of incorporating CFM into the undergraduate MBChB programme, the following aspects related to curriculum and the requirements of a programme will be discussed in this study: educational strategies and models in curriculum development and the importance of problems faced by general practitioners in their community service year and beyond. This explanation will be followed by an overview of various aspects related to curriculum development (concepts, importance of and factors influencing curriculum development), theories of curriculum development, designing and developing a curriculum, and benefits of a systematic approach to course and curriculum development, after which the researcher will discuss the models of curriculum development as portrayed by Nicholls and Nicholls (1978:17) and Dent and Harden (2013:8-40), and as contained in Outcomes-Based Education (OBE). The design, implementation, and evaluation of the curriculum will be followed by a discussion on the steps in the curriculum development process, namely, exit-level-outcome formulation, selection and organisation, teaching strategies, assessment of learning and evaluation of the curriculum.

The curriculum that will be proposed at the end of this investigation could inform undergraduate training in the MBChB programme at the UFS, and produce interns who have the required knowledge, skills, values and attitudes regarding CFM to practice as efficient community service doctors after internship.

Practitioners in the clinical forensic and forensic pathology fields stand shoulder to shoulder in courts of law – the clinical forensic practitioner testifies in cases involving living victims and perpetrators, and the pathologist in cases involving fatalities. In South Africa, district surgeons were initially responsible for rendering most clinical forensic medical services. These included rendering medical care to prisoners and rape survivors (Lukhozi 2009:67). However, in 2013 the district surgeon system for forensic medicine practice was discontinued when major ethical deficiencies were discovered (Lukhozi 2009:67), thus, leading to paucity of experienced clinical forensic practitioners in the public health sector. Except for infrequent workshops and informal training sessions, no formal training programme has been put in place to ensure that medical practitioners in the public service attain proficiency in the practice of clinical forensic medicine (Mofolo 2011:personal communication). Since 2017, a Diploma in Clinical Forensic Medicine in the Department of Family Medicine, School of Medicine has been presented to address many of these issues.

The only qualification offered in South Africa that prepares physicians to practice in the field of CFM is that of the Colleges of Medicine of South Africa, which offers a Postgraduate Diploma in Clinical Forensic Medicine. This qualification does not include a structured academic programme/curriculum for preparation and practical experience and peer support in preparation for practice is extremely difficult to obtain, since training is lacking throughout the country thus impacting negatively on the quality of service (Mofolo 2011:personal communication; UFS 2016:1-11).

To compensate for the absence of a formal training programme, the UFS (2017b:70) developed a Postgraduate Diploma in Clinical Forensic Medicine to assist practitioners to obtain formal training and to meet the challenges posed by perpetrators. The Diploma was approved in 2016 by the Council on Higher Education (CHE) and will be presented in 2017 by the Department of Family Medicine at this university. This qualification underscores the necessity of investing in and developing scarce skills, building specialised capacity and advancing competency in the field of medicine, in particular CFM, in the context of advanced learning related to CFM. The qualification will enable the professional to register additional qualifications with the HPCSA. The purpose of this qualification is to train registered healthcare practitioners to become experts in the CFM field, a discipline officially recognised by the Medical and Dental Professional Board and the College of Medicine, and approved by the HPCSA. Professionals who have completed this diploma course will possess in-depth knowledge of the clinical and legal aspects of violence, crime, transportation injuries and medical practice, which will enable them to present evidence in courts of law and interpret medical evidence gained through the application of technical and analytical skills acquired by this programme.

A major concern relating to the Diploma is that it is a postgraduate qualification and will not address the need for undergraduate medical training in the field of CFM (HPCSA 2005). Hence, community service doctors involved in providing community health care services will not have the privilege of undertaking such a programme prior to the commencement of their service (UFS 2017b:70-72).

The current system of general undergraduate clinical training in medicine contains elements of apprenticeship. In the past, apprenticeship, in the form of internship, was introduced to provide a bridging period of practice under supervision before any medical graduate was allowed to practice independently. Formal postgraduate medical speciality training, or simply becoming an expert at whatever practice doctors find themselves in, generally

provides a graduated apprenticeship, starting with close supervision and leading to increasing independence. The Medical Board of the HPCSA stipulates the requirements of each stage of this postgraduate experience. For specialty training to be recognised by the HPCSA, it must be demonstrated that adequate experience and supervision are available (Van Niekerk 2012:638).

For medical graduates, community service was initially preceded by a one-year internship programme. This was, however, changed in 2005, when it was decided that the one-year internship programme did not adequately prepare graduates for clinical practice. The HPCSA then extended the required internship period to two years (Prinsloo 2005:47). The rationale for the two-year internship was to accommodate a reduced undergraduate study period, from six to five years. The hope was that the excellent supervised practical experience would compensate for the reduced educational period (Burch & Van Heerden 2013:905). HPCSA evaluations of internship posts have repeatedly shown that supervision is often lacking, and that even where supervision is present in tertiary/academic hospitals, the internship experience is far from satisfactory, as interns have limited hands-on experience in the tertiary hospital setting (Burch & Van Heerden 2013:905).

According to the Department of Health, the goal of the one-year obligatory community service for all medical, dental and pharmacy graduates established in 1998 is to alleviate the present and ongoing challenges of healthcare delivery in rural and underserved areas (Reid 2001:91). Prior to 1994 during the apartheid regime, white doctors were required to do compulsory military service. Debates at that time included the view that all doctors should do community service of some kind, one form being working as a military doctor. In 2003, seven further professional groups were added namely physiotherapists, occupational and speech therapists, clinical psychologists, dieticians, radiographers and environmental health officers. Today, community service is required for the majority of South African healthcare professionals registered with the HPCSA. The HPCSA considers it appropriate that these professionals, fresh out of internship, continue to work under supervision. The fact that it has been reported that community service doctors are often placed at public hospitals not of their first choice, are overworked and work with inadequate supervision does not support the supervision myth.

Erasmus (2012:655-658) provides strong legal arguments against the exploitation of medical professionals during their compulsory internship and community service duties. Since the compulsory one-year community service and double-dose internship came into

operation in 1998 and 2005, respectively, it might be an appropriate time to take stock of their utility.

According to Burch & Van Heerden (2013:905), the five-year medical curriculum in South Africa was "a misguided exercise", given the academic unpreparedness of many grade 12 learners entering universities. Time and resources are required by universities to make up this deficit before students can continue with real educational tasks. An extra year at university under ideal learning conditions is preferable to years of poorly supervised activities post qualification (Burch & Van Heerden 2013:905). Secondly, time spent in rapid rotation between many disciplines during internship could be better spent on acquiring better skills in fewer areas (researchers' opinion). Burch and Reid (2011:25-26) observe that "it appears that obligatory service may have negative unintended consequences, and it could be seen as 'immunising' young graduates to further work in the public service" (Burch & Van Heerden 2013:905; Reid 2001:91). Thirdly, both interns and community service doctors lack supervision, probably due to the ever-busy schedule of senior colleagues. A further important consideration is that many students complete their studies with heavy financial burdens that have to be repaid, and the additional three years in low-paid posts add to that burden (Van Niekerk 2012:655-658). In this light, the UFS has a five year programme and has consistently been accredited by the HPCSA, as recently as October 2017.

Van Niekerk (2012:658) reports that, based on statistics, the impact of the experience and skills of some community service doctors on healthcare delivery is questionable. The majority of hospital managers interviewed identified deficiencies in the procedural skills of community service doctors. One of the managers said: "there is a lot to be done on their part to improve their skills because their skills are still lacking." This lack of experience and skills affects service negatively and slows down the pace of consultations. Community service doctors request unnecessary laboratory tests, lack the confidence to function independently, request prescriptions that are not on the Essential Drug List, and submit motivations for medications that are not dispensed (Van Niekerk 2001:1-14). A reason for such is that during internship, interns rotate through the different disciplines and their exposure to all cases could be questioned and could explain why some are not skilled in aspects of CFM.

In addition, Van Niekerk (2012:658) reports that, in contrast to Level I hospital managers, those at Level II hospitals said that community service doctors were more competent than

interns, although community service doctors still lacked certain procedural skills. To address this concern, some of the participants suggested the extension of the community service period to two years to consolidate the skills doctors acquired during the first year. In addition, the recruitment and retention of senior doctors was suggested as being crucial to the transfer of procedural skills to community service doctors. One set of authors however, was of opinion that community service doctors' lack of competence needs to be validated by evidence: "What makes you think we should pay community service doctors for another one year?" (Omole, Marincowitz & Ogunbanjo 2005:47).

With regard to coping skills and attitudes, the realisation by many community service doctors that they are making a difference where they work, motivates them (Omole *et al.* 2005:47). "Even the way that patients greet you [when visiting a clinic] makes you feel that it is worthwhile". For these community service doctors, developing self-confidence was a critical factor in maintaining a positive attitude towards the year. In the context of taking progressively more responsibility for clinical decisions, often alone, some community service doctors run the risk of suffering from emotional stress when things go wrong, and experiencing feelings of guilt. Here again, internship had prepared many of them for the situation: "Our internship prepared us for this – we were hardened emotionally, and just learned how to cope". On the other hand, a minority of community service doctors experienced insurmountable difficulties in isolated circumstances, and were demoralised by the situation. Despite their initial enthusiasm and attempts to introduce positive changes, they were drained by the experience and became frustrated and powerless to make an impact on their situation.

Taken together, when measured against this overall goal, with respect to the responses of healthcare professionals (doctors, dentists and pharmacists) currently undergoing community service, a number of patterns emerged (Van Niekerk 2012:638); Reid 2001:1-335).

Firstly, despite difficulties and frustrations, the majority of healthcare professionals undergoing community service reported that they had made a difference in healthcare delivery in their host communities and had also undergone some professional development during the year of community service (De Wet *et al.* 2011:171). Overall, in retrospect, most participants described their experiences of the year as positive; a minority even reported that their attitudes had become more positive during the year. Supervision of community service doctors, dentists and pharmacists by more senior professionals was found to be

significantly less in rural than in urban settings. Dentists showed the greatest gap between their skills and expectations as university graduates and the patient's needs in the context of oral health practice in the public service. Community service pharmacists who had completed their internships in the retail sector were initially disoriented in the public-health sector, but their skills and knowledge were valued and appreciated by their host communities, particularly in areas where there had not been pharmacists before (Reid 2001:331-335).

Doctors varied widely in their level of preparedness, not only with regard to skills, but also regarding attitudes. The language barrier was found to be a debilitating factor, as doctors who could not speak the local language found it difficult to communicate with patients. Further findings were that participants from all three professions, but particularly pharmacists, expressed dissatisfaction with conditions of service in the public sector; the pharmacists probably because many of whom had had exposure to the private sector during their internship (De Wet *et al.* 2011:181). Many dentists, who have a particular reliance on specialised equipment and supplies, found themselves unable to perform any but the most basic procedures. A common feature of participants in this study is the huge proportion (20% & 45%) of students finishing medical training who reported that they are planning to work overseas after their community service. Reid recommended the need for a comprehensive national plan for the recruitment and retention of health professionals for rural and under-served areas (Reid 2001:331-335).

1.3 AN OVERVIEW OF ASPECTS OF TEACHING AND LEARNING IN A CLINICAL FORENSIC MEDICINE CURRICULUM

Against the background explained in Section 1.2, various aspects related to teaching and learning must be discussed in order to gain an understanding of CFM in undergraduate medical education and training. Figure 1.1 provides a schematic overview of the six main aspects of curriculum development that will be described in this chapter.

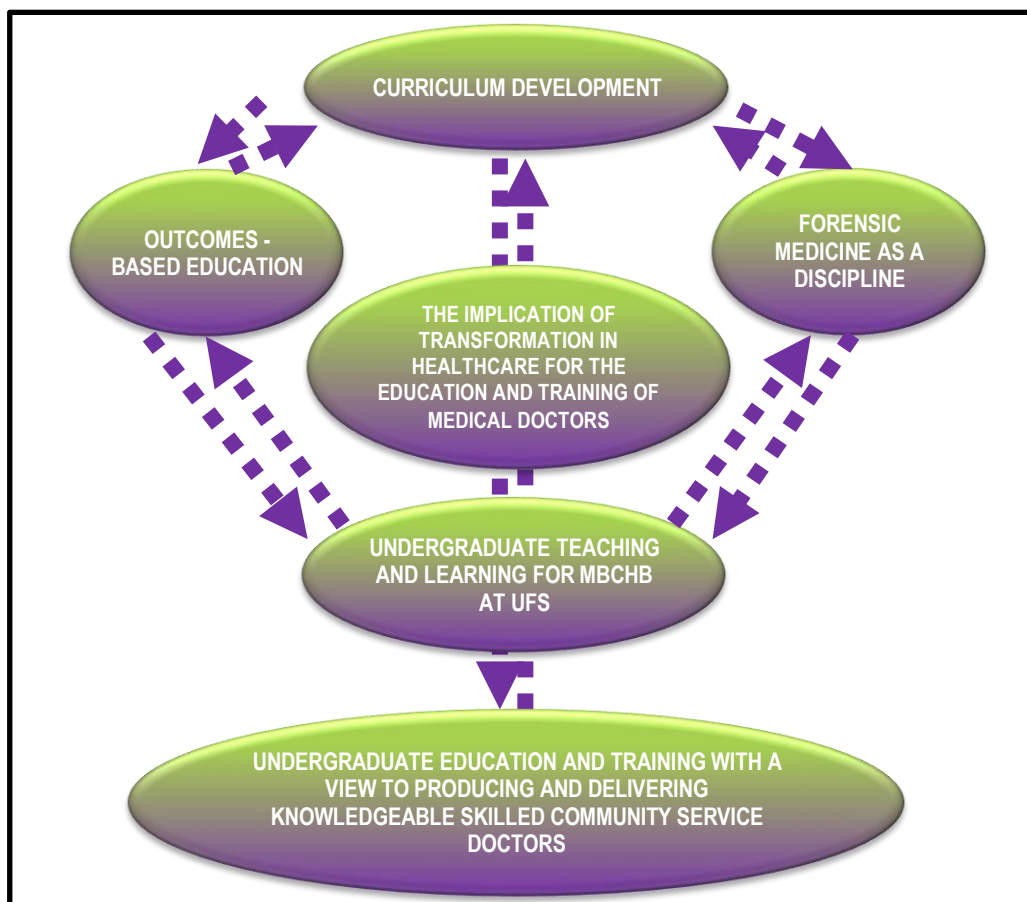


Figure 1.1: Schematic overview of the six main aspects to be discussed in Chapter 1 (Compiled by the researcher, Fouché, 2015, as part of this Ph.D. project)

1.4 CURRICULUM DEVELOPMENT

To understand the process of curriculum development, it is important to define the terms curriculum and curriculum development.

1.4.1 The concept and importance of and factors influencing curriculum development

1.4.1.1 The concept of curriculum development

According to Pratt (1994:5) the word, curriculum, has its roots in the Latin verb "*currere*", which means to run. Curriculum means track or race course; therefore, implying a course of study. A curriculum consists of related modules from various disciplines, together making up the programme over the specified period in which students must achieve the stated learning outcomes. The problem with defining curriculum is that it means different things

to different people. According to Nkomo (2000:6), a curriculum is more than syllabus documentation; curriculum refers to all the teaching and learning opportunities involved in a teaching facility, including:

- The aims and objectives of the education system;
- What is taught;
- Strategies for teaching and learning;
- The forms of assessment and education;
- Resources and services that support the curriculum; and
- How the curriculum reflects the needs and interests of those it serves.

Pratt (1994:5) therefore refers to the curriculum as “a blueprint for instruction.” Pratt (1980:426–432) identifies some of the causes of or factors that often lead to a resistance to change: vulnerability resulting from an uncertainty as to what the new curriculum contains, a lack of motivation, scepticism regarding the credibility about the new curriculum resulting from problems experienced in the above four factors, a lack of sufficient resources such as material, administrative support and specialised knowledge and a lack of clarity regarding the development of the curriculum. Pratt (1994:5) echoes the idea of the narrower meaning by saying that curriculum means “a plan for a sustained process of teaching and learning”. He continues to say that curriculum does not include teaching and learning. It is only a plan for instructional acts.

1.4.1.2 *Factors influencing curriculum development*

According to Reynolds and Skilbeck (in Prideaux 2003:268-270) various factors can influence curriculum development. These factors can be divided into external and internal factors. External factors include:

- Societal expectations;
- Expectations of employers;
- Community assumptions and values;
- Nature of subject disciplines;
- Nature of support systems; and
- Expected flow of resources.

Internal factors include:

- Students;
- Teachers;
- Institutional ethics and resources; and
- Problems and shortcomings in existing curriculum.

According to Schneider & Silverman (1997:103-107), students must be sensitised to understand and respect social and cultural differences which should be included in a curriculum. It therefore stands to reason that a number of factors must be taken into account when developing a curriculum.

1.4.1.3 Theories of curriculum development

According to Steyn and Wilkinson (1998:203) every educational model has a theoretical basis, and these authors distinguish four main theoretical philosophies upon which an outcomes-based curriculum can be based.

Thomas, Kern, Hughes and Chen (2016:14-25) write that,

"Curriculum development in medical education should be a methodical and scholarly, yet practical process that addresses the needs of trainees, patients, and society. To be maximally efficient and effective, it should build upon previous work and use existing resources. A conventional search of the literature is necessary, but insufficient for this purpose. The internet provides a rich source of information and materials. This bibliography is a guide to internet resources that are of use to curriculum developers, organized into 1) medical accreditation bodies, 2) topic-oriented resources, 3) general educational resources within medicine, and 4) general education resources beyond medicine."

Thomas and Kern (2004:599) add that an integration is imminent, and that the impact of integration in medical education is imminent and this can be evaluated by considering educational theory and methodology. Criteria are sufficient when a systematic process is followed and if scholarship and high-quality evidence is provided about the educational efforts of the developer. In addition, "generalist faculty, because of their unique roles in both the delivery of health care and educational missions in academic medical centres, are often recruited to medical education reform efforts and curriculum development".

"Faculty are usually content experts, but may not be familiar with medical education organizations and educational resources for this work. Standard literature searches often fail to identify many of these resources. While many resources are available online and are applicable to various aspects of curriculum development, Internet resources have not previously been categorized for this purpose in the literature. We developed this bibliography to familiarize generalist faculty with easily accessible Internet resources for curriculum development in medical education"(Thomas & Kern 2004:599).

Curriculum development, according to Dent & Harden (2013:1-22), is essential for enabling educators to stay in touch with the latest international trends that develop as technology and procedures in medical education improve. The curriculum has to adjust to address the competencies of practitioners who must obtain the required skills. This adjustment requires educational strategies to teach skills, knowledge, attitudes and behaviours, which must be integrated into the curriculum. The concept of constructive alignment and sound assessment practices need to accompany the curriculum.

Jacobs, Vakalisa & Gawe (2004:39) state that curriculum theories can be divided into two broad categories, namely, the traditional paradigm and the inquiry paradigm. In addition, the curriculum paradigm is "a representative set of curriculum theories is characterised by one particular view of, and approach to, curriculum problems". The traditional paradigm is characterised by theories that are prescriptive and exclusive. There are three theories of importance in this paradigm, namely, the liberal theory, the experiential theory and the behaviourist theory.

According to Jacobs *et al.* (2004:39), liberalists are against detailed planning of the curriculum and against being told what and how they should teach. The purpose of the curriculum should be to develop students' minds in such a way that they gain substantial insight into the great ideals of life and, moreover, the content of the curriculum should be the great works produced through the ages. According to the experiential theory, Jacobs *et al.* (2004:40) explain, students can only acquire knowledge through personal experiences, and the purpose of the curriculum should be to facilitate personal growth of students by exposing them to as many real-life experiences as possible. Students and teachers learn from each other. The curriculum should focus strongly on the students' interests, and not necessarily on material described by the state – this should motivate the students and meaningful work should have a positive impact on students.

Jacobs *et al.* (2004:42) believe that the most popular and influential theory of the traditional paradigm is the behaviourist theory. Behaviourist theories postulate that each lesson in the curriculum should result in a desirable change in the behaviour of students. The curriculum must be divided into components and sections as determined by state policy, while teachers proceed to implement this prescribed content in a systematic, logical and value-neutral fashion (Jacobs *et al.* 2004:42).

According to Clarke-Farr (2005:79), in South Africa, OBE resembles the behaviourist theory closely, in that learning objectives become the outcome standard that teachers use to select classroom activities. The curriculum is then an agglomeration of operationally designed skills, curriculum packages, instructional techniques and scientific evaluation procedures (Jacobs *et al.* 2004:42). The drawbacks of this kind of teaching include the teacher being so task-oriented that he/she may tend to be abrupt and aloof from students, the atmosphere in the class may be competitive; slow students may be left behind; and creative students may feel out of place.

The behaviourist theory also has a number of strong points: the learning material chosen is likely to be important and useful to the country; most students will be task-oriented and productive, because well-prepared lessons create respect for the teacher, and student motivation is average, with excellent discipline among students (Jacobs *et al.* 2004:42; Skinner 2017:602).

The second broad category of curriculum development paradigms relates to the inquiry paradigm. These theories are more open, descriptive, critical and eclectic. According to Jacobs *et al.* (2004:43) their point of departure is the way things are done. The naturalistic, critical inquiry and constructivist theories are the most important theories within the inquiry paradigm.

The naturalistic theory, which is credited to Walker (Jacobs *et al.* 2004:44) consists of a three-step sequence of curriculum reform, namely, gathering information from a platform consisting of members of the school community who agree on beliefs, theories, aims and procedures on which the curriculum of their school rests; the deliberation stage, involving the assessment of actual state of affairs, problems and alternative solutions; and the design stage, during which the school community decides how each problem must be addressed. This theory could be very restrictive due to the fact that the governing body determines how a subject should be taught.

The critical inquiry theory entails the need of all people to acquire and use critical-thinking abilities. This theory rests on the following cornerstones: the teachers, the subject matter, the students and the culture of the school/department. Students from the setting that implements critical inquiry theory have good critical thinking skills, empathy for less privileged people and do not experience examination stress as formal examinations are not required. On the negative side, class discipline is difficult to maintain, the students lack general knowledge and basic competencies and, due to a no-examinations policy, the students exist in an idealistic vacuum (Jacobs *et al.* 2004:46).

The constructivist theory entails helping students to construct knowledge that is meaningful and useful for their own lives. Of importance is not what the students learn, but how they learn. This style of teaching and learning under constructivist theory setting could lead to problems during assessment, because students can underperform due to imprecise and insubstantial knowledge. On the positive side, students are likely to develop real and lasting insight into learning material and acquire useful skills that prepares them for work in the future (Jacobs *et al.* 2004:46).

Due to the diversity of approaches amongst curriculum theorists, Pratt (1994:9) endeavoured to simplify curriculum theory according to the following four main points:

- Cultural transmission, which emphasises traditional academic disciplines;
- Social transformation, emphasising political and social change, which is crucial within the South African higher education environment;
- Individual fulfilment, which emphasises personal growth, relationships and self-actualisation; and
- Feminist pedagogy, emphasising a more equitable balance among gender-related characterises and interests – this approach is also applicable within the South African context.

1.4.1.4 *Designing and developing the curriculum*

"Within the field of curriculum studies, the term curriculum includes not only the content of subjects but how knowledge within a subject is organised, how teachers teach, how students learn and how the whole is assessed" (CHE Work-Integrated Learning: Good Practice Guide 2011:13).

Dent & Harden (2013:8) explains the rationale for the design and development of a curriculum as follows:

"The days are now past when the teacher produced a rabbit out of a hat, when the lecturer taught whatever attracted his or her interest. It is now accepted that careful planning is necessary if the programme of teaching and learning is to be successful".

According to Spady & Marshall (1991:70) there should be "success for all" when considering curriculum design in an outcomes-based model. This would involve a back-to-front approach – using the desired outcomes as starting point when developing a curriculum. These outcomes should reflect the general skills, knowledge and competencies needed by the student to complete the curriculum. It is therefore important to determine beforehand what the student should be able to do on completion of the curriculum.

1.4.1.5 Benefits of a systematic approach to course and curriculum development

When developing curricula, curriculum developers should use processes that are efficient, effective and politically sensitive, as they will be working with limited resources. Curriculum developers should concern themselves with the design and development of programmes as well as the implementation thereof. It is therefore imperative that the development of a curriculum should be done in a systematic and structured way; failing to do so may lead them to merely add information to an already existing programme/course, causing an overload of irrelevant information.

Various models exist to enable curriculum developers to structure curricula systematically. Diamond (1989:4) refers to the following significant benefits of using a model/systematic approach for curriculum development. A systematic approach,

- Identifies the key factors that should be considered in sequential order;
- Serves as a procedural guide for those directing the project;
- Enables those involved to understand where they are in the process and their role in it; and
- Improves efficiency by reducing duplication of effort and ensuring that critical questions are asked and alternative solutions are explored.

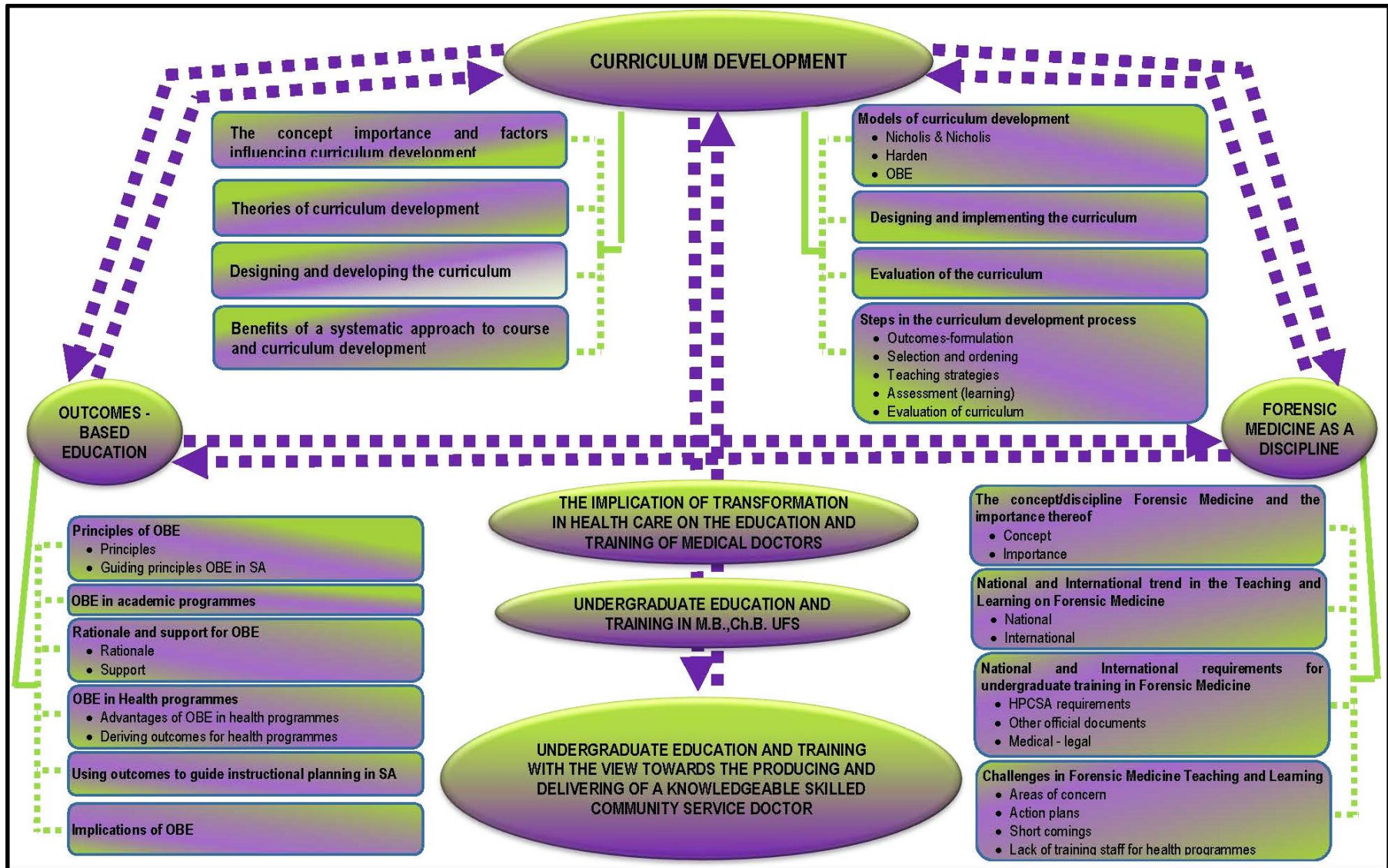


Figure 1.2: The elements and components of the curriculum for CFM (Compiled by the researcher, Fouché, 2015, as part of this Ph.D. research)

1.5 MODELS OF CURRICULUM DEVELOPMENT

Various models can be used to develop curriculum. Jacobs *et al.* (2004:139) explain that models simplify theories, which tend to be abstract and complex, and show educators how to implement theory. The important principles and aspects of curriculum theory are thus highlighted in a curriculum model by means of a diagram or graphic design. Therefore, curriculum models guide the process of decision-making during design of a learning programme, thus making the programme easier to understand.

Over the past decades several curriculum theorists have made contributions to models of curriculum development. As early as 1949 Ralph Tyler developed the perennial curriculum model, which consists of four concepts, namely, aims and objectives, content, methods and evaluation.

Before the various models of curriculum development are discussed, one should bear in mind that it is always difficult, time consuming and challenging to develop a curriculum. It requires thinking about what material to cover, about what students are supposed to learn, and, finally, about how the teacher can facilitate this process (Diamond in O' Neill 2015:1-15).

According to Hannun and Briggs in Diamond (1998:1-15) there are seven common elements in instructional systems design:

- Planning, developing, delivering and evaluating instruction based on systems theory;
- Goals based on an analysis of the environment of the system, for example, goals of a two-year college will differ from those of a university;
- Instructional objectives stated in terms of student performance;
- Programme design sensitive to the entering competencies of the students and to their short and long-term academic goals;
- Considerable attention paid to planning instructional strategies and selecting media;
- Evaluation included as part of the design and revision process; and
- Measuring and grading students on their ability to achieve desired standards and criteria, instead of comparing one student with another.

A few of the models will be discussed next.

1.5.1 The perennial curriculum model

The developer of this model is Ralph Tyler (1949), and it is referred to in the literature as the Tyler rationale. Tyler developed his curriculum plan on the basis of four fundamental questions and, in due course, other curriculum developers followed his lead.

Aims and objectives

According to Jacobs *et al.* (2004:47), "an aim is a long-term goal that may take many years to achieve", whereas an objective "is a short-term goal that can be achieved in a short period such as a lesson". Objectives ensure that each lesson has a definite purpose that brings students closer to achieving the aims of a specific subject.

Content

The content of a lesson is the learning material or subject matter, and it centres on knowledge, skills and values. Knowledge relates to gaining more knowledge, whereas skills-content helps to develop new abilities to do something. Value-oriented content helps students to understand values, such as honesty, being able to work hard and being kind-hearted.

Method

Jacobs *et al.* (2004:48) state that methods are special activities that the teacher devises to help students master the learning content. The method should be appropriate for each lesson, should fit the student and should fit the teacher.

Evaluation

Jacobs *et al.* (2004:48) state that, "[e]valuation is the judging of how successful teaching-learning activities have been". Evaluation and assessment are sometimes used interchangeably. Of late, assessment is used in relation to both students and teachers to ascertain whether, and to what extent, the aims and objectives of the curriculum have been achieved.

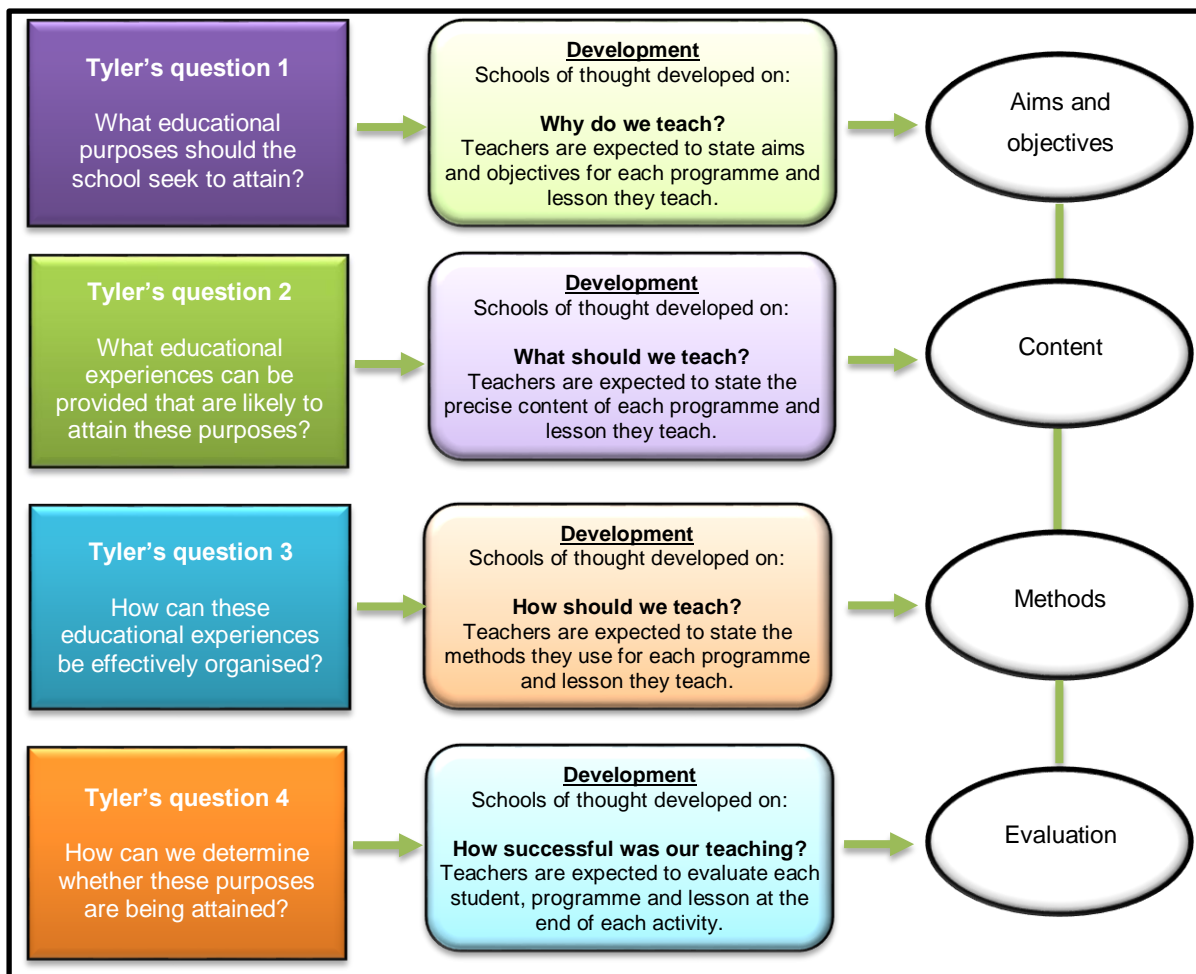


Figure 1.3: Tyler's rationale for the perennial curriculum model (Jacobs *et al.* 2004)

1.5.2 Nicholls and Nicholls' model

According to Nicholls and Nicholls (1978:15), there are four critical elements in the design of a curriculum, namely; objectives, content, methods and evaluation. Changes to one of the elements may affect the others. The close relationship between the elements is illustrated in Figure 1.4.

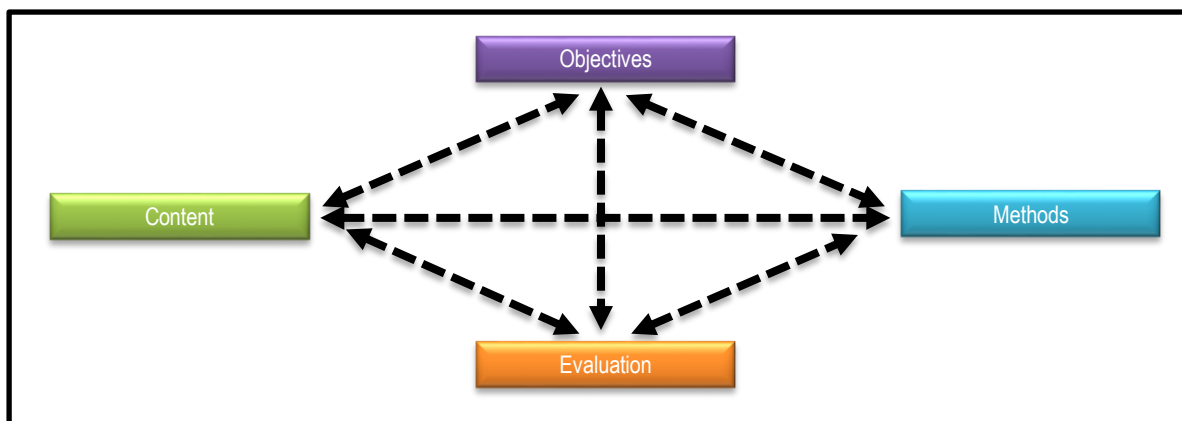


Figure 1.4: Relationship between the elements of curriculum design (Nicholls & Nicholls 1978:17)

Nicholls and Nicholls based their model on the pillars of situation analysis, selection of objectives, selection and organisation of content, selection and organisation of methods and evaluation, and looping back to the situation. According to Nicholls and Nicholls (1978:17-25) their model has certain strengths and weaknesses. Strengths include the logical sequential structure, situation analysis as a starting point, the fact that the model is flexible and more relevant. Weaknesses includes the logical and sequential nature; another fundamental disadvantage of utilising such models is the amount of time required to undertake an effective situation analysis. Nicholls and Nicholls' definition of their model is a simplified representation of reality, which is often depicted in diagrammatic form. The purpose of the model is to develop a curriculum. Models are used to examine elements of a curriculum, and the way these elements interrelate.

There are three types of curriculum models: rational/objective models (Ralph Tyler & Hilda Taba); cyclical models (Wheeler & Nichols), and dynamic/interaction models (Walker & Skilbeck). The cyclical model of curriculum developed after and appears to have a significant connection to the rational/objective models of curriculum. The cyclical model differs from the rational/objective model, because the former views the curriculum process as circular or a continuing activity, rather than the fixed and rigid processes that the rational/objective model of curriculum is associated with.

The cyclical model is responsive to needs, which are on-going, necessitating constant updating of the curriculum process; they are flexible. These models view elements of the curriculum as interrelated and interdependent. Cyclical models involve situation analysis, which involves the analysis of those factors that exist in the environment where the curriculum is going to be introduced. The model of curriculum that Nicholls and Nicholls developed in 1976 is considered to be representative of the cyclical approach. The cyclical nature of this model is present in the version by Nicholls and Nicholls, rather than the Wheeler version (1967). Its cyclical nature is emphasised by Nicholls and Nicholls, who indicates that, with this model, "there is no starting-point... it is a never ending process".

However, this statement is confusing, considering that Nicholls and Nicholls also state that learning needs to be specifically planned if a "pupil's learning is to be directed towards desired ends". Thus, it is implicit that, at some stage, there must be a starting point and an end point, depending on the need for formative assessment at a future point in time. By applying the cyclical steps of situation analysis, selection of objectives, selection and organisation of content, selection and organisation of methods, and evaluation, educators

can continually come back to their work and make changes, instead of returning to the beginning and starting over again every time there is need to make a minor change to the curriculum. Cyclical models emphasise the situation analysis. The model is flexible, less rigid and more relevant to interpretation. There is continuing activity and incorporation of new information into the curriculum. The model views curriculum elements as interrelated and interdependent. Applying a cyclical model is time consuming, as situation analysis is long-term process and it is difficult to maintain a logical, sequential analysis (Nicholls & Nicholls 1978:1-70).

According to Nicholls and Nicholls (1978:1-70), the privilege of teaching brings responsibilities for students and educationists, which is relevant to the society in which they live. This means that teachers must acquire sufficient knowledge, skills and experience to make the kind of decisions that enable them to do teach appropriately to their context.

1.5.3 Harden's model

Harden (in Dent & Harden 2013:152-156) refers to an architect's plan and the accompanying model of a building to illustrate the creation of a vision for users of the outcome they can expect in an outcomes-based educational model. Similarly, a public declaration by schools of medicine with regard to the learning outcomes of their education programmes is required.

What kind of doctors must educational programmes produce? Will they be competent? Will they have the necessary skills? Will they be able to research? Will they adhere to the ethical principles required by their profession? Spady (in Gultig, Lubisi, Parker & Wedekind 1998) suggests that "[y]ou develop the curriculum from the outcomes you want students to demonstrate, rather than writing objectives for the curriculum you already have".

