A Survey-based, descriptive study of the occupational health experience of pregnant women doctors working in the public health sector in the Western Cape from 2009-2015.

By: Dr Colleen J.B Hiscock

Student No: HSCCOL002

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MFamMed

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Supervisor: Dr Beverley Schweitzer, Department of Family Medicine,

University of Cape Town

DECLARATION

I, Dr Colleen J.B Hiscock, hereby declare that the work on which this dissertation/ thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

I empower the university to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.

Signature: - Signed by candidate

Date: - 09/08/16

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LIST OF ABBREVIATIONS

HR	Human Resources
AMA	American Medical Association
HPCSA	Health Professions Council South Africa
SAMJ	South African Medical Journal
SA	South Africa
BCEA	Basic conditions of employment act
ILO	International Labour Convention
MDG	Millennium Development Goals
EEA	Employment equity act
UIA	Unemployment insurance act
LRA	Labour relations Act
TB	Tuberculosis
MDRTB	Multi- drug resistant tuberculosis
XDRTB	Extremely drug resistant tuberculosis
HIV	Human immune deficiency virus
ORIFS	Open Reduction internal fixation
OHSA	Occupational Health and safety act
O &G	Obstetrics and Gynaecology
OPD	Outpatient department
SABPP	South African Board for Personnel Practice
OEDC	Organisation for economic development and co-operation

RESEARCH PROTOCOL

DR COLLEEN J.B HISCOCK, STUDENT NO: HSCCOL002

A retrospective, survey-based, descriptive study of the occupational health experience of pregnant women doctors working in the public health sector in the Western Cape from 2009 - 2015.

THE AIM is to describe the occupational health experience of pregnant women doctors while they were practicing medicine in the public sector in the Western Cape

THE PURPOSE OF THE STUDY is to explore the experiences of pregnant women doctors working in public sector health facilities in the Western Cape and to ascertain whether occupational health laws and guidelines are being implemented for pregnant women doctors. This is being done in order to provide feedback to Western Cape department of health, so that if found necessary, recommendations for the improved occupational health of pregnant doctors can be implemented.

THE OBJECTIVES are to conduct an internet-based survey of woman doctors who have experienced pregnancies while working in the public sector. The three main objectives are:

1. To describe the demographics of the respondents
2. To explore the experiences of the respondents with regard to working while pregnant
3. To assess the knowledge of occupational and other laws that relate to pregnant women at work.

HYPOTHESIS: There is currently poor implementation of occupational health laws and services for pregnant doctors in the various government health facilities in the Western Cape

SIGNIFICANCE OF THIS RESEARCH:

"The progress of women in medicine is a long and continuing journey," AMA Women Physicians section (Anon.2013).

The number of women graduating as doctors has increased. Many of these women form the mainstay of the public-sector workforce. Attention needs to be focused on ensuring the safety of pregnant women doctors and the safety of their unborn babies.

METHODOLOGY OF STUDY

Study Design:

This is a retrospective, survey-based, descriptive study using an electronic survey/ questionnaire as a tool. The survey includes both set answer options from which to choose as well as areas for respondents to give comments, which will add a qualitative element to the research

CHARACTERISTICS OF THE STUDY POPULATION:

The study population consists of women doctors who took maternity leave while working in the state sector in the Western Cape from 2009-2015.

INCLUSION AND EXCLUSION CRITERIA:

Inclusion criteria

All women who complete and submit the survey will be included in the sample.

No exclusion criteria are envisioned.

RECRUITMENT AND ENROLLMENT:

The Chief executive officers of the Western Cape Department of Health and City of Cape Town Dept. of Health will be approached for permission to obtain a list of all doctors in their service who took maternity leave from 2009-2015. Their contact details will be obtained and where missing information will be taken from the HPCSA register. If email addresses are not available, letters will be written to the women requesting their email addresses. The doctors will be emailed and informed about the research. They will be given link to the electronic survey. Each participant will be required to give consent electronically, before the survey can be initiated.

RESEARCH PROCEDURES AND DATA COLLECTION METHODS:

RESEARCH PROCEDURES:

Consent to be obtained from the CEOs of the Western Cape Department of Health and City of Cape Town Dept. of Health, to obtain names and contact details of all doctors who took maternity leave between 2009 and 2015.

The doctors will be sent the survey electronically using "Survey Monkey". The survey monkey site includes a letter explaining the research, and an electronic consent form.