According to Harden (in Dent & Harden 2013:152-156) OBE has several advantages:

- Relevance: (relationship between the curriculum and practice of medicine);
- Acceptability (OBE is teacher friendly);
- Clarity;
- Provides a framework for the curriculum;
- OBE is accountable if the product is judged by the set standards;
- It encourages self-directed learning by students;

- It is a flexible approach;
- OBE provides guidance for assessment;
- OBE encourages integrated teaching, learning and collaboration between different disciplines;
- OBE provides opportunity for curriculum evaluation – outcomes can be used to evaluate a curriculum; and
- Provides continuity of education: by determining definite outcomes for each stage of education, it encourages continuity between undergraduate, postgraduate and continuing education.

Harden (2013:152) states that the implementation of an OBE curriculum holds implications for a school of medicine, curriculum planning committees, individual teachers, assessors and students, and concludes that it is a valuable educational tool. The following issues as they relate to OBE will be discussed in detail:

- Principles of OBE;
- OBE in academic programmes;
- Rationale and support for OBE;
- OBE in health programmes;
- Using outcomes to guide instructional planning; and
- Implications of OBE.

1.5.4 Outcomes-Based Education

According to Spady (in Nkomo 2000:10) explicitly described outcomes are relevant to OBE and share a common bond. OBE suggests and incorporates system changes and curriculum changes. According to Spady, OBE can be defined as follows: "Outcomes-Based Education means clearly focussing and organising everything in an educational system around what outcome is expected". As part of this study the proposed CFM curriculum is clearly organised around the MBChB programme, and its outcomes need to be constructively aligned with that of the MBChB programme. As the philosophy currently stands, undergraduate medical training follows an outcomes-based approach. Dent & Harden (2013:152-154) support the drive to implement OBE, as it is focussed and competency-based. The educational transition from within the system, from undergraduate to postgraduate-based and further, to continued professional development, is streamlined.

1.5.4.1 *Principles of Outcomes-Based Education*

The “father” of OBE was William Spady. According to him, the four principles of OBE relate to pursuing a “consistent, focussed, systematic and creative implementation”. The following principles are applied in reaching the required learning outcomes in OBE (Spady 1994):

- Clear focus on learning outcomes that students ultimately need to demonstrate: Spady calls these outcomes complex role performance abilities and the corresponding South African conception could possibly be the critical cross-field education and training outcomes. Spady’s mapping of South African Qualifications (SAQA) Framework’s critical cross-field outcomes to his complex role performance abilities is attached (cf. Appendix A).
- A design-down/build-back approach to building curriculum: Curriculum design starts with abilities, skills, knowledge and attitudes that educators ultimately want students to demonstrate. Educators should ensure that the assessment is focussed on what the student has achieved in relation to these learning outcomes, rather than on what was presented in the course of delivery.
- High expectations: The expectation must be that students are able to achieve these outcomes and, therefore, it is necessary for those who work in the system to structure what they do when working with students, in such a way that students are enabled to achieve these outcomes.
- Expanded opportunities: There is a necessity to move beyond the rigid blocks that have been created around education, e.g. blocks of time and the traditional organisation of learning institutions (Spady 1998).

The current state of affairs in the MBChB programme at the UFS is that it follows an OBE approach, whereas some other medical schools follow other (integrated outcomes-based problem-oriented programmes) or traditional approaches.

1.5.4.2 *OBE in academic programmes*

The planned combination of learning outcomes is integrated with critical cross-field outcomes for this qualification: These outcomes are: 1) Practical Competency: The demonstrated ability/skill to achieve the major skills/applied competency of the qualification; 2) Foundational Competency: The demonstrated understanding, by the

learner, of the embedded knowledge that underpins the end result/outcome; and 3) Reflective competency: The demonstrated ability/skill to integrate or connect performances and to reflect on, evaluate and adopt the above competencies. The learner will be capable of:

- Diagnosing, treating and managing illness, disease and injury;
- Promoting health and preventing illness, disease and injury;
- Demonstrating knowledge and understanding of the health dispensation and the ethical and professional standards expected of a doctor. The learner will be able to demonstrate:
 - Knowledge of human structure, functions and development;
 - Knowledge of the development of diseases and pathology;
 - An understanding of the holistic approach to medicine, in view of the preventive, promotive, healing and rehabilitative aspects of treatment;
 - The skill to diagnose diseases and treat these efficiently;
 - The ability to work as a member of a team;
 - Knowledge of medical practice;
 - Appreciation of the importance of research;
 - An understanding of medico-legal and ethical principles; and
 - Knowledge and understanding of the role and responsibilities of the medical doctor, especially within the South African context. (SAQA 2017:online)

1.5.4.3 *Rationale and support for Outcomes-Based Education in the MBChB programme*

OBE supplies educational knowledge, skills, principles and methods to render a service as a well-integrated basic medical practitioner, fit to practise medicine over a broad spectrum. Qualifiers will demonstrate knowledge, skills and applied competence in the field of study; which provide opportunities for continued personal growth, gainful economic activity and making rewarding contributions to society (SAQA 2017:online).

1.5.5 Formulation of outcomes

Learners will demonstrate their knowledge and skills in accordance with standards laid down by the University and Professional Board, through keeping logbooks, theoretical written tests and examinations, clinical work (Observed Structural Clinical Evaluation (OSCEs)),

residency, oral and practical tests and examinations, and their attitudes and behaviour in clinical settings as observed by lecturers. Integrated assessment, as part of the training, is incorporated through the following outcomes: Competence being achieved through continuous assessment by demonstrating the ability to achieve the outcomes of the qualification; module course marks; workplace assessment through practicals; workplace assessment through student teaching, assignments, orals and group work; examinations; informal evaluations, e.g. feedback, residency, and assignments; formal evaluations, such as tests and practical (skills) and oral examinations; formal end evaluation, namely theoretical (written) and practical examinations at the end of a phase/study year; and skills/clinical examinations. These evaluation opportunities will be supported by a module credit system, followed by a final exam on the modules for which credit was not obtained.

Assessment documents are moderated to ensure that they conform to the scope and context of the competency as stipulated in the qualification. They are constructed in such a way that the assessor assesses the critical outcomes applied during the learners' activity performances towards achieving an outcome. Assessments are intended to include confirmation of the embedded knowledge component, to ensure that foundational competency is achieved. Assessment outcomes are to be verified by internal verifiers, to ensure valid, credible, true and fair results (SAQA 2017:online).

1.6 PROBLEM STATEMENT

The problem that this research addressed is the undergraduate training in CFM in the MBChB programme, School of Medicine, Faculty of Health Sciences, UFS. The matters addressed included the national and international requirements for undergraduate training in CFM, the current state of affairs with regard to undergraduate training in CFM, the opinions and experiences of doctors who graduated in 2005, 2006 and 2007 at the UFS, as well as the requirements for producing knowledgeable and skilled community service doctors with regard to CFM.

1.7 RESEARCH QUESTIONS

In order to address the problem stated, the following research questions were formulated:

- i. How can the curriculum of CFM in the MBChB programme be conceptualised and contextualised to form a theoretical base for understanding the status of its role and function?*
- ii. What should the outcomes of the clinical forensic curriculum of the MBChB programme involve with regard to management and medico-legal documentation of sexual assault? (Article 1) (Chapter 2)*
- iii. What should the outcomes of the clinical forensic curriculum involve as contained in the MBChB programme, in relation to management and medico-legal documentation of physical assault? (Article 2) (Chapter 3)*
- iv. What should the outcomes of the clinical forensic curriculum involve as contained in the MBChB programme, in relation to management and medico-legal documentation of inebriated drivers? (Article 3) (Chapter 4)*
- v. What should the content of the curriculum comprise for the training of undergraduate medical students in CFM? (Chapter 5: Curriculum as contribution or extension or creation of new knowledge)*

The researcher consulted various scholarly works on the Nexus Database System and several other databases. Peer-reviewed and accredited journals were consulted and referenced to inform the curriculum.

Internationally, CFM is presently recognised as a separate or subspecialty according to Stark (2011:264) that claims that training in the United Kingdom is “substandard” and “inconsistent”.

The Medical Council of India announced the “new roadmap, Vision – 2015”, which was implemented to counteract the decline in standards of medical training. Vision 2015 recommends that forensic medicine (and therefore CFM) is not taught as a subject, but is broken down and “taught alongside relevant sections of pharmacology, obstetrics and surgery” (Medical Council of India 2011:9-60). With the introduction of the CanMeds and AfriMeds levels of competencies, medical curricula in South Africa need to be adapted (Frank, Snell, Ten Cate, Holmboe, Carraccio, Swing, Harris, Glasgow, Campbell & Dath 2010:638-645).

In conclusion, there seems to be no scientific research in the period 2011-2017 about the development of a curriculum for the training of undergraduate students in CFM in the

MBChB programme at any of the medical schools in South Africa, and this absence necessitated this study.

1.8 RESEARCH OBJECTIVES

To achieve the aim of the study and address the problem statement, the following objectives were pursued:

- To conceptualise and contextualise CFM in the MBChB programme at the School of Medicine, UFS, by means of a literature study;
- To determine national and international requirements for undergraduate training in CFM;
- To investigate the current state of affairs with regard to undergraduate training in CFM;
- To collect information on the experiences and opinions of doctors who graduated from the UFS in 2005, 2006 and 2007;
- To determine the requirements for producing knowledgeable and skilled community service doctors with regard to CFM;
- To produce three publishable articles on sexual assault, physical assault and inebriated drivers; and
- To develop a curriculum for CFM in undergraduate medical teaching.

This study, for the Ph.D. degree in Health Professions Education, followed the article option route, and met the requirement of three interrelated, publishable manuscripts/published articles (Chapters 2, 3 & 4) that conform to the guidelines for authors of the journals selected; in addition, a separate chapter (contribution) that deals with a proposed curriculum for CFM will be written to adhere to NQF Level 10 requirements.

1.9 OVERALL GOAL OF THE STUDY

The overall goal of this study was to develop a curriculum for CFM in the MBChB programme at the School of Medicine, Faculty of Health Sciences, UFS, based on the experiences and opinions of community service doctors. The findings may be applied in an international and national context. The shortcomings of the CFM curriculum were addressed, and it is hoped that teaching students correctly about CFM may improve the knowledge and skills of community service doctors as well as the quality of medico-legal work and reporting in the

South African context. The curriculum may also be used by other medical schools in similar settings worldwide.

1.10 AIM OF THE STUDY

The aim of the study was to develop a curriculum for CFM training in the MBChB programme of the School of Medicine, Faculty of Health Sciences, UFS, based on the experiences and opinions of community service doctors. In addition, the need to develop a curriculum was determined, and requirements for producing knowledgeable and skilled community service doctors with regard to CFM were identified.

1.11 RESEARCH PARADIGM, DESIGN, APPROACH OF THE STUDY AND METHODS OF INVESTIGATION

1.11.1 Research paradigm

A research paradigm, according to Nieuwenhuis in Maree (2009:47), is a "set of assumptions or beliefs about fundamental aspects of reality which give rise to a particular world-view". A researcher sees the world in a particular way, and forms an opinion as part of the reality that is interpreted. Trafford & Leshem (2008:94) refer to a paradigm as the way the researcher "sees" the research that is being conducted.

Brink (2006:22) refers to a paradigm as the overall philosophical framework or model of the way scientific knowledge is produced. She states that this paradigm frames the way a discipline's concerns are viewed and the direction a research project takes. The paradigm also structures the questions to be asked within the conceptual boundaries of the paradigm and provides a link to certain research methods and criteria for judging appropriate research tools (Brink 2006:22).

Quantitative research is epistemologically rooted in positivism. The purpose of a positivistic paradigm is testing predictive and cause-effect hypotheses, and it uses deductive logic as method (De Vos, Strydom, Fouché & Delport 2011:48-50). By making the paradigm explicit it is imperative that a "higher level of thinking is required about the research, the quality of writing and the ability to defend the research done".

This researcher chose a quantitative research approach as the method of investigation. It was concluded that a questionnaire would be the most suitable way to gather data to answer the research questions and address the objectives. The assumptions of the researcher towards the ontology, epistemology, human nature and methodology made the researcher decide on quantitative research for collecting the required data by means of a questionnaire (Trafford & Leshem 2008:97).

Plowright (2011:181) prefers a more radical approach and, based on this, it was decided that a quantitative study, using a survey and employing a questionnaire together with an extensive literature study, will be best suited to develop the curriculum for CFM. "Methodology determines the philosophy you might employ to explain your approach rather than the philosophy" (Plowright 2011:181).

To collect data, the researcher employed a literature study and a questionnaire to address the research questions posed. In turn, by answering the research questions, certain objectives of the research were achieved. According to Wisker (2008:169), when a researcher conducts a literature study,

"You need to read yourself into the field of study in order to gauge where your own ideas fit, what can inform them, what others think and have discovered, and to define which ways your area of questions, your research and findings could contribute to existing knowledge and extend meaning and understanding".

The literature study therefore contributes to the theoretical framework, contextualisation and concepts used in the study. Various documents were studied as part of the literature study with a view to understanding the context of the current state of CFM. Documents were analysed with the aim of bringing the researcher up to date with the teaching and training prescriptions of forensic medicine, with specific reference to CFM at various medical schools in South Africa and abroad. The main aim of this exercise was to identify issues that could form part of the theoretical framework of this study. The documents included policy documents of the UFS, documents of the HPCSA, and documents related to various MBChB programmes in South Africa and internationally. As point of departure the current curriculum at the UFS was investigated to ascertain what is currently being presented.

1.11.2 Research design

This research undertook a quantitative, analytical, descriptive cohort study. This section deals with the research design, research methodology and methods that were used in this study. The researcher explains the particular research paradigm for the research that was conducted. The theoretical perspectives of the research design are also provided. This is followed by a detailed explanation of the process of each technique, namely, the pilot study, and the methodology and procedures involved in designing the questionnaire for the three cohort groups (2005, 2006 & 2007 graduates) who were community service doctors or former community service doctors at the time of the study. Sample selection and data analysis are also described.

1.11.3 Strategy of inquiry and research approach

De Vos *et al.* (cited in Neuman 2000:121-155) refer to quantitative research as research that includes experiments, surveys, and content analysis. Trafford & Leshem (2010:96-97) explain that quantitative research is deductive and is designed to test theory, and includes rigorous inquiry into epistemological issues under investigation. The quantitative domain is embedded and exposed to the researcher's philosophical assumptions about human nature and will determine the type of data that will be collected.

The strategy the researcher followed involved using the answers given by the community service doctors in the questionnaire to inform the proposed curriculum for CFM. In addition, the literature study formed the foundation of the curriculum, as it was based on sound theory. This strategy of inquiry was followed, because it was considered to be the most suitable for informing the proposed curriculum.

1.12 METHODS OF RESEARCH

1.12.1 Types of research

Data was gathered by the methods of literature study and self-administered questionnaires, which will be explained in detail in the following paragraphs.

1.12.2 Research approach used for this study

The research approach that was followed in the study was that of positivism, because part of the epistemological assumption was philosophically grounded. The positivistic approach focusses mainly on facts and causal processes that are part of the quantitative research domain. In this regard, the researcher is independent and finds the answers to research questions through scientific observation. This study uses quantitative information about variables; the variables are measured by a descriptive type of quantitative research (Springer 2010:19).

The research design of any study comprises a plan for the way the researcher intends to answer the research question. The research design for this study was based on inquiry and reflection. It is a sequential research design that involves quantitative non-experimental information gathered through questionnaires, which were enhanced by a few open-ended questions that were posed to the participants.

The questionnaire was sent to MBChB graduates of 2005, 2006 and 2007 of the School of Medicine at the UFS, who were busy with or had completed their community service.

1.12.3 Research methods

The methods that were used and that formed the basis of the study comprised a literature study and a survey using a questionnaire. The literature study involved an analysis of documents relating to relevant curricula and the prescriptions of relevant registering bodies of international and national stakeholders that present CFM as part of their curricula. These documents included policy documents, law reports and curricula from medical schools.

The research also included a literature study that focussed on undergraduate training in CFM in undergraduate medical training. The literature study was followed by a survey that administered a questionnaire amongst present and former community service doctors.

The results of the literature study and the questionnaire were used to develop a curriculum for CFM training in the MBChB programme of the School of Medicine at the UFS.

1.12.4 Literature study

The aim of a literature study is to place the research study in the broad context of the subject. A literature study does not only ensure that the researcher is sufficiently knowledgeable about the subject of study, but it has the aim of describing the current status of undergraduate training of medical students in forensic medicine.

According to Mouton (2009:87) a literature study is not a collection of texts, but a body of accumulated scholarship. A researcher should learn from other scholars: how they have theorised and conceptualised issues, what instrumentation they used and to what effect. The accumulated scholarship refers to the following elements:

- Definitions of the subject;
- Different hypotheses in the field of study;
- Existing data and findings that have been produced by previous research; and
- Measuring instruments (questionnaires etc.) that have been developed.

The importance of studying the body of scholarship, according to Mouton (2009:87), lies in ensuring that a researcher does not duplicate a previous study, and identifying available instrumentation that has proven validity and reliability.

Electronic searches using keywords (e.g. undergraduate, training, clinical, forensic medicine) alone and in combination were conducted through search engines such as Medline, Google Scholar and PubMed. Preference was given to articles from accredited national and international journals published over the last five to 10 years. These articles were analysed as part of the literature study to understand the phenomena under investigation. Document analysis, the systematic exploration of written documents or other artefacts, such as films, videos and photographs, was undertaken (ProDait 2006:1). Various classifications of the different sources exist. De Vos *et.al* (2011:5) classifies these documents as personal documents, official documents, mass media and archival material. In this study the researcher's document analysis was mainly focussed on official documents.

In this study, documentation (albeit very limited) – national and international – pertaining to undergraduate training in forensic medicine in the MBChB programme of the School of Medicine, Faculty of Health Sciences, UFS, as well as the curricula of other schools of medicine in South Africa and abroad (including Australia, India and United Kingdom) were

analysed. This documentation also included the prescriptions of various organisations, such as the HPCSA, the General Medical Council of the United Kingdom and the Australian Medical Council, and legislation and documents from other countries.

1.12.5 The questionnaire

According to Springer (2010:250) a "survey is a self-report measure consisting of questions as part of an interview or questionnaire." In this study a self-administered questionnaire was used to gather the information required. Questionnaires were e-mailed and some hand-delivered to the participants. As the study is a cross-sectional descriptive design study, the questionnaire was only administered once on the cohort groups of 2005, 2006 and 2007 MBChB graduates of the School of Medicine at the UFS, who were busy with or had completed their community service.

1.12.5.1 *Theoretical aspects of questionnaire design*

According to Wisker (2008:187) questionnaires gather information directly by asking people to answer questions, and researchers use the responses as data. A great number of participants can be included in a study if a questionnaire is used. A questionnaire consists of written questions eliciting facts, or information on activities and behaviours. The response rate is very often not as high as anticipated. According to Leedy (2005:193) the response rate can be improved by:

- correct timing regarding mailing questionnaires;
- ensuring a good first impression: Questionnaires should be neatly typed, have adequate margins and make reasonable requests;
- motivating potential participants;
- including a self-addressed and stamped envelope;
- offering summary of results, should participants be interested; and
- persistent reminders.

The questionnaire should not be too long and the questions should be clear; they should not include double meanings and should be unambiguous. This study involved a pilot study to ensure minimal bias and that the questions were clear and would yield the required responses. The assistance and expertise of a statistician were also used to clear up any misconceptions.

1.12.5.2 Questionnaire for community service doctors

A list of questions was posed to UFS graduate doctors who had completed their community service or were busy doing their community service. The questionnaire in this study was aimed at:

- gathering quantitative data from community service doctors with regard to their experience of CFM; and
- determining whether their undergraduate training had been sufficient to equip them for CFM.

A list of questions was compiled; the inputs of a biostatistician were also considered. The questionnaire (cf. Appendix B) consists of four sections.

Section A: Demographics (cf. Appendix B)

This section dealt with the personal, professional and employment profiles of participants.

Personal profile

Information on age, gender and home language was collected.

Professional profile

Information on when the participant had started/completed his/her studies at the School of Medicine, Faculty of Health Sciences, UFS, was collected.

Employment profile

Information on when and where he/she had done community service was collected.

Section B: Sexual assault (cf. Appendix B)

This section dealt with the number of alleged sexual assault incidents assessed and examined by the participants during their community service year. It included questions pertaining to the presence of a chaperone or interpreter, obtaining consent before and during any step of the examination, the Sexual Assault Examination Collection Kit (SAECK), history taking, the J88 form, general and gynaecological examination, and documentation of injuries and the collection of samples.

Section C: Assault (cf. Appendix B)

This section dealt with the number of incidences of alleged assault cases, history taking (general as well as amount of alcohol consumed), injuries (type, size, anatomical position) and the J88 form.

Section D: Inebriated (drunk) drivers

This section dealt with the number of suspected inebriated drivers examined by the community service doctors, the presence of the South African Police Service (SAPS), SAPS documentation, the blood alcohol kit, history taking and examination.

Information gathered was kept confidential, but anonymity could not be assured, as follow-ups had to be done on the participants to remind them to complete the questionnaire in order to improve the overall response rate. The responses were treated confidentially. The information gathered was used to address deficiencies in the curriculum of the MBChB programme at the UFS.

In addition to the questionnaire, the researcher also:

- Obtained the lists of names of the 2005, 2006, 2007 MBChB graduates of the School of Medicine, UFS, from Student Administration of the Faculty of Health Sciences;
- Obtained the contact details of the 2005, 2006 and 2007 MBChB graduates from the School of Medicine at the UFS from the HPCSA;
- Obtained Curriculum 2000 from the programme manager, MBChB programme at the UFS, to enable the researcher to compare the outcomes of the questionnaire with the relevant training programme with regard to CFM;
- To evaluate quantitative responses of the community service doctors who had completed the questionnaire; and
- To identify areas of concern and to compile action plans to address those shortcomings against the background of the expected outcomes of the programme.

In the latest document search and to give impetus to this study, the J88 form was amended (on 9 May 2017) (Department of Justice and Constitutional Development: Circular 30 of 2017) (Head Office File, 3/3/2-J88). This, in itself, will have a serious impact on ensuring proper recording of information, and will play a significant role in criminal proceedings. The

J88 is used as format for recording the medical assessment of physical assault, child abuse, sexual offences, and child sexual abuse and for pre- and post-pointing out and confession needs. The previous J88 was generally of an unacceptable standard and outdated, and was found to be a common reason for the withdrawal of cases and consequent low conviction rates as a result of poor documentation and technical aspects.

1.12.5.3 *Sample selection*

According to Springer (2010:100) a sample consists of "individuals that are participating in a study". The sample is taken from the population, as it is not always possible to include everyone. In some cases the whole cohort or all the members can be included, but not all members always agree or wish to participate. The end goal of sampling is that results must reflect something of the population from which the sample is drawn. Johnson Burke, an established researcher (2011:personal communication) (he provided his lectures) explains that,

"Sampling refers to drawing a sample (a subset) from a population (the full set). The usual goal in sampling is to produce a representative sample (i.e., a sample that is similar to the population on all characteristics, except that it includes fewer people because it is a sample rather than the complete population). Metaphorically, a perfect representative sample would be a "mirror image" of the population from which it was selected (again, except that it would include fewer people)".

In this study the cohort groups of 2005, 2006, 2007 MBChB graduates of the School of Medicine, UFS, were taken as the sample. The cohorts shared the same characteristics, namely, all members had served as community service doctors, they had all undergone similar internships and all had studied medicine at the same university.

Non-random sampling was used, as all 300 members of the population were included in the study and original target population. After a follow-up, only 150 of the total 300 participants were found to be contactable and had valid addresses, telephone numbers or e-mail possibilities, and they were included in the study. The sample used for the study thus consisted of 150 participants.

In this quantitative study a questionnaire was used. Some open-ended questions were included to enable community service doctors to voice their perception and express their

views. These comments were included in the questionnaire and helped to inform the proposed curriculum; quantitative data does not always capture emotions. The questionnaire was available in Afrikaans and English, as these were the two languages used for training at the School of Medicine of the UFS. The community service doctors understood these languages and completed the questionnaire in their language of choice.

Target population

A target population comprises a group of individuals who possess and share certain specified characteristics. In this study the target population comprised graduates of Curriculum 2000 of 2005, 2006 and 2007 at the School of Medicine of the UFS, who had completed or were, at that time, doing their community service.

Survey population

The survey population consisted of individuals who had valid addresses and e-mail capabilities, and involved 150 participants who consented and voluntarily completed the questionnaire.

Sample size

The possible sample comprised approximately 300 doctors who had completed their community service year or doing community service at the time. The community service doctors who completed the questionnaires voluntarily comprised the actual sample.

Description of sample

The sample consisted of all graduates of the MBChB programme of 2005, 2006 and 2007 at the School of Medicine of the UFS. Lists of names were obtained from Student Administration at the Faculty of Health Sciences, UFS, after which contact details were obtained from the HPCSA; the required consent and ethical approval were also obtained.

1.12.6 The pilot study

According to Joubert (in Joubert & Ehrlich 2009:50) a pilot study is a mini-study that tests parts of the study before the main study. Its objectives are to check the methods (e.g. instruments or logistics) and to obtain data to assist in sample size estimation. Pilot data are not used in the main study (Joubert in Joubert & Ehrlich 2009:50).

A pilot study was conducted, involving two community service doctors who had graduated from the UFS between 2005 and 2007. The two community service or former community service doctors were selected randomly from the pool of doctors who had graduated in 2005, 2006 or 2007 and who were working at Universitas Hospital; this sample shared the same characteristics as the main sample. The rationale behind the pilot study was to ensure that the questions were clear and had no double meanings and to ascertain how much time it would take to complete the questionnaire. No amendments to the questionnaire were made after the pilot study.

1.12.6.1 *Data gathering*

Data was collected by means of the questionnaire (cf. Appendix B). The questionnaires were posted or e-mailed to the participants, and some were hand-delivered. Some community service doctors preferred to receive hard copies of the questionnaire. Non-respondents were followed up at least three times after four to six weeks, by e-mail or telephone.

Data collection was prospective and took place by requesting participants to complete questionnaires; participants returned the completed questionnaires to the researcher via e-mail, post or hand-delivery. The information was then collected from the target group as identified. The questionnaire collected demographic information as well as participants' views on their undergraduate exposure to forensic medicine, and requested suggestions for ways to improve the module.

1.12.6.2 *Data analysis*

Questionnaire: As the questionnaire was already in a particular format, answers were organised, summarised and grouped. This was done with the utmost caution to avoid changing the meaning of responses. Data was analysed with the assistance of a statistician.

1.12.6.3 *Data interpretation*

According to De Vos *et al.* (2011:85) interpretation involves taking the results of the analysis, making inferences specific to the research questions that were asked, and drawing conclusions about these relationships.

1.13 ENSURING THE QUALITY AND RIGOR OF THE STUDY

Reflecting on initial training in quantitative research and the focus of this study on quantitative data collection (only with qualitative enhancements) it was decided to use a quantitative framework for reporting on the validity and reliability of the study. Upon further investigation, doubt reared its head in response to Patton (2002:552), who states that it was acceptable to move between quantitative and qualitative frameworks. It was decided that the open-ended questions did not warrant and adhere to the elements of a qualitative study. This study rests on a quantitative framework.

1.13.1 Reliability and internal reliability

According to Pietersen and Maree (in Maree 2007:13) reliability refers to the reliability of an instrument that is used and that the same findings will be found if the study is repeated. The measuring instrument used to ensure reliability is thus used consistently and can be used repeatedly, each time yielding the same results. In this study the questionnaire was developed by subject experts, educationalists and statisticians who could add to reliability. The questions were also linked to the same topic and were piloted before dissemination.

Pietersen and Maree (in Maree 2007:13) refer to internal reliability as a type of reliability called internal consistency. The similarity amongst the items in a questionnaire and the topic under investigation refer to commonalities and is an indication of "internal consistency or reliability". The interdependence of validity (rigour) and reliability (trustworthiness) are illustrated by Lincoln and Guba (in Nieuwenhuis 2009:80), who state that, "there can be no validity without reliability, a demonstration of the former [validity] is sufficient to establish the latter [reliability]". The criteria a researcher chooses to emphasise in his/her work will depend on the purpose of the inquiry, the values and perspectives of the audiences of the work, and the researcher's own philosophical and methodological orientation.

1.13.2 Validity

Validity of the research instrument, in this case the questionnaire, refers to the "extent that it needs to measure what it is supposed to measure" (Maree & Pietersen in Maree 2007:13). The ultimate aim of any study is to ensure validity, depending on the paradigmatic strategy of the study (Plowright 2011:134).

According to Delport (in De Vos *et al.* 2005:160) the definition of validity has two aspects: that the instrument actually measures the concept in question, and that the concept is measured accurately. Babbie & Mouton (2001:122) state that the term validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration; these authors inquire whether it is even possible to say if a particular measure adequately reflects the meaning of a concept.

The validity of this study depends on the methods of gathering data, namely, an in-depth literature study, a study of related documents, and the measurement procedures used in the form of a survey employing a questionnaire.

1.13.3 Internal validity

In order to draw accurate conclusions from data, the researcher has to eliminate factors that could affect the internal validity of the study. Internal validity is described as the "accurate presentation of a particular context or event as described by the researcher" (Mayan as cited in Maree 2007:297). In order to minimise the threats to validity in the triangulation design of collecting data, the questionnaire used in this study contained both quantitative and qualitative questions. When respondents completed the questionnaire, the quantitative and qualitative data were then collected from the same group of respondents. This also eliminated the problem of unequal sample sizes in the triangulation design (Ivankova, Creswell & Plano Clark in Maree 2007:147). Because an Internet-based questionnaire survey was mainly used, data was collected unobtrusively and the whole population could be invited to obtain a better response rate (Ivankova, Creswell & Plano Clark in Maree 2007:147). Patton (2002:553-554) indicates that credibility is related to three aspects, viz. the rigour of the methods used, the credibility of the researcher and the belief in the value related to the philosophical belief. The aspect of the philosophical belief was addressed.

The aspect of the rigour of the methods used was discussed earlier in this section. Another method to increase the credibility or internal validity of data is to use triangulation. Different types of triangulation are proposed by Denzin (cited in De Vos *et al.* 2005a:361-362), i.e. data sources triangulation, analyst triangulation, theory/perspective triangulation and methods triangulation (Patton 2002:556). Neuman (cited in De Vos *et al.* 2005:362) adds triangulation of measures indicating "multiple measures of the same phenomenon". Methods triangulation, analyst triangulation and triangulation of measures were utilised in

this study. The triangulation mixed methods design represents methods triangulation, which is defined as the integration and comparison of the data collected through quantitative and qualitative methods. This assisted in ensuring that discrepancies in the findings could be identified and clarified.

The qualitative data was used to verify the quantitative data. In the triangulation design adopted, the qualitative and quantitative data sets together also served as a mechanism for providing more complete data than would have been possible using only the one or the other (Ivankova, Creswell & Plano Clark 2007:147). The validation meetings held with specialists in the programme represented analyst triangulation and, more specifically, related to an expert audit review, although in this instance the focus was on a confirmability judgment, which is defined by Patton (2002:562) as "the part of the audit that examines the product".

1.13.4 External validity

External validity, or transferability, according to Patton (2002:546), refers to the degree to which generalisations can be made from the data and context of the research study to the wider population and settings (McMillan & Schumacher 2006:261). In order to limit threats to external validity, comprehensive sampling was employed where the whole population was invited to participate. By using the whole population, the researcher attempted to obtain a better response rate that would enable generalisation to the population (McMillan & Schumacher 2006:261). The aim of this study was not to generalise the findings to other contexts, but to provide a specific solution to a problem in a specific context. McMillan (2008:16), however, indicates that, with applied research, "where general theories are tested, the results may be generalized to many different educational settings". Lincoln and Guba (cited in Patton 2002:583) suggests "treating conclusions as hypotheses for future applicability and testing rather than as definitive".

From a qualitative perspective Lincoln and Guba (cited in Patton 2002:584) use the terms transferability and fittingness to refer to generalisability. According to them, results can be transferred if there is similarity in the two contexts, which can be called fittingness. Fittingness is defined as degree of congruence between sending and receiving contexts. If Context A and Context B are "sufficiently" congruent, then a working hypothesis from the sending originating context may be applicable in the receiving context.

The meaning of the discussion on external validity or transferability is that, although the findings of this study apply to a specific context, there is a possibility that these findings (as proposed in the framework) are applicable in similar contexts which are “sufficiently congruent”.

In this study all of the above means were included to address the external validity.

1.13.5 Reliability/data quality

The term reliability is used in quantitative research, and dependability is used in qualitative research (Patton 2002:546). Tashakkori and Teddlie (2003:706) propose the term data quality to refer to the reliability in a mixed methods study. Tashakkori and Teddlie (2003:706) describe data quality (with specific reference to data collection) as the standard against which the data can be considered to be trustworthy and dependable. Lincoln and Guba (in Patton 2002:546) define dependability as a systematic process followed in a systematic way, while De Vos *et al.* (2005:346) sees it as an attempt by the researcher, “to account for changing conditions in the phenomenon chosen for study as well as changes in the design created by increasingly refined understanding of the setting”. Reliability is defined as the “stability or consistency of a measurement” (Delpont 2005:162). De Vos (2005:346) indicates that dependability and reliability refer to different sets of assumptions that do not measure exactly the same aspect, but refer to two separate but related aspects.

In order to increase the reliability of the questionnaire in this study, the constructs tested were clearly defined and care was taken to ensure that the questions reflected the different constructs. At least two questions in the questionnaire were used to measure each major construct (Delpont 2005:163) (cf. Appendix C for the analysis of the questionnaire with regard to the constructs). From a qualitative point of view, the aspects related to dependability included the use of both quantitative and qualitative questions, in order to enhance the quantitative data and to incorporate perspectives that would lead to a more holistic picture (De Vos 2005:346).

Furthermore, the data was triangulated. Here, triangulation was not used to reject or accept a hypothesis, as would be done in quantitative research, but to confirm and generalise the research findings. If the data sets opposed each other, the theory or proposed application of the data would then be changed or adapted (Nieuwenhuis 2009:80). McMillan and Schumacher (2006:28) caution that the “overall credibility of a mixed methods study

depends on the independent quality of the quantitative and qualitative designs as well as the interplay between them". Objectivity is thus very important.

De Vos *et al.* (2005:347) indicates that confirmability refers to the question of whether the "findings of the study could be confirmed by another". In order to provide a more objective viewpoint in this study, two different data sets were used (quantitative and qualitative data). Furthermore, validation meetings were held to increase the objectivity of the data collection procedure and the feasibility of the proposed framework in this particular case, where the researcher was involved in the programme being researched (De Vos *et al.* 2005:353).

1.14 ETHICAL CONSIDERATIONS

1.14.1 Approval

Babbie and Mouton (2001:520) accept the definition of ethical considerations provided by the Webster New World Dictionary – "conforming to the standards of conduct of a given profession or group" – as the most appropriate definition of ethical considerations. Different aspects relating to ethical issues are addressed by different authors (Babbie & Mouton 2001:521-527; McMillan & Schumacher 2006:142-144). Only the aspects relevant to this study are discussed in this section, namely, informed consent, right to privacy and confidentiality and minimising potential misinterpretation of results.

Approval for the research study was sought from the Ethics Committee of the Faculty of Health Sciences at the UFS, the acting head of the School of Medicine and the Vice Rector: Academic Planning at the UFS.

1.14.2 Value of the study

The intended value of the research project was to ensure that students enrolled for the MBChB programme in the School of Medicine, UFS, are equipped with sufficient knowledge to enable them to handle any CFM cases. Doing so would contribute to a higher conviction rate of alleged perpetrators, which would, in turn, improve the public's perception of the legal system in general.

The findings and recommendations of this research study were presented to the programme director of undergraduate medical training to investigate the curriculum and make possible

adjustments of the curriculum of the MBChB programme of the School of Medicine, UFS, accordingly. The process of re-curriculation needs to be investigated and the levels of permissions that have to be applied for and obtained before any changes can be made to curricula needs to be followed. The findings were also forwarded to the Subcommittee for Undergraduate Education and Training of the Medical and Dental Professions Board.

1.14.3 Informed consent

Participants of this study participated voluntarily. Participants could withdraw at any time. All information was treated confidentially (cf. Appendix B).

1.14.4 Right to privacy and confidentiality

Number coding was used to ensure confidentiality of responses. No names or personal identifiers appeared on any data sheet that was sent for statistical analysis. All information was managed in a strictly professional and confidential manner.

1.14.5 Minimising potential misinterpretation of results

The quantitative data was analysed by a biostatistician of the Department Biostatistics, Faculty of Health Sciences, UFS.

1.15 SCHEMATIC OVERVIEW OF THE STUDY

A schematic overview of the study is given in Figure 1.5.

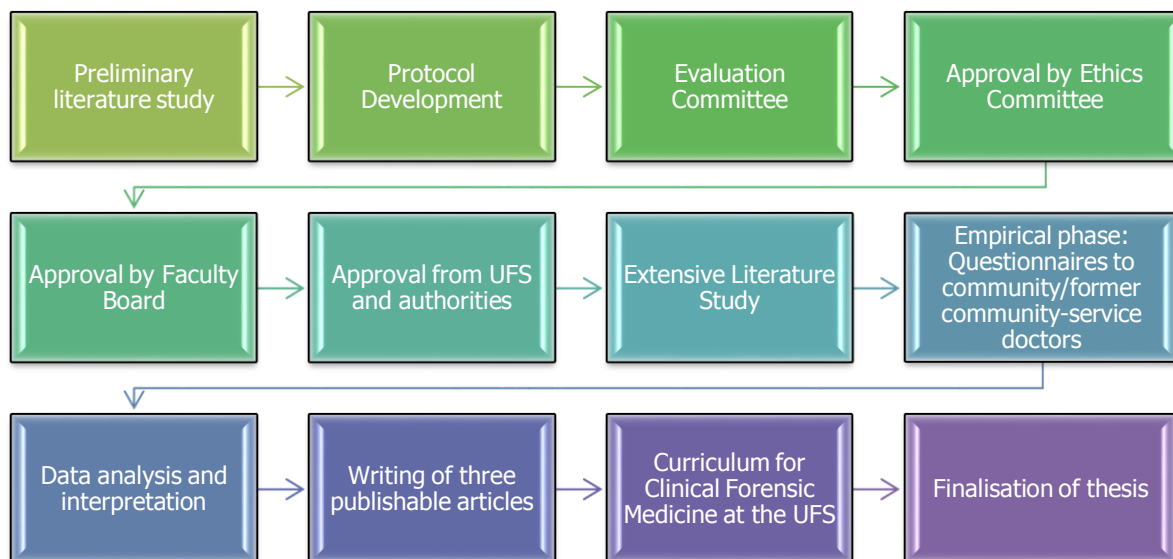


Figure 1.5: Schematic overview of the study

1.16 DEMARCATION OF THE FIELD AND SCOPE OF THE STUDY

The findings of this study may be applied within the field of health professions education for developing curricula for the training of undergraduate MBChB students in CFM. Due to the application of the study in the field of CFM, the study can be classified as being interdisciplinary, as it reaches across health professions education as well as the disciplines of forensic and family medicine.

The participants in the questionnaire survey of this study were MBChB graduates from 2005, 2006 and 2007 of the School of Medicine, Faculty of Health Sciences, UFS, who had done or were doing their community service. In a personal context, the researcher of this study is a qualified forensic pathologist with an interest in education and training.

The researcher is a qualified and registered specialist in forensic pathology (a division of forensic medicine) and has been practising forensic medicine for 15 years (2002 - presently). She qualified as a forensic pathologist in 2006. The researcher has a personal interest in this study. She realised that there is a gap in the knowledge and skills of undergraduate students and, therefore, young doctors, when she was module leader of Medical Law and Ethics (2010-2013). This module only allocated 4 hours for training in CFM. If one takes into account that it is expected of community service doctors to examine CFM cases, complete the necessary medico-legal documentation and then to testify in court, it comes as no surprise that the rate of prosecution and convictions is so low.

For a conviction, the documentation needs to be completed fully, the evidence collection done accurately and according to the prescribed methods, and the testifying doctor should be able to do so with confidence. This requires far more than the allocated training time suggests.

The researcher therefore embarked on the study to use the results to develop a comprehensive and fitting curriculum. The placement of the module should also be addressed. Presently the training takes place in the fifth semester – before undergraduate students start with their clinical training. The ideal would be in the ninth or tenth semesters. The study will hopefully bring clarity to the undergraduate programme manager that there is a serious need for change, to ensure that the programme is in line with HPSCA requirements.

The study was conducted between June 2010 and June 2017, with the empirical research phase taking place from 2013 to 2015.

1.17 VALUE, SIGNIFICANCE AND CONTRIBUTION OF THE STUDY

The value of this research study lies in the possibility that it may ensure that students enrolled in the MBChB programme of the School of Medicine, Faculty of Health Sciences, UFS, are equipped with sufficient knowledge, skills, values and attitudes to enable them to deal with any CFM cases competently.