Survey Monkey, the tool used to design and make the survey, will store the data collected on an electronic data base in cyber space, which Dr Hiscock will have access to by logging into Survey Monkey. She retains full rights to the material, and survey monkey can only use the data for the purposes of assisting her with the survey. No other person will have access to the password encoded survey. Closed ended multiple choice questions will be use for the survey as well as requests for comments. The data is stored anonymously. This will then be analysed in the form of graphs and tables.

Weekly reminder emails will be sent for 3 weeks from the date of initial email being sent. Should the candidates want to immediately opt out of participating in the survey/ study and not wish to receive further emails – they can reply to the email stating so and they will not receive further emails.

Data obtained from those responding to the email will be captured for analysis purposes. The respondent confidentiality will be ensured when the results are published.

The data will be analysed, and the findings and resultant recommendations will be compiled

The completed research will be written up as a paper ready for publication and submitted as part requirement for the MMed (Family Medicine) and FCFP. It will be emailed to respondents who request it by email. Most importantly, the information and recommendations based on the information will be sent to the CEOs of the health departments in order to implement changes. A copy will also be sent to the Women's division of HPCSA.

The article will be submitted to the SAMJ and SAFP journal for publication.

DATA SAFETY & MONITORING

The data will be collected by and stored by survey monkey (an electronic survey website), in cyber space, which only Dr Hiscock will have access to by password. No one else will know the password. As per survey monkey's terms and conditions – The content of the survey remains the property of Dr Hiscock, and cannot be used by any other source. Survey monkey can only use it to provide the service to Dr Hiscock.
(See Terms and conditions attached of Survey Monkey)

DATA- ANALYSIS

Survey Monkey gives tables regarding the frequencies of answers. The help of a suitably qualified person will be required to look at associations. The comments will be collated and common themes identified using qualitative research methods.

INFORMED CONSENT PROCESS

In the introductory email, all the information needed for consent will be sent to the candidates fulfilling the inclusion criteria. At the end of the email it will state -:

If you consent to participate in this study please click on the following link, and complete the survey. Thus, the electronic consent will be obtained in English. All those being invited to participate in this research are adults with university education, and therefore the premise is there that they are able to give informed consent. They consent when ready to complete survey i.e. in their own time.

PRIVACY AND CONFIDENTIALITY:

Although the emails will be sent to the various doctors' email addresses, the survey answers will be stored anonymously by survey monkey in a central database in cyber space in a password protected file. Only Dr Hiscock will have access to this file. The data will be stored in such a way that no-one will be able to be identified. No names or dates of birth will be collected. The data will be stored as answers per question, not as one person's complete survey, thereby limiting identifying answers. The privacy and identity of all respondents will be kept and they will remain anonymous at all times.

The data will be published as collective data, and no individual respondents will be identified at any stage.

> At the end of the study, when the results have been analysed the list of emails of the various doctors will be destroyed.

RISKS AND BENEFITS:

As the study population is based on the application for maternity leave, as opposed to sick leave, most of the women will have delivered viable infants (as opposed to miscarriages). However, for some, the birth of a baby may have been a time of sorrow. Participants might have experienced stillbirths and neonatal deaths. Babies may have been given up for adoption. Being sent a survey focusing on the pregnancy may open up past traumatic experiences. Questions about self-care in pregnancy may evoke a sense of blame in women whose pregnancies ended in loss.

This is a risk, and it is neither easily avoided nor remediable, but it seems a worthwhile risk, given the benefits to many other pregnant women doctors:

The information gained from the survey can be used to provide feedback to HR, employers and managers at the various Western Cape Department of Health and City of Cape Town health facilities, to ensure policies and procedures are being followed with regard to health and safety laws and occupational guidelines for pregnancy. This would hopefully aid in ensuring that pregnant doctors in these facilities in the future have safe working conditions during their pregnancies, so as to promote good health and outcomes in their pregnancies.

Attention can be drawn to this topic, and future studies can be done in other areas/ cities/ countries, and hopefully nationally work conditions will improve for pregnant doctors in government facilities.

The benefits of using the electronic survey are that responses can be anonymous, the survey can be completed in the respondents' own time, and all respondents are asked the same questions. A larger sample can also be reached.

INSURANCE: Not applicable

ETHICAL AND REGULATORY COMPLIANCE:

Confidentiality of respondents will be ensured at all times. (See above)

Ethical approval to be sought before beginning study.