The significance of the study is that, in medico-legal cases, the correctness and accuracy of medico-legal documentation can lead to higher prosecution and conviction rates. This improvement could, in turn, lead to a higher conviction rate of alleged perpetrators, which would improve the public's perception of the legal system in general (Dada & Clarke 2000:19). A further contribution made by this study is that the three publishable articles that were written as part of the requirements of the degree could contribute and expand the knowledge base and help equip students for future practice. The proposed curriculum may be used to inform undergraduate medical training on matters related to CFM and to quality assure the training. Furthermore, this research study will hopefully stimulate the interest of young medical practitioners in forensic medicine; which is very much needed in a country where personal violence is rife.

1.18 IMPLEMENTATION OF THE FINDINGS

The report containing the findings of the research will be brought to the attention of the programme director of the School of Medicine, Faculty of Health Sciences, UFS, as well as the Subcommittee for Undergraduate Education and Training of the Medical and Dental Professions Board.

The research findings have been submitted to peer-reviewed academic journals and were published. The researcher hopes to make a contribution to the improvement of health education. The research findings will also be presented at conferences.

1.19 ARRANGEMENT OF THE REPORT

Chapter 1: ***Orientation to the study:*** The background to the study was provided and the problem, including the research questions, was stated. The overall goal, aim and objectives were stated and the research design and methods that were employed were discussed to give the reader an overview of what the study involved.

As this thesis was written in article format, as specified by the requirements of the UFS, Chapters 2 to 4 contain the main results of the study. Three *publishable* articles were prepared. The results of these articles address the first five objectives of the study (*cf.* 1.8). Each article was prepared in accordance with the specific journal submission guidelines specified by each journal. Each article is presented as submitted, complete with the relevant reference lists attached in the style required by the journals. These references are also included in the full reference list of this thesis in the style prescribed by the Division Health Science Education, Faculty of Health Sciences, UFS. Results not discussed in these articles are included in Chapter 5 (the proposed curriculum) and Chapter 6.

Chapter 2: ***Article 1: Medico-legal documentation of rape or sexual assault. Are community service doctors equipped for their task?***

In this article the focus is on community service doctors who had recently completed their two-year internship, and who make mistakes when recording evidence in medico-legal examinations in various settings, which result in alleged perpetrators being set free by the courts. The purpose of this study was to investigate undergraduate CFM training based on the experiences and opinions of community service doctors. This article focused on sexual

assault only. The study investigated shortcomings in undergraduate medical training, to determine if the training produces knowledgeable and skilled community service doctors with regard to CFM. A questionnaire with an adapted Likert scale for quantitative sections was used to gather information from participants. Open-ended questions were also included.

The study was a quantitative retrospective cohort study. An electronic survey tool was employed to target 150 community service doctors countrywide who had completed their undergraduate medical training at the UFS in 2005, 2006 and 2007, and who would thus have done their community service in 2012, 2013 and 2014.

A response rate of 59,3% was achieved and results indicate that clinical forensic training in the undergraduate medical programme did not prepare the community service doctors sufficiently for the CFM challenges that confronted them during their community service. The findings lead the researcher to conclude that the current curriculum should be adapted. Perpetrators will not be convicted unless evidence that is collected can stand up in court. Proper training of medical personnel will ensure that medico-legal documentation is completed correctly, and this will lead to higher conviction rates of perpetrators. Higher conviction rates will improve the public's perception of the effectiveness of the legal system in general.

Chapter 3: ***Article 2: Practice of community-service doctors in the assessment and medico-legal documentation of common physical assault cases***

In South Africa, instances of physical assault are usually managed at primary healthcare level, where victims are attended to by medical officers or community service doctors. However, it has been reported that the knowledge and skills provided at undergraduate level are not sufficient to equip community service doctors to deal with evidence in medico-legal examinations in various settings, including instances of common physical assault or assault with the intent to inflict Grievous Bodily Harm (assault GBH).

The study's objective was to assess the knowledge of community service doctors regarding the patient assessment and recording of medico-legal documentation in cases of physical assault (common assault & assault GBH) cases, with a view to identifying gaps in knowledge relating to the practice of CFM.

The study was a quantitative retrospective cohort study that used a questionnaire with an adapted Likert scale for quantitative sections, and open-ended questions. An electronic survey tool was employed to target 150 community service doctors countrywide who had completed their undergraduate medical training at the UFS in 2005, 2006 and 2007.

A response rate of 59, 3% was achieved and results indicate that clinical forensic training in the undergraduate medical programme did not prepare community service doctors sufficiently to face the CFM challenges they face in practice. The researcher concluded that the current curriculum should be adapted. The courts rely heavily on medico-legal documentation in cases of criminal prosecution. Any substantial flaws, including inaccurate observations and/or notes made by a medical practitioner, may obstruct and defeat the ends of justice.

This study revealed an important gap in the knowledge and practice of CFM amongst medical graduates. Appropriate undergraduate training will ensure that medico-legal documentation is completed accurately, thereby ensuring justice in courts of law.

Chapter 4: Article 3: ***Knowledge of community service doctors regarding the assessment of drivers alleged to be inebriated, and preparation of medico-legal documentation***

This article focussed on drunk driving, which has been reported to increase the risk of road traffic accidents associated with death and severe injury. In South Africa, an increase in blood alcohol concentration of as little as 0.01 g per 100 ml above the legal limit may warrant criminal prosecution or the denial of an insurance claim for damages. However, multiple court cases have been withdrawn because of the incompetence of officials at various stages of the investigation. The scope of the mistakes ranged from poor scene handling, to the incorrect handling of blood samples at the laboratory, to eventual laboratory testing of blood samples. Using a group of community service doctors as a cohort study group, this study investigated the competency of medical graduates in relation to the medico-legal aspects of drunk driving.

The objective was to assess the knowledge and competency of community service doctors regarding the medico-legal aspects of drunk driving. A self-administered questionnaire-based study was done with 150 community service doctors. The questionnaire was

administered in Afrikaans and English and was dispatched electronically via e-mail. All potential participants were contacted telephonically to obtain verbal consent.

Results are displayed as percentages. A response rate of 59.3% was achieved. The results obtained in this study confirm that some community service doctors lack competency in handling medico-legal aspects relating to drunk driving, and are thus unable to serve the communities they have been assigned to adequately. Their lack of skills and knowledge suggests that the present undergraduate CFM curriculum is inadequate.

It would be beneficial to revise the curriculum for CFM in the MBChB programme to address the gap in knowledge and practice of various demands of CFM required from new medical graduates and community service doctors.

Chapter 5: ***A curriculum for clinical forensic medicine in the training of undergraduate students in the MBChB programme, School of Medicine, UFS***

A proposed curriculum framework that may be used for undergraduate CFM medical training will be discussed in detail in Chapter 5. The 2006 and the proposed curriculum (that included changes from 2006-2015) will be compared.

Chapter 6: ***Conclusions, recommendations and implications of the study***

An overview of the study, conclusions, recommendations and implications of the study will be provided.

1.20 CONCLUSION

In Chapter 1, **Orientation to the study**, an introduction and background to the study was provided. Other matters that were discussed include the overall goal, aim, research questions objectives, ethical considerations and schematic overview of the study. The research design and methods that were used were described in full, as this thesis does not contain separate literature review and methodology chapters. With regard to the development of a curriculum for undergraduate training in CFM in the MBChB programme, School of Medicine, Faculty of Health Sciences, UFS, various models of curriculum development were presented. The methodology followed for the literature review was explained.

The research approach, design, methodology and methods was described in full for all three research phases, including information on the target population, sample and sample size, data collection, analysis and interpretation. The quality and rigor for the quantitative phases were discussed. Ethical implications applicable to this study were also addressed, including the role of the researcher, obtaining approval to conduct this study, informed consent, right to privacy and possible benefits and risks associated with this study. This chapter concluded with the scope of this study, its value, significance and contribution, a schematic overview of the research process followed, layout of this thesis and an explanation of the publishable articles.

CHAPTER 2

ARTICLE 1: MEDICO-LEGAL DOCUMENTATION OF RAPE OR SEXUAL ASSAULT. ARE COMMUNITY SERVICE DOCTORS EQUIPPED FOR THEIR TASK?

The article was prepared according to the journal submission guidelines for the journal *South African Family Medical Practice* (cf. Appendix H1).

The article has been published (cf. Appendix H2)

Medico-legal documentation of rape or sexual assault: are community-service doctors equipped for the task?

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To cite this article: L Fouché, J Bezuidenhout, C Liebenberg & AO Adefuye (2017): Medico-legal documentation of rape or sexual assault: are community-service doctors equipped for the task? *South African Family Practice*, DOI: 10.1080/20786190.2017.1348046

To link to this article: <http://dx.doi.org/10.1080/20786190.2017.1348046>

UK Limited, trading as Taylor & Francis Group

Published online: 20 Jul 2017.

Medico-legal documentation of rape or sexual assault: Are community-service doctors equipped for the task?

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Abstract

Background: Following upon two-year internship, community-service doctors make mistakes when they deal with evidence of medico-legal examinations in various settings. These mistakes result in alleged perpetrators being released by courts. The study investigated undergraduate clinical forensic medicine training, based on experiences and opinions of community-service doctors. This article focuses on incidents of alleged rape cases only.

Methods: The study was a quantitative retrospective cohort study that made use of a questionnaire with an adapted Likert scale. An electronic survey tool was employed to target 150 community-service doctors throughout South Africa. Percentages are used to display results.

Results: A response rate of 59.3% was achieved. Although, 80% of the participants reported that they had undergraduate training on how to manage alleged rape or sexual assault cases, only 11.4% of the participants had hands-on exposure to an alleged rape case during their undergraduate training. In addition, the majority of the participants (77.1%) never had undergraduate training on how to complete the J88 form. These findings indicate that clinical forensic training in the undergraduate medical programme does not adequately prepare community-service doctors to meet the challenges of clinical forensic practice. The current curriculum should be adapted to address these shortcomings.

Conclusions: Perpetrators cannot be convicted if evidence collected cannot stand up in court. Proper training of undergraduate medical students prior to their community-service posting will ensure that medico-legal documentation is completed correctly, leading to the presentation of credible evidence in the court of law in order to ensure successful conviction of alleged perpetrators.

Key words: Sexual assault, community-service doctors, medico-legal documentation, clinical forensic medicine, medical training.

Introduction

Sexual assault and rape are violent crimes and among the most demoralising of personal traumas, often leaving victims physically assaulted, emotionally traumatised or even dead¹. According to the (Sexual offences And Related Matters) Amendment Act 32 of 2007 of the Republic of South Africa, any person ('A'), who unlawfully and intentionally commits an act of sexual penetration with a complainant ('B') without the consent of B, is guilty of the offence of rape². This act makes provision that both men and women can be raped².

South Africa has one of the highest incidences of rape in the world ¹. However, statistics on rape of men in South Africa are not available, as most male rapes go unreported ³. According to the South African Police Service (SAPS) 2015/2016 annual crime report, 41, 503 incidents of rape were reported between the 1st April, 2015 and the 31st March, 2016 - approximately 114 rape incidents per day ⁴. The SAPS states that the number of rape cases decreased by 3.9% from the preceding year, following a year-on-year decrease since 2012/2013 ⁴. The question arises whether the figures released by the SAPS reflects an actual reduction in the number of rapes reported, or a reduction in the incidence of rape ⁵. The National Institute for Crime Prevention and Rehabilitation (NICRO) states that only one in 20 incidents of rape is reported to the SAPS and that the SAPS figures do not reflect the reality of what is happening in the community. It is acknowledged that lack of faith in the criminal justice system and medical services are among the major barriers to reporting and successfully prosecuting sexual offenders ^{5,6}.

The objective of this study was to assess the knowledge and experience of community-service doctors in medico-legal documentation and management of adults/adolescent patients who reported being raped, with the aim of highlighting the short-falls of the present curriculum for clinical forensic medicine training in the undergraduate MBChB programme in South Africa.

Methods

This study was a quantitative retrospective cohort study that used a questionnaire to obtain information about the knowledge, experiences and opinions of a cohort of community-service doctors regarding clinical forensic medicine practice. The questionnaire was self-administered, and was administered once. The study cohort comprised MBChB graduates who had just completed their community service or were still in service during the period of survey.

The contact details of the potential participants were sourced from the Health Professions Council of South Africa. All potential participants were contacted telephonically to obtain verbal consent.

A total of 150 questionnaires were dispatched electronically via e-mail. Data collected include the following:

- Demographics - Age, gender and home language;
- Professional profile - Information on when the participant had started and completed his/her medical studies.
- Employment profile - Information on when and where participants had done/were doing community service; and
- Experience of managing sexual assault/rape victims during community-service year

This study was approved by the Health Sciences Research Ethics Committee (HSREC 149/2011) of the Faculty of Health Sciences at the University of the Free State.

Results

A response rate of 59.3% was obtained by this study: 89 of the 150 questionnaires distributed were returned. Some participants did not answer all the questions.

Demographic and professional details of participants

Data regarding age, gender, language, academic history, completion of studies, and information as about when and where the participants were doing/had done their community service was obtained.

Age and gender distribution

The average age of the majority of participants (40.9%) was 28 years. Of the 89 doctors who participated in this study, 61.8% were women and 38.2% men.

Home language

In response to this survey, 73% of participants reported Afrikaans as their home language, 15.7% reported English as being their home language and 11.2% had another language as home language (n = 89).

Community service location

Regarding the province of service, 39.3% of participants were posted to communities in the Free State while 13.5% and 12.4% of participants did their community service in North West and Northern Cape, respectively (Figure 1). Furthermore, 47.2% of participants did their community service in urban settings, whilst 27.9% of participants did their community service in a mixed urban and rural settings. About a quarter of participants (25.8%) did their community service in rural settings.

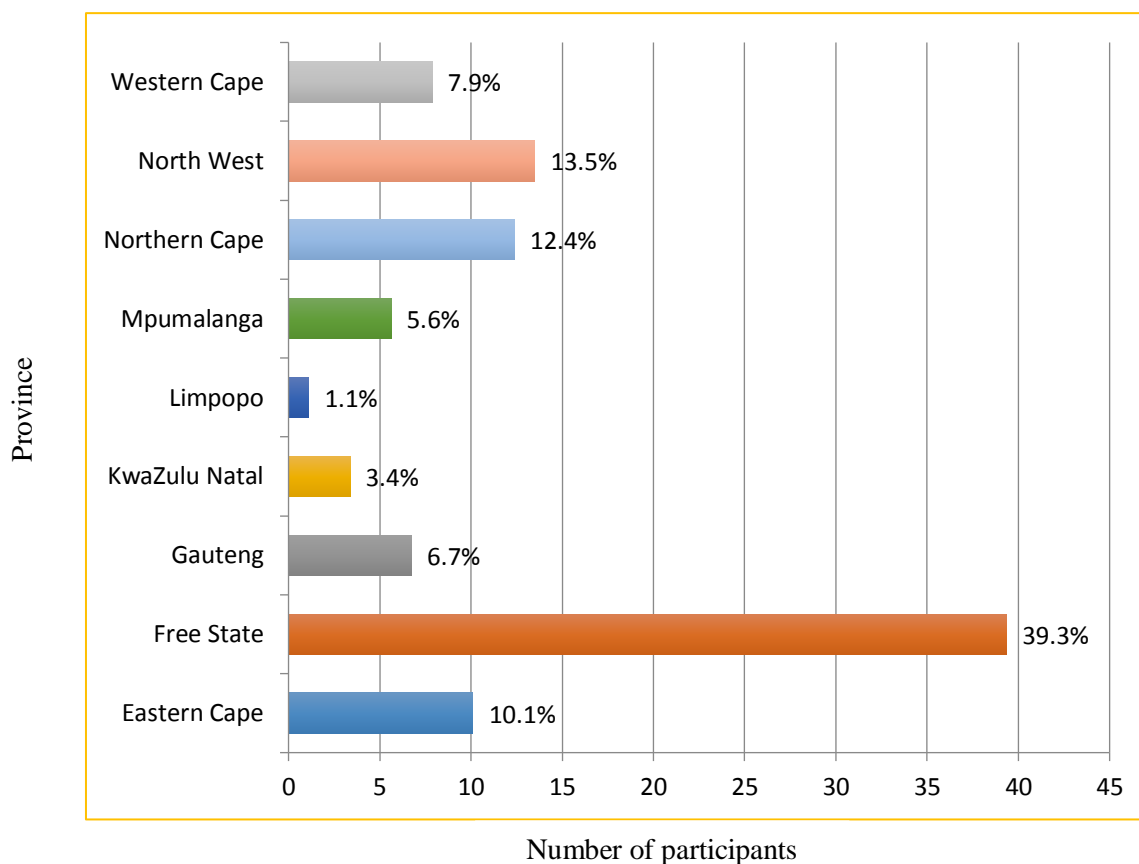


Figure 1: Province of community service (n = 89)

Alleged rape incidents encountered during year of community service

As shown in Table I, only 39.3% (n = 35) of the participants encountered incidents of rape or sexual assault during their year of community service. The frequencies on the questionnaire were 1-5 cases (37.1%, n = 13), 5-10 cases (17.1%, n = 6), 10-20 cases (20.1%, n = 7) and 20 cases or more (25.7%, n = 9).

Table I: Number of rape cases encountered by participants during year of community service

	Yes		No	
	% (n)		% (n)	
Encountered incidents of rape (n = 89)	39.3 (35)		60.7 (54)	
Number of rape cases examined (n = 35)	1-5 cases	5-10 cases	10-20 cases	20 or more cases
	37.1 (13)	17.1 (6)	20.1 (7)	25.7 (9)

History-taking

Analysis of data obtained by this study shows that only 82.9% (n = 29) of the participants who had encounters with rape or sexual assault case/cases during their community service year recorded detailed histories (Yes, always) of the alleged rape or sexual assault, while 17.1% (n = 6) occasionally (Yes, sometimes) did so (Table II). Furthermore, when asked whether they recorded detailed gynaecological and sexual histories of the patients, 77.1% (n = 27) and 80% (n = 28) of the participants reported that they always did. In a multi-cultural society, such as that of South Africa, where 11 languages are recognised as official languages, it is important for an interpreter to be present when obtaining a history from a patient who reports being raped. An interpreter could aid in ensuring that the correct information about the incident is obtained where there is a language difference between the doctor and the patient. The majority of the participants (65.7%, n = 23) reported occasionally using an interpreter (Table II), suggesting that the pa

Table II: Recording detailed histories of patients who alleged being raped (n = 35)

History Recorded	Yes, always	Yes,	No
	% (n)	sometimes % (n)	% (n)
Details of the alleged rape or sexual assault	82.9 (29)	17.1 (6)	0 (0)
Details of the gynaecological history	77.1 (27)	20 (7)	2.9 (1)
Details of patient's sexual history	80 (28)	14.3 (5)	5.7 (2)
Used an interpreter	14.3 (5)	65.7 (23)	20 (7)

Examination

During the examination of a patient who reports having been raped, it is obligatory for a chaperone to be present, to ensure a safe environment for both the patient and the examining medical practitioner. Analysis of data from this study revealed that only 40% (n = 14) of the participants always requested a chaperone to be present during an examination, while 22.9% (n = 8) examined the patient without a chaperone being present (Table III).

Of the 34 participants who responded to the question relating to obtaining patient's consent prior to examination, the majority (73.5%, n = 25) reported always obtaining consent prior to conducting the examination. When a patient report being raped, detailed examination of the female genital and external anal region is essential. Of the 35 participants who reported treating patients who said they had been raped, 88.6% (n = 31) always documented injuries on the genitalia (Table III).

The J88 is a comprehensive form that has to be completed in duplicate by the practitioner who examines a patient reporting rape or sexual assault. Analysis of the data collected by this study shows that the majority (77.1%, n = 27) participants who treated patients reporting being raped had prior knowledge of the J88 form, while 22.9% (n = 8) had not. Similarly, 97.1% (n = 34) of the participants documented examination findings on the J88 form (Table III), suggesting that the other 7 participants who came in contact with the J88 form for the first time while attending to patient might have difficulty in completing the form or might have completed the form incorrectly. However, 54.3% (n = 19) reported difficulties in completing the J88 form (Table III).

Table III: Procedures for examining of patients who alleged being raped (n = 35)

Procedures	Yes, always % (n)	Yes, sometimes % (n)	No % (n)
Chaperone was present	40 (14)	37.1 (13)	22.9 (8)
**Obtaining consent for examination	73.5 (25)	26.5 (9)	0 (0)
Completing a general examination	68.8 (24)	25.7 (9)	5.7 (2)
Noting the developmental stage of the patient's breasts	60 (21)	22.9 (8)	17.1 (6)
Noting the developmental stage of the patient's genitalia	62.9 (22)	22.9 (8)	14.3 (5)
Noting the appearance of the patient's anus	74.3 (26)	22.9 (8)	2.9 (1)
Noting injuries on the patient's genitalia	88.6 (31)	8.6 (3)	2.9 (1)
Familiar with J88 form	77.1 (27)	*	22.9 (8)
Documented injuries on the J88	97.1 (34)	*	2.9 (1)
†Placed original J88 in kit before sealing	90.9 (30)	*	9.1 (3)
Handed the sealed kit to the investigating officer	68.6 (24)	25.7 (9)	5.7 (2)
Experienced difficulties with the questions in the J88	54.3 (19)	*	45.7 (16)

** , n = 34

† , n = 33

*, indicates that the option was not available for that particular question

Collection of forensic evidence

The sexual assault evidence collection kit (SAECK) is an enabling tool with a checklist of all the evidence that must be collected for forensic purposes. Data obtained in this study revealed that 31.4% (n = 11) of the participants had no knowledge of the SAECK prior to starting their community

service, while 68.6% (n = 24) had already been familiar with the SAECK (Table V). The kit requires that sufficient time is allowed for samples to dry after collection in order to prevent decomposition. Only 54.3% (n = 19) of participants who indicated that they had examined patients who had reported rape or sexual assault always ensured that the samples collected were dry (Yes, always), while 20.0% (n = 7) indicated that they sometimes did (Yes, sometimes) and 25.7% (n = 9) never did (Table IV). Samples should be sealed personally by the examining doctor to preserve the chain of evidence. Of the participants, 82.9% (n = 29) reported sealing the samples personally (Table IV).

Table IV: Adhering to procedures of collecting and handling forensic evidence (n = 35)

Forensic samples collected	Yes, always % (n)	Yes, sometimes % (n)	No % (n)
Familiar with SAECK prior to community service	68.6 (24)	*	31.4 (11)
Collected relevant samples for forensic evidence	85.7 (30)	11.4 (4)	2.9 (1)
Swabbed bite wounds	70.6 (25)	2.9 (1)	26.5 (9)
Swabbed under the fingernails	51.4 (18)	37.1 (13)	11.4 (4)
Collected underwear	51.4 (18)	40.0 (14)	8.6 (3)
Combed the pubic area	60.0 (21)	34.3 (12)	5.7 (2)
Removed pubic hair for reference	48.6 (17)	42.9 (15)	8.6 (3)
Swabbed vulva	97.1 (34)	3.0 (1)	0 (0)
Swabbed vagina	82.9 (29)	17.1 (6)	0 (0)
Swabbed cervical os	65.7 (23)	31.4 (11)	2.9 (1)
Swabbed anus	62.9 (22)	34.3 (12)	2.9 (1)
Swabbed rectum	48.6 (17)	34.3 (12)	17.1 (6)
Allowed sufficient time for samples to dry before sealing	54.3 (19)	20.0 (7)	25.7 (9)
Sealed samples personally before placing in kit	82.9 (29)	14.3 (5)	2.9 (1)

*, indicates that the option was not available for that particular question

Prevention of sexually transmitted infections

Prescribing treatment for sexually transmitted diseases (STDs) and anti-retro-viral (ARV) therapy are deemed necessary for patients reporting being raped, because the lifestyle and HIV status of alleged perpetrators are not known. It is important to note that 91.4% (n = 32) of the participants in this study who indicated that they had examined patients who had been raped or sexually assaulted, initiated treatment for STDs and ARV therapy. However, doing so does not appear to be considered essential by all participants, as 8.6% (n = 3) only occasionally initiated treatment (Table V).

Patients who visited a medical facility after allegedly being raped or sexually assaulted should be informed about appropriate follow-up visits. The aims of the follow-up visits are to collect test result but also to ensure that the medication was taken as prescribed. Psychosocial follow-up visits should be discussed with patients. As seen in Table V, 62.9% (n = 22) of the participants always booked patients for a follow-up visit to the medical facility, while only 48.6% (n = 16) of the participants discussed psychosocial follow-up visits with patients.

Table V: Treatment administered (n =35)

	Yes, always % (n)	Yes, sometimes % (n)	No % (n)
Prescribed ARVs and treatment for STDs	91.4 (32)	8.6 (3)	0 (0)
Provided a follow-up date for the patients to report to the medical facility	62.9 (22)	22.9 (8)	14.3 (5)
Discussed psychosocial follow-up with the patient	48.6 (17)	31.4 (11)	20 (7)

Undergraduate training for management of rape or sexual assault

A survey on whether participants in this study had undergone any form of undergraduate training on managing patients who had been raped or sexually assaulted showed that the majority (80%, n = 28) of the participants had undergone some undergraduate training on managing rape or sexual assault cases. On the other hand, only 11.4% (n = 4) reported having hands-on experience with managing a patient who reported being raped during their undergraduate medical training (Table VI).

Table VI: Undergraduate training for management of patient who reported been raped or sexually assaulted (n =35)

	Yes % (n)	No % (n)
Undergraduate training pertaining to rape cases	80 (28)	20 (7)
Undergraduate hands-on exposure managing a rape or sexual assault case	11.4 (4)	88.6 (31)
Undergraduate training in completion of J88	22.9 (8)	77.1 (27)

Discussion

In all societies and all facets of life, sexual assault and rape are atrocious crimes, constituting a huge human rights violation and a major health issue for women ⁷. Although, most countries now have laws that criminalise sexual assault and rape, obtaining justice for the majority of victims has been largely unsuccessful as the low conviction rates of alleged offenders demonstrate ⁸. In a study aimed at investigating the barriers to effective use of medico-legal findings in cases of sexual assault, Du Mont and White reported that a lack of competence among law enforcement, forensic scientists, legal and medical professionals who deal with sexual assault and rape cases, often negatively impacts on the integrity of medico-legal findings ⁹.

With sexual assault and rape being endemic in South Africa ¹⁰, South African courts rely heavily on medico-legal evidence to support victims' accounts of assault. Hence, it is important that health care providers are competent in collecting evidence and documenting proper medico-legal findings as relating to rape and sexual assault.

According to the Health Professions Act (Act No 56 of 1974) [Government Notice. No R.688 as amended by G.N. R.498 of May 2000 and G.N. R.69 of 22 January 2002], every South African medical graduate is compelled to do one-year community service after completing their medical internship training. During this time, they provide and improve healthcare delivery in their host communities and their duties include the delivery of primary health-care, which includes clinical forensic medicine. One major component of clinical forensic medicine is the assessment/examination, documentation and treatment of patients who report to have been sexually assaulted or raped. These examinations are also known as medico-legal examinations and they entail a very detailed history taking with regards to the incident, and a thorough general examination coupled with the collection of forensic samples.

Training of undergraduate students in clinical forensic medicine is a prerequisite of the Subcommittee for Undergraduate Education and Training of the Medical and Dental Professions Board. Over the years, the undergraduate forensic medicine curriculum has been progressively whittled down through repeated amendments to the syllabus. This resulted in many community-service doctors being incapable of diligently handling medico-legal cases, and it has led to an increase in the number of acquittals of people accused of rape or sexual assault, resulting in an injustice being done to the victims.

Meticulous history-taking is an integral part of the forensic medical examination of adolescent and adult victims of sexual assault and rape. Comprehensive history-taking enables precise

documentation and guides the examiner during the physical examination and the collection of trace-evidence¹¹. History should be taken in a calm, sensitive and non-judgemental manner¹². The scope of the history should include the patients' biographical data, date and time of the alleged attack, circumstances of the assault, activities of the victim after the incidents, details of any symptoms occurring after the assault, and the sexual/reproductive health history of adolescent and adult patients¹². Even more important, are points of forensic medical interest that support subsequent findings, namely, the details of the alleged rape or sexual assault, and the gynaecological and sexual history of the patient¹¹.

This study found that most community-service doctors who participated in the study took detailed histories of the alleged rapes or sexual assaults, as well as gynaecological and sexual histories of patients. It was however found that some participants lacked knowledge on the basic principles of clinical forensic examination. Evidence of this lack include their failure to request the patient's consent prior to the examination and failing to ensure that a chaperone is present during the examination (Table II). Consent for the examination must be obtained from the patient, or if the patient is a minor, an accompanying adult family member¹². However, obtaining informed consent should not be perceived as a once-off act. Instead information should be provided at each stage of an examination and verbal consent obtained from the patient for each stage.

The study also highlighted that not all the participants had sufficient knowledge of the J88 form that they were required to complete (Table II). The form is used to record the demographic details of the patient, the medical and gynaecological history, and history with regards to the alleged incident. The form also has a section for examination findings and sketches which can be used to demonstrate possible or observed injuries. Poor knowledge of the J88 form may lead to inadequate documentation of both the history and the examination findings¹³. It was also found that a substantial number (31.4%) of the participants had no prior knowledge of the SAECK (Table IV). Although the SAECK is accompanied by an extensive user guideline, it remains a daunting experience to use for the first time. The aim of this kit is to collect forensic evidence, including DNA samples, from the patient. Poor knowledge and improper use of the SAECK negatively affect the quality of the forensic samples collected¹⁴.

Although this study shows that the majority (80%, n = 28) of the participants had undergone some undergraduate training on the management of rape and sexual assault cases, only 11.4% (n = 4) reported having been involved in the treatment of the victims during their undergraduate medical training (Table VI). This highlights the need to amend the curriculum for clinical forensic medicine in the MBChB programme in order to address the shortcomings of the clinical forensic medicine

curriculum and to improve the knowledge and skills of medical graduates regarding their medico-legal obligations.

Finally, it should be noted that while most participants responded to most of the questions, the major limitation of this study was the small size of the sample.

Conclusion

The inept handling, collecting and processing of medico-legal evidence by healthcare providers in cases of rape or sexual assault have been attributed to a lack of rigorous training, and poor performance standards⁷. Although most of the participants in this study had, during their undergraduate medical training, undergone some form of training on the principles of managing patients reporting rape or sexual assault, only a few of them had a hands-on experience before graduating. This study revealed an important gap in medical education and the practice of clinical forensic medicine among community-service doctors. It would be beneficial to revise the curriculum of clinical forensic medicine to address the shortcomings in the current MBChB programme.

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CHAPTER 3

ARTICLE 2: PRACTICE OF COMMUNITY-SERVICE DOCTORS IN THE ASSESSMENT AND MEDICO-LEGAL DOCUMENTATION OF COMMON PHYSICAL ASSAULT CASES

The article was prepared according to the journal submission guidelines for the journal *South African Family Medical Practice* (cf. Appendix H1).

The article has been published (cf. Appendix H3).

Practice of community-service doctors in the assessment and medico-legal documentation of common physical assault cases

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To cite this article: L Fouché, J Bezuidenhout, C Liebenberg & AO Adefuye (2017): Practice of community-service doctors in the assessment and medico-legal documentation of common physical assault cases, *South African Family Practice*, DOI: 10.1080/20786190.2017.1364014

To link to this article: <http://dx.doi.org/10.1080/20786190.2017.1364014>

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Published online: 13 Sep 2017.

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**Practice of community-service doctors in the assessment and medico-legal
documentation of common physical assault cases**

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Abstract

Background: In South Africa, allegations of physical assault are managed primarily at the primary healthcare level, where they are attended to by medical officers or community service doctors (CSDs). However, reports that the knowledge and skills provided at undergraduate level are not sufficient to equip these CSDs to deal with evidence in medico-legal examinations in various settings including in cases of patients who allege being the victims of common physical assault or assault with intent to inflict grievous bodily harm, have been documented in literature. This study investigates the practice of CSDs in relation to the assessment and medico-legal documentation of allegations of common assault, with a view to identifying gaps in their knowledge of clinical forensic medicine.

Method: The study was a cross-sectional descriptive study. A questionnaire with quantitative sections that used an adapted Likert scale was used to gather data. An electronic survey tool was employed to target 150 CSDs countrywide. Percentages are used to display results.

Results: A response rate of 59.3% was achieved and results indicate that clinical forensic training in the undergraduate medical programme does not prepare CSDs sufficiently for the task of managing the medico-legal examination and documentation of allegations of assault by patients.

Conclusions: The courts rely heavily on medico-legal documentation for success in criminal prosecution. Any substantial flaw in the documentation, including inadequate observations and/or notes made by a medical practitioner, may make proving guilt very difficult. This study revealed an important gap in the knowledge and practice of clinical forensic medicine by CSDs and suggests that the current curriculum should be adapted to allow adequate training of undergraduate medical students in the area of clinical forensic medicine. Appropriate undergraduate training will ensure that medico-legal documentation is completed accurately and that medical practitioners help ensure the administration of justice.

Keywords: Assault, medico-legal documentation, clinical forensic medicine and curriculum

Introduction

According to South African law the integrity of the physical person (*corpus*), dignity of the person (*dignitas*), and the reputation (*fama*) of the person are the trinity of interests of human personality protected by criminal sanction.¹ While violations of *fama* and *dignitas* are prosecuted as defamation and *crimen injuria* respectively, violation of the interest in *corpus* is prosecuted as assault.¹ South Africa (SA) has one of the highest rates of incidence of interpersonal violence, including indecent assault, in the world.^{2, 3} According to the 2015/2016 crime statistics of the South African Police Service (SAPS) a total of 164,958 and 182,933 counts of common assault and assault with intent to inflict grievous bodily harm respectively, were recorded between 1st April 2015 and 31st March 2016.⁴ Members of the SAPS and the medical fraternity share the responsibility of ensuring successful conviction and accurate administration of justice by presenting relevant medical forensic evidence to advance informed decisions on legal matters.⁵ Medical evidence is often crucial for proving a case and obtaining a conviction. However, in spite of improved awareness and service upgrades, the conviction rate of people charged with assault in SA is disappointingly low when compared to other countries.² This fact can be attributed to, among others, errors made by clinicians in the broad field of forensic medicine.⁶ The difference between a conventional clinical examination, aimed at diagnosing the cause of a disease and a medico-legal/forensic examination of a victim, which is expected to provide additional information that may have important legal rather than medical connotations, is often poorly understood by doctors.^{2,6}

In SA, allegations of physical assault are managed primarily at primary healthcare level,⁵ where they are attended to by medical officers or CSDs. It has been reported that the knowledge and skills provided at undergraduate level are not sufficient to equip medical graduates to deal with clinical forensic cases.⁵ Hence, the aim of this study was to assess the practice of CSDs in relation to the assessment and medico-legal documentation of patients who report being assaulted, with a view to identifying gaps in the CSDs' knowledge of the practice of clinical forensic medicine.

Methods

A cross-sectional descriptive study was done of 150 CSDs who were medical graduates of the School of Medicine, Faculty of Health Sciences, University of the Free State (2005-

2007), and who had either completed their community service or were still in service at the time of the study. A comprehensive list of names was obtained from the administration of the Faculty of Health Sciences from which the prospective participants had graduated (n = 300). A non-random sampling was used as all 300 prospective participants were included in the study. The contact details of all prospective participants (n = 300) was sourced from the Health Professions Council of South Africa. However, after a follow-up only 150 CSDs of the total 300 prospective participants had active telephone contacts and gave consent to participate in the study. The remaining 150 prospective participants did not either have active telephone contacts or did not respond to voicemail messages. Each non-responder was phoned at least twice. All potential participants were contacted telephonically to obtain verbal consent to participate.

It was decided to use a self-administered questionnaire to obtain the sincere responses of the participants. The questionnaire was available in Afrikaans and English and was dispatched electronically via e-mail. The questionnaire was divided into four parts: demographics (age, gender and home language); professional profile; employment profile (when and where participants performed their community service); competency in medico-legal assessment and documentation of assault cases during the service year. A 3-point Likert scale was used (Yes always, Yes, sometimes, and No). The response rate was 59.3% (89 of the initial 150 questionnaires that were distributed were returned) despite numerous (e-mail and text messages) reminders sent to all the participants at intervals. The results were captured on Microsoft Excel 2013, and analysed by a biostatistician from the Department of Biostatistics, University of the Free State. Ethical clearance was received from the Ethics Committee of the Faculty of Health Sciences at the University of the Free State (ECUFS 149/2011), the acting head of the School of Medicine, and the vice rector: Academic Planning at the University of the Free State.

Results

Demographic information

In the study sample of 89 participants, 76.2% (n = 67) were in the 27-29 years age group. The gender distribution was 61.8% women and 38.2% men. Of the participants 73% (n = 65) reported Afrikaans as their first language, and 15.7% (n = 14) reported English as their first language, whilst 11.2% (n = 10) reported other languages as their first language.

In terms of placement, 39.3% (n = 35) and 1.1% (n = 1) of the participants did their community service in the Free State and Limpopo provinces, respectively (Table I). Furthermore, 47.2% of the participants completed their service in urban communities, 27.9% of them served in a mixed urban-rural community, whilst a minority of participants (25.8%) did their community service in a rural setting.

Table I: Demographic characteristics of participants who responded to the questionnaire

Characteristics	% (n)
Age (n = 88)	
27 - 29	76.2 (67)
30 - 32	17 (15)
33+	6.8 (6)
Gender (n =89)	
Male	38.2 (34)
Female	61.8 (55)
First language (n =89)	
Afrikaans	73 (65)
English	15.7 (14)
Others (Zulu, Xhosa, Sotho etc.)	11.2 (10)
Province of service (n =89)	
Western Cape	7.9 (7)
Eastern Cape	10.1 (9)
Northern Cape	12.4 (11)
North-West	13.5 (12)
Gauteng	6.7 (6)
Mpumalanga	5.6 (5)
Limpopo	1.1 (1)
Free State	39.3 (35)
KwaZulu-Natal	3.4 (3)

Patients encountered during year of community service who reported having been assaulted

Participants were asked whether, during the period of their community service, they had examined any patient who had reported being physically assaulted. The majority (93.2%, $n = 82$) of participants said they had examined such patients in their year of community service, while 6.8% ($n = 6$) of participants never examined patients who had claimed to be assaulted (one participant did not answer the question). Furthermore, when asked how many patients claiming to have been assaulted they had examined, the majority of participants (54.9%, $n = 45$) reported to have examined 50 cases or more in the one-year period (Figure 1).

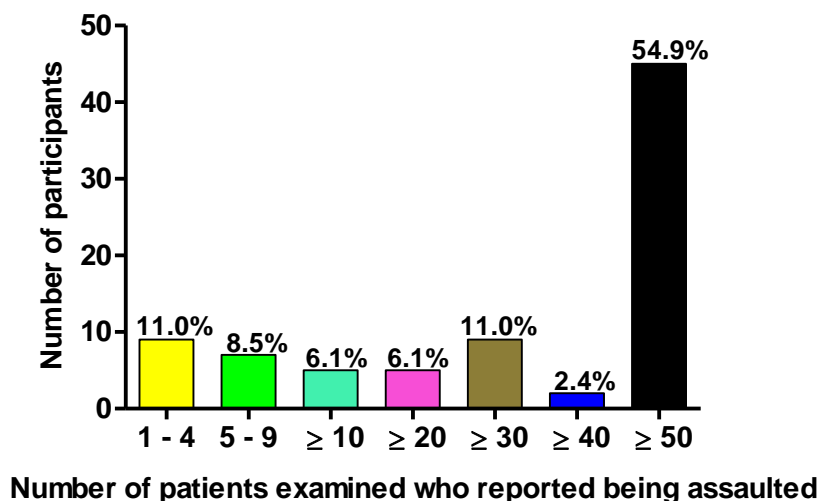


Figure 1: Number of examinations conducted on patients who reported being assaulted
($n = 82$)

Collecting and documenting relevant history about alleged assaults

The J88 form is a legal document used to record the factual findings of a medical assessment of a patient, and the opinion of the medical practitioner about the significance of the facts. Therefore, it is mandatory that the J88 form must be completed by a medical practitioner for every patient who presents to a health facility and reports being assaulted. When participants were asked whether the J88 form accompanied patients reporting being assaulted, only 18.5% of participants who had encountered such patients reported that the J88 form always accompanied the patient, 76.5% reported that the J88 form sometimes accompanied the

patient, and 5% of the participants said the patients were not accompanied by the form (Table II).

Furthermore, when asked about taking relevant history, 82.5% of the participants attested to always taking relevant history; 81.5% of the participants reported that they always documented the relevant history on the J88 form (Table II). Docket analyses has shown that a large number of alleged assault are associated with consumption of alcohol or other addictive substances.⁴ Hence, it is important to take the history of alcohol consumption. In this study, 60.8% of participants who indicated that they had examined patients reporting being assaulted always asked the patient about alcohol usage, whereas 36.7% of participants sometimes asked, and 2.5% of the participants never asked the patient about his/her alcohol usage (Table II). Of the participants who reported examining patients who reported being assaulted, 63% indicated that they documented history of alcohol usage on the J88 form, whereas 33.3% of the participants sometimes documented history of alcohol usage on the J88 form and 3.7% of participants never did so (Table II).

Table II: Participants' responses regarding history taking and documentation for the J88 form

	Yes, always % (n)	Yes, sometimes % (n)	No % (n)
J88 accompanied the patient (n = 81)	18.5 (15)	76.5 (62)	5.0 (4)
Took relevant history about the alleged assault (n = 80)	82.5 (66)	17.5 (14)	0 (0)
Noted the relevant history on the J88 (n = 81)	81.5 (66)	18.5 (15)	0 (0)
Asked about alcohol usage (n = 79)	60.8 (48)	36.7 (29)	2.5 (2)
Noted alcohol usage on J88 (n = 81)	63 (51)	33.3 (27)	3.7 (3)

Examination, description and documentation of wounds and injuries

During a medico-legal examination of a patient reporting to have been assaulted technically accurate use of wound terminology is very important for future legal proceedings, as it enables precise identification of a weapon used in an assault or that caused an injury.

A bruise is a focal discolouration of the skin due to rupture of the small venules, with extravasation of the blood into the surrounding tissue due to blunt trauma.⁷ An abrasion is the loss of the superficial skin layers due to tangential blunt force trauma.⁷ Responses in the questionnaire of this study indicated that that only 91.4% of participants who indicated that they had examined patients claiming to have been assaulted, are able to recognise a bruise, and, 96.3% are able to recognise an abrasion (Table III), suggesting that seven (8.6%) and three (3.7%) participants reported being unable to recognise a bruise and an abrasion, respectively.

A laceration is a full thickness forceful tearing of the skin, with ragged edges, tissue bridges and hair and foreign material in the depths of the wound.⁷ Almost all the participants (98.8%) who indicated that they had examined patients reporting being assaulted are able to recognise lacerations (Table III). In contrast to a laceration, an incised wound can be a slash wound, a cut wound or a stab wound. It is caused by sharp trauma with, for example, a knife. The wound edges are sharp and there are no tissue bridges, hair or foreign material in the depths of the wound. When asked whether they would recognise an incised wound, 84% of participants who indicated that they had examined patients who reported being assaulted indicated that they would be able to recognise an incised wound (Table III).

It is also mandatory that wounds and injuries are described individually in terms of location, type, size and shape, degree of severity and age.⁷ Thus, when the participants who indicated that they had examined patients reporting to have been assaulted were asked if they had measured the wounds found during examination, 38.3% of participants reported that they always measure wounds, whereas 44.4% of participants sometimes measured wounds, and 17.3% of participants never measured wounds. Furthermore, only 58% of participants who had examined patients reporting to have been assaulted during the participants' year of service reported always noting the shape of the wound, whereas 37% of the respondents did it sometimes and 5% never noted the shape of the wound (Table III). When asked if they documented the details of wounds on the J88 form, most of the participants (97.5%) who indicated that they had examined patients reporting to have been assaulted attested to always documenting the wounds on the J88 form, the remaining 2.5% sometimes documented the wounds (Table III).

Table III: Knowledge of participants in relation to examination, description and documentation of wounds and injuries (n = 81)

	Yes, always % (n)	Yes, sometimes % (n)	No % (n)
Identifying a bruise	91.4 (74)	*	8.6 (7)
Identifying an abrasion	96.3 (78)	*	3.7 (3)
Identifying a laceration	98.8 (80)	*	1.2 (1)
Identifying an incised wound	84 (68)	*	16 (13)
Measuring the wound	38.3 (31)	44.4 (36)	17.3 (14)
Noting the shape of the wound	58 (47)	37 (30)	5 (4)
Documenting the wounds on the J88 form	97.5 (79)	2.5 (2)	0 (0)

*, indicates that the option was not available for that particular question

Undergraduate training and exposure to medico-legal documentation of assault cases

Analysed data presented in this article reveals that only 66.7% of participants who indicated that they had examined assault cases during their year of community service had prior training and/or exposure to medico-legal documentation and management of assault cases during their undergraduate training. In addition, 70.4% of the respondent CSDs indicated that they had undergraduate training on the documentation of wounds as regards assault cases. However, when asked if the respondent CSDs received any undergraduate training on completing the J88 form for assault cases, only 26.8% of participants indicated that they have received training while majority of the CSDs (73.2%) never received any undergraduate training on completing the J88 form.

Discussion

In post-apartheid SA, crime is one of the most serious challenges facing the country – it is claimed that SA has one of the highest crime rates in the world.⁸ The effect of the high crime rate extends beyond the pain or loss suffered by the victims, as it also has a direct cost impact on the economy.⁸ In SA, various forms of interpersonal violence are common, ranging from slapping, threatening to beat, hitting with sticks or other objects, pushing and assaulting with fists, to stabbing with a knife and shooting.⁹ Community assault (severe beating of an alleged

criminal by members of the local community) has also been shown to be widespread in the townships of South Africa,¹⁰ and generally involves the use of sjambok (a heavy leather whip traditionally made from an adult hippopotamus or rhinoceros hide), to inflict extensive soft-tissue trauma.¹⁰ Circumstantial evidence suggests that victims of community assault are more severely injured than their non-community assault counterparts.¹⁰

Forensic medicine is a specialty discipline that links medicine and law. It facilitates and influences legal cases by providing evidence in the form of documentation – the more thorough and robust the evidence contained in the documentation, the more useful it is in the legal process.¹¹ In SA, efforts are being made to improve the practice of forensic medicine through the introduction of new training initiatives, such as the postgraduate diploma qualification developed by the University of the Free State.^{5, 12} However, knowledge and skills provided at undergraduate level are not sufficient to equip medical graduates to deal with clinical forensics cases. Hence, this study assesses the practice of medical graduates who, during their community service year, dealt with medico-legal documentation of patients who reported having been physically assaulted, with a view to identifying knowledge gaps in the undergraduate clinical forensic medicine curriculum.

In *Pistorius v The State* (253/2013) [2014] ZASCA 47 (1 April 2014), the Supreme Court of Appeal heard an appeal against a conviction on the basis of *crimen injuria* (along with an appeal against a conviction for assault with intent to commit grievous bodily harm). The complainant held that the following event occurred on the day of incident (at Paragraph [7]).^{13, 14}

The complainant went to report the incident to the police at the Vaal Police Station the same day. He subsequently consulted with Dr 'N'. He testified that he was injured on his back and left arm. Furthermore, he explained that he had swollen and open wounds which were sutured and he was given some medication. He confirmed that he received a J88 form from the police, which he handed over to the police officer after the doctor had completed it as well as a sick note which he gave to his employers. He did not know what the police had done with the J88.

The J88 form is a legal form of the Department of Justice specifically designed to document relevant medical findings for court; it is broadly used in most clinical forensic examinations

in SA. Findings as reported by the participants in this study reveal that, in most cases (76.5%), a patient reporting being assaulted was not accompanied by the J88 form when he/she presented at the healthcare facility. Although clinical notes can also be presented as evidence in medico -legal cases, a fully completed, legible J88 form with a well-formulated conclusion may be the only irrefutable evidence accepted by the court of law. It is the responsibility of the attending medical practitioner to complete the J88 form with the most relevant information, and to omit irrelevant information.¹⁵ The J88 form may only be handed over to a police official, and it is not supposed to be released to the patient (as seen in quote above from *Pistorius v The State*), as this would compromise the chain of evidence and may render the evidence on the form inadmissible.⁵

In this study, some participants reported that they do not always take or document a relevant history (Table II), while this step is an essential part of a forensic medical examination. Failure to comprehensively take and document a relevant history can make the evidence untenable in court. Information given by the patient must be true, and an omission on the medical practitioner's part should not have an influence on the factual content. According to the SAPS, most reported instances of alleged assault occur in bars, taverns and shebeens (an unlicensed establishment or private house selling alcohol) while people are consuming alcohol. This was supported by findings for the Free State, in which alcohol played a role in 29% of recorded common assault cases.⁴ Only 60.8% and 63% of the participants in this study reported always taking and documenting the history of alcohol consumption respectively. A history of alcohol consumption is important, as it has been reported that at least a half of all violent crimes involve alcohol consumption by the perpetrator, the victim, or both.¹⁶ Documented history of the victim's alcohol consumption may have a serious impact on the outcome of the case. The case may not be presented in court if the victim who claimed to have been assaulted had been drinking, because, the credibility of the evidence given by such victim will be doubted in court.¹⁷

Further, in *Pistorius v The State* (253/2013) [2014] ZASCA 47 (1 April 2014), Dr 'N', the medical doctor who treated the complainant, gave the following testimony (at Paragraphs [9], [10] and [11]).¹⁴

The state then called Dr 'N', the medical doctor who treated the complainant. I hasten to state that his evidence was left unchallenged. Essentially, Dr 'N' confirmed that he is a

qualified medical doctor with three degrees and that he examined the complainant on 27 December 2007. He described the injuries he observed on the complainant as huge haematomas with severe or gross oedema at several and multiple locations on the back. These locations were at the level of the scapula of the right hand. Furthermore, he described a haematoma – a large collection of blood – at the site of the injury.

Dr 'N' testified further that he observed weals on the complainant's upper back at almost the level of the shoulder but more medial. He described a weal as similar to when a person has been dragged with his face or his naked flesh on the ground, leaving areas slightly open, others dark with blood, others completely closed and swollen with the interstitial fluid. Importantly, he elaborated further that contusions are areas where a person has been struck by some blunt force as opposed to a sharp object like a knife.

Commenting on the possible weapons which could have caused the injuries on the appellant, Dr 'N' opined that it could be a knobkerrie or sjambok or a pipe or anything which will not perforate or cause the skin to open. Although he was unable to state with precision what object was used to assault the complainant, he opined that it was a blunt and not a sharp object.

During the examination of an assault victim, accurately defining a wound or injury is done by trying to ascertain the type of damage caused by the application of mechanical force to the skin/body.¹⁸ Data collected by this study shows that majority of the participants reported that they were able to accurately identify common skin injuries (bruises, abrasion, lacerations and incised wounds), however, only 38.3% and 54% of participants respectively reported to always measure and document the shapes of the wounds found during the examination (Table III). The accurate description and measurement of wounds or injuries found at examination are essential in medico-legal proceedings, as it aids accurate identification of the weapon of assault or the cause of the injury.¹⁸

Furthermore, in *Pistorius v The State* (253/2013) [2014] ZASCA 47 (1 April 2014), the court clerk documented the following (at Paragraph [12]).¹⁴

Dr 'N' remained firm and unshaken under cross-examination.

This study found that 66.7% of the participants had some degree of undergraduate training on handling assault cases, while only 26.8% reported having had undergraduate training on completing the J88 for assault cases. This inadequate undergraduate training on medico-legal documentation of assault cases could create a sense of insecurity in less experienced CSDs, leading to them feeling intimidated in the court environment, and may result in reluctance among medical practitioners to become involved as court witnesses.⁶ This necessitates a new curriculum for clinical forensic medicine in the MBChB programme, to address the gap in knowledge and skills of medical graduates working on medico-legal cases.

Conclusion

The courts rely heavily on medico-legal documentation in cases of criminal prosecution. The burden of proof in criminal cases is beyond a reasonable doubt and that is a heavy burden indeed. Any substantial uncertainties or flaws in any of the components of the prosecutor's case, including poor observations and/or notes made by a medical practitioner may make it impossible to reach the certainty necessary to assure a conviction. Using CSDs as a focal group, this study has revealed an important gap in knowledge of CSD regarding the practice of clinical forensic medicine. It would be beneficial to direct a new curriculum for clinical forensic medicine to address the shortcomings of the undergraduate medical training programmes.

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CHAPTER 4

ARTICLE 3: MEDICO-LEGAL ASPECTS REGARDING DRUNK DRIVING: EXPERIENCE AND COMPETENCY IN PRACTICE BY COMMUNITY SERVICE DOCTORS

The article was prepared according to the journal submission guidelines for the journal *South African Family Medical Practice* (cf. Appendix H1) and was accepted for publication (cf. Appendix H3-1).

The article has been published (cf. Appendix H4).

Medico-legal aspects regarding drunk driving: experience and competency in practice of community service doctors

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To cite this article: L Fouché, J Bezuidenhout, C Liebenberg & AO Adefuye (2017): Medico-legal aspects regarding drunk driving: experience and competency in practice of community service doctors, *South African Family Practice*

To link to this article: <http://dx.doi.org/10.1080/20786190.2017.1386899>

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UK Limited, trading as Taylor & Francis Group

Published online: 25 Oct 2017.

**Medico-legal Aspects Regarding Drunk Driving: Experience and competency in practice by
Community Service Doctors**

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Abstract

Background: Drunk driving has been reported to increase the risk of road traffic accidents associated with death and severe injury. In South Africa, an increase in blood alcohol concentration of as little as 0.01 g per 100 ml above the legal limit may warrant criminal prosecution or the denial of an insurance claim for damages. However, multiple court cases have been withdrawn because of the incompetence of officials at various stages of the investigation. The scope of the mistakes ranged from poor scene handling to the incorrect handling of blood samples at the laboratory to eventual laboratory testing of blood samples. Using a group of community service doctors (CSDs) as a cohort study group, this study investigated the competency of medical graduates in relation to the medico-legal aspects of drunk driving.

Methods: A self-administered questionnaire-based study was done with 150 CSDs. The questionnaire was administered in Afrikaans and English and was dispatched electronically via e-mail. All potential participants were contacted telephonically to obtain verbal consent. Results are displayed as percentages.

Results: A response rate of 59.3% was achieved. The results obtained in this study confirm that some CSDs lack competency in handling medico-legal aspects relating to drunk driving, and are thus unable to serve the communities they have been assigned to adequately. Their lack of skills and knowledge suggests that the present undergraduate Clinical Forensic Medicine curriculum is inadequate.

Conclusion: It would be beneficial to revise the curriculum for Clinical Forensic Medicine in undergraduate medical training to address the gap in knowledge and practice of various demands of forensic medicine required from new medical graduates and CSDs.

Key words: Blood alcohol concentration, community service doctors, drunk driving, clinical forensic medicine.

Introduction

Consumption of alcoholic beverages is a world-wide phenomenon,^[1] and has been an essential part of many cultures for thousands of years.^[2] According to the World Health Organization (WHO) Global Status Report on Alcohol and Health (2011), 6.13 litres of pure alcohol was consumed on average by every person in the world aged 15 years or older in 2005 (worldwide per capita consumption). The highest consumption levels were found in the developed world, while medium consumption levels were found in Southern Africa, where Namibia and South Africa had the highest levels.^[1] A pattern of alcohol abuse, ranging from daily heavy drinking to occasional episodes of hazardous drinking, has been closely linked to significant public health and safety problems in nearly all countries.^[3] It has been reported that the harmful use of alcoholic beverages is among the top five risk factors for disease, disability and death globally.^[4] Driving while under the influence of alcohol has been reported to increase the risk of road traffic accidents associated with death and severe injury.^[5] Hence, laws enforcing drunk driving countermeasures are considered to be cost-effective strategies for reducing the burden of alcohol-attributable traffic accidents.^[6] Determining blood alcohol concentration (BAC) (the concentration of alcohol by volume in the bloodstream) limits for drivers, conducting sobriety checks and random breath testing can reduce traffic crashes by roughly 20%.^[7, 8]

In South Africa, the specified legal BAC limit for drivers of motor vehicles is 0.05 g of ethyl alcohol per 100 ml of blood.^[9] Thus, an increase of as little as 0.01 g per 100 ml in BAC value above the legal limit may warrant criminal prosecution or the denial of an insurance claim for damages.^[9] There is no doubt that criminal prosecutions of inebriated drivers have, in recent years, received much attention. However, multiple court cases have been dismissed as a result of pure incompetence, ranging in origin from the roadside to the eventual laboratory testing of blood samples.^[10] This state of affairs undermines the constitutional rights of accused individuals, results in extended delays in settling disputes or claims for insurance pay-outs and, in some cases, settlement of the estates of deceased individuals, all of which could cause enormous financial hardship to dependants or beneficiaries.^[9] In 2015, it was reported that 44 526 cases of drunk driving had been withdrawn from South African courts in the 2012/2013 financial

year; reasons included inappropriate blood sample retention and storage, and invalid sample analysis.^[11] Medical practitioners are often requested by police officials to take blood samples from persons who are suspected to have been driving under the influence of alcohol.

Hence, using a group of community service doctors as a cohort study group, this study investigates the competency of medical graduates regarding the medico-legal aspects of drunk driving, with the aim of identifying gaps in knowledge and shortcomings in undergraduate medical training in clinical forensic medicine.

Methods

A self-administered questionnaire-based study was done of 150 community service doctors (CSDs), who were medical graduates of the School of Medicine, Faculty of Health Sciences, University of the Free State (2005-2007). A comprehensive list containing names and contact details of all 150 CSDs was sourced from administration of the Faculty of Health Sciences, University of the Free State, and the Health Professions Council of South Africa. All potential participants were contacted telephonically to obtain verbal consent.

The questionnaire was administered in Afrikaans and English and was dispatched electronically via e-mail. The data collected included the following:

- Demographic details: age, gender and home language;
- Professional profile;
- Employment profile: when and where did the participant complete community service;
- Competency regarding assessment and completion of medico-legal documentation of patients accused of driving under the influence of alcohol (DUI) encountered during participants' community service year.

A 3-point Likert scale was used (Yes, always, Yes, sometimes, and No).

The response rate was 59.3% (89 of the initial 150 questionnaires distributed were returned). The results were captured on Microsoft Excel, 2013, and calculated by a statistician. A Spearman's correlation coefficient analysis (IBM SPSS Statistics 24) was done to determine the relationship between exposure to undergraduate training in medico-legal documentation of drunk driving cases and determinants of competency such as appropriate history taking, examination and performance of other test on alleged drunk drivers.

Ethical approval was given by the Ethics Committee of the Faculty of Health Sciences University of the Free State (ECUFS 149/2011).

Results

Demographic details of participant

Participants were aged between 27 and 35 years, with the majority (76.2%, n = 67) between 27 and 29 years old. There were 55 (61.8%) female and 34 (38.2%) male participants. Furthermore, 73% (n = 65) were Afrikaans speaking, 14 (15.7%) were English speaking and 11.2% (n = 10) have other languages as their first language.

In terms of placement, the majority 39.3% (n = 35) of the participants did their community service in the Free State province (Table 1). Furthermore, 47.2% of the respondents CSDs were posted to urban communities, 27% of the participants served in mixed urban-rural communities, whilst the remainder of participants (25.8%) did their community service in a rural setting.

Table 1: Province of community service by participants

Province of community service	%
Western Cape	7.9

Eastern Cape	10.1
Northern Cape	12.4
North-West	13.5
Gauteng	6.7
Mpumalanga	5.6
Limpopo	1.1
Free State	39.3
Kwazulu Natal	3.4

Instances of alleged drunk driving encountered during year of community service

Participants were asked whether they had encounters with instances of alleged drunk driving during their year of community service. Of the 87 respondent who responded to this question, 63.2% (n = 55) reported that they had, during their community service, had encounters with people suspected to have been driving under the influence of alcohol, while 36.8% (n = 32) answered the question in the negative. The majority of participants (54.5%, n = 30) who reported having encountered allegedly drunk drivers, reported to have seen between 1 and 5 cases (Figure 1).

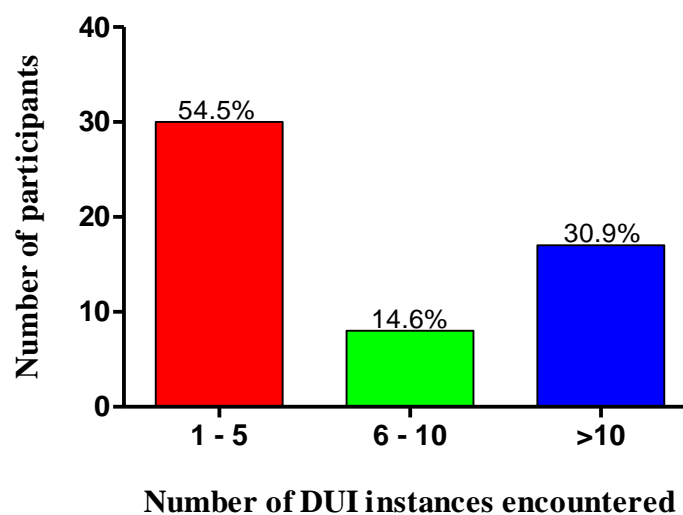


Figure 1: Number of instances of alleged drunk driving encountered by participants during of community service year (n = 55)

Medico-legal aspects related to drunk driving

In attending to an alleged drunk driver, the medical practitioner has to be certain that the individual presented by the police official has, in fact, been arrested, or charged with or convicted of a crime, before engaging in any medical procedure or examination requested by the police official.^[12] In this study, 88.8% (n = 48) of the respondents reported that alleged drunk drivers were, at all times, accompanied by a member of the South African Police Service (SAPS), who confirmed arrest and charge (Table 2).

In addition, prior to any examination or intervention, the medical practitioner should receive from the police a written request for the examination of the arrested person (Form SAPS 308(a)).^[12] When asked whether the alleged drunk drivers were accompanied by the SAPS 308(a) form, 78.2% (n = 43) of the participants reported that alleged drunk drivers were always accompanied by the SAPS 308(a) form, while 5.5% (n = 3) of the participants said the alleged offenders had not been accompanied by the form (Table 2).

During any prosecution for an alleged contravention of Sections 65(2) or 65(5) of the Road Traffic Act, it must be proved that the concentration of alcohol in any specimen of blood exceeded 0.05 gram per 100 millilitres within two hours after the alleged contravention.^[13] In this study, only 33.3% (n = 18) of the participating CSDs reported that allegedly inebriated driver(s) were brought to the healthcare facility within two hours of the alleged contravention, while the majority (64.8%) of the participants reported that alleged offenders were sometimes (not always) presented within two hours of the alleged contravention (Table 2).

Because the alleged offender is under arrest when he/she is presented at the healthcare facility, his/her consent is not necessary and physical constraint by the police official/arresting officer may be required to assist the doctor to take a blood sample.^[12] However, the medical practitioner should bear in mind that, as with any other medical examination, the patient's welfare is paramount and it is advisable that

the patient's consent be obtained as far as possible.^[12] Of the 55 participants who handled alleged instances of DUI during their year of community service, only 50.9% (n = 28) reported always obtaining consent from the patient (Table 2).

Table 2: Observations prior to examination and sample taking

	Yes, always %	Yes, sometimes %	No %
Accompanying member of the South African Police Service*	88.8	9.3	1.9
Accompanied by necessary documentation (SAPS 308(A))	78.2	16.3	5.5
Alleged drunken driver brought in within 2 hours of incident*	33.3	64.8	1.9
Obtaining consent for examination and collection of blood sample	50.9	29.1	20

*, n = 54

Taking blood sample to determine blood alcohol level

BAC has become the mainstay for the prosecution of drunk driving cases. A sample of blood must be obtained from the alleged offender within two hours of the alleged contravention and the concentration of alcohol in this sample is then measured. Prior to taking the blood sample, the skin on the area where blood is to be taken has to be cleaned and prepared according to standard medical practice i.e. maintaining infection control measures by disinfecting the skin. However, it is of utmost importance that attending medical practitioner is aware that the area where blood is to be taken should be cleaned with a substance not containing alcohol, in contrast to standard medical practice. Almost all the participants, that is, 96.2%, reported always cleaning the area where the blood sample is to be taken; 7.4% reported that they sometimes clean the area (51 participants responded to this question). However, when asked about the substance they used to clean the area, 76.4% (n = 39) reported cleaning with sterile water, 21.6% (n = 11) reported cleaning with alcohol, whilst 2% (n = 1) reported cleaning with other substances (Figure 2).

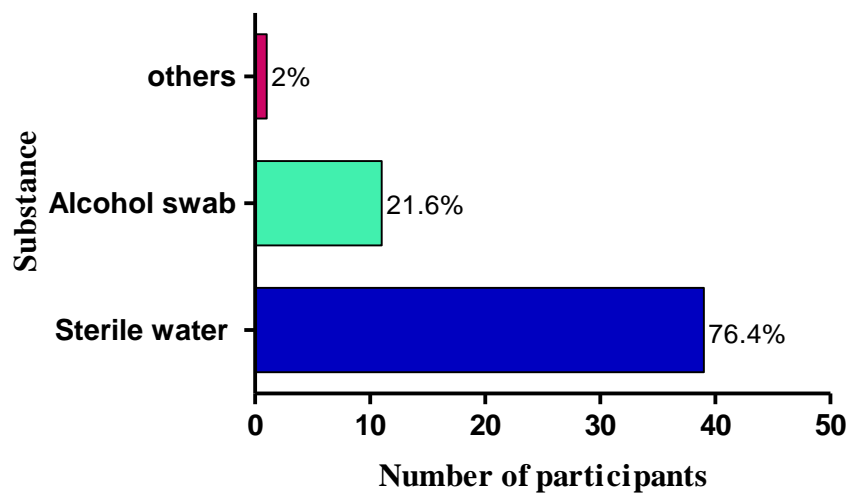


Figure 2: Substance used to clean area where blood is to be taken (n = 51)

Maintaining chain of evidence

For successful prosecution of DUI cases, blood sampling is the gold standard. This must, however, be done properly by qualified personnel, and the chain of evidence must be maintained.^[10] Data from this study shows that, in 80% of instances where participants encountered people accused of driving while drunk, the accused were always accompanied by the necessary alcohol kit (Table 3). In addition, 85% of the participants reported that they always check the kit beforehand, whilst 94.3% reported to always personally breaking the seal of the alcohol kit (Table 3). Following sample collection, specimens are transferred, avoiding contamination, to a sterile McCartney bottle containing anticoagulant (sodium fluoride and potassium oxalate), then put into a labelled bag, sealed and handed to the investigating officer. He/she will sign to acknowledge receipt of the specimen and then transport it to the testing laboratory. When asked whether they seal the kit personally after blood collection, the majority, 94.3% of participants reported that they always seal the kit personally after sample collection (Table 3), whilst 96% reported that they always hand over documentation and the alcohol kit to investigating officer (Table 3).

Table 3: Steps in maintaining the chain of evidence

	Yes, always %	Yes, sometimes %	No %
Accompanied by necessary alcohol kit (n = 55)	80	14.5	5.5
Checking the kit beforehand (n = 53)	85	7.5	7.5
Personally breaking the seal (n = 53)	94.3	3.8	1.9
Sealing the kit personally (n = 53)	94.3	1.9	3.8
Handing documentation and alcohol kit to investigating officer (n = 50)	96	0	4

History taking and examination for drivers suspected to be inebriated

It is important for the medical practitioner to ascertain and record in writing that the impairment of the allegedly inebriated driver is due to alcohol consumption.^[12] In order to ascertain this properly, a detailed history and full clinical examination is needed. Data collected from the questionnaires reveals that 65.9% of the participants reported that they always take medical history, whilst 12.8% reported that they did not take medical history (Table 4). According to Section 37(2) of the Criminal Procedure Act of 1977 “any medical officer of any prison or any district surgeon or, if requested thereto by any police official, any registered medical practitioner or registered nurse may take such steps, including the taking of a blood sample, as may be deemed necessary in order to ascertain whether the body of any person referred to in paragraph (a) (i) or (ii) of subsection (1) has any mark, characteristic or distinguishing feature or shows any condition or appearance”. In this study, 50% of the participants reported that they always inquired about previous injuries, abnormalities and operations, 33.3% reported that they sometimes asked about it, whilst 16.7% reported that they did not inquire about any previous injuries, abnormalities and operations (Table 4). If, in the professional opinion and experience of the doctor, the reason for the patient's impairment could be the result of other factors, for example, drugs, hypoglycaemia, head injury or mental illness, it is important that it is recorded as such.^[12] To rule out drug related impairment, the history of a patient's intake of medication in the 24 hours prior to presentation is of the utmost importance. In this study, only 54.1% of the participants reported that they always took a history of medication used in the 24 hours prior to arrest (Table 4). Furthermore, a full

clinical examination is required to exclude impairment secondary to head trauma. A full clinical examination was always performed by 66.6% of the participants, whilst 16.7% of them sometimes performed a full clinical examination (Table 4). When asked about completing and signing the necessary documentation, 93.8% and 97.8% of the participants reported that they always or sometimes completed and signed the necessary documentation, respectively (Table 4).

Table 4: History taking and examination of drivers suspected to be inebriated

	Yes, always %	Yes, sometimes %	No %
Taking of medical history (n = 47)	65.9	21.3	12.8
Asking about medication usage in the previous 24 hours (n = 48)	54.1	31.3	14.6
Previous injuries, abnormalities and operations (n = 48)	50	33.3	16.7
Alcohol/drug consumption over the previous 24 hours (n = 48)	81.2	12.5	6.3
Performing a full clinical examination (n = 48)	66.6	16.7	16.7
Completing the necessary documentation (n = 48)	93.8	4.2	2
Signing of documentation (n = 46)	97.8	2.2	0

Undergraduate training and exposure to medico-legal documentation for drunk-driving cases

Data collected by this study reveals that only 11.1% of participants who indicated that they had encountered patients accused of drunk driving during their year of community service had, during their undergraduate training, received training on medico-legal documentation of drunken-driving cases (Table 5). Similarly, only 10.9% of the participants indicated that they had any undergraduate exposure to drunk-driving cases (Table 5).

Table 5: Undergraduate training and exposure to medico-legal documentation of drunk-driving cases

	Yes %	No %
Trained to complete documentation for drunk-driving cases at undergraduate level (n = 54)	11.1	88.9
Undergraduate exposure to drunk-driving cases (n = 55)	10.9	89.1

Spearman's correlation analysis

Results obtained from the Spearman's correlation analysis revealed a strong positive correlation between undergraduate exposure to drunk-driving cases and training to complete documentation of drunk-driving cases at the undergraduate level ($r_s = 1.000$; $P < 0.001$) (Table 6). A weak positive correlation was found between exposure to undergraduate training in medico-legal documentation of drunk-driving cases and taking relevant medical history ($r_s = 0.269$; $P = 0.067$) (Table 6). Similarly, a weak positive correlation was also found between exposure to undergraduate training in medico-legal documentation of drunk-driving cases and performing full examination on alleged inebriated drivers ($r_s = 0.262$; $P = 0.072$) (Table 6).

In addition, a strong positive correlation was recorded between taking relevant medical history and taking history of medication usage in the previous 24 hours, history of previous injuries, abnormalities and operations and history of alcohol/drug consumption over the previous 24 hours, respectively ($r_s = 0.617, 0.821$ and 0.738 , respectively; $P < 0.01$ in all cases) (Table 6). Furthermore, result presented in Table 6 shows a very strong positive correlation between obtaining consent for examination and performing a full clinical examination ($r_s = 0.875$; $P < 0.01$). Other correlation values are presented in Table 6 below.

Table 6: Spearman's correlation matrix showing relationship between undergraduate training and competency in practice by community service doctors

		a	b	c	d	e	f	g	h	
Spearman's rho	a	Correlation Coefficient	1.000	1.000**	.269	.324*	.262	.334*	.359*	.181
		Sig. (2-tailed)	.	.	.067	.017	.072	.020	.012	.219
		N	54	54	47	54	48	48	48	48
	b	Correlation Coefficient	1.000**	1.000	.269	.326*	.262	.334*	.359*	.181
		Sig. (2-tailed)	.	.	.067	.015	.072	.020	.012	.219
		N	54	55	47	55	48	48	48	48
	c	Correlation Coefficient	.269	.269	1.000	.879**	.961**	.617**	.821**	.738**
		Sig. (2-tailed)	.067	.067	.	.000	.000	.000	.000	.000
		N	47	47	47	47	47	47	47	47
	d	Correlation Coefficient	.324*	.326*	.879**	1.000	.853**	.797**	.875**	.663**
		Sig. (2-tailed)	.017	.015	.000	.	.000	.000	.000	.000
		N	54	55	47	55	48	48	48	48
	e	Correlation Coefficient	.262	.262	.961**	.853**	1.000	.560**	.822**	.794**
		Sig. (2-tailed)	.072	.072	.000	.000	.	.000	.000	.000
		N	48	48	47	48	48	48	48	48
	f	Correlation Coefficient	.334*	.334*	.617**	.797**	.560**	1.000	.819**	.365*
		Sig. (2-tailed)	.020	.020	.000	.000	.000	.	.000	.011
		N	48	48	47	48	48	48	48	48
	g	Correlation Coefficient	.359*	.359*	.821**	.875**	.822**	.819**	1.000	.709**
		Sig. (2-tailed)	.012	.012	.000	.000	.000	.000	.	.000
		N	48	48	47	48	48	48	48	48
	h	Correlation Coefficient	.181	.181	.738**	.663**	.794**	.365*	.709**	1.000
		Sig. (2-tailed)	.219	.219	.000	.000	.000	.011	.000	.
		N	48	48	47	48	48	48	48	48

(a) Trained to complete documentation for drunk-driving cases at undergraduate level, (b) Undergraduate exposure to drunk-driving cases, (c) Taking of medical history, (d) Obtaining consent for examination and collection of blood sample, (e) Performing a full clinical examination, (f) Asking about medication usage in the previous 24 hours, (g) Previous injuries, abnormalities and operations, (h) Alcohol/drug consumption over the previous 24 hours.

** . Correlation is significant at the 0.01 level (2-tailed).

*.Correlation is significant at the 0.05 level (2-tailed)

Discussion

Since the arrival of the European settlers at the southern tip of Africa in the year 1652,^[14] alcohol has played a central and often controversial role in the life of many South Africans.^[15] The establishment of a refreshment station for passing ships at what was to become Cape Town meant that drunkenness, gambling and violence was soon as part of the daily lives of many inhabitants. Members of the indigenous population caught on quickly and started to exchange alcohol for cattle and labour.^[15] The 17th and 20th centuries saw the growth of extensive wine and brewing industries in South Africa and the establishment of illegal drinking outlets (*shebeens*) amongst the black communities became problematic.^[15]

Today South Africa has the highest levels of alcohol consumption in the southern African region,^[3] with the total level of adult pure alcohol per capita consumption estimated at 32.8 L for men and 16.0 L for women in 2010.^[6] Patterns of drinking range from frequent drinking at times not part of meals, drinking in public places, communal drinking, and drinking at family/community events,^[15] to heavy episodic drinking (consumption of 60 or more grams of pure alcohol per single occasion) over weekends.^[16] Although habitual light to moderate alcohol intake is associated with a decreased risk of total mortality in certain medical conditions, such as coronary artery disease, diabetes mellitus, congestive heart failure, and stroke,^[17] alcohol consumption has been identified as a component cause for more than 200 diseases, injuries and other health-conditions with ICD (International Statistical Classification of Diseases and Related Health Problems)-10 codes.^[18] In South Africa, alcohol is the third most common cause of disability and death, after sexually transmitted infections and interpersonal violence, both of which are themselves influenced by alcohol abuse.^[19] In 2000, the health, social and economic burden of South Africa's alcohol crisis could be seen in the 36 840

deaths, 787 749 years of life lost, and 344 331 years lived with a disability attributable to alcohol in that year.^[20]

According to the WHO global status report on road safety, over 1.2 million people die each year on the world's roads, and between 20 and 50 million suffer non-fatal injuries.^[5] The WHO reports that over 90% of all fatalities on the roads globally occur in low- and middle-income countries, which have an estimated road fatality rate of 21.5 and 19.5 per 100 000 population, respectively, compared to 10.3 per 100 000 recorded in high-income countries.^[5] The risk of dying as a result of a road traffic injury is highest in the African region (24.1 per 100 000 population), and lowest in the European region (10.3 per 100 000).^[21] According to South Africa's transport minister, a road traffic fatality rate of 23.5 per 100 000 people was reported in 2014, compared to the global average of 17.4 fatalities per 100 000 people for that year.^[22] It can thus be said that road fatalities has denied many South Africans families economic freedom, as many of the people injured or killed on the roads were breadwinners and important contributors to the economy at large.^[22]

Drunk driving increases the risk of being involved in a road traffic accident and increases the severity of resulting injuries. It has been reported that the level of impaired driving and the risk of crash involvement is directly proportional to the amount of alcohol consumed.^[21] Of the road traffic fatalities in South Africa in 2012, 52.2% of the deaths of adult males and 11.6% of adult females can in some way be attributed to alcohol.^[6] Laws enforcing measures to prevent and punish drunk driving, such as the introduction of BAC limits for drivers, have been shown to reduce the burden of alcohol-attributable traffic accidents^[6]. It is reported that a BAC of 0.05 g/dL will cause impairment in the vast majority of adult drivers, while someone with a BAC level of 0.1 g/dL faces five times the risk of being involved in a road traffic accident than someone with BAC level of zero.^[23] According to the WHO report, 89 countries, with a total population of 4.55 billion people (66% of the world's population) now have comprehensive drink-driving laws. Best practice dictates that the BAC limit must be 0.05 g/dL or less.^[24]

According to Section 65 Subsections 2 and 5 of the South African Road Traffic Act, “*no person shall drive a vehicle, or occupy the driver's seat of a motor vehicle of which the engine is running, on a public road, respectively while the concentration of alcohol in any specimen of blood taken from any part of the persons' body is not less than 0.05 gram per 100 millilitres, or in the case of a professional driver referred to in section 32, not less than 0,02 gram per 100 millilitres, or while the concentration of alcohol in any specimen of breath exhaled by such person is not less than 0.24 milligrams per 1000 millilitres*”.^[25] However, enforcing prosecution under this law is not common in South Africa, as many drunk driving court cases have been dismissed as a result of the state's inability to present credible evidence – this failure is accredited to members of the SAPS and the Department of Health.^[10] Medical practitioners, in particular young or newly graduated medical practitioners working as CSDs, are indispensable members of the Department of Health's workforce. The aim of this study was to assess the competencies of this group of medical practitioners in relation to medico-legal documentation of patients who had allegedly been driving under the influence of alcohol, to identify gaps in knowledge and shortcomings in practice. This enabled reflection on the adequacy of the undergraduate medical training presently available in clinical forensic medicine.

In the present study, 63.2% (n = 55) of the participating CSDs had encountered people who were alleged to have driven drunk during their year of community service; the majority (54.5 %, n = 30) reported to have managed between 1 and 5 cases during that time (Figure 1). The majority of participants (47.2%) were required to perform their community service in urban communities (Table 1).

For the successful prosecution of a drunk driver, the clinical evaluation and examination of an accused by an expert witness is usually conducted by the medical practitioner on request by the police officer by way of a formal SAP 308(a) request form.^[26] It was found in this study that the SAP 308(a) request form was presented in only 78.2% of cases, never presented in 5.5% of the cases and, in 16.3% of the cases examined by the participants, presented sometimes (Table 2). This shows that the

SAPS officers are either uninformed or untrained and also provides evidence of the gap in knowledge on the side of the medical practitioners.

The clinical evaluation and examination must always be done in a well-lit room. It begins with general observation of the patient to determine signs and symptoms of intoxication, such as smell of alcohol, an increased respiratory rate, diminished alertness and memory loss, photophobia, blurred vision and abdominal pain.^[27] This observation must be followed by a clinical examination, to exclude any form of injury or trauma to the head or other parts of the body. Particular attention should be paid to the ingestion of any medication and any relevant medical history (e.g. psychiatric illness) must be noted.

During the clinical evaluation, the doctor should ascertain whether the patient's faculties are indeed impaired, try to assess the degree of impairment; try to assess whether the accused is fit to drive a motor vehicle with the necessary skill and care required and whether the impairment can be wholly or partly due to alcohol consumption.^[26] The doctor must ensure that the examination is conducted in a just and proper manner and that the evidence collected adheres to the procedures for admissibility in a court of law.^[26] Data presented by this study shows that only 65.9% of the participating CSDs attested to taking a proper medical history every time they had to examine someone accused of drunk driving (Table 4), while only 54.1% of the participants reported that they enquired about the recent intake of medication. It was unexpected and disturbing that 16.7% of the participants never performed full clinical examinations on these patients (Table 4). Findings from the Spearman's correlation analysis shows a positive correlation between exposure to undergraduate training in medico-legal documentation of drunk-driving cases and taking a proper medical history and performing a full clinical examination (Table 6). This suggests that adequate undergraduate training will ensure that CSDs take relevant medical history and perform full clinical examinations when attending to alleged inebriated drivers (Table 6).

The findings that the medical practitioner make, should be recorded on an appropriate form (Health 475, GW4/75), ^[28] which was done by 93.8% of the participants (Table 4). Although the value of the clinical evaluation and examination by qualified medical personnel has been questioned in court, clinical evaluation and examination still has an important place in the medico-legal investigation of drunk driving. This was shown in the case of *S v Conradie* 2000(2). SACR 386 cited in ^[26], in which the clinical findings and clinical opinion was found to supersede the BAC result, causing the court to conclude that the blood analysis must have been faulty.