Budget for Research

1. Survey Monkey (Gold Plan – see Addendum for details of package) – R4499
2. Richard Rewrite writing services and UCT Writing services R2500- 3000 depending on hours and work needed (ESTIMATE – average cost is R150 / hour and he averages 3 pages per hour)
3. Paper and stationery used while printing articles for reading and for protocol and synopsis to hand to Ethics committee and in printing Final article copies R500

   TOTAL COST: R7000

RESOURCES needed to complete this research:

1. Computer and email access
2. Survey programme (Survey Monkey)
3. Human – Dr Hiscock plus supervisors
4. Dr Hiscock's time away from practice (Dr Hiscock has her own GP practice)
5. Statistician to help with analysis
6. Editorial assistance – Richard from Rewrite services

PART B: LITERATURE REVIEW

BACKGROUND TO THIS RESEARCH

The issue of occupational health in pregnant women doctors is an important and currently relevant topic that needs to be given consideration, especially as the numbers of women doctors are increasing globally.

South Africa has Occupational Health and Safety guidelines and laws to protect pregnant women in the workplace. Pregnant doctors are exposed to a particular range of risks such as contagious diseases, radiation, anaesthetic gases, as well as long hours and physically and mentally demanding work. Overtime is the norm and breaks are often not taken due to the pressure of work.

According to the Basic Conditions of Employment Act and Code of Good Practice on the protection of Employees during Pregnancy and After the Birth of a Child, health assessments should be carried out in the workplace each trimester, and adjustments made to pregnant employees' working conditions according to their health and stage of pregnancy. Suitable alternative work can be recommended if the employee or foetus is at risk in the work environment.[1] An occupational health sister servicing the government health facilities would be the ideal person to carry out these assessments.

OBJECTIVES OF LITERATURE REVIEW

The primary objective of this literature review was to establish what research has been done recently on the occupational health of pregnant women doctors, and how their working conditions can impact on their pregnancies. A second objective was to identify and outline the laws that protect pregnant working women in South Africa. The last objective was to determine the current number of women doctors in South Africa.

SEARCH STRATEGY

A literature search was done of PUBMED electronic internet database, using the key phrases "physically demanding work and adverse pregnancy outcomes" which yielded 7 results, as well as "occupational health in pregnant doctors", which yielded 51 resulting articles. All relevant results to the topic of research were reviewed which totalled 16 articles.

A Google search was also done using the phrases: "occupational health of pregnant doctors in public health care in South Africa"; "occupational laws for pregnant women in South Africa"; and "law and occupational health". These searches yielded numerous results and all relevant information was reviewed.

DEFINITIONS

Occupational Health

"The promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations by preventing departures from health, controlling risks and the adaptation of work to people, and people to their jobs."
(ILO / WHO 1950) [2]

Law

Numerous definitions of *law* have been put forward over the centuries. The *Third New International Dictionary* from Merriam-Webster defines law as: "Law is a binding custom or practice of a community; a rule or mode of conduct or action that is prescribed or formally recognized as binding by a supreme controlling authority or is made obligatory by a sanction (as an edict, decree, rescript, order, ordinance, statute, resolution, rule, judicial decision, or usage) made, recognized, or enforced by the controlling authority.[3]

LITERATURE REVIEW: -

The number of women doctors in South Africa

The statistics and data analysis department at the Health Professions Council of South Africa provided statistics on the number of active registrations of male and female medical practitioners in South Africa as at 1/7/16.

The numbers given were 16594 females (38, 1%) and 26954 males (61, 9%) [4]

The South African medical school selection criteria are attempting to correct past racial and gender inequalities, by increasing the numbers of women admitted to medical schools in South Africa. Current research in the SAMJ 2016 states that at present 62, 2% of medical students in South Africa are female (numbers as at 2014).[5]

According to the January 2003 issue of the South African Medical Journal, "data supplied by the South African Medical Association indicate that in 2000, 47, 1 percent of interns, and 44, 3 percent of community service doctors were women. According to data obtained by the Health Professions Council of South Africa, women constituted 26 percent of registered doctors in the country in 2001. By 2020, 50 percent of the medical workforce will be female."[6]

The article also states that, "The increasing number of women in medicine necessitates a radical revision of the traditional conventions and assumptions about medical training and practice, patriarchal culture, gender inequality and male hegemony. There is increasing reference in the literature to "the feminisation of medicine" – this refers not only to the increasing numbers of women in the profession, but to the gender determined division of labour, differentiation in modes of practice and the impact this will have on all aspects of medical training, practice and research." [6]