Furthermore, Section 65 Subsection 3 of the South African Road Traffic Act of 1996 ^[25] states that ,
“If, in any prosecution for an alleged contravention of a provision of subsection (2), it must be proved that the concentration of alcohol in any specimen of blood taken from any part of the body of the person concerned was not less than 0.05 gram per 100 millilitres at any time within two hours after the alleged contravention, it shall be presumed, in the absence of evidence to the contrary, that such concentration was not less than 0.05 gram per 100 millilitres at the time of the alleged contravention, or in the case of a professional driver referred to in section 32, not less than 0.02 gram per 100 millilitres, it shall be presumed, in the absence of evidence to the contrary, that such concentration was not less than 0.02 gram per 100 millilitres at the time of the alleged contravention ”.^[25] Findings from this study revealed that 33.3% of the participants reported that the alleged drunk drivers always presented within two hours of incident, while 64.8% of participants reported that people accused of driving drunk were sometimes presented within the two hour time. A BAC sample collected more than two hours after the incident will give an unreliable result, which will not be admissible in the court of law, thus suggesting that a guilty verdict would be unlikely.

In addition, Section 65 Subsection 4 of the Road Traffic Act further states that *“where in any prosecution in terms of this Act proof is tendered of the analysis of a specimen of the blood of any person, it shall be presumed, in the absence of evidence to the contrary, that any syringe used for obtaining such specimen and the receptacle in which such specimen was placed for despatch to an analyst, were free from any substance or contamination which could have affected the result of such*

analysis". During standard medical practice, any area where blood is to be taken should be kept sterile as far as possible, generally by making use of alcohol swabs. However, in taking a blood sample for a BAC test, preparing the skin area with an alcohol swab or any other substance that may affect the result is strongly prohibited. When asked what substance they used to clean the skin area, 76.4% (n = 39) of the participants reported cleaning it with sterile water, 21.6% (n = 11) reported cleaning with alcohol, and 2% (n = 1) reported cleaning with other substances (Figure 2). This indicated a lack of basic understanding among some participants of the principles governing sample collection while performing BAC test and its legal importance in the prosecution of drunk drivers. When collecting evidence or samples for clinical forensic purposes, maintaining the chain of evidence is of the utmost importance. It can be said that, for this study, the majority of the participants knew and adhered to the basic principles of maintaining the chain of evidence for medico-legal purposes (Table 3).

Finally, findings from this study showed that only 11.1% of the participants had undergone any form of undergraduate training in completing documentation for drunk driving cases, while only 10.9% reported to have had any undergraduate exposure to allegedly inebriated drivers (Table 5). This limited undergraduate training and exposure to medico-legal aspects regarding drunk driving can be responsible for the incompetency displayed by some CSDs in this study. Results obtained from the Spearman's correlation analysis revealed a strong positive correlation between undergraduate exposure to drunk-driving cases and training to complete documentation of drunk-driving cases at the undergraduate level (Table 6). Similarly, positive correlations were observed between exposure to undergraduate training in medico-legal documentation of drunk driving cases and other determinants of competency as seen in Table 6. It is therefore very likely that increased undergraduate exposure to drunk-driving cases will enhance competency in practice by CSDs. This findings, thus, indicates the need for a new curriculum for clinical forensic medicine in the M.B.Ch.B. programme to address the shortcomings in current training, and enhance skills and knowledge of medical graduates in relation to executing of medico-legal cases.

Conclusion

Taken together, findings from this study confirms that some officers in the employ of the SAPS and the DOH had an inadequate knowledge base and understanding of the effective handling of the medico-legal aspects regarding accusations of drunk driving. Alcohol-related road traffic accidents are notoriously associated with repeat offenders.^[29] It would, therefore, be beneficial to direct a new curriculum for clinical forensic medicine in the M.B.Ch.B. programme to address the gap in knowledge and practice of various topics of forensic medicine of newly qualified medical graduates and CSDs. In addition, it is recommended that members of the SAPS be properly trained in medico-legal aspects regarding drunk driving.

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CHAPTER 5

A REVISED CURRICULUM FRAMEWORK FOR CLINICAL FORENSIC MEDICINE IN THE UNDERGRADUATE MEDICAL TRAINING PROGRAMME, UNIVERSITY OF THE FREE STATE

5.1 INTRODUCTION

Findings from the questionnaire survey presented in Chapters 2-4 of this study reveal that some community service doctors (CSDs) lack the competence required to assess and document medico-legal cases relating to rape/sexual assault, physical assault and inebriated drivers. This reveals an important gap in the knowledge of medical graduates (CSDs) regarding the practice of CFM, and indicates a need to revise the curriculum for CFM to address the shortcomings of the undergraduate medical training programmes.

In this chapter, the researcher will propose a revised curriculum framework for CFM in the undergraduate medical training programme at the UFS. The HPCSA document, entitled *Education and Training of Doctors in SA*, states that faculties of health sciences need to produce competent, knowledgeable, skilful and caring healthcare professionals who conform to modern medical standards, who can adapt to change and have positive attitudes to lifelong learning (HPCSA 1991:1-9).

The aim of the study was to identify the gap in the knowledge of medical graduates regarding the practice of CFM and the need to develop a revised curriculum, in order to address the identified shortfalls and produce CSDs who are knowledgeable and skilled with regard to CFM. To this end, and based on findings of this study on the experiences and practice of CSDs in CFM, a revised curriculum framework for CFM in the undergraduate medical training programme, University of the Free State, is presented in this chapter.

In the development of a curriculum for undergraduate medical students in CFM, it is of vital importance to understand what CFM consists of, possess the skills necessary to elicit the necessary information from alleged victims and perpetrators, and be able to perform the necessary forensic examinations. Furthermore, medical students must be knowledgeable about the requirements of the judicial system, as they will eventually evaluate CFM cases that determine whether there is sufficient evidence to proceed to court.

5.2 REVISED CURRICULUM FRAMEWORK FOR CLINICAL FORENSIC MEDICINE

This section is focused on establishing the learning outcomes and critical cross-field outcomes of CFM.

5.2.1 Critical cross-field outcomes in clinical forensic medicine

The following critical-cross field outcomes were identified:

- Identify and solve problems in the field of essential rural CFM, in which responses display that responsible decisions using critical and creative thinking have been made.
- Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.
- Contribute to the full personal development of each learner:
 - i. Reflect on and explore a variety of strategies for learning more effectively.
 - ii. Participate as a responsible citizen in the life of local, national and global communities.
 - iii. Be culturally and aesthetically sensitive across a range of social contexts.
 - iv. Explore education and career opportunities.
- Organise and manage oneself and one's activities responsibly and effectively.
- Collect, analyse, organise and critically evaluate information in CFM on a regional, national and international level.
- Communicate effectively in the learning and healthcare environment by using technology and associated accessories for transfer and sharing of information among healthcare workers and other stakeholders, so as to deliver quality patient care and facilitate management processes.
- Demonstrate an understanding of clinical therapy principles by recognising that problem-solving contexts do not exist in isolation.
- Work effectively in collaboration with other healthcare professionals as members of a team (HPCSA 2013:online).

5.2.2 Exit-level learning outcomes in clinical forensic medicine

At the end of this session, the student should be able to:

- i. understand what CFM consists of, the position of medico-legal documentation in court and the legal responsibilities of the doctor in relation to documentation (rape/sexual assault, physical assault and inebriated drivers);
- ii. understand the concept of consent in relation to medico-legal documentation;
- iii. maintain confidentiality in relation to medico legal documentation;
- iv. elicit information from victims and be able to perform the necessary forensic examinations;
- v. collect forensic evidence and maintain chain of evidence; and
- vi. complete the J88/SAPS 308 (A) form appropriately and to make the correct deductions as required for court testimony.

Table 5.1 contains the proposed curriculum framework.

Table 5.1: Revised curriculum framework for clinical forensic medicine in the undergraduate medical training programme, University of the Free State

Section A			
Topics	Medical law	Medical ethics	Court procedures and etiquette
Scope of knowledge	<p><i>A learner possesses knowledge of legislation, which includes aspects such as the:</i></p> <ul style="list-style-type: none"> • Bill of Rights • Criminal Procedure Act • Health Professions Act • Children's Act 	<p><i>A learner possesses knowledge of legislation, which includes aspects such as:</i></p> <ul style="list-style-type: none"> • Nature of medical ethics • Core values of healthcare • Confidentiality • Informed consent 	<p><i>A learner possesses knowledge of legislation, which includes aspects such as:</i></p> <ul style="list-style-type: none"> • How the South African legal system functions
Teaching			
Exit-level learning outcomes	<p><i>At the end of this session, the learner should be able to:</i></p> <ol style="list-style-type: none"> 1. Know and apply the essential knowledge in the various Acts related to healthcare in practical situations 2. Know and understand the implications of the clauses of the Bill of Rights 	<p><i>At the end of this session, the learner should be able to:</i></p> <ol style="list-style-type: none"> 1. Apply the knowledge to daily medical practice 2. Discuss aspects related to confidentiality in medical practice 3. Explain what the National Health Act requires for consent to be informed 	<p><i>At the end of this session, the learner should be able to:</i></p> <ol style="list-style-type: none"> 1. Understand the various tiers of the courts (Magistrate's court, Regional court, High court and Court of Appeal) 2. Understand the legal process the medical practitioner has to follow from examination, to subpoena to actual court appearance

	<p>that affect medical practice</p> <p>3. Understand the role of the doctor in protecting every person's basic rights to life, human dignity, privacy and a healthy environment</p> <p>4. Understand the basic rights of children</p>	<p>4. Understand what the Children's Act stipulates about informed consent for/by children</p>	<p>3. Dress correctly</p> <p>4. Address the presiding officer correctly</p>
Section B			
Topic	Sexual assault		
Scope of knowledge	<p><i>A learner possesses knowledge of the following aspects:</i></p> <ul style="list-style-type: none"> • Elements of an impartial examination • Anatomy and physiology of female and male genital systems • Injuries from sexual penetration, including female genital injuries, male genital injuries, anal and oral injuries • Victims' emotional responses • The principles of psychological management • Management of possible HIV, sexually transmitted diseases and pregnancy • Understand the different types of injuries and injury mechanisms • Understand the implications of injurious forces • Injuries likely to require medical attention • Importance and limitations of photography and application of the principles of forensic photography, where required 		
Teaching			
Exit-level learning outcomes	<p><i>At the end of this session, the learner should be able to:</i></p> <ol style="list-style-type: none"> 1. Perform an examination of a victim, always in the presence of a chaperone 2. Obtain informed consent for a forensic examination in line with legislative requirements, as well as for a pregnancy tests and HIV test 3. Make use of an interpreter, if necessary 4. Take a forensic history and complete the J88 form <ol style="list-style-type: none"> a. Obtain and document adequate demographic information – case number, police station, investigating officer, date and time, medical practitioner's name, qualifications and contact details, name, sex and age of patient examined b. Elicit relevant medical history and information about medication c. Examine the patient in general - Condition of clothing; height; mass; and general build d. Document clinical findings e. Assess mental health and emotional status and document findings f. Detect evidence of drugs or alcohol use g. Make a conclusion and document it 5. Elicit the history of alleged sexual assault 6. Elicit gynaecological history - Age of menarche; Number of pregnancies; Number of deliveries; Duration of pregnancy (if applicable); Contraceptive usage – method and last date of 		

	<p>application; First date of last menstruation – duration of menstruation and cycle; Date and time of last consensual intercourse; Number of consensual sexual partners during the last seven days; Were condoms used?</p> <p>7. Determine if the patient has bathed; washed; douched; showered; urinated; and changed clothing since alleged offence took place</p> <p>8. Perform a gynaecological examination:</p> <ol style="list-style-type: none"> a. Note developmental stage of the breasts (Tanner stage 1-5) b. Note developmental stage of the genitalia c. Note the appearance of the anus d. Note any injuries on the genitalia e. Document the injuries on the J88 form f. Take relevant samples for forensic evidence g. Note the presence of any bite wounds, if present, swab the bite wounds h. Swab under the nails i. Collect the underwear j. Comb the pubic area for presence of foreign hair k. Remove pubic hair for reference purposes l. Swab the vulva, vagina and cervical os m. Swab the anus and rectum n. Allow sufficient time for samples to dry before sealing them o. Place samples back in the kit, together with the completed J88 form, before sealing it and handing it over to the investigating officer. p. Recognise, describe and note any injuries on the clitoris, frenulum of the clitoris, the urethral orifice, para urethral folds, labia majora and labia minora q. Recognise, describe and note injuries to the posterior fourchette, e.g. scarring, bleeding and tears r. Recognise, describe and note injuries to the fossa navicularis s. Recognise, describe and note injuries to the hymen, e.g. configuration, opening diameter (transverse and vertical), swelling bumps, clefts, fresh tears and bruising t. Note the position of injuries. u. Examine the vagina: How many fingers admitted; Bleeding; tears; and discharge v. Examine the cervix: Any incisions; bleeding discharge etc. <p>9. Discuss psychological follow-up</p> <p>10. Prescribe the necessary treatment for STDs, and antiretroviral therapy</p> <p>11. Request a follow-up date for the victim at the clinic</p>
Section C	
Topic	Assault (Common physical assault)
Scope of knowledge	<p><i>A learner possesses knowledge of the following:</i></p> <ul style="list-style-type: none"> • Surface and internal anatomy of the body • The way a forensic physical examination necessitates examination of areas infrequently examined • Awareness of environmental limitations for performing a thorough forensic examination, e.g. poor lightning, distressed patient • Victims' emotional responses to assault and injury

	<ul style="list-style-type: none"> • Likely injuries (e.g. bruises, abrasions, incised wounds, any lacerations, bleeding, discharge, bruising, etc. resulting from different modalities of trauma) • The way degree of force involved will affect injuries • Ageing injuries (e.g. bruises) and the limitations of examination of these injuries • Healing and regeneration of different body tissues e.g. mucosa as opposed to skin • Definitions and appearance of the main classification of injuries (bruises, abrasions, lacerations, incised wounds and burns) • Differences between the wounds • Factors affecting appearance of injuries • Importance of DNA swabbing of relevant injuries (e.g. bite marks, under the nails) • Importance of collection of reference DNA sample • The mechanism of defence injuries • The fact that psychiatric disturbances may result in self-harm and the injuries that may result
Teaching	
Exit level learning outcomes	<p><i>At the end of this session, the learner should be able to:</i></p> <ol style="list-style-type: none"> 1. Take a full relevant medical history regarding medication, chronic diseases and the alleged incident 2. Do a general examination: Note condition of clothing; height, mass and general build 3. Detect, describe and interpret relevant findings (e.g. mental state and injuries) 4. Assess, treat or refer any medical emergency 5. Accurately describe injuries in both medical and lay terminology 6. Describe different responses to injury (inflammation, repair and regeneration) 7. Age injuries within known limitations 8. Document the site, size, shape, borders of a wound 9. Recognise and interpret the common injury types 10. State the likely cause of an injury 11. Identify the need for forensic specimen collection (e.g. swab of bite wound, swabbing of nails) 12. Take a reference DNA sample from victim 13. Identify defensive injuries 14. Identify self-inflicted injuries
Section D	
Topic	Inebriated (drunk) driving
Scope of knowledge	<p><i>A learner possesses knowledge of the following:</i></p> <ul style="list-style-type: none"> • Legislation pertaining to inebriated driving • The reasons for different blood alcohol concentration limits • Alcohol metabolism • Widmark-formula • Mellanby-effect • Differential diagnosis of alcohol intoxication
Teaching	
Exit level learning outcomes	<p><i>At the end of this session, the learner should be able to:</i></p> <ol style="list-style-type: none"> 1. Elicit informed consent from inebriated driver, with regard to collecting a blood sample and performing a general examination 2. Collect the blood sample ensuring to clean the area appropriately. 3. Elicit a medical history with regard to chronic illnesses (epilepsy, diabetes, hypertension) and the use of any medication, 24 hours prior to arrest 4. Elicit the amount of alcohol/drugs consumed during the past 24 hours

	<ol style="list-style-type: none"> 5. Perform a full general clinical examination, including state of clothing and signs of shock, colour of face, conjunctivae, tongue, smell of alcohol, signs of salivation and vomiting 6. Perform a neurological examination (including pupils, nystagmus, speech, knee jerks, manner of walking, and manner of turning around, hand movements) 7. Elicit Romberg's sign 8. Evaluate the intellectual and emotional functions 9. Conclude whether the inebriated person examined was under the influence during the examination 10. Complete the SAPS 308(A) form and sign it.
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5.3 CONCLUSION

The reliance of the South African judicial system on medico-legal documentation in cases of criminal prosecution cannot be overemphasised. It is, therefore, of great importance that medical practitioners are informed about the place of medico-legal documentation in court and the legal responsibilities of the doctor regarding documentation. It has been reported that the incompetent handling, collecting and processing of medico-legal evidence by healthcare providers is a consequence of a lack of rigorous training, and poor performance standards (Du Mont & White 2011). Major revision of medical curricula is recommended every five years, due to diminished lifespan of useful medical information and the increasing complexity of medical practice (Olaopade *et al.* 2016).

However, reviewing a medical curriculum is a complex process that involves human, time and capital resources (Kiguli-Malwade *et al.* 2014). Hence, the revised curriculum framework for CFM in the undergraduate medical training programme proposed by the researcher in this chapter can serve as template from which the University of the Free State, and indeed individual medical schools, can review/revise their undergraduate medical curricula in CFM or develop a new curriculum *de novo*. This proposed curriculum framework was developed according to a needs assessment, and an integrated, system-based, person-centred, community-oriented and competency-driven model, and is meant to provide medical students with the best learning opportunities and to produce competent medical graduates.

CHAPTER 6

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS OF THE STUDY

6.1 INTRODUCTION

An in-depth study was done by the researcher with the aim to suggest a curriculum for Clinical Forensic Medicine for the undergraduate medical training programme of the School of Medicine, Faculty of Health Sciences, UFS.

The purpose of this curriculum is to formalise the knowledge, skills, attitudes and behaviour of the undergraduate students with regard to CFM, as it is a prerequisite for obtaining a MBChB qualification, and later, to register as medical practitioner, as required by the Subcommittee for Undergraduate Education and Training of the Medical and Dental Professions Board of South Africa HPCSA (cf. 1.1) and to enable them to handle CFM cases with confidence.

The aim of this chapter is to provide a short overview of the study, show conclusions derived from the research that was conducted, critically demonstrate the implications related to CFM, present comments on the implications for undergraduate medical training, provide answers to the research questions, to present the contents of a curriculum for CFM, to demonstrate the implications of changing the curriculum, and to make recommendations.

6.2 OVERVIEW OF THE STUDY

Since 2000, undergraduate students have been trained in CFM in the module concerning human diversity and legal ethics. Approximately four hours are spent on lecturing and the mortuary is visited for practical sessions.

This takes place at the end of the fourth and beginning of the fifth semesters, which is halfway through the programme, and before the students have started their clinical training. The timing, in itself, presents a problem because, by the time students have completed their undergraduate training, the knowledge gained in this module is long forgotten. This lack of knowledge is evident in the many medico-legal cases that are lost in court.

With this shortcoming in mind, the problem identified by the study is that the current undergraduate medical training does not adequately address CFM. There is a curriculum, but the study showed that it is not comprehensive enough and does not deal adequately with medico-legal issues. Not enough work-integrated learning, to prepare students adequately for clinical settings, takes place.

The aim of this study was to compile/develop a curriculum for CFM based on the experiences and opinions of community service doctors. The intention is to ensure that professionals are able to handle cases in CFM correctly, and minimise the risks of having legal action taken against them. CFM training would also ensure that perpetrators do not escape justice due to mistakes made by medical practitioners.

A questionnaire was used to gather the data. The questionnaire gathered mostly quantitative data, but also requested participants to voice their opinions, add comments and motivate their responses, where appropriate. Data was analysed and supported by applicable statistics. The required ethical approvals for the study and permissions were obtained from the relevant stakeholders.

Three interrelated, publishable articles were written to meet the requirements set by the UFS for thesis via the article option route. Articles were written according to the journal specifications and guidelines for authors. Articles were supported by relevant statistics. Articles were published in peer-reviewed journals.

The thesis was required to create new knowledge, and its contribution involved the creation of a curriculum proposed for CFM. The researcher believes that the curriculum will assist to equip students for CFM.

The thesis is concluded by this, the last chapter.

6.2.1 Research purpose

The study aimed to use a literature study and questionnaire to develop a curriculum for CFM to train undergraduate medical students. A further purpose of the study was to inform readers of the three articles that were written about the medico-legal aspects related to sexual assault, physical assault and the handling of inebriated drivers, which is of serious

concern in South Africa. The curriculum and accompanying training might address shortcomings the medico-legal process and prevent mistakes.

6.2.2 Proof of research conducted

An in depth literature study was conducted to conceptualise and contextualise CFM. The three articles written as publishable articles highlighted the medico-legal aspects related to CFM. The articles were based on a survey that was conducted by questionnaire. The questionnaire was used to gain the responses of the 2006, 2007 and 2008 medical graduates of the UFS who were, at the time of the study, doing community service or had completed it. The literature study and participants' responses to the questionnaires informed the proposed curriculum for CFM undergraduate medical training.

6.2.3 Resolving fieldwork problems

The self-administered questionnaires were distributed via e-mail, as requested telephonically when participants' e-mail addresses were obtained. A few were delivered at pre-arranged drop-off points. The time limit to complete the questionnaires was discussed telephonically and the return date was indicated on the questionnaire. Reminders were e-mailed every 7-10 days. Despite all the efforts to obtain a good response rate, a response rate of 59.3% was obtained from the participants. This can probably be attributed to doctors' high workload and long hours.

6.2.4 Research boundaries

The study was limited to South Africa. The foreign graduates (students from Lesotho, Botswana and Swaziland) were excluded, as they returned to their countries of origin after obtaining the MBChB degree at the UFS as they did not do internship/community service in South Africa. Two participants were based in the United Kingdom - they left South Africa after completing community service, but nevertheless completed the questionnaire. Although the study was limited to South Africa, it is not applicable only to South Africa.

6.2.5 Research questions and objectives

In order to address the problem stated, the following research questions were formulated:

- i. How can the curriculum of CFM in the MBChB programme be conceptualised and contextualised to form a theoretical base for understanding the status of its role and function?*
- ii. What should the outcomes of the clinical forensic curriculum of the MBChB programme involve with regard to management and medico-legal documentation of sexual assault? (Article 1) (Chapter 2)*
- iii. What should the outcomes of the clinical forensic curriculum involve as contained in the MBChB programme, in relation to management and medico-legal documentation of physical assault? (Article 2) (Chapter 3)*
- iv. What should the outcomes of the clinical forensic curriculum involve as contained in the MBChB programme, in relation to management and medico-legal documentation of inebriated drivers? (Article 3) (Chapter 4)*
- v. What should the content of the curriculum comprise for the training of undergraduate medical students in CFM? (Chapter 5: Curriculum as contribution or extension or creation of new knowledge)*

To achieve the aim of the study and address the problem statement, the following objectives were pursued:

- To conceptualise and contextualise CFM in the MBChB programme at the School of Medicine, UFS, by means of a literature study;
- To determine national and international requirements for undergraduate training in CFM;
- To investigate the current state of affairs with regard to undergraduate training in CFM;
- To collect information on the experiences and opinions of doctors who graduated from the UFS in 2006, 2007 and 2008;
- To determine the requirements for producing knowledgeable and skilled community service doctors with regard to CFM;
- To produce three publishable articles on sexual assault, physical assault and inebriated drivers; and
- To develop a curriculum for CFM in undergraduate medical teaching.

This study, for the Ph.D. degree in Health Professions Education, followed the article option route, and met the requirement of three interrelated, publishable manuscripts/published articles (Chapters 2, 3 & 4) that conform to the guidelines for authors of the journals

selected; in addition, a separate chapter (contribution) that deals with a proposed curriculum for CFM will be written to adhere to NQF Level 10 requirements. As it is evident the researcher addressed the objectives of the study.

6.2.6 Rigour and quality of research

6.2.6.1 Validity

In order to minimise threats to validity in the triangulation design of collecting data, the questionnaire used in this study contained mainly quantitative and additional qualitative questions. After participants had completed the questionnaire, quantitative and qualitative data was collected from the same group of participants; doing so eliminated the problem of unequal sample sizes in the triangulation design. Because an Internet-based questionnaire survey was used supported by hard copies where required, data was collected unobtrusively and the whole population could be invited, to obtain a better response rate. The supervisors of the study, as well as the statistician, ensured that the questionnaire measured what it was supposed to measure, thereby producing findings that were believable and convincing.

The qualitative data was used to verify the quantitative data. In the triangulation design adopted, the qualitative and quantitative data sets together served as a mechanism for providing more complete data than would have been possible using only the one or the other (Creswell & Plano Clark 2007:147). To enable generalisation of the findings from the data gathered, and to improve external validity of the study, a rigorous process of data collection was followed, which involved the supervisors and statistician.

6.2.6.2 Reliability

The reliability of this study was enhanced by piloting the questionnaire, by using unambiguous questions in the self-administered questionnaire, by conducting a thorough literature study, using educational experts to assist in the construction of the questionnaire and by using knowledgeable senior forensic pathologists and appropriately trained general practitioners to inform the questionnaire and the proposed curriculum. All the procedures, from the evaluation committee stage to finalisation of data, were checked by a statistician. The initial protocol was scrutinised by an evaluation committee consisting of experts, and

ethical approval was granted. The supervisors agreed with the process, and this agreement added to the overall quality of the study.

In addition, the articles have been peer-reviewed, and were published. The research design, methodology and methods were deemed proper for the research conducted. In order to increase the reliability of the questionnaire in this study, the constructs that were tested were defined clearly, and care was taken to ensure that the questions reflected the various constructs. From a qualitative point of view, the aspects related to dependability included the use of both quantitative and qualitative questions, in order to enhance the quantitative data and to incorporate perspectives that would provide a more holistic picture (De Vos 2005:346). Furthermore, the data in this study was triangulated, to confirm and enable generalisation of the research findings.

Reliability focussed on certain attributes that need to be present in the data, namely, homogeneity (internal consistency), stability and equivalence. In the study, homogeneity was ensured, as the items in the questionnaire were placed on a scale and measured the same construct relating to CFM. Stability was ensured, as the results from the questionnaire could be repeated and would yield approximately the same results. To test equivalence consistency among the responses, multiple users were involved (participants), and alternative forms would produce the same results. In this regard, the inter-reliability for equivalence would be similar. The reliability would also indicate that the results of the study, namely, the proposed curriculum, can be implemented. In this study, which was qualitative in nature, rigour was determined by evaluating the validity and reliability of the tools or instruments utilised by the study. As evidence is present, the study is deemed rigorous, as it addressed all these required factors. The results of the study can be applied to areas of clinical practice.

6.3 CONCLUSIONS

In this research project an in-depth study was done by the researcher with the aim of developing a curriculum for undergraduate training in CFM. The researcher investigated the current situation faced by community service doctors, who function mainly in the rural and underserved areas of South Africa.

The results revealed that the level of knowledge about CFM varied among participants.

The significance of the study is that, in medico-legal cases, the correctness and accuracy of medico-legal documentation can lead to higher prosecution and conviction rates of alleged perpetrators, which would improve the public's perception of the legal system in general.

6.3.1 Factual conclusions

To address the problem posed by undergraduate training in CFM in the MBChB programme, School of Medicine, Faculty of Health Sciences, UFS, a self-administered question-based study was done involving 150 community service doctors. The questionnaire was administered in Afrikaans and English and was despatched electronically via e-mail. All participants were contacted telephonically to obtain verbal consent. A response rate of 59,3% was achieved.

The results obtained in this study confirm that some community service doctors lack competency for handling medico-legal aspects relating to rape/sexual assault, personal assault and inebriated drivers, and are therefore unable to serve the communities to which they have been assigned.

Their lack of skills and knowledge suggest that the present undergraduate CFM curriculum is inadequate. It would therefore be beneficial to revise the curriculum for CFM, as well as the placement of CFM within the undergraduate programme, in order to address the gap in knowledge and skills of new medical graduates and community service doctors.

6.3.2 Conceptual conclusions

This study aimed to address the inadequate training of undergraduates in CFM, hence, to develop a curriculum that would produce knowledgeable, skilful and confident graduates who would be able to serve the needs of the communities where they were placed. Every educational model has a theoretical basis. There should be correspondence between curriculum content and the practice of medicine, hence, the reason for the study was to determine the experiences and opinions of community service doctors with regard to the CFM training they had received.

6.4 IMPLICATIONS OF THE STUDY

The following limitations were recognised by the researcher in the study:

- i. The size of the study group: From a possible group of 300 community service doctors, qualified at the UFS, who had done their community service in 2009/2010 and 2011, only 150 could be reached telephonically for consent.
- ii. Non-adherence to time limit set for completing the questionnaire: Although participants were informed before and during the distribution of the questionnaire about the time limits for responses, participants did not adhere to the request. This forced the researcher to extend the time limit until an adequate number of responses had been received and no further responses were expected. The heavy workload of the community service doctors may have contributed to the delay in responding.
- iii. Lower than expected response rates: The researcher is aware that community service doctors are very busy, due to a high workload. Numerous notifications reminded participants to complete the questionnaire survey. The researcher also supplied hard copies to those participants preferring a paper copy rather than an e-mailed questionnaire.
- iv. It has to be borne in mind that CFM pertains not only to sexual assault, assault and inebriated drivers. Elder and child abuse are also part of this domain, but as it necessitates a multi-disciplinary specialist approach, these types of abuse were not included in this study.

6.4.1 Critique of own research

The researcher had an appointment in the department of CFM, UFS. The researcher then relocated to Kimberley in August 2013. As the only pathologist in the Northern Cape province, the progress of the study was hampered due to excessive workload. This impacted on not only the data collection phases of the study, but also on the duration of the study.

The questionnaire and electronic questionnaire assisted greatly in gathering the data. Of concern was the suspicion that the workload of the participants impacted negatively on the response rate. The researcher had to follow up personally with participants which also caused delays in the data gathering process.

The articles that were written assisted greatly in focussing the researcher's attention, as each article was a milestone on the road to completion. The fact that all three articles were published in a peer-reviewed journal before the thesis was submitted, was of value to the researcher.

According to the UFS's policy on Master's and Doctoral thesis,

"A doctoral thesis is the sole research component of a doctorate. It must demonstrate that the candidate has made a specific contribution to the enhancement of knowledge in the chosen field, while providing evidence of independent critical ability. A doctoral thesis ought, either in part or in its entirety, to be published in a suitable journal or book. A doctoral thesis generally comprises between 70 000 and 100 000 words, or three publishable articles".

In this light the researcher is comfortable that all the criteria set have been addressed. In hindsight, the researcher could have validated the findings from the questionnaire through interviews or, alternatively, a Delphi survey with experts in the field. Considering the demanding world of work, and taking the researcher's position into consideration, the supervisors advised against this additional investigation.

6.4.2 Research design and approach followed in the study

The research design of the study was based on a quantitative descriptive survey design in the form of a questionnaire. A descriptive survey design was used, as it enabled the researcher in obtaining the required information from the participants. This design is also deductive in nature, which means that the findings can be generalised to wider populations in similar settings involving CFM. The questionnaire used in the study was constructed properly, and this enhanced its reliability and validity.

An in-depth literature study was conducted, whereby sources were summarised, synthesised and analysed with a view to conceptualising and contextualising the study. The literature study also served as the basis for the compilation of the questionnaire.

6.4.3 Agenda for further research

Addressing the present shortcomings of CFM training by proposing content for a curriculum laid the groundwork for improving CFM training in undergraduate medical training. Consideration should be given to the development of a short learning programme to enhance the confidence of junior doctors who wish to improve their service delivery with regard to CFM further; this programme could be registered by the department of CFM at the UFS and could address shortcomings related to CFM. It could also be used for continuing professional development, and could be a suitable vehicle for specific training in CFM for general practitioners that cannot enrol for the Diploma in Clinical Forensic Medicine in a full time capacity.

6.5 CONTRIBUTION TO KNOWLEDGE

The problem that was addressed related to undergraduate training in CFM in the MBChB programme, School of Medicine, Faculty of Health Sciences, UFS. The research questions related to the national and international requirements for undergraduate training in CFM, the current state of affairs with undergraduate training in CFM, the opinions and experiences of doctors who graduated in 2005, 2006 and 2007 at the UFS, as well as the requirements of producing knowledgeable and skilled community service doctors with regard to CFM. The objective of the study was to develop a curriculum for CFM that would produce graduates who are knowledgeable, skilful and confident in relation to CFM, not only to serve the communities where they are placed to the best of their abilities, but also to ensure that justice prevails.

The courts rely heavily on medico-legal documentation to prove criminal cases. Uncertainty regarding any of the components of the state's cases, for example, poor observations or inadequate medico-legal documentation, may lead to acquittal. It would, therefore, be beneficial to develop a new curriculum for CFM to address the shortcomings of the undergraduate CFM training programme.

6.5.1 Application of research instruments

A questionnaire was used because it has been deemed the most suitable instrument to gather data for the study. The questionnaire could be distributed electronically or, where

requested, in hard copy format. It was suitable for gather data from participants spread over vast areas in South Africa. The response rate, albeit not very high, is acceptable for gathering the required data for a study such as this. A qualitative approach, via methods such as interviews and focus groups, was not used, because of travelling, financial and logistical restrictions.

6.5.2 Contribution to knowledge

The researcher is of the opinion that the research will make a contribution to improving the quality of knowledge and skills of undergraduate students, by describing outcomes and essential content that are not described in the current literature pertaining to undergraduate training in CFM. The curriculum as presented in Chapter 5, may be implemented in the Medical School, Faculty of Health Sciences, and UFS. The curriculum outcomes and content described by this research can be applied nationally and internationally.

The module where CFM are currently taught, should be taught during the last year of the undergraduate programme. This will ensure that young doctors will be more knowledgeable and confident when confronted with situations that relate to CFM, which will ensure that they complete the J88 form correctly and increase the possibility of successful prosecution and conviction.

6.6 RECOMMENDATIONS

This study described the essential content of an undergraduate curriculum in CFM. The research highlighted outcomes that are not presently covered in the curriculum, but which are essential.

By addressing the present shortcomings through proposing a curriculum, the groundwork has been laid to improve CFM training. The development and presentation of a short learning programme could enhance the confidence of junior doctors who wish to continue their service delivery in relation to CFM further.

The level of training is as important as the outcomes and contents of the curriculum. Haphazard training will not achieve competence as required for medical practitioners. A lack of knowledge, skills and confidence of the curriculum are more often than not the cause of

incomplete J88 forms, which lead to failure to prosecute possible perpetrators. For a conviction to be achieved, the documentation needs to be completed fully, and the evidence collection done accurately and according to the prescribed methods; furthermore, the testifying doctor should be able to present evidence with confidence. These outcomes require far more than the presently allocated training time.

The researcher, therefore, embarked on the study, to use the results to develop a comprehensive and fitting curriculum. The placement of the module should also be addressed. Presently the training takes place in the fifth semester – before undergraduate students start with their clinical training. The ideal would be to present this training in the ninth or tenth semesters. The study hopes to bring realisation to the undergraduate programme manager that there is a serious need for training in CFM. The researcher also realises that much has been done since 2006 to adapt the curriculum for CFM.

6.7 CONCLUDING REMARKS

South Africa has a large rural population that is serviced by community service doctors and general practitioners. Violent crime is suffocating South Africa, yet CFM, the sub-discipline responsible for victim empowerment, is being overlooked in training programmes countrywide.

The J88/SAPS308(A) forms part of the South African Police Service docket which is reviewed by the Director of Public Prosecutor's office to determine whether the case will be prosecuted or not. Complete J88/SAPS308(A) forms is a crucial part of the evidence to ensure successful prosecution.

The end results of this study will hopefully address the present shortcomings of CFM training, and will promote the training of competent and confident young doctors, who will be able to face court proceedings head-on, thereby enabling the justice system to achieve more convictions and thereby restore the public's confidence in both the health and justice systems. The following quote is justified in the research conducted for this study:

"Education is the most powerful weapon we can use to change the world".

Nelson Mandela

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APPENDICES

- APPENDIX A:** J88 form and the South African police services form 308 (a) form for clinical forensic medical examinations
- APPENDIX B:** Clinical Forensic Medicine evaluation questionnaire
- APPENDIX C:** Letter of approval to conduct the study
- APPENDIX D:** Letter to UFS authorities
- APPENDIX E:** Approval from Health Sciences Research Ethics Committee
- APPENDIX F:** Letter from language editor
- APPENDIX G:** Letter from supervisor regarding Turnitin Plagiarism report
- APPENDIX H:** Articles as published in peer-reviewed journals as it appeared in print
- Appendix H1** Submission guidelines for the journal *South African Family Medical Practice*
- Appendix H2** Published Article
- ARTICLE 1: MEDICO-LEGAL DOCUMENTATION OF RAPE OR SEXUAL ASSAULT. ARE COMMUNITY SERVICE DOCTORS EQUIPPED FOR THEIR TASK?*
- Appendix H3** Published Article
- ARTICLE 2: PRACTICE OF COMMUNITY-SERVICE DOCTORS IN THE ASSESSMENT AND MEDICO-LEGAL DOCUMENTATION OF COMMON PHYSICAL ASSAULT CASES*
- Appendix H4** Published Article
- ARTICLE 3: MEDICO-LEGAL ASPECTS REGARDING DRUNK DRIVING: EXPERIENCE AND COMPETENCY IN PRACTICE BY COMMUNITY SERVICE DOCTORS*
- APPENDIX I:** Declaration on plagiarism

D. HISTORY IN CASE OF ALLEGED SEXUAL OFFENCE

1. Age of menarche <input type="text"/>	2. Number of pregnancies <input type="text"/>	3. Number of deliveries <input type="text"/>	4. Duration of pregnancy (if applicable) <input type="text"/> weeks
5. Contraceptive (indicate with X): Yes <input type="checkbox"/> No <input type="checkbox"/>		7. First date of last menstration: <input type="text"/>	
6. Method and last date of application/ingestion: <input type="text"/>		8. Duration of period <input type="text"/>	9. Duration of cycle <input type="text"/>
10. Date and time of last intercourse with consent: <input type="text"/>	11. Number of consensual sexual partners during last 7 days: <input type="text"/>		12. Condoms Yes <input type="checkbox"/> No <input type="checkbox"/>
13. Since the alleged offence took place, has the person (indicate with X): bathed <input type="checkbox"/> washed <input type="checkbox"/> douched <input type="checkbox"/> showered <input type="checkbox"/> urinated <input type="checkbox"/> changed clothing <input type="checkbox"/>			

E. GYNAECOLOGICAL EXAMINATION (State clinical findings)

1. Breast development: Tanner stage 1-5 <input type="text"/>	2. Pubic hair: Tanner stage 1-5 <input type="text"/>	3. Mons pubis: <input type="text"/>
4. Clitoris: <input type="text"/>	5. Frenulum of clitoris: <input type="text"/>	
6. Urethral orifice: <input type="text"/>	7. Para-urethral folds: <input type="text"/>	
8. Labia majora: <input type="text"/>	9. Labia minora: <input type="text"/>	
10. POSTERIOR FOURCHETTE:		
Scarring: <input type="text"/>	Bleeding: <input type="text"/>	
Tears: <input type="text"/>	Increased friability: <input type="text"/>	
11. FOSSA NAVICULARIS:		
12. HYMEN: Configuration: <input type="text"/>	13. Opening diameter (mm):	Transverse <input type="text"/> Vertical <input type="text"/>
14. Swelling: <input type="text"/>	15. Bumps: <input type="text"/>	16. Clefts: <input type="text"/>
17. Fresh tears (position): <input type="text"/>	18. Synechiae: <input type="text"/>	19. Bruising: <input type="text"/>
20. VAGINA: Number of fingers admitted: <input type="text"/>		Bleeding: <input type="text"/>
		Tears: <input type="text"/>
		Discharge: <input type="text"/>
21. CERVIX: <input type="text"/>	Erosion: <input type="text"/>	Discharge: <input type="text"/>
	Bleeding: <input type="text"/>	Other: <input type="text"/>
22. PERINEUM: <input type="text"/>		

Signature of medical practitioner

F. SAMPLES TAKEN FOR INVESTIGATION

J88

Forensic specimens taken: urine sample for pregnancy test:	POSITIVE <input type="checkbox"/>	NEGATIVE <input type="checkbox"/>
Seal number of evidence collection kit: <input style="width: 100%;" type="text"/>		

2. SPECIMENS HANDED TO:	
Name:	<input style="width: 85%;" type="text"/>
Rank and force number:	<input style="width: 85%;" type="text"/>
Signature:	<input style="width: 85%;" type="text"/>

3. CONCLUSIONS:
<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

G. ANAL EXAMINATION (State clinical findings)

SKIN SURROUNDING THE ORIFICE:					
1. Hygiene:	<input style="width: 60%;" type="text"/>	4. Abrasions:	<input style="width: 60%;" type="text"/>	7. Redness/erythema:	<input style="width: 60%;" type="text"/>
2. Pigmentation:	<input style="width: 60%;" type="text"/>	5. Scars:	<input style="width: 60%;" type="text"/>	8. Bruising/haematoma:	<input style="width: 60%;" type="text"/>
3. Fissures/cracks:	<input style="width: 60%;" type="text"/>	6. Swelling/thickening:	<input style="width: 60%;" type="text"/>	9. Tags:	<input style="width: 60%;" type="text"/>

ORIFICE:					
10. Tears/fissures:	<input style="width: 60%;" type="text"/>	13. Reflex dilatation:	<input style="width: 60%;" type="text"/>	16. Twitchiness/winking:	<input style="width: 60%;" type="text"/>
11. Swelling/thickening of rim (tyre sign):	<input style="width: 60%;" type="text"/>	14. Shortening/eversion of anal canal:	<input style="width: 60%;" type="text"/>	17. Discharge:	<input style="width: 60%;" type="text"/>
12. Funnelling:	<input style="width: 60%;" type="text"/>	15. Cupping:	<input style="width: 60%;" type="text"/>		

DIGITAL EXAMINATION:			
18. Presence of hard faeces in rectum:	<input style="width: 40%;" type="text"/>	20. Thickening of anal verge:	<input style="width: 40%;" type="text"/>
19. Laxity (pressure on anal orifice):	<input style="width: 40%;" type="text"/>	21. Tone (sphincter grip):	<input style="width: 40%;" type="text"/>

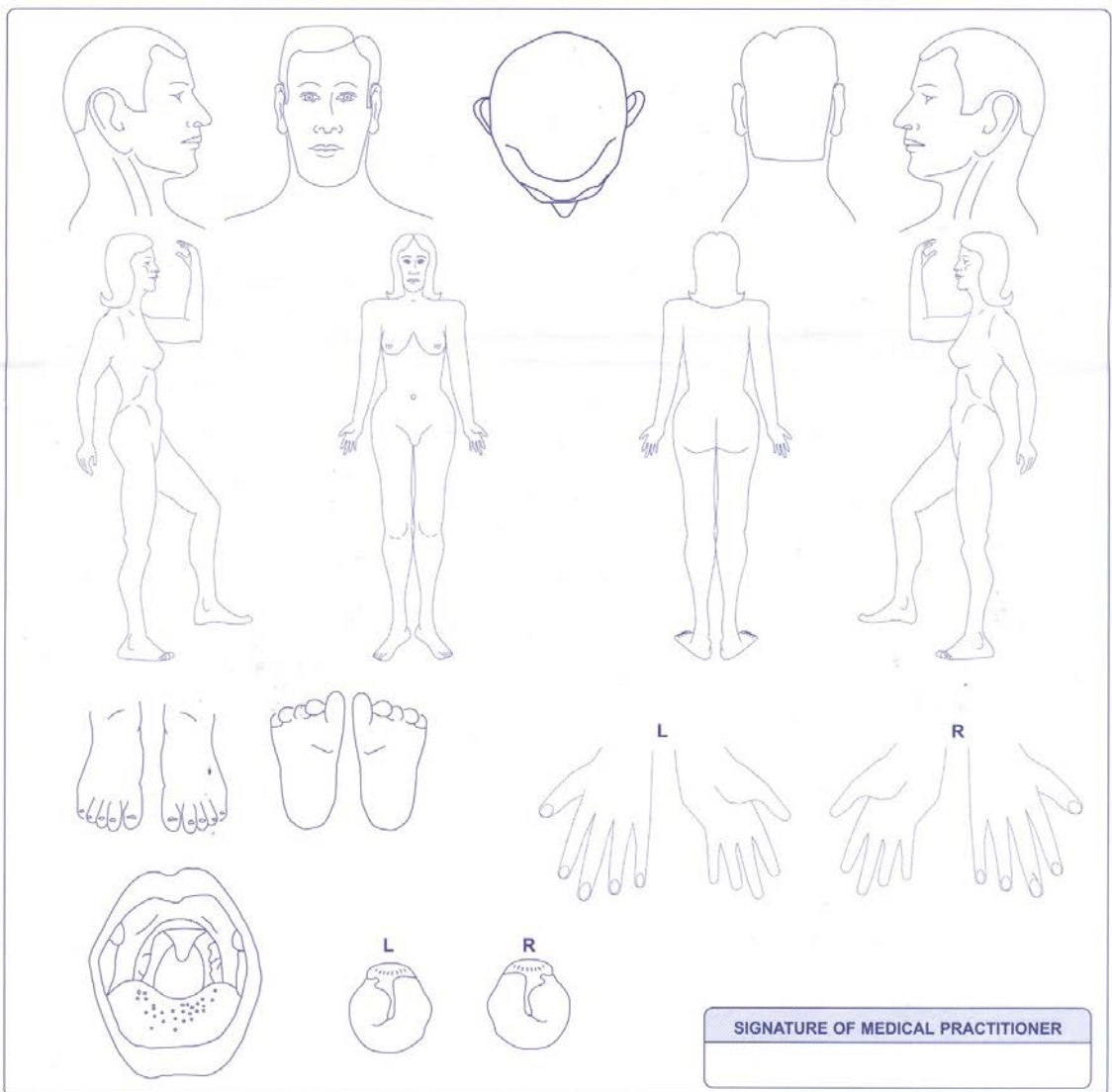
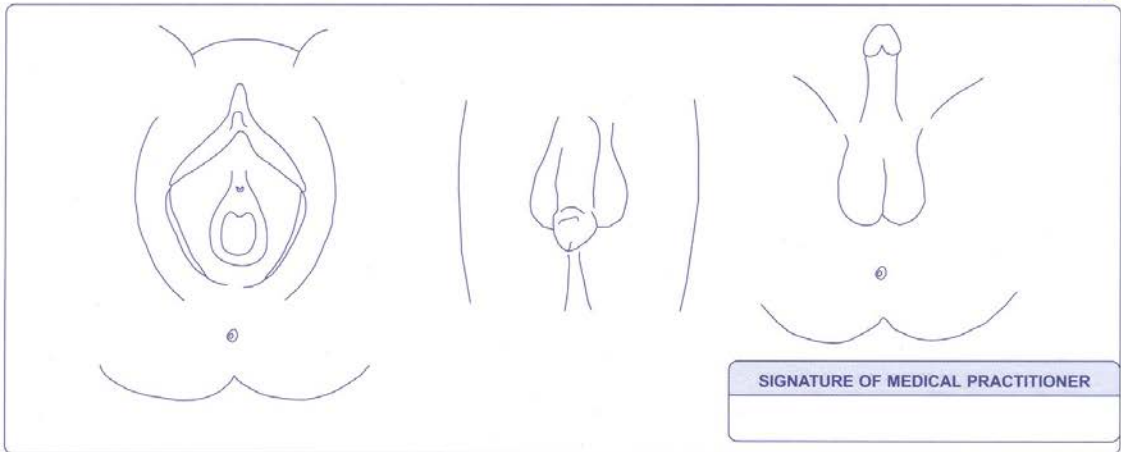
22. CONCLUSIONS:
<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

H. MALE GENITALIA

1. Genital development: Tanner stage 1-5:	<input style="width: 60%;" type="text"/>	6. Pubic hair: Tanner stage 1-5:	<input style="width: 60%;" type="text"/>	11. Prepuce and frenulum:	<input style="width: 60%;" type="text"/>
2. Glans:	<input style="width: 60%;" type="text"/>	7. Shaft:	<input style="width: 60%;" type="text"/>	12. Scrotum:	<input style="width: 60%;" type="text"/>
3. Testes:	<input style="width: 60%;" type="text"/>	8. Epididymus:	<input style="width: 60%;" type="text"/>	13. Vas deferens:	<input style="width: 60%;" type="text"/>
4. Ulceration:	<input style="width: 60%;" type="text"/>	9. Penile discharge:	<input style="width: 60%;" type="text"/>	14. Smegma:	<input style="width: 60%;" type="text"/>
5. Presence of faeces:	<input style="width: 60%;" type="text"/>	10. Circumcision:	<input style="width: 60%;" type="text"/>	15. Urethral orifice:	<input style="width: 60%;" type="text"/>

16. CONCLUSIONS:
<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

Signature of medical practitioner





Adult Sexual Assault Evidence Collection Kit

Triplicate Form

1st Copy back to Evidence Collection Kit
2nd Copy to Healthcare Practitioner
3rd Copy to attending Law Enforcement Officer



04D 1CF0585

Barcodes from Evidence Collection Kits used for collection of evidence from this specific patient

- Clothing Collection Kit (1st)
- Clothing Collection Kit (2nd)
- Body Fluid Evidence Collection Kit

A Healthcare Practitioner

Dr RN Initials

Surname

Medical Registration Number

Healthcare Facility

E-mail Address

Telephone Number (and area code)

Date

From : To :

Signature of Examining Healthcare Practitioner

Initials Surname

ID or Passport Number

Female Male

I understand that, in addition to consent for medical evaluation and treatment given to the health care facility and medical practitioner, I also give consent to a medical examination for evidence of sexual assault, which may be used for forensic investigation.

I understand that this examination may include the collection of reference samples, and the DNA profiles of the collected samples may be stored in a confidential forensic DNA database. I also understand that I may withdraw consent at any time or any portion of the examination. All information submitted will be treated as highly confidential, and for the sole purpose of criminal investigation.

All information submitted will be treated as highly confidential, and for the sole purpose of criminal investigation.

Signature of Patient or Guardian

- None
- 5 days or less before incident
- More than 5 days before incident

ID / Number of Items Collected

One

Two

Three or more How many?

Please indicate collection, usage or response with

1. CLOTHING COLLECTION

- Collection of Panties / Underpants and Sanitary Pad

Indicate which items of clothing were collected on Collection of Evidence Form - Step 1 Items of Clothing Collected from the Patient

- Clothing Collection Kit

2. ORAL EXAMINATION

- Oral swab

3. REFERENCE BLOOD SAMPLE

- Marshal Cassette

4. EVIDENCE FROM BODY

- Matted Head Hair
- Head Hair Combing
- Reference Head Hair
- Left Hand Fingernail Swab
- Right Hand Fingernail Swab

	Type of Sample	From Where ?
<input type="checkbox"/> Catch Paper A		
<input type="checkbox"/> Catch Paper B		
<input type="checkbox"/> Collection of Body Fluid Deposits		

Indicate collection and position on Collection of Evidence Form - Step 4.4 Body Fluid collected from Patient's Body

- Body Fluid Evidence Collection Kit

5. EVIDENCE FROM PUBIC AREA

- No Pubic Hair or very short Pubic Hair
- Matted Pubic Hair
- Pubic Hair Combing
- Reference Pubic Hair

6. ANO-RECTAL SAMPLES

- External Anal Swab
- Rectal Swab

7. GENITAL SAMPLES

- Vulva
- Vestibule
- Tampon
- Vaginal Vault
- Cervical Os

MEDIESE VERSOEK • MEDICAL REQUEST

Monsters/verslae benodig: Alkohol Alcohol Suiker Sugar Barbiturate Barbiturates Ander (spesifiseer) Other (specify)

* Skrap waar nie van toepassing nie/Delete where not applicable.
 † Merk met 'n X in die toepaslike blokkie/Mark with an X in the appropriate block.

MEDIESE GESKIEDENIS • MEDICAL HISTORY

† Siekte: Epilepsie Suikersiekte Diabetes Hipertensie Hypertension Ander (spesifiseer) Other (specify)

.....

Is enige medisyne gedurende die afgelope 24 uur geneem? *JA/NEE Spesifiseer
 Has the person taken any medication over the last 24 hours? *YES/NO Specify

Vorige beserings, gebreke of operasies
 Previous injuries, abnormalities or operations

Ander toepaslike besonderhede
 Other relevant detail

Vrywillige verklaring aangaande *alkohol/verdoovingsmiddels gebruik gedurende afgelope 24 uur:
 Voluntary statement as to the consumption or use of *alcohol/drugs over the last 24 hours:

Hoeveelheid en soort
 Quantity and type

Eerste drankie om Laaste drankie om
 First drink at Last drink at

Laaste maaltyd om Tipe maal
 Last meal at Type of meal

KLINIESE ONDERSOEK (ALGEMEEN) • CLINICAL EXAMINATION (GENERAL)

Massa *geweeg/geskat. Bloeddruk Temperatuur
 Mass *weighed/estimated. Blood pressure Temperature

Polsslag /min. Polsslag: *Normaal/Sterk/Flou
 Pulse /min. Pulse: *Normal/Strong/Weak

Toestand van klere Netjies/Gemiddeld/Onnet
 State of clothing Neat/Average/Disarranged

Tekens van skok
 Signs of shock

Toestand van die hart
 Condition of the heart

Toestand van die longe
 Condition of the lungs

Toestand van die ledemate
 Condition of the extremities

Toestand van die abdomen
 Condition of the abdomen

Beserings en/of bewussynverlies
 Injuries and/or loss of consciousness

.....

* Skrap waar nie van toepassing nie/Delete where not applicable.

† Merk met 'n X in die toepaslike blokkie/Mark with an X in the appropriate block.

† GESIG/FACE

Normaal Normal		Rooi Flushed		Bleek Pale	
-------------------	--	-----------------	--	---------------	--

† KONJUNKTIVA/CONJUNCTIVA

Normaal Normal		Gestu Congested	
-------------------	--	--------------------	--

† TONG/TONGUE

Droog Dry		Klam Moist		Aangepak Furred		Skoon Clean	
--------------	--	---------------	--	--------------------	--	----------------	--

† REUK VAN ALKOHOL/SMELL OF ALCOHOL

Sterk Strong		Middelmatig Moderate		Flou Faint		GEEN NONE	
-----------------	--	-------------------------	--	---------------	--	--------------	--

* Tekens van braking: Ja/Nee * Tekens van speekselvloei: Ja/Nee

* Signs of vomiting: Yes/No * Signs of salivation: Yes/No

NEUROLOGIES • NEUROLOGICAL

† PUPILLE/PUPILS

Gelyk Equal		Ongelyk Unequal		Saamgetrek Contracted		Normaal Normal		Verwyd Dilated	
----------------	--	--------------------	--	--------------------------	--	-------------------	--	-------------------	--

† PUPILLE REAKSIE OP LIG/PUPILS REACTING TO LIGHT

Normaal Normal		Vertraag Delayed		GEEN NONE
-------------------	--	---------------------	--	--------------

† NISTAGMUS/NYSTAGMUS

Grof Course		Fyn Fine		Afwesig Absent		Aanhoudend Continuous	
----------------	--	-------------	--	-------------------	--	--------------------------	--

† SPRAAK/SPEACH

Dik en slordig Thick and strurred		Hakkelend Stuttering		Normaal Normal	
--------------------------------------	--	-------------------------	--	-------------------	--

† KNIEREFLEKSE/KNEE JERKS

Normaal Normal		Oordrewe Exaggerated		Onderdruk Depressed		Gelyk Equal		Ongelyk Unequal	
-------------------	--	-------------------------	--	------------------------	--	----------------	--	--------------------	--

* Chroniese oorsiekte: Enige sigbare afskeidings? * Ja/Nee

* Chronical ear disease: Any visible discharge? * Yes/No

† GANG MET LOOP/MANNER OF WALKING

Normaal Normal		Wydseen Broadguage		Struikelend Stumbling		Atakties Ataxic
-------------------	--	-----------------------	--	--------------------------	--	--------------------

† GANG MET OMDRAAI/MANNER OF TURNING AROUND

Normaal Normal		Onseker Unsteady		Struikelend Stumbling
-------------------	--	---------------------	--	--------------------------

† HANDBEWEGINGS/HAND MOVEMENTS

Diskoördinasie grof Disco-ordination gross	
Diskoördinasie gering Disco-ordination mild	
Diskoördinasie afwesig Disco-ordination absent	

† ROMBERG se TEKEN/ROMBERG's SIGN

Merkbaar Marked	
Middelmatig Moderate	
Swak Weak	
Afwesig Absent	

INTELLEKTUELE EN EMOSIONELE FUNKSIES • INTELLECTUAL AND EMOTIONAL FUNCTIONS

† Oriëntering ten opsigte van:
† Orientation in respect of:

TYD TIME	Goed Good		Middelmatig Moderate		Sleg Bad		Onbepaald Indefinite	
-------------	--------------	--	-------------------------	--	-------------	--	-------------------------	--

PLEK PLACE	Goed Good		Middelmatig Moderate		Sleg Bad		Onbepaald Indefinite	
---------------	--------------	--	-------------------------	--	-------------	--	-------------------------	--

GEHEUE MEMORY	Helder Clear		Vaag Vague		Verward Confused	
------------------	-----------------	--	---------------	--	---------------------	--

† GEDRAG/BEHAVIOUR

Luidrugtig Noisy		Joviaal Jovial		Grootpraterig Boastful		Verontwaardig Indignant		Parmantig Cheeky	
---------------------	--	-------------------	--	---------------------------	--	----------------------------	--	---------------------	--

Oormatige selfvertroue Excessive confidence		Nors Surlly		Spraaksaam Talkative		Emosioneel Emotional		Apaties Apathetic	
--	--	----------------	--	-------------------------	--	-------------------------	--	----------------------	--

Traak-my-nie-agtig Don't care attitude		Onbeheersd Uncontrollable		Opgewonde Excited		Senuweeagtig Nervous		Impulsief Impulsive	
---	--	------------------------------	--	----------------------	--	-------------------------	--	------------------------	--

Argumenteer baie Argumentative		Geen insig No insight		Normaal Normal	
-----------------------------------	--	--------------------------	--	-------------------	--

GEVOLGTREKKING • CONCLUSION

Gevolgtrekking: Tydens hierdie ondersoek is die persoon *sterk/matig/nie onder die invloed van *Alkohol/Verdowingsmiddels nie. Tydens die voorval is dit *waarskynlik/moontlik/onwaarskynlik dat die persoon onder die invloed van *Alkohol/Verdowingsmiddels was.

Conclusion: At this time, i.e. during the examination, the person is *strongly/moderately/not under the influence of *Alcohol/Drugs. It is *likely/possible/unlikely that the person was under the influence of *Alcohol/Drugs at the time of the incident.

Kommentaar/Comment.....

SERTIFIKAAT VAN LID WAT DIE MONSTER OORHANDIG • CERTIFICATE OF MEMBER HANDING OVER THE SPECIMEN

Ek, No. Rang Naam
I, No. Rank Name

verklaar hiermee dat ek 'n monster met seëlnommer
hereby declare that I received a specimen that was sealed with seal number

geseël in my teenwoordigheid en die van (naam van dokter) ontvang het.
in my presence and the presence of (name of doctor).

Ek het die geseëide monster ingehandig by (polisiestasie)
I handed in the sealed specimen at (police station)

op (datum) om (tyd) aan
on (date) at (time) to

wat beheer van die monster geneem het en die besonderhede daarvan in die SAPD 13-register opgeteken het (SAPD 13-nommer)
who took charge of it and recorded its details in the SAPS 13 register under (SAPS 13 number)

.....
Handtekening van polisiebeampte/verkeersbeampte
Signature of police official/traffic official

SERTIFIKAAT VAN LID WAT DIE MONSTER ONTVANG • CERTIFICATE OF MEMBER RECEIVING THE SPECIMEN

Ek verklaar hiermee dat ek, No. Rang Naam
I hereby declare that I, No. Rank Name

'n geseëide monster ontvang het op (datum) (tyd)
received a sealed specimen on (date) (time)

vanaf, No. Rang Naam
from, No. Rank Name

.....
Handtekening van polisiebeampte/verkeersbeampte
Signature of police official/traffic official

APPENDIX B:
Clinical Forensic Medicine evaluation questionnaire

Dear Participant,

"You are being asked to participate in a research study. Please note that by completing this questionnaire you are voluntarily agreeing to participate in this research study. Your data will be treated confidentially at all times. You may withdraw from this study at any given moment during the completion of the questionnaire".

The purpose of this questionnaire is to give you as community service doctor/ex-community service doctor the opportunity to contribute to the improvement of Clinical Forensic Medicine development at undergraduate level. Your feedback on the following issues is requested:

- strong and weak points of undergraduate training of Clinical Forensic Medicine at the University of the Free State
- ideas on what can be improved
- suggestions on how this should be done

Your feedback will remain confidential and will be used for research purposes only. Your feedback must please be returned to me by not later than 15 October 2011 to: stultingl@fshealth.gov.za or P O Box 1308, Noordstad, Bloemfontein. 9302.

Please take note that the data collected from this study will be published.

Appendix B: Questionnaire

Instructions

Mark the appropriate box with a X or write your answer on the space provided and e-mail it back to the address at the bottom of the questionnaire by September 15, 2011

For office use

1. Age	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	1-2
2. Gender:		<input type="text"/>	3
Male	<input type="text"/>		
Female	<input type="text"/>		
3. Home language:		<input type="text"/>	4
Afrikaans	<input type="text"/>		5
English	<input type="text"/>		6
Other	<input type="text"/>		
4. In which year did you start your studies at the School of Medicine, Faculty of Health Sciences, University of the Free State?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	7-10
5. In which year did you complete your studies at the School of Medicine, Faculty of Health Sciences, University of the Free State?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	11-14
6. In which year did you do your community service?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	15-18
7. In which province did you do your community service?			
Eastern cape	<input type="text"/>	<input type="text"/>	19
Free State	<input type="text"/>	<input type="text"/>	20
Gauteng	<input type="text"/>	<input type="text"/>	21
KwaZulu Natal	<input type="text"/>	<input type="text"/>	22
Limpopo	<input type="text"/>	<input type="text"/>	23
Mpumalanga	<input type="text"/>	<input type="text"/>	24
Northern Cape	<input type="text"/>	<input type="text"/>	25
North West	<input type="text"/>	<input type="text"/>	26
Western Cape	<input type="text"/>	<input type="text"/>	27

8. In which environment did you do your community service?			
Urban	<input type="checkbox"/>	<input type="checkbox"/>	28
Rural	<input type="checkbox"/>	<input type="checkbox"/>	29
Urban and rural	<input type="checkbox"/>	<input type="checkbox"/>	30
9. Did you have to examine any rape cases during your community service?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	31
No	<input type="checkbox"/>	<input type="checkbox"/>	32
10. If the answer is yes in question 9.:			
(i) How many times?			
1 - 5	<input type="checkbox"/>	<input type="checkbox"/>	33
5 - 10	<input type="checkbox"/>	<input type="checkbox"/>	34
> 10	<input type="checkbox"/>	<input type="checkbox"/>	35
> 20	<input type="checkbox"/>	<input type="checkbox"/>	36
(ii) Was a chaperone present?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	37
No	<input type="checkbox"/>	<input type="checkbox"/>	38
(iii) Did you have to make use of an interpreter?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	39
No	<input type="checkbox"/>	<input type="checkbox"/>	40
(iv) Did you obtain consent for the examination (including pregnancy test is applicable and HIV testing)?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	41
No	<input type="checkbox"/>	<input type="checkbox"/>	42
(v) Were you familiar with the Sexual Assault Examination Kit?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	43
No	<input type="checkbox"/>	<input type="checkbox"/>	44

(vi) Were you familiar with the J88 included in the SAECK?				
Yes	<input type="checkbox"/>	<input type="checkbox"/>		45
No	<input type="checkbox"/>	<input type="checkbox"/>		46
(vii) Did you experience any difficulties with the questions posed in the J88?				
Yes	<input type="checkbox"/>	<input type="checkbox"/>		47
No	<input type="checkbox"/>	<input type="checkbox"/>		48
(viii) Did you obtain the details with regards to the alleged rape/sexual assault?				
Yes	<input type="checkbox"/>	<input type="checkbox"/>		49
No	<input type="checkbox"/>	<input type="checkbox"/>		50
(ix) Did you obtain details with regards to the gynaecological history?				
Yes	<input type="checkbox"/>	<input type="checkbox"/>		51
No	<input type="checkbox"/>	<input type="checkbox"/>		52
(x) Did you obtain details with regards to the sexual history?				
Yes	<input type="checkbox"/>	<input type="checkbox"/>		53
No	<input type="checkbox"/>	<input type="checkbox"/>		54
(xi) Did you do a general examination?				
Yes	<input type="checkbox"/>	<input type="checkbox"/>		55
No	<input type="checkbox"/>	<input type="checkbox"/>		56
(xii) Did you note the developmental stage of the breasts?				
Yes	<input type="checkbox"/>	<input type="checkbox"/>		57
No	<input type="checkbox"/>	<input type="checkbox"/>		58
(xiii) Did you note the developmental stage of the genitalia?				
Yes	<input type="checkbox"/>	<input type="checkbox"/>		59
No	<input type="checkbox"/>	<input type="checkbox"/>		60
(xiv) Did you note the appearance of the anus?				
Yes	<input type="checkbox"/>	<input type="checkbox"/>		61
No	<input type="checkbox"/>	<input type="checkbox"/>		62

(xv) Did you note any injuries on the genitalia?

Yes 63

No 64

(xvi) If yes to (xv) did you document the injuries on the J88?

Yes 65

No 66

(xvii) Did you take the relevant samples for forensic evidence?

Yes 67

No 68

(xviii) If the answer to (xvii) is NO please motivate decision not to take any samples.

.....
.....
.....
.....
 69

(xix) Did you take a sample of the saliva in case of a bite wound?

Yes 70

No 71

(xx) Did you take a sample under the fingernails?

Yes 72

No 73

(xxi) Did you collect the panty?

Yes 74

No

(xxii) Did you collect any other clothing?

Yes 75

No 76

(xxiii) Did you comb the pubic area?

Yes 77

No 78

(xxiv) Did you remove pubic hair for reference purposes?

Yes	<input type="checkbox"/>	<input type="checkbox"/>	79
No	<input type="checkbox"/>	<input type="checkbox"/>	80

(xxv) Did you swab the vulva?

Yes	<input type="checkbox"/>	<input type="checkbox"/>	1
No	<input type="checkbox"/>	<input type="checkbox"/>	2

(xxvi) Did you swab the vagina?

Yes	<input type="checkbox"/>	<input type="checkbox"/>	3
No	<input type="checkbox"/>	<input type="checkbox"/>	4

(xxvii) Did you swab the cervical os?

Yes	<input type="checkbox"/>	<input type="checkbox"/>	5
No	<input type="checkbox"/>	<input type="checkbox"/>	6

(xxviii) Did you swab the anus?

Yes	<input type="checkbox"/>	<input type="checkbox"/>	7
No	<input type="checkbox"/>	<input type="checkbox"/>	8
Not applicable	<input type="checkbox"/>	<input type="checkbox"/>	9

(xxix) Did you take a rectal swab?

Yes	<input type="checkbox"/>	<input type="checkbox"/>	10
No	<input type="checkbox"/>	<input type="checkbox"/>	11
Not applicable	<input type="checkbox"/>	<input type="checkbox"/>	12

(xxx) Did you allow sufficient time for samples to dry before sealing?

Yes

13

No

14

(xxxix) Did you seal the samples yourself before placing back in kit?

Yes

15

No

16

(xxxix) Did you complete the J88?

Yes

17

No

18

(xxxix) Did you place the original J88 in the kit before sealing the kit?

Yes

19

No

20

(xxxix) Did you hand the sealed kit to the investigating officer?

Yes

21

No

22

(xxxix) Did you discuss psychological follow up with the victim?

Yes

23

No

24

(xxxix) Did you prescribe the necessary treatment for STD's and ARV's?

Yes

25

No

26

(xxxix) Did you request a follow-up date for the victim to be made at the clinic?

Yes

27

No

28

12. Did you examine any assault cases?

Yes

29

No

30

13. If the answer is yes for question 12:

(i) How many times?

1 - 5

31

5 - 10

32

> 10

33

> 20

34

> 30

35

> 40

36

> 50

37

(ii) Did the J88 accompany the victim?

Yes

38

No

39

(iii) Did you take the relevant history from the victim?

Yes

40

No

41

(iv) Did you note the relevant history on the J88?

Yes

42

No

43

(v) Did you ask about alcohol usage?

Yes

44

No

45

(vi) Did you note alcohol usage on the J88?

Yes

46

No

47

(vii) Could you identify a bruise?

Yes

48

No	<input type="checkbox"/>	<input type="checkbox"/>	49
(viii) Could you identify an abrasion?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	50
No	<input type="checkbox"/>	<input type="checkbox"/>	51
(ix) Could you identify a laceration?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	52
No	<input type="checkbox"/>	<input type="checkbox"/>	53
(x) Could you identify an incised wound?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	54
No	<input type="checkbox"/>	<input type="checkbox"/>	55
(xi) Did you measure the wound?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	56
No	<input type="checkbox"/>	<input type="checkbox"/>	57
(xii) Did you note the shape of the wound?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	58
No	<input type="checkbox"/>	<input type="checkbox"/>	59
(xiii) Did you indicate the wound on the J88?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	60
No	<input type="checkbox"/>	<input type="checkbox"/>	61
14. Did you have to examine drunken drivers?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	62
No	<input type="checkbox"/>	<input type="checkbox"/>	63
15. If you answered YES in 14:			

(i) How many times did you have to examine a drunken driver?

- | | | | |
|------|--------------------------|--------------------------|----|
| 1-5 | <input type="checkbox"/> | <input type="checkbox"/> | 64 |
| 5-10 | <input type="checkbox"/> | <input type="checkbox"/> | 65 |
| > 10 | <input type="checkbox"/> | <input type="checkbox"/> | 66 |

(ii) Was the alleged drunken driver accompanied by a member of the South African Police Service?

- | | | | |
|-----|--------------------------|--------------------------|----|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | 67 |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 68 |

(iii) Was the alleged drunken driver accompanied by the necessary documentation (SAPS 308(A))?

- | | | | |
|-----|--------------------------|--------------------------|----|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | 69 |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 70 |

(iv) Was the alleged drunken driver accompanied by the necessary alcohol kit?

- | | | | |
|-----|--------------------------|--------------------------|----|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | 71 |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 72 |

(v) Was the alleged drunken driver brought in within 2 hours of the incident happening?

- | | | | |
|-----|--------------------------|--------------------------|----|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | 73 |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 74 |

(vi) Did you explain to the alleged drunken driver the reason of him being brought in?

- | | | | |
|-----|--------------------------|--------------------------|----|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | 75 |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 76 |

(vii) Did he sign a consent form to be examined and for a blood sample to be collected?

- | | | | |
|-----|--------------------------|--------------------------|----|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | 77 |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 78 |

(viii) Did you check the kit beforehand?

- | | | | |
|-----|--------------------------|--------------------------|----|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | 79 |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 80 |

(ix) Did you break the seal yourself?

- | | | | |
|-----|--------------------------|--------------------------|---|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | 1 |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 2 |

(x) Did you clean the area where the blood sample will be taken?

- | | | | |
|-----|--------------------------|--------------------------|---|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | 3 |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 4 |

(xi) If yes in (x): with what did you clean the area?

- | | | | |
|----------------------|--------------------------|--------------------------|---|
| Sterile water | <input type="checkbox"/> | <input type="checkbox"/> | 5 |
| Alcohol swab | <input type="checkbox"/> | <input type="checkbox"/> | 6 |
| Other: specify | <input type="checkbox"/> | <input type="checkbox"/> | 7 |

(xii) Did you place the blood in the designated container?

- | | | | |
|-----|--------------------------|--------------------------|---|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | 8 |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 9 |

(xiii) Did you seal the kit yourself?

- | | | | |
|-----|--------------------------|--------------------------|----|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | 10 |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 11 |

(xiv) Did you examine the alleged drunken driver?

- | | | | |
|-----|--------------------------|--------------------------|----|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | 12 |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 13 |

(xv) If the answer in (xiv) is yes:

(a) Did you take a medical history with regards to chronic illnesses eg. epilepsy, diabetes, hypertension etc.

- | | | | |
|-----|--------------------------|--------------------------|----|
| Yes | | | |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 14 |

(b) Did the alleged drunken driver take medication over the last 24 hours?

- | | | | |
|-----|--------------------------|--------------------------|----|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | 15 |
| No | <input type="checkbox"/> | <input type="checkbox"/> | 16 |

(c) Did the alleged drunken driver suffered any previous injuries, abnormalities and operations?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	17
No	<input type="checkbox"/>	<input type="checkbox"/>	18
(d) Did you enquire as to how much alcohol/drugs the alleged drunken driver consumed over the last 24 hours?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	19
No	<input type="checkbox"/>	<input type="checkbox"/>	20
(e) Did you perform a full clinical examination on the alleged drunken driver?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	21
No	<input type="checkbox"/>	<input type="checkbox"/>	22
(f) Did you note the state of the clothing (eg. neat/average/disarranged) of the alleged drunken driver?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	23
No	<input type="checkbox"/>	<input type="checkbox"/>	24
(g) Did you complete the necessary documentation?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	25
No	<input type="checkbox"/>	<input type="checkbox"/>	26
(h) Did you sign the documentation?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	27
No	<input type="checkbox"/>	<input type="checkbox"/>	28
(i) Did you hand the documentation and the alcohol kit to the investigating officer?			
Yes	<input type="checkbox"/>	<input type="checkbox"/>	29
No	<input type="checkbox"/>	<input type="checkbox"/>	30

16. Did you receive any undergraduate training with regards to the completion of medico-legal documentation?

Yes

31

No

32

17. Do you think your undergraduate exposure to clinical forensic medicine cases was sufficient?

Yes

33

No

34

18. Do you have any suggestions as to how we can improve on the curriculum to enable our graduates to examine/ treat clinical forensic cases with confidence?

.....

.....

.....

.....

35

THANK YOU FOR YOUR RESPONSE! IT IS HIGHLY APPRECIATED!

Yours faithfully

Dr L Fouché
Senior Consultant
Department of Forensic Medicine
School of Medicine
University of the Free State
Bloemfontein
Cellular phone: 0832877249
e-mail : stultingl@fshealth.gov.za

(ETOVS no

) Registered study

August 31, 2011

Prof. G.J. van Zyl
Dean
Faculty of Health Sciences
UFS

Dear Professor

APPLICATION: PERMISSSION TO CONTINUE WITH A RESEARCH STUDY: A CURRICULUM FOR CLINICAL FORENSIC MEDICINE IN THE UNDERGRADUATE MEDICAL PROGRAMME FROM THE PERSPECTIVE OF COMMUNITY SERVICE DOCTORS

I hereby apply to continue with the Research Study as approved by the Ethics Committee (Faculty of Health Sciences) on 15 June 2011. Etovs nr: 149/2011

Study title: A curriculum for Clinical Forensic Medicine in the undergraduate medical programme from the perspective of community service doctors.

Community service doctors are placed in the more rural areas in an effort to improve health care services. Their function is to deliver primary health care which includes clinical forensic medicine (the assessment of rape cases, drunken drivers and assault cases). The aim of this research study is to assess what the community service doctors' opinions and experiences are and whether they have any suggestions as to how the training for Forensic Medicine can be improved.

Valid suggestions will be introduced into the curriculum in an endeavour to improve not only their training, but also their medico-legal reporting which will lead to a much higher conviction rate of perpetrators.

The graduates of 2006, 2007 and 2008 of the M.B.,Ch.B. programme of the School of Medicine, University of the Free State, who have completed or is still busy doing their community service year, will be the target population. A sequential approach will be used: questionnaires which will contain qualitative as well as quantitative questions will be distributed to the target population. Once the information has been analysed a Delphi survey consisting of several rounds will be done amongst experts in the field of Clinical Forensic Medicine, where after the information gathered will be analysed and a curriculum developed for Clinical Forensic Medicine.

Yours faithfully.

Dr L Fouché
Acting Head: Dept Forensic Medicine
School of Medicine
Faculty of Health Sciences

Contact details:
Tel. (W): 051 – 4129140
Cell. 0832877249
E-mail: stultingl@fshealth.gov.za

May 31, 2011

Prof. D. Hay
Vice-Rector: Teaching and Learning
University of the Free State

APPLICATION FOR PERMISSION TO CONTINUE WITH A RESEARCH STUDY IN FORENSIC MEDICINE

Dear Prof Hay

I hereby apply to continue with the Research Study as approved by the Ethics Committee (Faculty of Health Sciences) on 15 June 2011. Etovs nr: 149/2011

Study title: A curriculum for Clinical Forensic Medicine in the undergraduate medical programme from the perspective of community service doctors.

Community service doctors are placed in the more rural areas in an effort to improve health care services. Their function is to deliver primary health care which includes clinical forensic medicine (the assessment of rape cases, drunken drivers and assault cases). The aim of this research study is to assess what the community service doctors' opinions and experiences were and whether they have any suggestions as to how the training for Clinical Forensic Medicine can be improved. Valid suggestions will be introduced into the curriculum in an endeavour to improve not only their training, but also their medico-legal reporting which will lead to a much higher conviction rate of perpetrators.

The graduates of 2006, 2007 and 2008 of the M.B.,Ch.B. programme of the School of Medicine, University of the Free State, who have completed their community service year or is still busy doing it, will be the target population. A sequential approach will be used: questionnaires which will contain quantitative elements as well as a few open ended elements which will be distributed to the target population. Once the information has been analysed a Delphi survey consisting of several rounds will be done amongst experts in the field, where after the information gathered will be analysed and a curriculum developed for Clinical Forensic Medicine.

Yours faithfully,

Dr Lemainé Fouché
Acting Head: Dept. Forensic Medicine
School of Medicine
Faculty of Health Sciences

Contact details:
Tel. (w): 051 – 4129140
Cell.: 0832877249
E-mail address: stultingl@fshealth.gov.za

APPENDIX E:
Approval from Health Sciences Research Ethics Committee



Research Division
Internal Post Box G40
☎(051) 4052812
Fax (051) 4444359

E-mail address: StraussHS@ufs.ac.za

Ms H Strauss

2012-02-15

REC Reference nr 230408-011
IRB nr 00006240

DR L FOUCHÉ
DEPT OF FORENSIC MEDICINE
FACULTY OF HEALTH SCIENCES
UFS

Dear Dr Fouché

ECUFS NR 149/2011

PROJECT TITLE: A CURRICULUM FOR CLINICAL FORENSIC MEDICINE IN THE UNDERGRADUATE MEDICAL PROGRAMME, UNIVERSITY OF THE FREE STATE.

- You are hereby kindly informed that at the meeting held on 7 February 2012 the Ethics Committee approved the above project after approval by Acting Head of the School of Medicine, Prof WF Mollentze and the Dean: Faculty of Health Sciences, Prof GJ van Zyl on 25 January 2012 was obtained.
- Committee guidance documents: Declaration of Helsinki, ICH, GCP and MRC Guidelines on Bio Medical Research. Clinical Trial Guidelines 2000 Department of Health RSA; Ethics in Health Research: Principles Structure and Processes Department of Health RSA 2004; Guidelines for Good Practice in the Conduct of Clinical Trials with Human Participants in South Africa, Second Edition (2006); the Constitution of the Ethics Committee of the Faculty of Health Sciences and the Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines.
- Any amendment, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.
- The Committee must be informed of any serious adverse event and/or termination of the study.
- A progress report should be submitted within one year of approval of long term studies and a final report at completion of both short term and long term studies.
- Kindly refer to the ECUFS reference number in correspondence to the Ethics Committee secretariat.

Yours faithfully


CHAIR: ETHICS COMMITTEE

Cc Dr J Bezuidenhout



Declaration

9 November 2017

Hester Sophia Human
18 C Ben Tindall Street
Heuwelsig
Bloemfontein
Hettie.human@gmail.com
072 137 8991

Student: L Fouché

Dissertation: A curriculum for clinical forensic medicine in the undergraduate medical programme, University of the Free State

I confirm that I edited this dissertation and checked the references. The student accepted or rejected recommendations for changes.



HS Human



APPENDIX G:
Letter from supervisor regarding Turnitin Plagiarism report



Afdeling Gesondheidswetenskappe-Onderwys / Division of Health Sciences Education
Kantoor van die Dekaan / Office of the Dean
Fakulteit Gesondheidswetenskappe / Faculty of Health Sciences

TEL (051) 405-3095/4017772

E-Pos/E-mail: bezuidj@ufs.ac.za

30 October 2017

TO WHOM IT MAY CONCERN

DECLARATION ON PLAGIARISM

According to the University of the Free State's Policy on the Prevention of Plagiarism and Dealing with Academic Writing Misconduct definition:

Plagiarism implies direct duplication of the formulation and insights of a source text with the intention of presenting it as one's own work. Plagiarism cannot be confirmed as a result of mere similarities of words between the source text and the borrowed text as in the case of terminology, commonly used phrases and known facts. If plagiarism is suspected it must also be provable. The source text and borrowed text must therefore be placed side by side. The mere suspicion of plagiarism cannot form the basis of an accusation. Plagiarism is distinguished from forms of academic writing misconduct such as:

- cribbing in tests and examinations;
- collusion and fabrication or falsification of data;
- deliberate dishonesty;
- purchasing assignments, dissertations and/or theses on the Internet and presenting such documents as one's own work;
- presenting the same work for more than one course or in consecutive years; and
- the submission of another person's work as one's own original work.