In 2013 the American Medical Association reported that between 1980 and 2010, the number of female physicians increased by 447 percent, and the number of women physicians in patient care grew by 498 percent. By 2013, 55, 6 percent of female physicians were under the age of 45.[7]

Doctors working conditions in South Africa

The recent death of intern, Dr Inge Markwat and three others involved in the motor vehicle accident she had post working a greater than thirty-hour shift, caused national outrage in South Africa among doctors. There were claims that it was the excessive hours worked by junior doctors in South Africa that resulted in her death in a car accident. The article in Times Live dated 9/6/2016 was written by Katharine Child – "Fatigue killed doctor".[8]

"Legally a doctor's shift can be 30 hours, but many doctors said they worked an average of 300 hours per month."[8]

Safe working Hours is a group of locally based doctors who are campaigning to reduce the hours' doctors' work. They created a petition to reduce the maximum consecutive hours' doctors' work to 24 and this got 3000 signatures. They approached the Health Professions council of South Africa as well as the department of health and received no response from either body. The Western Cape Health department spokesman, Mark van der Heever said, "The department manages the overtime duties of all medical interns in accordance with the HPCSA guidelines and department's own policy."[8]

Pregnant doctors are exposed to these same working conditions of long working hours, numerous after hours shifts, prolonged standing, heavy patient workloads, exposure to contagious diseases, chemicals and radiation exposure, as well as in some instances violence in the work place from patients – depending in which area and department the doctor is working in. Pregnant doctors are exposed too physical, ergonomic, chemical and biological hazards in their line of work.

The effects of physical demands on pregnancy

In a meta-analysis based on 160,988 women in 29 studies, evaluating the association between working conditions and adverse pregnancy outcomes, the authors found that physically demanding work was significantly associated with preterm birth, small for gestational age babies, and hypertension or preeclampsia.[9] Other occupational exposures significantly associated with preterm birth included prolonged standing, shift and night work, and high cumulative work fatigue. However, no significant association between long work hours and preterm birth was found.[9] Women tended to take a stoic view, "The doctors do not talk too much about their

health problems and concerns for fear of being victimised, or discriminated against in their career." They therefore suffer and go on, hoping for the best but often enduring the worst. Fatigue and physically demanding work contribute to negative outcomes in pregnancy. [9]

Another study found that physically demanding work did not seem to be associated with adverse pregnancy outcome, whereas working at night during pregnancy may increase the risk of preterm delivery.[10]

In a study of 22761 live births in Montreal women[11], there were noteworthy increases in both preterm births (<37 weeks) and infants of low birth weight (< 2500g) born to women in specific occupations or whose work entailed heavy lifting, shift work, long hours or great fatigue. Lifting heavy weights and shift work was specifically found to retard fetal growth as well as increase the risk of preterm birth.

Maternal work and Pregnancy

A review cited in the Australian and New Zealand Journal of Obstetrics and Gynaecology published in 1999[12], stated: "There is (are) increasing professional and financial demands that contemporary women face, with 60 – 70% of Australian married women in their prime childbearing years (25-44 years) now working for pay. Data from the National Survey of Family Growth (United States of America) [12] found that approximately 60% of American Mothers worked 6 months or so before their most recent delivery, and nearly 80% continued to work during the third trimester. Taken in aggregate, all the studies reviewed suggested that heavy or prolonged physical work may be associated with an increased risk of miscarriage, preterm delivery and growth restriction" [12]

Legislation regarding pregnant women in South Africa

South African Labour legislation provides substantial protection for pregnant employees. The Constitution of South Africa Act 108 of 1996 (Constitution), the Employment Equity Act 55 of 1998 (EEA), the Unemployment Insurance Act 63 of 2001 (UIA), the Basic Conditions of Employment Act 75 of 1997 (BCEA), the Labour Relations Act 66 of 1995 (LRA), and the Code of Good Practice on the protection of Employees During Pregnancy and After the Birth of a Child (Code of Good Practice) protects the rights of the employee from the day she falls pregnant until well after the birth of the child[1,13,14,15,16,17]

The Industrial Health Resource Group have a manual, "Workers' Health and Safety Rights" available online in which it states, "The interests of workers are advanced and defended through the establishment and recognition of rights. These are contained in the law, and formal agreements negotiated with employers". Another valuable comment in this article states that, "Although much can be done to advance workers' rights and improve the law, the priority lies in campaigning for employer compliance with existing law, and for the enforcement of workers' current rights. Workers' rights in health and safety need to be exercised and implemented, not just recognised"[18]
The most important legal provisions relating to pregnancy at work are contained in the BCEA and the Code of Good Practice issued in terms of the BCEA. The Code is intended to guide all employers and employees concerning the application of section 26 (1) of the BCEA, which prohibits employers from requiring or permitting pregnant or breastfeeding employees to perform work that is hazardous to the health of the employee or that of her child. This means that employers must assess and control the risks to the health of pregnant or breastfeeding employees, and that of the foetus or child.[19]

In Section 25 of the BCEA provision is made for at least four months' unpaid maternity leave, which normally commences four weeks before the expected date of delivery, but may start earlier if the doctor or midwife overseeing the pregnancy feels it would be best.[18,20]

In the BCEA it also states that an employee may not start work before six weeks post the birth of the baby, unless the doctor or midwife overseeing agrees. A mother who experiences a third trimester miscarriage or still birth is also entitled to six week's maternity leave.[18]

Employers should according to the Basic conditions of Employment act, section 26, maintain a list of positions to which a pregnant or breastfeeding employee can be transferred. An employer should offer suitable alternative employment to an employee during pregnancy if her work poses a danger to her health and safety, or that of her child, or if the employee is engaged in night work, unless it is not practical to do so.[18] This applies during

pregnancy and for six months after the birth, and must be on terms and conditions that are no less favourable than the ordinary terms and conditions of employment. Alternative work solutions should especially be sought if the employee is required to do night work, or the work poses a danger to the safety or health of the employee or baby, and it is practicable for the employer to do so.[18]

Section 27 (2) of the BCEA states the employee is entitled to three days' family responsibility leave per annum in the event of birth of the child, or illness of the employee, if they work more than four days per week and have worked for more than four months for the employer.[18]

A pregnant employee's right to health and safety is entrenched in the Constitution. No person may be discriminated against, or dismissed on account of pregnancy, and employers must provide and maintain a work environment that is safe and without risk to the health of employees [Section 9 (3) and 9(4) of The Constitution. Section 187 (1) of the Labour Relations Act 66 of 1995, and Section 6 of the Employment Equity Act of 1998 also ensure discrimination in pregnancy is prohibited.[21,22,23] The Constitution protects the right to bodily and psychological integrity, which includes the right to make decisions concerning reproduction [Section 12 (2)].[1,13,16] The Labour relations Act regulates the relationship between employee and employer.

Employers who employ women of childbearing age are legally required to assess and control workplace risks, and take protective and preventive measures. These should be regularly reviewed.[1,15,20]

The Code of Good Practice states that after being told an employee is pregnant an employer should ensure the employee is examined by a qualified medical professional. Her job should then be examined, as well as the work place practices and her exposure, so as to avoid any exposure that could negatively impact on her or the foetus. If the evaluation reveals that there is a risk to the health of the employee or her unborn baby, the employer should inform the employee of the risk, and determine what steps should be taken to prevent exposure to the risk by adjusting the working conditions. The employer should also maintain a list of positions to which pregnant employees could move that does not involve risk or involves lower risk for the employee and her foetus. The Code of Good Practice also states that the employers should supply employees with information and training regarding risks to their health and safety and measures that can be taken to minimise these risks. Employers are also obligated under this act to encourage pregnant employees to inform them of the pregnancy as early as possible so that the laws can be followed.[15,18]

There are various types of hazards in the workplace which are laid out in The Code of Good Practice that could be harmful to pregnant employees, and must be controlled by the employer. If pregnant women workers are exposed to these hazards they should be allowed to change their work position to a situation that is free of these risks. These include, but are not limited to the following:

- Physical hazards such as heat and noise (Section 6.1 The Code of Good Practice);
- Ergonomic hazards including heavy physical work, repetitive work, and standing or sitting for long periods (Section 6.2 The Code of Good Practice);
- Chemical hazards, such as exposure to harmful chemicals that can affect the foetus and damage the health of the mother and child (Section 6.3 The Code of Good Practice); and
- Biological hazards, such as bacteria and viruses that can infect the mother and affect the unborn child. (Section 6.4 The Code of Good Practice); [15]

Employers also need to be aware of the physical effects of pregnancy that can affect the worker. Morning sickness may affect an employee's ability to perform early morning shift work or be exposed to certain smells; backache and varicose veins may result from work involving prolonged sitting or standing, or manual handling; more frequent visits to the toilet will require reasonable access to toilet facilities; the employee's increase in size and discomfort may require changes to her work environment; the employee's balance may be affected making work on slippery or wet surfaces difficult; and tiredness associated with pregnancy may affect the employee's ability to work overtime and perform evening work. [18]