To check for plagiarism the UFS uses software programmes like TURNITIN. The programme does not show plagiarism but rather focus on similarity in text against certain criteria.

In this spirit the promoters are satisfied that in the report following this letter it shows a **23%** similarity in chapter 1. When comparing text with text from the two works it is evident that there are no plagiarism. Where text are similar it is properly referenced or quoted and referenced. See report attached.

Chapter 2: This article was published and accepted by the journal SAJFP. Journal ensured a detailed check for plagiarism. The journal were happy with the content.

Chapter 3: This article was published and accepted by the journal SAJFP. Journal ensured a detailed check for plagiarism. The journal were happy with the content.

Chapter 4: This article was published and accepted by the journal SAJFP. Journal ensured a detailed check for plagiarism. The journal were happy with the content.

Chapter 5 and 6 are the framework of curriculum that were developed and conclusions. None show any signs of similarity.

The full report is electronically available on request from examiners (assessors).

Yours sincerely

A handwritten signature in black ink, appearing to read 'J. Bezuidenhout'.

Dr J. Bezuidenhout
Head: Division Health Sciences Education

APPENDIX H:

Articles as published in peer-reviewed journals as it appears in print

Appendix H1 Submission guidelines for the journal *South African Family Medical Practice*

Appendix H2 Published Article

*ARTICLE 1: MEDICO-LEGAL DOCUMENTATION OF RAPE OR SEXUAL ASSAULT.
ARE COMMUNITY SERVICE DOCTORS EQUIPPED FOR THEIR TASK?*

Appendix H3 Published Article

*ARTICLE 2: PRACTICE OF COMMUNITY-SERVICE DOCTORS IN THE
ASSESSMENT AND MEDICO-LEGAL DOCUMENTATION OF COMMON PHYSICAL
ASSAULT CASES*

Appendix H4 Published Article

*ARTICLE 3: MEDICO-LEGAL ASPECTS REGARDING DRUNK DRIVING:
EXPERIENCE AND COMPETENCY IN PRACTICE BY COMMUNITY SERVICE
DOCTORS*

SA Family Practice

Instructions for authors

Thank you for choosing to submit your paper to us. These instructions will ensure we have everything required so your paper can move through peer review, production and publication smoothly. Please take the time to read and follow them as closely as possible, as doing so will ensure your paper matches the journal's requirements. For general guidance on the publication process at Taylor & Francis please visit our [Author Services website](#).

This journal uses Editorial Manager to peer review manuscript submissions. Please read the [guide for Editorial Manager authors](#) before making a submission. Complete guidelines for preparing and submitting your manuscript to this journal are provided below.

Preparing your paper

All authors submitting to medicine, biomedicine, health sciences, allied and public health journals should conform to the [Uniform Requirements for Manuscripts Submitted to Biomedical Journals](#), prepared by the International Committee of Medical Journal Editors (ICMJE).

Disclosure statement

Please include a disclosure of interest statement, using the subheading "Disclosure of interest." If you have no interests to declare, please state this (suggested wording: *The authors report no conflicts of interest*). For all NIH/Wellcome-funded papers, the grant number(s) must be included in the disclosure of interest statement. [Read more on declaring conflicts of interest](#).

Clinical Trials Registry

In order to be published in a Taylor & Francis journal, all clinical trials must have been registered in a public repository at the beginning of the research process (prior to patient enrolment). Trial registration numbers should be included in the abstract, with full details in the methods section. The registry should be publicly accessible (at no charge), open to all prospective registrants, and managed by a not-for-profit organization. For a list of registries that meet these requirements, please visit the [WHO International Clinical Trials Registry Platform \(ICTRP\)](#). The registration of all clinical trials facilitates the sharing of information among clinicians, researchers, and patients, enhances public confidence in research, and is in accordance with the [ICMJE guidelines](#).

Complying with ethics of experimentation

Please ensure that all research reported in submitted papers has been conducted in an ethical and responsible manner, and is in full compliance with all relevant

codes of experimentation and legislation. All papers which report *in vivo* experiments or clinical trials on humans or animals must include a written statement in the Methods section. This should explain that all work was conducted with the formal approval of the local human subject or animal care committees (institutional and national), and that clinical trials have been registered as legislation requires. Authors who do not have formal ethics review committees should include a statement that their study follows the principles of the [Declaration of Helsinki](#).

Consent

All authors are required to follow the [ICMJE requirements](#) on privacy and informed consent from patients and study participants. Please confirm that any patient, service user, or participant (or that person's parent or legal guardian) in any research, experiment, or clinical trial described in your paper has given written consent to the inclusion of material pertaining to themselves, that they acknowledge that they cannot be identified via the paper; and that you have fully anonymized them. Where someone is deceased, please ensure you have written consent from the family or estate. Authors may use this [Patient Consent Form](#), which should be completed, saved, and sent to the journal if requested.

Health and safety

Please confirm that all mandatory laboratory health and safety procedures have been complied with in the course of conducting any experimental work reported in your paper. Please ensure your paper contains all appropriate warnings on any hazards that may be involved in carrying out the experiments or procedures you have described, or that may be involved in instructions, materials, or formulae. Please include all relevant safety precautions; and cite any accepted standard or code of practice. Authors working in animal science may find it useful to consult the [International Association of Veterinary Editors' Consensus Author Guidelines on Animal Ethics and Welfare](#) and [Guidelines for the Treatment of Animals in Behavioural Research and Teaching](#). When a product has not yet been approved by an appropriate regulatory body for the use described in your paper, please specify this, or that the product is still investigational.

Article Publishing Charges

To support full Open Access publishing, *South African Family Practice* applies an article publishing charge (APC) to articles accepted for publication.

The standard APC for South African Family Practice is:

South African Academy of Family Physicians (SAAFP) members: R5,000

South African authors: R10,000

International authors: \$1,500

Instructions for Authors

The following contributions are accepted (word counts exclude abstracts, tables and references):

1. *Original research* (Between 1000 and 3500 words):
2. *Letters to the Editor* (Up to 400 words):
3. *Scientific Letters* (Less than 600 words): A short abstract is required (125-150 words) and should be structured under the following headings: background, methods, results and conclusion. One table or graph and not more than 5 references.
4. *Review/CPD articles* (Up to 1800 words): Most review articles are published as part of the continuous professional development (CPD) programme of SAFFP. A scientific editor is appointed to approve topics, invite authors and to review the articles before they are independently peer-reviewed. All articles are reviewed by a family physician as well a topic specialist. Review articles outside the CPD programme are welcomed. Once accepted they may be published in full in the printed journal OR a 250 word abstract will be published in print with the full article available online.
5. *Opinions (Open Forum)* (Between 1000 and 3500 words).
6. *Editorials* (Between 600 - 800 words): Scientific editorials can be used to highlight progress in any scientific field related to family medicine.

Format

Title page: All articles must have a title page with the following information and in this particular order: Title of the article; surname, initials, qualifications and affiliation of each author; The name, postal address, e-mail address and telephonic contact details of the corresponding author; at least 5 keywords. Please do not use capital letters only for headings and names, but stick to the normal use of capital letters.

Abstract. All articles should include an abstract. The structured abstract for an Original Research article should be between 200 and 250 words and should consist of four paragraphs labelled "Background, Methods, Results, and Conclusions".

Only the abstract of Original Research articles will be published in print, and the abstract with the full article will be published online. It should briefly describe the problem or issue being addressed in the study, how the study was performed, the major results, and what the authors conclude from these results.

The abstracts for other types of articles should also be no longer than 250 words and need not follow the structured abstract format.

Keywords. All articles should include keywords. Up to five words or short phrases should be used. Use terms from the Medical Subject Headings (MeSH) of Index Medicus when available and appropriate. Key words are used to index the article and may be published with the abstract.

Acknowledgements. In a separate section, acknowledge any financial support received or possible conflict of interest. This section may also be used to acknowledge substantial contributions to the research or preparation of the manuscript made by persons other than the authors.

References. Cite references in numerical order in the text, in **superscript** format. Do not use brackets. In the References section, references must be numbered consecutively in the order in which they are cited, not alphabetically.

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ARTICLE 1: MEDICO-LEGAL DOCUMENTATION OF RAPE OR SEXUAL ASSAULT. ARE COMMUNITY SERVICE DOCTORS EQUIPPED FOR THEIR TASK?

South African Family Practice 2017; 1(1):1–5
<https://doi.org/10.1080/20786190.2017.1348046>

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S Afr Fam Pract

ISSN 2078-6190 EISSN 2078-6204
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RESEARCH

Medico-legal documentation of rape or sexual assault: are community-service doctors equipped for the task?

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Background: Following upon two-year internship, community-service doctors make mistakes when they deal with evidence of medico-legal examinations in various settings. These mistakes result in alleged perpetrators being released by courts. This study investigated undergraduate clinical forensic medicine training, based on experiences and opinions of community-service doctors. This article focuses on incidents of alleged rape cases only.

Methods: The study was a quantitative retrospective cohort study that made use of a questionnaire with an adapted Likert scale. An electronic survey tool was employed to target 150 community-service doctors throughout South Africa. Percentages are used to display results.

Results: A response rate of 59.3% was achieved. Although 80% of the participants reported that they had undergraduate training on how to manage alleged rape or sexual assault cases, only 11.4% of the participants had hands-on exposure to an alleged rape case during their undergraduate training. In addition, the majority of the participants (77.1%) never had undergraduate training on how to complete the J88 form. These findings indicate that clinical forensic training in the undergraduate medical programme does not adequately prepare community-service doctors to meet the challenges of clinical forensic practice. The current curriculum should be adapted to address these shortcomings.

Conclusions: Perpetrators cannot be convicted if evidence collected cannot stand up in court. Proper training of undergraduate medical students prior to their community-service posting will ensure that medico-legal documentation is completed correctly, leading to the presentation of credible evidence in a court of law in order to ensure successful conviction of alleged perpetrators.

Keywords: clinical forensic medicine, community-service doctors, medical training, medico-legal documentation, sexual assault

Introduction

Sexual assault and rape are violent crimes and among the most demoralising of personal traumas, often leaving victims physically assaulted, emotionally traumatised or even dead.¹ According to the (Sexual offences And Related Matters) Amendment Act 32 of 2007 of the Republic of South Africa, any person ('A'), who unlawfully and intentionally commits an act of sexual penetration with a complainant ('B') without the consent of B, is guilty of the offence of rape.² This Act makes provision that both men and women can be raped.²

South Africa has one of the highest incidences of rape in the world.¹ However, statistics on rape of men in South Africa are not available, as most male rapes go unreported.³ According to the South African Police Service (SAPS) 2015/2016 annual crime report, 41 503 incidents of rape were reported between 1 April 2015 and the 31 March 2016—approximately 114 rape incidents per day.⁴ The SAPS states that the number of rape cases decreased by 3.9% from the preceding year, following a year-on-year decrease since 2012/2013.⁴ The question arises as to whether the figures released by the SAPS reflect an actual reduction in the number of rapes reported, or a reduction in the incidence of rape.⁵ The National Institute for Crime Prevention and Rehabilitation (NICRO) states that only one in 20 incidents of rape is reported to the SAPS and that the SAPS figures do not reflect the reality of what is happening in the community. It is acknowledged that lack of faith in the criminal justice system and medical services are among the major barriers to reporting and successfully prosecuting sexual offenders.^{5,6}

The objective of this study was to assess the knowledge and experience of community-service doctors in medico-legal documentation and management of adults/adolescent patients who reported being raped, with the aim of highlighting the shortfalls of the present curriculum for clinical forensic medicine training in the undergraduate MBChB programme in South Africa.

Methods

This study was a quantitative retrospective cohort study that used a questionnaire to obtain information concerning the knowledge, experiences and opinions of a cohort of community-service doctors regarding clinical forensic medicine practice. The questionnaire was self-administered, and was administered once. The study cohort comprised MBChB graduates who had just completed their community service or were still in service during the period of survey.

The contact details of the potential participants were sourced from the Health Professions Council of South Africa. All potential participants were contacted telephonically to obtain verbal consent.

A total of 150 questionnaires were dispatched electronically via email. Data collected include the following:

- Demographics: age, gender and home language;
- Professional profile: information on when the participant had started and completed his/her medical studies.
- Employment profile: information on when and where participants had done/were doing community service; and

- Experience of managing sexual assault/rape victims during the community-service year.

This study was approved by the Health Sciences Research Ethics Committee (HSREC 149/2011) of the Faculty of Health Sciences at the University of the Free State.

Results

A response rate of 59.3% was obtained by this study: 89 of the 150 questionnaires distributed were returned. Some participants did not answer all the questions.

Demographic and professional details of participants

Data regarding age, gender, language, academic history, completion of studies, and information as to when and where the participants were doing/had done their community service were obtained.

Age and gender distribution

The average age of the majority of participants (40.9%) was 28 years. Of the 89 doctors who participated in this study, 61.8% were women and 38.2% men.

Home language

In response to this survey, 73% of participants reported Afrikaans as their home language, 15.7% reported English as being their home language and 11.2% had another language as home language ($n = 89$).

Community service location

Regarding the province of service, 39.3% of participants were posted to communities in the Free State while 13.5% and 12.4% of participants did their community service in the North West and Northern Cape, respectively (Figure 1). Furthermore, 47.2% of participants did their community service in urban settings, whilst 27.9% of participants did their community service in a mixed urban and rural setting. About a quarter of participants (25.8%) did their community service in rural settings.

Alleged rape incidents encountered during year of community service

As shown in Table 1, only 39.3% ($n = 35$) of the participants encountered incidents of rape or sexual assault during their year of community service. The frequencies on the questionnaire

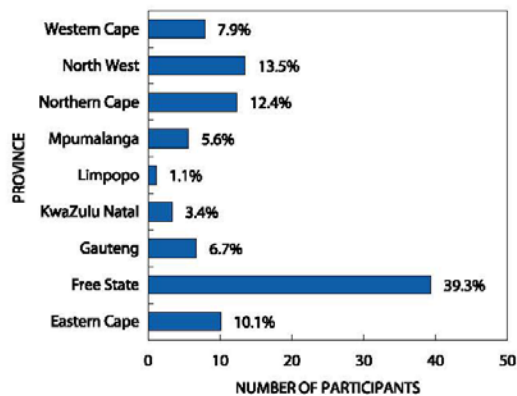


Figure 1: Province of community service ($n = 89$).

Table 1: Number of rape cases encountered by participants during community-service year

Factor	Yes % (n)	No % (n)
Encountered incidents of rape ($n = 89$)	39.3 (35)	60.7 (54)
Number of rape cases examined ($n = 35$)		
1-5 cases	37.1 (13)	17.1 (6)
5-10 cases		20.1 (7)
10-20 cases		25.7 (9)
20 or more cases		

Table 2: Recording detailed histories of patients who alleged being raped ($n = 35$)

History recorded	Yes, always % (n)	Yes, sometimes % (n)	No % (n)
Details of the alleged rape or sexual assault	82.9 (29)	17.1 (6)	0 (0)
Details of the gynaecological history	77.1 (27)	20 (7)	2.9 (1)
Details of patient's sexual history	80 (28)	14.3 (5)	5.7 (2)
Used an interpreter	14.3 (5)	65.7 (23)	20 (7)

were 1-5 cases (37.1%, $n = 13$), 5-10 cases (17.1%, $n = 6$), 10-20 cases (20.1%, $n = 7$) and 20 cases or more (25.7%, $n = 9$).

History-taking

Analysis of data obtained by this study shows that only 82.9% ($n = 29$) of the participants who had encounters with rape or sexual assault case/cases during their community service year recorded detailed histories (Yes, always) of the alleged rape or sexual assault, while 17.1% ($n = 6$) occasionally (Yes, sometimes) did so (Table 2). Furthermore, when asked whether they recorded detailed gynaecological and sexual histories of the patients, 77.1% ($n = 27$) and 80% ($n = 28$) of the participants reported that they always did. In a multicultural society, such as that of South Africa, where 11 languages are recognised as official languages, it is important for an interpreter to be present when obtaining a history from a patient who reports being raped. An interpreter could aid in ensuring that the correct information regarding the incident is obtained where there is a language difference between the doctor and the patient. The majority of the participants (65.7%, $n = 23$) reported occasionally using an interpreter (Table 2), suggesting that the participants and patients understood each other and did not need an interpreter in the other cases.

Examination

During the examination of a patient who reports having been raped, it is obligatory for a chaperone to be present, to ensure a safe environment for both the patient and the examining medical practitioner. Analysis of data from this study revealed that only 40% ($n = 14$) of the participants always requested a chaperone to be present during an examination, while 22.9% ($n = 8$) examined the patient without a chaperone being present (Table 3).

Of the 34 participants who responded to the question relating to obtaining a patient's consent prior to examination, the majority

Table 3: Procedures for examination of patients who alleged being raped ($n = 35$)

Procedures	Yes, always % (n)	Yes, sometimes % (n)	No % (n)
Chaperone was present	40 (14)	37.1 (13)	22.9 (8)
Obtaining consent for examination**	73.5 (25)	26.5 (9)	0 (0)
Completing a general examination	68.8 (24)	25.7 (9)	5.7 (2)
Noting the developmental stage of the patient's breasts	60 (21)	22.9 (8)	17.1 (6)
Noting the developmental stage of the patient's genitalia	62.9 (22)	22.9 (8)	14.3 (5)
Noting the appearance of the patient's anus	74.3 (26)	22.9 (8)	2.9 (1)
Noting injuries on the patient's genitalia	88.6 (31)	8.6 (3)	2.9 (1)
Familiar with J88 form	77.1 (27)	*	22.9 (8)
Documented injuries on the J88	97.1 (34)	*	2.9 (1)
Placed original J88 in kit before sealing†	90.9 (30)	*	9.1 (3)
Handed the sealed kit to the investigating officer	68.6 (24)	25.7 (9)	5.7 (2)
Experienced difficulties with the questions in the J88	54.3 (19)	*	45.7 (16)

*Indicates that the option was not available for that particular question.

** $n = 34$.

† $n = 33$.

(73.5%, $n = 25$) reported always obtaining consent prior to conducting the examination. When a patient reports being raped, detailed examination of the female genital and external anal region is essential. Of the 35 participants who reported treating patients who said they had been raped, 88.6% ($n = 31$) always documented injuries on the genitalia (Table 3).

The J88 is a comprehensive form that has to be completed in duplicate by the practitioner who examines a patient reporting rape or sexual assault. Analysis of the data collected by this study shows that the majority (77.1%, $n = 27$) of participants who treated patients reporting being raped had prior knowledge of the J88 form, while 22.9% ($n = 8$) had not. Similarly, 97.1% ($n = 34$) of the participants documented examination findings on the J88 form (Table 3), suggesting that the other seven participants who came in contact with the J88 form for the first time while attending to a patient might have difficulty in completing the form or might have completed the form incorrectly. However, 54.3% ($n = 19$) reported difficulties in completing the J88 form (Table 3).

Table 4: Adhering to procedures for collecting and handling forensic evidence ($n = 35$)

Forensic samples collected	Yes, always % (n)	Yes, sometimes % (n)	No % (n)
Familiar with SAECK prior to community service	68.6 (24)	*	31.4 (11)
Collected relevant samples for forensic evidence	85.7 (30)	11.4 (4)	2.9 (1)
Swabbed bite wounds	70.6 (25)	2.9 (1)	26.5 (9)
Swabbed under the fingernails	51.4 (18)	37.1 (13)	11.4 (4)
Collected underwear	51.4 (18)	40.0 (14)	8.6 (3)
Combed the pubic area	60.0 (21)	34.3 (12)	5.7 (2)
Removed pubic hair for reference	48.6 (17)	42.9 (15)	8.6 (3)
Swabbed vulva	97.1 (34)	3.0 (1)	0 (0)
Swabbed vagina	82.9 (29)	17.1 (6)	0 (0)
Swabbed cervical os	65.7 (23)	31.4 (11)	2.9 (1)
Swabbed anus	62.9 (22)	34.3 (12)	2.9 (1)
Swabbed rectum	48.6 (17)	34.3 (12)	17.1 (6)
Allowed sufficient time for samples to dry before sealing	54.3 (19)	20.0 (7)	25.7 (9)
Sealed samples personally before placing in kit	82.9 (29)	14.3 (5)	2.9 (1)

*Indicates that the option was not available for that particular question.

Collection of forensic evidence

The sexual assault evidence collection kit (SAECK) is an enabling tool with a checklist of all the evidence that must be collected for forensic purposes. Data obtained in this study revealed that 31.4% ($n = 11$) of the participants had no knowledge of the SAECK prior to starting their community service, while 68.6% ($n = 24$) had already been familiar with the SAECK (Table 5). The kit requires that sufficient time is allowed for samples to dry after collection in order to prevent decomposition. Only 54.3% ($n = 19$) of participants who indicated that they had examined patients who had reported rape or sexual assault always ensured that the samples collected were dry (Yes, always), while 20.0% ($n = 7$) indicated that they sometimes did (Yes, sometimes) and 25.7% ($n = 9$) never did (Table 4). Samples should be sealed personally by the examining doctor to preserve the chain of evidence. Among the participants, 82.9% ($n = 29$) reported sealing the samples personally (Table 4).

Prevention of sexually transmitted infections

Prescribing treatment for sexually transmitted diseases (STDs) and anti-retroviral (ARV) therapy are deemed necessary for patients reporting being raped, because the lifestyle and HIV status of alleged perpetrators are not known. It is important to note that 91.4% ($n = 32$) of the participants in this study who indicated that they had examined patients who had been raped

Table 5: Treatment administered (*n* = 35)

Factor	Yes, always % (<i>n</i>)	Yes, sometimes % (<i>n</i>)	No % (<i>n</i>)
Prescribed ARVs and treatment for STDs	91.4 (32)	8.6 (3)	0 (0)
Provided a follow-up date for the patient to report to the medical facility	62.9 (22)	22.9 (8)	14.3 (5)
Discussed psychosocial follow-up with the patient	48.6 (17)	31.4 (11)	20 (7)

Table 6: Undergraduate training for management of patient who reported being raped or sexually assaulted (*n* = 35)

Factor	Yes % (<i>n</i>)	No % (<i>n</i>)
Undergraduate training pertaining to rape cases	80 (28)	20 (7)
Undergraduate hands-on exposure managing a rape or sexual assault case	11.4 (4)	88.6 (31)
Undergraduate training in completion of J88	22.9 (8)	77.1 (27)

or sexually assaulted initiated treatment for STDs and ARV therapy. However, doing so does not appear to be considered essential by all participants, as 8.6% (*n* = 3) only occasionally initiated treatment (Table 5).

Patients who visited a medical facility after allegedly being raped or sexually assaulted should be informed about appropriate follow-up visits. The aims of the follow-up visits are to collect test results but also to ensure that the medication has been taken as prescribed. Psychosocial follow-up visits should be discussed with patients. As seen in Table 5, 62.9% (*n* = 22) of the participants always booked patients for a follow-up visit to the medical facility, while only 48.6% (*n* = 16) of the participants discussed psychosocial follow-up visits with patients.

Undergraduate training for management of rape or sexual assault

A survey on whether participants in this study had undergone any form of undergraduate training on managing patients who had been raped or sexually assaulted showed that the majority (80%, *n* = 28) of the participants had undergone some undergraduate training on managing rape or sexual assault cases. On the other hand, only 11.4% (*n* = 4) reported having hands-on experience with managing a patient who reported being raped during their undergraduate medical training (Table 6).

Discussion

In all societies and all facets of life, sexual assault and rape are atrocious crimes, constituting a huge human rights violation and a major health issue for women.⁷ Although most countries now have laws that criminalise sexual assault and rape, obtaining justice for the majority of victims has been largely unsuccessful, as the low conviction rates of alleged offenders demonstrate.⁸ In a study aimed at investigating the barriers to effective use of medico-legal findings in cases of sexual assault, Du Mont and White reported that a lack of competence among law enforcement, forensic scientists, legal and medical professionals who deal with sexual assault and rape cases often negatively impacts on the integrity of medico-legal findings.⁹

With sexual assault and rape being endemic in South Africa,¹⁰ South African courts rely heavily on medico-legal evidence to support victims' accounts of assault. Hence, it is important that healthcare providers are competent in collecting evidence and documenting proper medico-legal findings as relating to rape and sexual assault.

According to the Health Professions Act (Act No 56 of 1974 [Government Notice. No R.688 as amended by G.N. R.498 of May 2000 and G.N. R.69 of 22 January 2002]), every South African medical graduate is compelled to do one year of community service after completing his/her medical internship training. During this time, they provide and improve healthcare delivery in their host communities and their duties include the delivery of primary health care, which includes clinical forensic medicine. One major component of clinical forensic medicine is the assessment/examination, documentation and treatment of patients who report having been sexually assaulted or raped. These examinations are also known as medico-legal examinations and they entail a very detailed history taking with regard to the incident, and a thorough general examination coupled with the collection of forensic samples.

Training of undergraduate students in clinical forensic medicine is a prerequisite of the Subcommittee for Undergraduate Education and Training of the Medical and Dental Professions Board. Over the years, the undergraduate forensic medicine curriculum has been progressively whittled down through repeated amendments to the syllabus. This has resulted in many community-service doctors being incapable of diligently handling medico-legal cases, and it has led to an increase in the number of acquittals of people accused of rape or sexual assault, resulting in an injustice being done to the victims.

Meticulous history-taking is an integral part of the forensic medical examination of adolescent and adult victims of sexual assault and rape. Comprehensive history-taking enables precise documentation and guides the examiner during the physical examination and the collection of trace-evidence.¹¹ History should be taken in a calm, sensitive and non-judgemental manner.¹² The scope of the history should include the patient's biographical data, date and time of the alleged attack, circumstances of the assault, activities of the victim after the incident, details of any symptoms occurring after the assault, and the sexual/reproductive health history of adolescent and adult patients.¹² Even more important are points of forensic medical interest that support subsequent findings, namely the details of the alleged rape or sexual assault, and the gynaecological and sexual history of the patient.¹¹

This study found that most community-service doctors who participated in the study took detailed histories of the alleged rapes or sexual assaults, as well as gynaecological and sexual histories of patients. It was, however, found that some participants lacked knowledge on the basic principles of clinical forensic examination. Evidence of this lack include their failure to request the patient's consent prior to the examination and failing to ensure that a chaperone is present during the examination (see Table 2). Consent for the examination must be obtained from the patient, or, if the patient is a minor, an accompanying adult family member.¹² However, obtaining informed consent should not be perceived as a one-off act. Instead, information should be provided at each stage of an examination and verbal consent obtained from the patient for each stage.

The study also highlighted that not all the participants had sufficient knowledge of the J88 form that they were required to complete (Table 2). The form is used to record the demographic details of the patient, the medical and gynaecological history, and history with regard to the alleged incident. The form also has a section for examination findings and sketches that can be used to demonstrate possible or observed injuries. Poor knowledge of the J88 form may lead to inadequate documentation of both the history and the examination findings.¹³ It was also found that a substantial number (31.4%) of the participants had no prior knowledge of the SAECK (see Table 4). Although the SAECK is accompanied by extensive user guidelines, it remains a daunting experience to use for the first time. The aim of this kit is to collect forensic evidence, including DNA samples, from the patient. Poor knowledge and improper use of the SAECK negatively affect the quality of the forensic samples collected.¹⁴

Whilst this study shows that the majority (80%, $n = 28$) of the participants had undergone some undergraduate training on the management of rape and sexual assault cases, only 11.4% ($n = 4$) reported having been involved in the treatment of the victims during their undergraduate medical training (see Table 6). This highlights the need to amend the curriculum for clinical forensic medicine in the MBChB programme in order to address the shortcomings of the clinical forensic medicine curriculum and to improve the knowledge and skills of medical graduates regarding their medico-legal obligations.

Finally, it should be noted that while most participants responded to most of the questions, the major limitation of this study was the small size of the sample.

Conclusion

The inept handling, collecting and processing of medico-legal evidence by healthcare providers in cases of rape or sexual assault have been attributed to a lack of rigorous training, and poor performance standards.⁷ Although most of the participants in this study had, during their undergraduate medical training, undergone some form of training on the principles of managing patients reporting rape or sexual assault, only a few of them had hands-on experience before graduating. This study revealed an important gap in medical education and the practice of clinical forensic medicine among community-service doctors. It would

be beneficial to revise the clinical forensic medicine curriculum to address the shortcomings in the current MBChB programme.

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Received: 04-05-2017 Accepted: 25-06-2017

ARTICLE 2: PRACTICE OF COMMUNITY-SERVICE DOCTORS IN THE ASSESSMENT AND MEDICO-LEGAL DOCUMENTATION OF COMMON PHYSICAL ASSAULT CASES

South African Family Practice 2017; 1(1):1–5
<https://doi.org/10.1080/20786190.2017.1364014>

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ISSN 2078-6190 EISSN 2078-6204
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RESEARCH

Practice of community-service doctors in the assessment and medico-legal documentation of common physical assault cases

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Background: In South Africa, allegations of physical assault are managed primarily at the primary healthcare level, where they are attended to by medical officers or community service doctors (CSDs). However, reports that the knowledge and skills provided at undergraduate level are not sufficient to equip these CSDs to deal with evidence in medico-legal examinations in various settings, including in cases of patients who allege being the victims of common physical assault or assault with intent to inflict grievous bodily harm, have been documented in the literature. This study investigates the practice of CSDs in relation to the assessment and medico-legal documentation of allegations of common assault, with a view to identifying gaps in their knowledge of clinical forensic medicine.

Method: The study was a cross-sectional descriptive study. A questionnaire with quantitative sections that used an adapted Likert scale was used to gather data. An electronic survey tool was employed to target 150 CSDs countrywide. Percentages are used to display results.

Results: A response rate of 59.3% was achieved and results indicate that clinical forensic training in the undergraduate medical programme does not prepare CSDs sufficiently for the task of managing the medico-legal examination and documentation of allegations of assault by patients.

Conclusions: The courts rely heavily on medico-legal documentation for success in criminal prosecution. Any substantial flaw in the documentation, including inadequate observations and/or notes made by a medical practitioner, may make proving guilt very difficult. This study revealed an important gap in the knowledge and practice of clinical forensic medicine by CSDs and suggests that the current curriculum should be adapted to allow adequate training of undergraduate medical students in the area of clinical forensic medicine. Appropriate undergraduate training will ensure that medico-legal documentation is completed accurately and that medical practitioners help ensure the administration of justice.

Keywords: assault, clinical forensic medicine and curriculum, medico-legal documentation

Introduction

According to South African law the integrity of the physical person (*corpus*), dignity of the person (*dignitas*), and the reputation (*fama*) of the person are the trinity of interests of human personality protected by criminal sanction.¹ While violations of *fama* and *dignitas* are prosecuted as defamation and *crimen injuria* respectively, violation of the interest in *corpus* is prosecuted as assault.¹ South Africa (SA) has one of the highest rates of incidence of interpersonal violence, including indecent assault, in the world.^{2,3} According to the 2015/2016 crime statistics of the South African Police Service (SAPS) a total of 164,958 and 182,933 counts of common assault and assault with intent to inflict grievous bodily harm, respectively, were recorded between April 1, 2015 and March 31, 2016.⁴ Members of the SAPS and the medical fraternity share the responsibility of ensuring successful conviction and accurate administration of justice by presenting relevant medical forensic evidence to advance informed decisions on legal matters.⁵ Medical evidence is often crucial for proving a case and obtaining a conviction. However, in spite of improved awareness and service upgrades, the conviction rate of people charged with assault in SA is disappointingly low compared with other countries.² This fact can be attributed to, among others, errors made by clinicians in the broad field of forensic medicine.⁶ The difference between a conventional clinical examination, aimed at diagnosing the cause of a disease, and a medico-legal/forensic examination of a victim, which is expected to provide additional information that may have important legal rather than medical connotations, is often poorly understood by doctors.^{2,6}

In SA, allegations of physical assault are managed primarily at primary healthcare level,⁵ where they are attended to by medical officers or CSDs. It has been reported that the knowledge and skills provided at undergraduate level are not sufficient to equip medical graduates to deal with clinical forensic cases.⁵ Hence, the aim of this study was to assess the practice of CSDs in relation to the assessment and medico-legal documentation of patients who report being assaulted, with a view to identifying gaps in the CSDs' knowledge of the practice of clinical forensic medicine.

Methods

A cross-sectional descriptive study was done of 150 CSDs who were medical graduates of the School of Medicine, Faculty of Health Sciences, University of the Free State (2005–2007), and who had either completed their community service or were still in service at the time of the study. A comprehensive list of names was obtained from the administration of the Faculty of Health Sciences from which the prospective participants had graduated ($n = 300$). A non-random sampling was used as all 300 prospective participants were included in the study. The contact details of all prospective participants ($n = 300$) was sourced from the Health Professions Council of South Africa. However, after a follow-up only 150 CSDs of the total 300 prospective participants had active telephone contacts and gave consent to participate in the study. The remaining 150 prospective participants either did not have active telephone contacts or did not respond to voicemail messages. Each non-responder was phoned at least twice. All potential participants were contacted telephonically to obtain verbal consent to participate in the study.

A self-administered questionnaire was used to obtain the sincere responses of the participants. The questionnaire was available in Afrikaans and English and was dispatched electronically via email. The questionnaire was divided into four parts: demographics (age, gender and home language); professional profile; employment profile (when and where participants performed their community service); competency in medico-legal assessment and documentation of assault cases during the service year. A three-point Likert scale was used (Yes always, Yes, sometimes, and No). The response rate was 59.3% (89 of the initial 150 questionnaires that were distributed were returned) despite numerous (email and text messages) reminders sent to all the participants at intervals. The results were captured on Microsoft Excel® 2013 (Microsoft Corp, Redmond, WA, USA), and analysed by a biostatistician from the Department of Biostatistics, University of the Free State.

Ethical clearance was received from the Ethics Committee of the Faculty of Health Sciences at the University of the Free State (HSREC 149/2011), the acting head of the School of Medicine, and the vice-rector: Academic Planning at the University of the Free State.

Results

Demographic information

In the study sample of 89 participants, 76.2% ($n = 67$) were in the 27–29 years age group. The gender distribution was 61.8% women and 38.2% men. Among the participants, 73% ($n = 65$) reported Afrikaans as their first language, and 15.7% ($n = 14$) reported English as their first language, whilst 11.2% ($n = 10$) reported other languages as their first language.

In terms of placement, 39.3% ($n = 35$) and 1.1% ($n = 1$) of the participants did their community service in the Free State and Limpopo provinces, respectively (Table 1). Furthermore, 47.2% of

Table 1: Demographic characteristics of participants who responded to the questionnaire

Characteristics	% (n)
<i>Age (n = 88)</i>	
27–29	76.2 (67)
30–32	17 (15)
33+	6.8 (6)
<i>Gender (n = 89)</i>	
Male	38.2 (34)
Female	61.8 (55)
<i>First language (n = 89)</i>	
Afrikaans	73 (65)
English	15.7 (14)
Others (Zulu, Xhosa, Sotho etc.)	11.2 (10)
<i>Province of service (n = 89)</i>	
Western Cape	7.9 (7)
Eastern Cape	10.1 (9)
Northern Cape	12.4 (11)
North-West	13.5 (12)
Gauteng	6.7 (6)
Mpumalanga	5.6 (5)
Limpopo	1.1 (1)
Free State	39.3 (35)
KwaZulu-Natal	3.4 (3)

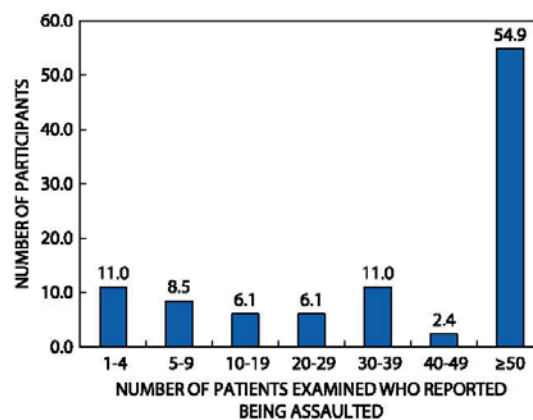


Figure 1: Number of examinations conducted on patients who reported being assaulted ($n = 82$).

the participants completed their service in urban communities, 27.9% of them served in a mixed urban–rural community, whilst a minority of participants (25.8%) did their community service in a rural setting.

Patients encountered during year of community service who reported having been assaulted

Participants were asked whether, during the period of their community service, they had examined any patient who had reported being physically assaulted. The majority (93.2%, $n = 82$) of participants said they had examined such patients in their year of community service, while 6.8% ($n = 6$) of participants had never examined patients who had claimed to be assaulted (one participant did not answer the question). Furthermore, when asked how many patients claiming to have been assaulted they had examined, the majority of participants (54.9%, $n = 45$) reported having examined 50 cases or more in the one-year period (Figure 1).

Collecting and documenting relevant history concerning alleged assaults

The J88 form is a legal document used to record the factual findings of a medical assessment of a patient, and the opinion of the medical practitioner regarding the significance of the facts. Therefore, it is mandatory that the J88 form be completed by a medical practitioner for every patient who presents to a health facility and reports being assaulted. When participants were asked whether the J88 form accompanied patients reporting being assaulted, only 18.5% of participants who had encountered such patients reported that the J88 form always accompanied the patient, 76.5% reported that the J88 form sometimes accompanied the patient, and 5% of the participants said the patients were not accompanied by the form (Table 2).

Furthermore, when asked about taking relevant history, 82.5% of the participants attested to always taking relevant history; 81.5% of the participants reported that they always documented the relevant history on the J88 form (see Table 2). Docket analysis has shown that a large number of alleged assaults are associated with consumption of alcohol or other addictive substances.⁴ Hence, it is important to take the history of alcohol consumption. In this study, 60.8% of participants who indicated that they had examined patients reporting being assaulted always asked the patient about alcohol usage, whereas 36.7% of participants

Table 2: Participants' responses regarding history taking and documentation for the J88 form

Item	Yes, always % (n)	Yes, sometimes % (n)	No % (n)
J88 accompanied the patient (n = 81)	18.5 (15)	76.5 (62)	5.0 (4)
Took relevant history about the alleged assault (n = 80)	82.5 (66)	17.5 (14)	0 (0)
Noted the relevant history on the J88 (n = 81)	81.5 (66)	18.5 (15)	0 (0)
Asked about alcohol usage (n = 79)	60.8 (48)	36.7 (29)	2.5 (2)
Noted alcohol usage on J88 (n = 81)	63 (51)	33.3 (27)	3.7 (3)

sometimes asked, and 2.5% of the participants never asked the patient about his/her alcohol usage (see Table 2). Of the participants who reported examining patients who reported being assaulted, 63% indicated that they documented history of alcohol usage on the J88 form, whereas 33.3% of the participants sometimes documented history of alcohol usage on the J88 form while 3.7% of participants did not (see Table 2).

Examination, description and documentation of wounds and injuries

During a medico-legal examination of a patient who reported having been assaulted, technically accurate use of wound terminology is very important for future legal proceedings as it enables precise identification of a weapon used in an assault or that caused an injury.

A bruise is a focal discolouration of the skin due to rupture of the small venules, with extravasation of the blood into the surrounding tissue due to blunt trauma.⁷ An abrasion is the loss of the superficial skin layers due to tangential blunt force trauma.⁷ Responses in the questionnaire of this study indicated that only 91.4% of participants who indicated that they had examined patients claiming to have been assaulted are able to recognise a bruise, and 96.3% are able to recognise an abrasion (Table 3), suggesting that seven (8.6%) and three (3.7%)

Table 3: Knowledge of participants in relation to examination, description and documentation of wounds and injuries (n = 81)

Factor	Yes, always % (n)	Yes, sometimes % (n)	No % (n)
Identifying a bruise	91.4 (74)	*	8.6 (7)
Identifying an abrasion	96.3 (78)	*	3.7 (3)
Identifying a laceration	98.8 (80)	*	1.2 (1)
Identifying an incised wound	84 (68)	*	16 (13)
Measuring the wound	38.3 (31)	44.4 (36)	17.3 (14)
Noting the shape of the wound	58 (47)	37 (30)	5 (4)
Documenting the wounds on the J88 form	97.5 (79)	2.5 (2)	0 (0)

*Indicates that the option was not available for that particular question.

participants were unable to recognise a bruise and an abrasion, respectively.

A laceration is a full-thickness forceful tearing of the skin, with ragged edges, tissue bridges and hair and foreign material in the depths of the wound.⁷ Almost all the participants (98.8%) who indicated that they had examined patients reporting being assaulted are able to recognise lacerations (see Table 3). In contrast to a laceration, an incised wound can be a slash wound, a cut wound or a stab wound. It is caused by sharp trauma with, for example, a knife. The wound edges are sharp and there are no tissue bridges, hair or foreign material in the depths of the wound. When asked whether they would recognise an incised wound, 84% of participants who indicated that they had examined patients who reported being assaulted indicated that they would be able to recognise an incised wound (see Table 3).