Employers should ensure that hours of work, and volume and pacing are not excessive, and that where practical, employees have some measure of control over how their work is organised. Seating should be available where appropriate and longer or more frequent rest breaks will help or avoid fatigue.[18]

The Unemployment Insurance Act section 34 and 37 – provide for payment of the employee by UIF of maternity benefits during maternity leave.[18]

The Occupational Health and Safety Act (OHSA) 85 of 1993, lays out the rights and responsibilities for health and safety in the workplace. It places the main burden for health and safety in the workplace on the employer. Workplaces excluded by this act include the Mining industry (which is covered by the Mineral's Act of 1991), the shipping, vessel, fishing, sealing and whaling industry (which is covered by the Merchant Shipping Act of 1951), and floating cranes.[18]

Employers' obligations under the Occupational Health and Safety act include: - providing a safe workplace for employees, appointing health and safety representatives, complying with regulations, protecting and informing employees, recording and investigating incidents, providing personal protective equipment.[18,24]

The worker's obligations include: - taking care of their own health and safety, co-operating with their employer, reporting unsafe and unhealthy situations to a health and safety representative or employer.[18,24]

Work places of more than 20 employees should have at least one health and safety representative (OHSA Section 17 (1)). Section 17 (4) states that only full time employees can be health and safety reps and they must be familiar with the conditions and activities in the workplace.[18,24]

The OHSA is enforced by the Department of Labour, who has inspectors in each province, whose job it is to ensure employers comply with the labour laws. They are meant to issue direction, investigate hazardous conditions, and inspect workplaces, issue notices and start proceedings for prosecution if the laws are not being complied with.[18,24]

An article in the South African Journal of Human Resource management titled, "Employee health and wellness in South Africa: The role of Legislation and management standards", states: "It is important that South African labour legislation be modernised in order to address not only traditional health and safety issues but also psychosocial work characteristics. Currently little is done in terms of risk analysis and occupational stress interventions in the South African work place and a National strategy to deal with these risks in the work place needs to be implemented by all role players in the South African labour context.[25]

The Introduction of "Management standards" was recommended for employee health and wellness. This is a set of principles agreed on by organisations in order to enhance health and wellness by identifying work-related stress hazards and reducing associated risks. With this approach, all role players (employees, labour unions, organisations and government) can be involved in the governance of employee health and wellness. It includes targets for organisations to aim towards, and is more self-governed due to the employee being involved in decision making along with all the other role players. A fine example of this is in the UK in the form of the Health and Safety Executive management standards: [25]

In order to promote employee health and wellness strategies, certain conditions are prerequisites

- Legal and policy instruments
  (Enforce laws, create management standards, and establish an executive body for dealing with policy and operational matters)
- Infrastructure
  (Working labour inspection system and occupational health service system)
- Education and training (conferences, symposia, workshops and employee training)
- Information
  (Relevant measurement tool needs to be developed so that performance can be measured against a standard. Government can support the process in funding the development of such a tool and providing it to organisations free of charge)
- Recording, storing and disseminating information
  (Registers for the collection and systemic evaluation of information) [25]

International Conventions related to the protection of pregnant women workers

The International Labour Organization (ILO), which is a specialised agency of the United Nations, has a number of conventions that relate to pregnancy. It sets labour standards to promote decent working conditions for men and women in 187 member states. The ILO provides guidelines for health and safety during pregnancy and

implements a number of programmes through which it encourages member countries including South Africa, to apply these internationally recognised guidelines and standards.[26]

The Maternity Protection Convention No 3 of 1919 provided basic protection entitling a pregnant worker to 12 weeks paid maternity leave, at least two daily nursing breaks, and protection against dismissal during the period of pregnancy. However, this convention only applied to women employed in public and private industrial and commercial sectors. [26]

The Maternity Protection Convention No 103 or 1952 extended the scope of the convention by including women from non-industrial and agriculture occupations, as well as domestic workers. It extended the leave provision to cover illness resulting from pregnancy or confinement. [26]

In 2000, Convention No 183 expanded the scope of maternity protection to include virtually all workers and provides for at least 14 weeks of paid maternity leave.[26]

"Maternity protection allows women to successfully combine their productive and reproductive roles, without compromising one at the cost of the other. Similarly, it protects women from marginalization/discrimination in the labour market due to their reproductive roles."[26]

Millennium Development Goals

The Millennium Summit was held in September 2000, where world leaders gathered to adopt the United Nations Millennium declaration. There was commitment of all nations involved to a global partnership to decrease extreme poverty with a series of time bound targets. There were 8 goals decided, which also covers basic human rights.[27]

"Maternity protection, by contributing to women and child health contributes to the attainment of the MDGs 4 and 5. Similarly, maternity protection measures safeguard and increase women's employment and labour market presence, and ensure income protection by providing cash and medical benefits during the period, thereby helping in achievement of MDG 1 and 3". [13]

The Millennium Development Goals include:

1. Eradicate extreme poverty and hunger
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health [27]

"There are different aspects of maternity protection – this includes maternity leave, health protection measures for pregnant and breastfeeding mothers, leave in case of pregnancy related illness, provision of cash and medical benefits, employment protection and non-discrimination, allowing breastfeeding breaks to breast-feeding mothers. The above MDG's can only be achieved when a country legislates on all aspects of maternity protection and ensures that these laws are complied with by organizations." [13]

Worldwide, organisations and their cultures, including workplaces, have been built by men for men. The typical organisation therefore reflects and accommodates masculine traits and behaviours."[28,29] The First Women's Report published by The South African Board for People Practices (SABPP) is to create awareness about the current status of gender equality and gender-related issues in the South African workplace. Furthermore, this report aims to support and guide HR practitioners and teams in their role as champions of equality and diversity in the workplace.[30] All Human Resources practitioners and employers should read this and ensure they are fulfilling their role.

The South African government introduced a number of initiatives as well as legislation to specifically support women post-Apartheid. As women worldwide are being exposed to better educational opportunities, the role of women in the workplace is also changing dramatically.[30] "The South African government has created an enabling environment for promoting female development, both in the workplace and in communities. The future prosperity of South African society will depend, among other things, on the extent to which South African women are able to fully participate as equals in all sectors of society."[30]

Therefore, the legislation and recommendations that have been put in place by government should be applied in all work places to ensure the national vision for gender equality is achieved.

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Part C: Manuscript

A SURVEY-BASED DESCRIPTIVE STUDY OF THE OCCUPATIONAL HEALTH EXPERIENCE OF PREGNANT WOMEN DOCTORS WORKING IN THE PUBLIC SECTOR IN THE WESTERN CAPE FROM 2009-2015

Dr Colleen Hiscock

MBBCH (WITS) DCH (SA)

Post graduate student, Department of Family medicine

Faculty of Health Sciences
University of Cape Town
Anzio road, Observatory, 7295
Cape Town
South Africa
+27845140812 (Cell)
+27219763002 (fax)
colleenhiscock@yahoo.com

Supervisor:

Dr Beverley Schweitzer
MBBCh (Wits), MPraxMed (Medunsa)
Division of Family Medicine
Senior lecturer
Room 2.17, Entrance 5
Falmouth Building
Faculty of Health Sciences
Anzio Road
Observatory,
Cape Town
South Africa

Website: www.fammed.uct.ac.za
Email: beverley.schweitzer@uct.ac.za
Telephone: +27 (0)21 406 6441 or 6510
Fax: +27 (0)21 406 6667

PART C MANUSCRIPT

A SURVEY-BASED DESCRIPTIVE STUDY OF THE OCCUPATIONAL HEALTH EXPERIENCE OF PREGNANT WOMEN DOCTORS WORKING IN THE PUBLIC SECTOR IN THE WESTERN CAPE FROM 2009 TO 2015

ABSTRACT

BACKGROUND AND OBJECTIVE

Thirty-eight percent of registered doctors in South Africa in 2016 are women.[1] In 2014, 62.2% of medical students were women.[2] The number of women doctors is expected to rise to 60% by 2020.[3] Occupational health laws aim to protect pregnant women in the workplace. The objective of the research is to gather data on the pregnancy experiences of doctors in the public sector in Cape Town in order to ascertain whether laws and guidelines are being implemented.

METHODS

Contact details were sought of women doctors employed in the public sector who took maternity leave between 2009 and 2015. Participants provided data by completing electronic questionnaires.

RESULTS:

Of the 86 women invited to participate, 68 responded, giving a response rate of 79%. Despite legal requirements, 98.2% of participants were not given a health assessment during their pregnancy, and none had an assessment of their workplace. A minority had their working conditions adjusted to meet their needs. Ninety-four percent felt exposed to diseases and biological products that could harm their pregnancy. More than half had exposure to harmful physical or ergonomic factors. Knowledge of pregnancy-related occupational laws was low and few women received information from their employers.