It is also mandatory that wounds and injuries are described individually in terms of location, type, size and shape, degree of severity and age.⁷ Thus, when the participants who indicated that they had examined patients who reported having been assaulted were asked if they had measured the wounds 38.3% of participants reported that they always measure wounds, 44.4% sometimes measured wounds, and 17.3% never measured wounds. Furthermore, only 58% of participants who had examined patients who reported having been assaulted during the participants' year of service reported always noting the shape of the wound, whereas 37% sometimes did and 5% never noted the shape of the wound (see Table 3). When asked if they documented the details of wounds on the J88 form, most of the participants (97.5%) who indicated that they had examined patients who reported having been assaulted attested to always documenting the wounds on the J88 form; the remaining 2.5% sometimes documented the wounds (see Table 3).

Undergraduate training and exposure to medico-legal documentation of assault cases

Analysed data presented here reveal that only 66.7% of participants who indicated that they had examined assault cases during their year of community service had prior training and/or exposure to medico-legal documentation and management of assault cases during their undergraduate training. In addition, 70.4% of the respondent CSDs indicated that they had undergraduate training on the documentation of wounds as regards assault cases. However, when asked if the respondent CSDs received any undergraduate training on completing the J88 form for assault cases, only 26.8% of participants indicated that they have received training while the majority of the CSDs (73.2%) had never received any undergraduate training on completing the J88 form.

Discussion

In post-apartheid SA, crime is one of the most serious challenges facing the country—it is claimed that SA has one of the highest crime rates in the world.⁸ The effect of the high crime rate extends beyond the pain or loss suffered by the victims, as it also has a direct cost impact on the economy.⁸ In SA, various forms of interpersonal violence are common, ranging from slapping, threatening to beat, hitting with sticks or other objects, pushing and assaulting with fists, to stabbing with a knife and shooting.⁹ Community assault (severe beating of an alleged criminal by members of the local community) has also been shown to be widespread in the townships of South Africa,¹⁰ and generally involves the use of a sjambok (a heavy leather whip traditionally

made from an adult hippopotamus or rhinoceros hide) to inflict extensive soft-tissue trauma.¹⁰ Circumstantial evidence suggests that victims of community assault are more severely injured than their non-community assault counterparts.¹⁰

Forensic medicine is a specialty discipline that links medicine and law. It facilitates and influences legal cases by providing evidence in the form of documentation—the more thorough and robust the evidence contained in the documentation, the more useful it is in the legal process.¹¹ In SA, efforts are being made to improve the practice of forensic medicine through the introduction of new training initiatives, such as the postgraduate diploma qualification developed by the University of the Free State.^{5,12} However, knowledge and skills provided at undergraduate level are not sufficient to equip medical graduates to deal with clinical forensic cases. Hence, this study assesses the practice of medical graduates who, during their community service year, dealt with medico-legal documentation of patients who reported having been physically assaulted, with a view to identifying knowledge gaps in the undergraduate clinical forensic medicine curriculum.

In *Pistorius v. The State* (253/2013) [2014] ZASCA 47 (April 1, 2014), the Supreme Court of Appeal heard an appeal against a conviction on the basis of *crimen injuria* (along with an appeal against a conviction for assault with intent to commit grievous bodily harm). The complainant held that the following event occurred on the day of incident (at Paragraph [7]).^{13,14}

The complainant went to report the incident to the police at the Vaal Police Station the same day. He subsequently consulted with Dr 'N'. He testified that he was injured on his back and left arm. Furthermore, he explained that he had swollen and open wounds which were sutured and he was given some medication. He confirmed that he received a J88 form from the police, which he handed over to the police officer after the doctor had completed it as well as a sick note which he gave to his employers. He did not know what the police had done with the J88.

The J88 form is a legal form of the Department of Justice specifically designed to document relevant medical findings for court; it is broadly used in most clinical forensic examinations in SA. Findings as reported by the participants in this study reveal that, in most cases (76.5%), a patient reporting being assaulted was not accompanied by the J88 form when he/she presented at the healthcare facility. Although clinical notes can also be presented as evidence in medico-legal cases, a fully completed, legible J88 form with a well-formulated conclusion may be the only irrefutable evidence accepted by the court of law. It is the responsibility of the attending medical practitioner to complete the J88 form with the most relevant information, and to omit irrelevant information.¹⁵ The J88 form may only be handed over to a police official, and it is not supposed to be released to the patient (as seen in quote above from *Pistorius v. The State*), as this would compromise the chain of evidence and may render the evidence on the form inadmissible.⁵

In this study, some participants reported that they do not always take or document a relevant history (see Table 2), although this step is an essential part of a forensic medical examination. Failure to comprehensively take and document a relevant history can make the evidence untenable in court. Information given by the patient must be true, and an omission on the medical practitioner's part should not have an influence on the factual

content. According to the SAPS, most reported instances of alleged assault occur in bars, taverns and shebeens (an unlicensed establishment or private house selling alcohol) while people are consuming alcohol. This was supported by findings for the Free State, in which alcohol played a role in 29% of recorded common assault cases.⁴ Only 60.8% and 63% of the participants in this study reported always taking and documenting the history of alcohol consumption respectively. A history of alcohol consumption is important, as it has been reported that at least a half of all violent crimes involve alcohol consumption by the perpetrator, the victim, or both.¹⁶ Documented history of the victim's alcohol consumption may have a serious impact on the outcome of the case. The case may not be presented in court if the victim who claimed to have been assaulted had been drinking, because the credibility of the evidence given by such a victim will be doubted in court.¹⁷

Further, in *Pistorius v. The State* (253/2013) [2014] ZASCA 47 (1 April 2014), Dr 'N', the medical doctor who treated the complainant, gave the following testimony (at Paragraphs [9], [10] and [11]).¹⁴

The state then called Dr 'N', the medical doctor who treated the complainant. I hasten to state that his evidence was left unchallenged. Essentially, Dr 'N' confirmed that he is a qualified medical doctor with three degrees and that he examined the complainant on 27 December 2007. He described the injuries he observed on the complainant as huge haematomas with severe or gross oedema at several and multiple locations on the back. These locations were at the level of the scapula of the right hand. Furthermore, he described a haematoma—a large collection of blood—at the site of the injury.

Dr 'N' testified further that he observed weals on the complainant's upper back at almost the level of the shoulder but more medial. He described a weal as similar to when a person has been dragged with his face or his naked flesh on the ground, leaving areas slightly open, others dark with blood, others completely closed and swollen with the interstitial fluid. Importantly, he elaborated further that contusions are areas where a person has been struck by some blunt force as opposed to a sharp object like a knife.

Commenting on the possible weapons which could have caused the injuries on the appellant, Dr 'N' opined that it could be a knobkerrie or sjambok or a pipe or anything which will not perforate or cause the skin to open. Although he was unable to state with precision what object was used to assault the complainant, he opined that it was a blunt and not a sharp object.

During the examination of an assault victim, accurately defining a wound or injury is done by trying to ascertain the type of damage caused by the application of mechanical force to the skin/body.¹⁸ Data collected by this study show that the majority of the participants reported that they were able to accurately identify common skin injuries (bruises, abrasion, lacerations and incised wounds), but only 38.3% and 54% of participants respectively reported always measuring and documenting the shapes of the wounds found during the examination (see Table 3). The accurate description and measurement of wounds or injuries found at examination are essential in medico-legal proceedings, as this aids accurate identification of the weapon of assault or the cause of the injury.¹⁸

Furthermore, in *Pistorius v. The State* (253/2013) [2014] ZASCA 47 (1 April 2014), the court clerk documented the following (at Paragraph [12]).¹⁴

Dr N' remained firm and unshaken under cross-examination.

This study found that 66.7% of the participants had some degree of undergraduate training on handling assault cases, while only 26.8% reported having had undergraduate training on completing the J88 for assault cases. This inadequate undergraduate training on medico-legal documentation of assault cases could create a sense of insecurity in less experienced CSDs, leading to them feeling intimidated in the court environment, and may result in reluctance among medical practitioners to become involved as court witnesses.⁶ This necessitates a new curriculum for clinical forensic medicine in the MBChB programme, to address the gap in knowledge and skills of medical graduates working on medico-legal cases.

Conclusion

The courts rely heavily on medico-legal documentation in cases of criminal prosecution. The burden of proof in criminal cases is beyond a reasonable doubt and that is a heavy burden indeed. Any substantial uncertainties or flaws in any of the components of the prosecutor's case, including poor observations and/or notes made by a medical practitioner, may make it impossible to reach the certainty necessary to assure a conviction. Using CSDs as a focal group, this study has revealed an important gap in knowledge of CSDs regarding the practice of clinical forensic medicine. It would be beneficial to direct a new curriculum for clinical forensic medicine to address the shortcomings of the undergraduate medical training programmes.

Funding – This work was supported by the Health and Welfare Sector Education and Training Authority (HWSETA) of South Africa [MOU HWSETA/UFS 2016/2017].

Conflict of interest – All authors declare that there was no conflict of interest.

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Received: 04-05-2017 Accepted: 31-07-2017

ARTICLE 3: MEDICO-LEGAL ASPECTS REGARDING DRUNK DRIVING: EXPERIENCE AND COMPETENCY IN PRACTICE BY COMMUNITY SERVICE DOCTORS

South African Family Practice 2017; 1(1):1–7
<http://doi.org/10.1080/20786190.2017.1386899>

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S Afr Fam Pract

ISSN 2078-6190 EISSN 2078-6204
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RESEARCH

Medico-legal aspects regarding drunk driving: experience and competency in practice of community service doctors

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Background: Drunk driving has been reported to increase the risk of road traffic accidents associated with death and severe injury. In South Africa, an increase in blood alcohol concentration of as little as 0.01 g per 100 ml above the legal limit may warrant criminal prosecution or the denial of an insurance claim for damages. However, multiple court cases have been withdrawn because of the incompetence of officials at various stages of the investigation. The scope of the mistakes range from poor scene handling to the incorrect handling of blood samples at the laboratory to eventual laboratory testing of blood samples. Using a group of community service doctors (CSDs) as a cohort study group, this study investigated the competency of medical graduates in relation to the medico-legal aspects of drunk driving.

Methods: A self-administered questionnaire-based study was done with 150 CSDs. The questionnaire was administered in Afrikaans and English and was dispatched electronically via e-mail. All potential participants were contacted telephonically to obtain verbal consent. Results are displayed as percentages.

Results: A response rate of 59.3% was achieved. The results obtained in this study confirm that some CSDs lack competency in handling medico-legal aspects relating to drunk driving, and are thus unable to serve the communities they have been assigned to adequately. Their lack of skills and knowledge suggests that the present undergraduate Clinical Forensic Medicine curriculum is inadequate.

Conclusion: It would be beneficial to revise the curriculum for Clinical Forensic Medicine in undergraduate medical training to address the gap in knowledge and practice of various demands of forensic medicine required from new medical graduates and CSDs.

Keywords: blood alcohol concentration, clinical forensic medicine, community service doctors, drunk driving

Introduction

Consumption of alcoholic beverages is a worldwide phenomenon,¹ and has been an essential part of many cultures for thousands of years.² According to the World Health Organization (WHO) Global Status Report on Alcohol and Health (2011), 6.13 litres of pure alcohol was consumed on average by every person in the world aged 15 years or older in 2005 (worldwide per capita consumption). The highest consumption levels were found in the developed world, while medium consumption levels were found in Southern Africa, where Namibia and South Africa had the highest levels.¹ A pattern of alcohol abuse, ranging from daily heavy drinking to occasional episodes of hazardous drinking, has been closely linked to significant public health and safety problems in nearly all countries.³ It has been reported that the harmful use of alcoholic beverages is among the top five risk factors for disease, disability and death globally.⁴ Driving while under the influence of alcohol has been reported to increase the risk of road traffic accidents associated with death and severe injury.⁵ Hence, laws enforcing drunk driving countermeasures are considered to be cost-effective strategies for reducing the burden of alcohol-attributable traffic accidents.⁶ Determining blood alcohol concentration (BAC) (the concentration of alcohol by volume in the bloodstream) limits for drivers, conducting sobriety checks and random breath testing can reduce traffic crashes by roughly 20%.^{7,8}

In South Africa, the specified legal BAC limit for drivers of motor vehicles is 0.05 g of ethyl alcohol per 100 ml of blood.⁹ Thus, an increase of as little as 0.01 g per 100 ml in BAC value above the

legal limit may warrant criminal prosecution or the denial of an insurance claim for damages.⁹ There is no doubt that criminal prosecutions of inebriated drivers have, in recent years, received much attention. However, multiple court cases have been dismissed as a result of pure incompetence, ranging in origin from the roadside to the eventual laboratory testing of blood samples.¹⁰ This state of affairs undermines the constitutional rights of accused individuals, results in extended delays in settling disputes or claims for insurance payouts and, in some cases, settlement of the estates of deceased individuals, all of which could cause enormous financial hardship to dependants or beneficiaries.⁹ In 2015, it was reported that 44 526 cases of drunk driving had been withdrawn from South African courts in the 2012/2013 financial year; reasons included inappropriate blood sample retention and storage, and invalid sample analysis.¹¹ Medical practitioners are often requested by police officials to take blood samples from persons who are suspected of driving under the influence of alcohol.

Hence, using a group of community service doctors as a cohort study group, this study investigated the competency of medical graduates regarding the medico-legal aspects of drunk driving, with the aim of identifying gaps in knowledge and shortcomings in undergraduate medical training in clinical forensic medicine.

Methods

A self-administered questionnaire-based study included 150 community service doctors (CSDs), who were medical graduates of the School of Medicine, Faculty of Health Sciences, University of the Free State (2005–2007). A comprehensive list containing

names and contact details of all 150 CSDs was sourced from the administration of the Faculty of Health Sciences, University of the Free State, and the Health Professions Council of South Africa. All potential participants were contacted telephonically to obtain verbal consent.

The questionnaire was administered in Afrikaans and English and was dispatched electronically via e-mail. The data collected included the following:

- demographic details: age, gender and home language;
- professional profile;
- employment profile: when and where the participant completed community service;
- competency regarding assessment and completion of medico-legal documentation of patients accused of driving under the influence of alcohol (DUI) encountered during participants' community service year.

A three-point Likert scale was used (Yes, always, Yes, sometimes, and No).

The response rate was 59.3% (89 of the initial 150 questionnaires distributed were returned). The results were captured on Microsoft Excel®, 2013 (Microsoft Corp, Redmond, WA, USA), and calculated by a statistician. A Spearman's correlation coefficient analysis (SPSS® Statistics 24, IBM Corp, Armonk, NY, USA) was done to determine the relationship between exposure to undergraduate training in medico-legal documentation of drunk-driving cases and determinants of competency such as appropriate history taking, examination and performance of other test on alleged drunk drivers.

Ethical approval was given by the Ethics Committee of the Faculty of Health Sciences University of the Free State (HSREC 149/2011).

Results

Demographic details of participants

Participants were aged between 27 and 35 years, with the majority (76.2%, $n = 67$) between 27 and 29 years old. There were 55 (61.8%) female and 34 (38.2%) male participants. Furthermore, 73% ($n = 65$) were Afrikaans speaking, 14 (15.7%) were English speaking and 11.2% ($n = 10$) had other languages as their first language.

In terms of placement, the majority 39.3% ($n = 35$) of the participants did their community service in the Free State province

Table 1: Province of community service by participants

Province of community service	%
Western Cape	7.9
Eastern Cape	10.1
Northern Cape	12.4
North-West	13.5
Gauteng	6.7
Mpumalanga	5.6
Limpopo	1.1
Free State	39.3
KwaZulu-Natal	3.4

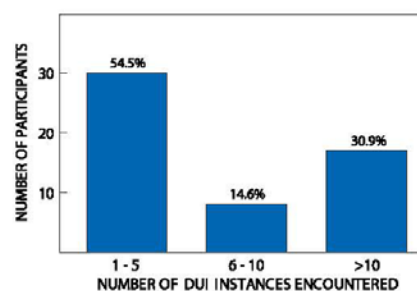


Figure 1: Number of instances of alleged drunk driving encountered by participants during their community service year ($n = 55$).

(Table 1). Furthermore, 47.2% of the respondent CSDs were posted to urban communities, 27% of the participants served in mixed urban-rural communities, whilst the remainder of participants (25.8%) did their community service in a rural setting.

Instances of alleged drunk driving encountered during year of community service

Participants were asked whether they had encounters with instances of alleged drunk driving during their year of community service. Of the 87 respondents who responded to this question, 63.2% ($n = 55$) reported that they had, during their community service, had encounters with people suspected to have been driving under the influence of alcohol, while 36.8% ($n = 32$) answered the question in the negative. The majority of participants (54.5%, $n = 30$) who reported having encountered allegedly drunk drivers stated they had seen between one and five cases (Figure 1).

Medico-legal aspects related to drunk driving

In attending to an alleged drunk driver, the medical practitioner has to be certain that the individual presented by the police official has, in fact, been arrested, or charged with or convicted of a crime, before engaging in any medical procedure or examination requested by the police official.¹² In this study, 88.8% ($n = 48$) of the respondents reported that alleged drunk drivers were, at all times, accompanied by a member of the South African Police Service (SAPS), who confirmed arrest and charge (Table 2).

Table 2: Observations prior to examination and sample taking

Item	Yes, always (%)	Yes, sometimes (%)	No (%)
Accompanying member of the South African Police Service*	88.8	9.3	1.9
Accompanied by necessary documentation (SAPS 308(A))	78.2	16.3	5.5
Alleged drunken driver brought in within 2 h of incident*	33.3	64.8	1.9
Obtaining consent for examination and collection of blood sample	50.9	29.1	20

* $n = 54$.

In addition, prior to any examination or intervention, the medical practitioner should receive from the police a written request for the examination of the arrested person (Form SAPS 308(a)).¹² When asked whether the alleged drunk drivers were accompanied by the SAPS 308(a) form, 78.2% ($n = 43$) of the participants reported that alleged drunk drivers were always accompanied by the SAPS 308(a) form, while 5.5% ($n = 3$) of the participants said the alleged offenders had not been accompanied by the form (Table 2).

During any prosecution for an alleged contravention of Sections 65(2) or 65(5) of the Road Traffic Act, it must be proved that the concentration of alcohol in any specimen of blood exceeded 0.05 gram per 100 millilitres within two hours after the alleged contravention.¹³ In this study, only 33.3% ($n = 18$) of the participating CSDs reported that allegedly inebriated driver(s) were brought to the healthcare facility within two hours of the alleged contravention, while the majority (64.8%) of the participants reported that alleged offenders were sometimes (not always) presented within two hours of the alleged contravention (see Table 2).

Because the alleged offender is under arrest when he/she is presented at the healthcare facility, his/her consent is not necessary and physical constraint by the police official/arresting officer may be required to assist the doctor to take a blood sample.¹² However, the medical practitioner should bear in mind that, as with any other medical examination, the patient's welfare is paramount and it is advisable that the patient's consent be obtained as far as possible.¹² Of the 55 participants who handled alleged instances of DUI during their year of community service, only 50.9% ($n = 28$) reported always obtaining consent from the patient (see Table 2).

Taking a blood sample to determine blood alcohol level

BAC has become the mainstay for the prosecution of drunk-driving cases. A sample of blood must be obtained from the alleged offender within two hours of the alleged contravention and the concentration of alcohol in this sample is then measured. Prior to taking the blood sample, the skin on the area where blood is to be taken has to be cleaned and prepared according to standard medical practice i.e. maintaining infection control measures by disinfecting the skin. However, it is of utmost importance that the attending medical practitioner is aware that the area where blood is to be taken should be cleaned with a substance not containing alcohol, in contrast to standard medical practice. Almost all the participants, that is, 96.2%, reported always cleaning the area where the blood sample is to be taken; 7.4% reported that they sometimes clean the area (51 participants responded to this question). However, when asked about the substance they used to clean the area, 76.4% ($n = 39$) reported cleaning with sterile water, 21.6% ($n = 11$) reported cleaning with alcohol, whilst 2% ($n = 1$) reported cleaning with other substances (Figure 2).

Maintaining chain of evidence

For successful prosecution of DUI cases, blood sampling is the gold standard. This must, however, be done properly by qualified personnel, and the chain of evidence must be maintained.¹⁰ Data from this study show that, in 80% of instances where participants encountered people accused of driving while drunk, the accused were always accompanied by the necessary alcohol kit (Table 3). In addition, 85% of the participants reported that they always check the kit beforehand, whilst 94.3% reported always personally breaking the seal of the alcohol kit (Table 3). Following sample collection, specimens are transferred, avoiding

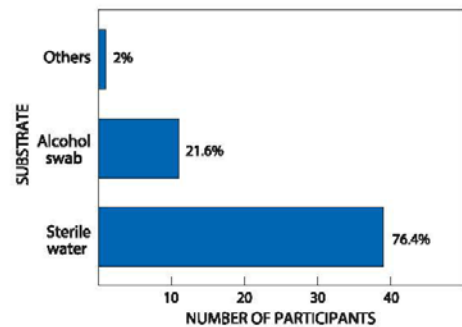


Figure 2: Substance used to clean area where blood is to be taken ($n = 51$).

Table 3: Steps in maintaining the chain of evidence

Item	Yes, always (%)	Yes, sometimes (%)	No (%)
Accompanied by necessary alcohol kit ($n = 55$)	80	14.5	5.5
Checking the kit beforehand ($n = 53$)	85	7.5	7.5
Personally breaking the seal ($n = 53$)	94.3	3.8	1.9
Sealing the kit personally ($n = 53$)	94.3	1.9	3.8
Handing documentation and alcohol kit to investigating officer ($n = 50$)	96	0	4

contamination, to a sterile McCartney bottle containing anticoagulant (sodium fluoride and potassium oxalate), then put into a labelled bag, sealed and handed to the investigating officer. He/she sign to acknowledge receipt of the specimen and then transport it to the testing laboratory. When asked whether they seal the kit personally after blood collection, the majority (94.3%) of participants reported that they always seal the kit

Table 4: History taking and examination of drivers suspected to be inebriated

Item	Yes, always (%)	Yes, sometimes (%)	No (%)
Taking of medical history ($n = 47$)	65.9	21.3	12.8
Asking about medication usage in the previous 24 h ($n = 48$)	54.1	31.3	14.6
Previous injuries, abnormalities and operations ($n = 48$)	50	33.3	16.7
Alcohol/drug consumption over the previous 24 h ($n = 48$)	81.2	12.5	6.3
Performing a full clinical examination ($n = 48$)	66.6	16.7	16.7
Completing the necessary documentation ($n = 48$)	93.8	4.2	2
Signing of documentation ($n = 46$)	97.8	2.2	0

Table 5: Undergraduate training and exposure to medico-legal documentation of drunk-driving cases

Item	Yes (%)	No (%)
Trained to complete documentation for drunk-driving cases at undergraduate level (n = 54)	11.1	88.9
Undergraduate exposure to drunk-driving cases (n = 55)	10.9	89.1

personally after sample collection (Table 3), whilst 96% reported that they always hand over documentation and the alcohol kit to the investigating officer (Table 3).

History taking and examination for drivers suspected to be inebriated

It is important for the medical practitioner to ascertain and record in writing that the impairment of the allegedly inebriated driver is due to alcohol consumption.¹² In order to ascertain this properly, a detailed history and full clinical examination is needed. Data collected from the questionnaires reveals that 65.9% of the participants reported that they always take a medical history, whilst 12.8% reported that they did not take medical history (Table 4). According to Section 37(2) of the Criminal Procedure Act of 1977:

'... any medical officer of any prison or any district surgeon or, if requested thereto by any police official, any registered medical practitioner or registered nurse may take such steps, including the taking of a blood sample, as may be deemed necessary in order to ascertain whether the body of any person referred to in paragraph (a) (i) or (ii) of subsection (1) has any mark, characteristic or distinguishing feature or shows any condition or appearance.'

In this study, 50% of the participants reported that they always inquired about previous injuries, abnormalities and operations, 33.3% reported that they sometimes asked about these, whilst 16.7% reported that they did not inquire about any previous injuries, abnormalities and operations (see Table 4). If, in the professional opinion and experience of the doctor, the reason for the patient's impairment could be the result of other factors, for example, drugs, hypoglycaemia, head injury or mental illness, it is important that it is recorded as such.¹² To rule out drug-related impairment, the history of a patient's intake of medication in the 24 h prior to presentation is of utmost importance. In this study, only 54.1% of the participants reported that they always took a history of medication used in the 24 h prior to arrest (Table 4). Furthermore, a full clinical examination is required to exclude impairment secondary to head trauma. A full clinical examination was always performed by 66.6% of the participants, whilst 16.7% of them sometimes performed a full clinical examination (see Table 4).

Table 6: Spearman's correlation matrix showing relationship between undergraduate training and competency in practice by community service doctors

Item		a	b	c	d	e	f	g	h	
Spearman's rho	a	Correlation coefficient	1.000	1.000**	0.269	.324*	0.262	0.334*	0.359*	0.181
		Sig. (2-tailed)	-	-	0.067	0.017	0.072	0.020	0.012	0.219
		n	54	54	47	54	48	48	48	48
b	Correlation coefficient	1.000**	1.000	0.269	0.326*	0.262	0.334*	0.359*	0.181	
	Sig. (2-tailed)	-	-	0.067	0.015	0.072	0.020	0.012	0.219	
	n	54	55	47	55	48	48	48	48	
c	Correlation coefficient	0.269	0.269	1.000	0.879**	0.961**	0.617**	0.821**	0.738**	
	Sig. (2-tailed)	0.067	0.067	-	0.000	0.000	0.000	0.000	0.000	
	n	47	47	47	47	47	47	47	47	
d	Correlation coefficient	0.324*	0.326*	0.879**	1.000	0.853**	0.797**	0.875**	0.663**	
	Sig. (2-tailed)	0.017	0.015	0.000	-	0.000	0.000	0.000	0.000	
	n	54	55	47	55	48	48	48	48	
e	Correlation coefficient	0.262	0.262	0.961**	0.853**	1.000	0.560**	0.822**	0.794**	
	Sig. (2-tailed)	0.072	0.072	0.000	0.000	-	0.000	0.000	0.000	
	n	48	48	47	48	48	48	48	48	
f	Correlation coefficient	0.334*	0.334*	0.617**	0.797**	0.560**	1.000	0.819**	0.365*	
	Sig. (2-tailed)	0.020	0.020	0.000	0.000	0.000	-	0.000	0.011	
	n	48	48	47	48	48	48	48	48	
g	Correlation coefficient	0.359*	0.359*	0.821**	0.875**	0.822**	0.819**	1.000	0.709**	
	Sig. (2-tailed)	0.012	0.012	0.000	0.000	0.000	0.000	-	0.000	
	n	48	48	47	48	48	48	48	48	
h	Correlation coefficient	0.181	0.181	0.738**	0.663**	0.794**	0.365*	0.709**	1.000	
	Sig. (2-tailed)	0.219	0.219	0.000	0.000	0.000	0.011	0.000	-	
	n	48	48	47	48	48	48	48	48	

Notes: (a) Trained to complete documentation for drunk-driving cases at undergraduate level, (b) undergraduate exposure to drunk-driving cases, (c) taking of medical history, (d) obtaining consent for examination and collection of blood sample, (e) performing a full clinical examination, (f) asking about medication usage in the previous 24 h, (g) previous injuries, abnormalities and operations, (h) alcohol/drug consumption over the previous 24 h.

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

When asked about completing and signing the necessary documentation, 93.8% and 97.8% of the participants reported that they always or sometimes completed and signed the necessary documentation, respectively (see Table 4).

Undergraduate training and exposure to medico-legal documentation for drunk-driving cases

Data collected by this study reveal that only 11.1% of participants who indicated that they had encountered patients accused of drunk driving during their year of community service had, during their undergraduate training, received training on medico-legal documentation of drunken-driving cases (Table 5). Similarly, only 10.9% of the participants indicated that they had any undergraduate exposure to drunk-driving cases (Table 5).

Spearman's correlation analysis

Results obtained from the Spearman's correlation analysis revealed a strong positive correlation between undergraduate exposure to drunk-driving cases and training to complete documentation of drunk-driving cases at the undergraduate level ($r_s = 1.000$; $p < 0.01$) (Table 6). A weak positive correlation was found between exposure to undergraduate training in medico-legal documentation of drunk-driving cases and taking a relevant medical history ($r_s = 0.269$; $p = 0.067$) (Table 6). Similarly, a weak positive correlation was also found between exposure to undergraduate training in medico-legal documentation of drunk-driving cases and performing full examination on alleged inebriated drivers ($r_s = 0.262$; $p = 0.072$) (Table 6).

In addition, a strong positive correlation was recorded between taking a relevant medical history and taking a history of medication usage in the previous 24 h, history of previous injuries, abnormalities and operations and history of alcohol/drug consumption over the previous 24 h, respectively ($r_s = 0.617$, 0.821 and 0.738 , respectively; $p < 0.01$ in all cases) (see Table 6). Furthermore, the results presented in Table 6 show a very strong positive correlation between obtaining consent for examination and performing a full clinical examination ($r_s = 0.875$; $p < 0.01$). Other correlation values are also presented in Table 6.

Discussion

Since the arrival of the European settlers at the southern tip of Africa in the year 1652,¹⁴ alcohol has played a central and often controversial role in the life of many South Africans.¹⁵ The establishment of a refreshment station for passing ships at what was to become Cape Town meant that drunkenness, gambling and violence were soon part of the daily lives of many inhabitants. Members of the indigenous population caught on quickly and started to exchange alcohol for cattle and labour.¹⁵ The seventeenth and twentieth centuries saw the growth of extensive wine and brewing industries in South Africa and the establishment of illegal drinking outlets (*shebeens*) amongst black communities became problematic.¹⁵

Today South Africa has the highest levels of alcohol consumption in the southern African region,³ with the total level of adult pure alcohol per capita consumption estimated at 32.8 l for men and 16.0 l for women in 2010.⁶ Patterns of drinking range from frequent drinking at times not part of meals, drinking in public places, communal drinking, and drinking at family/community events,¹⁵ to heavy episodic drinking (consumption of 60 or more grams of pure alcohol per single occasion) over weekends.¹⁶ Although habitual light to moderate alcohol intake is associated with a decreased risk of total mortality in certain medical conditions, such as coronary artery disease, diabetes mellitus, congestive

heart failure, and stroke,¹⁷ alcohol consumption has been identified as a component cause for more than 200 diseases, injuries and other health-conditions with ICD (International Statistical Classification of Diseases and Related Health Problems)-10 codes.¹⁸ In South Africa, alcohol is the third most common cause of disability and death, after sexually transmitted infections and interpersonal violence, both of which are themselves influenced by alcohol abuse.¹⁹ In 2000, the health, social and economic burden of South Africa's alcohol crisis could be seen in the 36 840 deaths, 787 749 years of life lost, and 344 331 years lived with a disability attributable to alcohol in that year.²⁰

According to the WHO global status report on road safety, over 1.2 million people die each year on the world's roads, and between 20 and 50 million suffer non-fatal injuries.⁵ The WHO reports that over 90% of all fatalities on the roads globally occur in low- and middle-income countries, which have an estimated road fatality rate of 21.5 and 19.5 per 100 000 population, respectively, compared with 10.3 per 100 000 recorded in high-income countries.⁵ The risk of dying as a result of a road traffic injury is highest in the African region (24.1 per 100 000 population), and lowest in the European region (10.3 per 100 000).²¹ According to South Africa's transport minister, a road traffic fatality rate of 23.5 per 100 000 people was reported in 2014, compared with the global average of 17.4 fatalities per 100 000 people for that year.²² It can thus be said that road fatalities have denied many South African families economic freedom, as many of the people injured or killed on the roads were breadwinners and important contributors to the economy at large.²²

Drunk driving increases the risk of being involved in a road traffic accident and increases the severity of resulting injuries. It has been reported that the level of impaired driving and the risk of crash involvement is directly proportional to the amount of alcohol consumed.²¹ Of the road traffic fatalities in South Africa in 2012, 52.2% of the deaths of adult males and 11.6% of those of adult females can in some way be attributed to alcohol.⁶ Laws enforcing measures to prevent and punish drunk driving, such as the introduction of BAC limits for drivers, have been shown to reduce the burden of alcohol-attributable traffic accidents.⁶ It is reported that a BAC of 0.05 g/dl will cause impairment in the vast majority of adult drivers, while someone with a BAC level of 0.1 g/dl faces five times the risk of being involved in a road traffic accident than someone with BAC level of zero.²³ According to the WHO report, 89 countries, with a total population of 4.55 billion people (66% of the world's population), now have comprehensive drink-driving laws. Best practice dictates that the BAC limit must be 0.05 g/dl or less.²⁴

According to Section 65 Subsections 2 and 5 of the South African Road Traffic Act, 'no person shall drive a vehicle, or occupy the driver's seat of a motor vehicle of which the engine is running, on a public road, respectively while the concentration of alcohol in any specimen of blood taken from any part of the person's body is not less than 0.05 gram per 100 millilitres, or in the case of a professional driver referred to in section 32, not less than 0.02 gram per 100 millilitres, or while the concentration of alcohol in any specimen of breath exhaled by such person is not less than 0.24 milligrams per 1000 millilitres.'²⁵ However, enforcing prosecution under this law is not common in South Africa, as many drunk-driving court cases have been dismissed as a result of the state's inability to present credible evidence—this failure is accredited to members of the SAPS and the Department of Health.¹⁰ Medical practitioners, in particular young or newly graduated medical practitioners working as CSDs, are indispensable members of the Department of Health's workforce.

The aim of this study was to assess the competencies of this group of medical practitioners in relation to medico-legal documentation of patients who had allegedly been driving under the influence of alcohol, to identify gaps in knowledge and shortcomings in practice. This enabled reflection on the adequacy of the undergraduate medical training presently available in clinical forensic medicine.

In the present study, 63.2% ($n = 55$) of the participating CSDs had encountered people who were alleged to have driven drunk during their year of community service; the majority (54.5%, $n = 30$) reported having managed between one and five cases during that time (see Figure 1). The majority of participants (47.2%) were required to perform their community service in urban communities (see Table 1).

For the successful prosecution of a drunk driver, the clinical evaluation and examination of an accused by an expert witness is usually conducted by the medical practitioner on request by the police officer by way of a formal SAP 308(a) request form.²⁶ It was found in this study that the SAP 308(a) request form was presented in only 78.2% of cases, never presented in 5.5% of the cases and, in 16.3% of the cases examined by the participants, presented sometimes (see Table 2). This shows that the SAPS officers are either uninformed or untrained and also provides evidence of the gap in knowledge on the side of the medical practitioners.

The clinical evaluation and examination must always be done in a well-lit room. It begins with general observation of the patient to determine signs and symptoms of intoxication, such as smell of alcohol, an increased respiratory rate, diminished alertness and memory loss, photophobia, blurred vision and abdominal pain.²⁷ This observation must be followed by a clinical examination, to exclude any form of injury or trauma to the head or other parts of the body. Particular attention should be paid to the ingestion of any medication and any relevant medical history (e.g. psychiatric illness) must be noted. During the clinical evaluation, the doctor should ascertain whether the patient's faculties are indeed impaired, try to assess the degree of impairment; try to assess whether the accused is fit to drive a motor vehicle with the necessary skill and care required and whether the impairment can be wholly or partly due to alcohol consumption.²⁶ The doctor must ensure that the examination is conducted in a just and proper manner and that the evidence collected adheres to the procedures for admissibility in a court of law.²⁶ Data presented by this study show that only 65.9% of the participating CSDs attested to taking a proper medical history every time they had to examine someone accused of drunk driving (see Table 4), while only 54.1% of the participants reported that they enquired about the recent intake of medication. It was unexpected and disturbing that 16.7% of the participants never performed full clinical examinations on these patients (Table 4). Findings from the Spearman's correlation analysis show a positive correlation between exposure to undergraduate training in medico-legal documentation of drunk-driving cases and taking a proper medical history and performing a full clinical examination (see Table 6). This suggests that adequate undergraduate training will ensure that CSDs take relevant medical history and perform full clinical examinations when attending to alleged inebriated drivers (Table 6). The findings that the medical practitioner makes should be recorded on an appropriate form (Health 475, GW4/75),²⁸ which was done by 93.8% of the participants (Table 4). Although the value of the clinical evaluation and examination by qualified medical personnel has been questioned in court, clinical evaluation and

examination still has an important place in the medico-legal investigation of drunk driving. This was shown in the case of *S v. Conradie* 2000(2) SACR 386 cited in Le Roux,²⁶ in which the clinical findings and clinical opinion were found to supersede the BAC result, causing the court to conclude that the blood analysis must have been faulty.

Furthermore, Section 65 Subsection 3 of the South African Road Traffic Act of 1996²⁵ states that:

'If, in any prosecution for an alleged contravention of a provision of subsection (2), it must be proved that the concentration of alcohol in any specimen of blood taken from any part of the body of the person concerned was not less than 0.05 gram per 100 millilitres at any time within two hours after the alleged contravention, it shall be presumed, in the absence of evidence to the contrary, that such concentration was not less than 0.05 gram per 100 millilitres at the time of the alleged contravention, or in the case of a professional driver referred to in section 32, not less than 0.02 gram per 100 millilitres, it shall be presumed, in the absence of evidence to the contrary, that such concentration was not less than 0.02 gram per 100 millilitres at the time of the alleged contravention.'²⁵

Findings from this study revealed that 33.3% of the participants reported that the alleged drunk drivers always presented within two hours of incident, while 64.8% of participants reported that people accused of driving drunk were sometimes presented within the two-hour time frame. A BAC sample collected more than two hours after the incident will give an unreliable result, which will not be admissible in a court of law, thus suggesting that a guilty verdict would be unlikely.

In addition, Section 65 Subsection 4 of the Road Traffic Act further states that:

'... where in any prosecution in terms of this Act proof is tendered of the analysis of a specimen of the blood of any person, it shall be presumed, in the absence of evidence to the contrary, that any syringe used for obtaining such specimen and the receptacle in which such specimen was placed for despatch to an analyst, were free from any substance or contamination which could have affected the result of such analysis.'

During standard medical practice, any area where blood is to be taken should be kept sterile as far as possible, generally by making use of alcohol swabs. However, in taking a blood sample for a BAC test, preparing the skin area with an alcohol swab or any other substance that may affect the result is strongly prohibited. When asked what substance they used to clean the skin area, 76.4% ($n = 39$) of the participants reported cleaning it with sterile water, 21.6% ($n = 11$) reported cleaning with alcohol, and 2% ($n = 1$) reported cleaning with other substances (Figure 2). This indicated a lack of basic understanding among some participants of the principles governing sample collection while performing a BAC test and its legal importance in the prosecution of drunk drivers.

When collecting evidence or samples for clinical forensic purposes, maintaining the chain of evidence is of the utmost importance. It can be said that, for this study, the majority of the participants knew and adhered to the basic principles of maintaining the chain of evidence for medico-legal purposes (see Table 3).

Finally, findings from this study showed that only 11.1% of the participants had undergone any form of undergraduate training in completing documentation for drunk-driving cases, while only 10.9% reported having had any undergraduate exposure to allegedly inebriated drivers (see Table 5). This limited undergraduate training and exposure to medico-legal aspects regarding drunk driving can be responsible for the incompetency displayed by some CSDs in this study. Results obtained from the Spearman's correlation analysis revealed a strong positive correlation between undergraduate exposure to drunk-driving cases and training to complete documentation of drunk-driving cases at the undergraduate level (see Table 6). Similarly, positive correlations were observed between exposure to undergraduate training in medico-legal documentation of drunk-driving cases and other determinants of competency as seen in Table 6. It is therefore very likely that increased undergraduate exposure to drunk-driving cases will enhance competency in practice by CSDs. This finding, thus, indicates the need for a new curriculum for clinical forensic medicine in the MBChB programme to address the shortcomings in current training, and enhance skills and knowledge of medical graduates in relation to executing of medico-legal cases.

Conclusion

Taken together, findings from this study confirm that some officers in the employ of the SAPS and the DOH had an inadequate knowledge base and understanding of the effective handling of the medico-legal aspects regarding accusations of drunk driving. Alcohol-related road traffic accidents are notoriously associated with repeat offenders.²⁹ It would, therefore, be beneficial to direct a new curriculum for clinical forensic medicine in the MBChB programme to address the gap in knowledge and practice of various topics of forensic medicine of newly qualified medical graduates and CSDs. In addition, it is recommended that members of the SAPS be properly trained in medico-legal aspects regarding drunk driving.

Disclosure statement – No potential conflict of interest was reported by the authors.

Funding – This work was supported by the Health and Welfare Sector Education and Training Authority (HWSETA) of South Africa [MOU HWSETA/UFS 2016/2017].

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30 October 2017

TO WHOM IT MAY CONCERN

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Chapter 5 and 6 are the framework of curriculum that were developed and conclusions. None show any signs of similarity.

The full report is electronically available on request from examiners (assessors).

Yours sincerely

A handwritten signature in black ink, appearing to read 'J. Bezuidenhout'.

Dr J. Bezuidenhout
Head: Division Health Sciences Education