CONCLUSIONS

Occupational health laws are not being implemented in government health facilities. Work and health assessments are not being done for pregnant staff, and conditions in the workplace are not being adjusted to protect pregnant women. Occupational laws and guidelines need to be enforced, and public health employers as well as staff need to be informed about their rights and responsibilities.

KEYWORDS

Occupational health; pregnant doctors; government health facilities; public health, occupational laws

INTRODUCTION

Pregnant doctors are exposed to a range of risks in their workplace, and since currently 62% of medical students in South African Universities are women,[2] urgent attention to the occupational health of pregnant doctors is required. While occupational health and safety guidelines and laws in South Africa aim to protect pregnant women in the workplace, there has been no research into the implementation of these laws for pregnant doctors.

South African labour legislation provides substantial protection for pregnant employees. The Constitution of South Africa Act 108 of 1996 (Constitution), the Employment Equity Act 55 of 1998 (EEA), the Unemployment Insurance Act 63 of 2001 (UIA), the Basic Conditions of Employment Act 75 of 1997 (BCEA), the Labour Relations Act 66 of 1995 (LRA), and the Code of Good Practice on the protection of Employees During Pregnancy and After the Birth of a Child (Code of Good Practice), protect the rights and welfare of the pregnant employee from the day she falls pregnant until well after the birth of the child. These laws apply to every workplace.[4,5]

The International Labour Organisation (ILO) is a specialised agency of the United Nations that sets labour standards to promote decent working conditions for men and women in its 187 member states. The ILO provides guidelines for health and safety during pregnancy, and implements a number of programmes through which it encourages member countries, including South Africa, to apply these internationally recognised guidelines and standards.[6]

A pregnant employee's health and safety is entrenched in the Constitution. No person may be discriminated against, or dismissed on account of pregnancy, and employers must provide and maintain a work environment that is safe and without risk to the health of employees.[7,8]

The aims of the study were:

1. To explore the occupational health experience of pregnant doctors in government health facilities from 2009 to 2015.
2. To ascertain whether occupational health laws and guidelines for pregnant women doctors are being implemented.

The purpose of the study is to provide information to employers so that best practice can be implemented for the well-being of pregnant doctors and their unborn babies.

The hypothesis of this study is that there is currently poor implementation of the laws relating to the protection of pregnant doctors in the public-sector healthcare facilities in Cape Town, and doctors are not assessed or having their work environments assessed and adjusted as prescribed.

METHODS

The research was a qualitative study using an electronic survey as the research tool.

Contact details of all women doctors employed in public health care facilities in Cape Town, who took maternity leave between 2009 and 2015, were requested from the City of Cape Town Municipality and the Metro District Health Service (MDHS) in the Western Cape.

These potential participants were contacted telephonically by the researcher. Those who agreed to take part in the research provided their email addresses, and were emailed a link to the survey on Survey Monkey. Weekly reminders were sent to those who had not responded for three weeks. Respondents remained anonymous. The questionnaire consisted of closed questions (tick boxes), open questions, and space for comments.

Ethics approval was sought from the University of Cape Town, Health Sciences, Human Research Ethics Committee. The approval reference number is HREC REF 824/2015.

RESULTS

The City of Cape Town wrote to nine doctors who had taken maternity leave in the given time period to ask for consent to release their names to the researcher. Three of these doctors agreed to participate and provided their contact details. MDHS provided the contact details of 77 doctors who had taken maternity leave. Of 86 women who were contacted, 68 completed the survey giving a response rate of 79%.

Demographics of the participants

Table I: Age of the participants

Age at time of pregnancy	Percentage of participants
20 – 24	1.9%
25 – 30	37.7%
31 – 35	45.3%
35 – 40	11.3%
> 40	3.8%

Different racial groups were represented: White 37.0% Coloured 31.5%, Black 20.4%, and Indian 11.1%.

Most respondents (69.8%) were employed as medical officers at the time of pregnancy. The largest group, 39.6%, were employed in primary health care facilities; 32.1% were in district hospitals; 13.2% were in secondary hospitals, and 15.1% in tertiary hospitals. Hospital departments included internal medicine 22%; obstetrics and gynaecology 14%; paediatrics 10%; anaesthetics 8%; emergency unit 6%; and surgery 2%.

Assessment of doctors' needs and workplace adjustments

Three quarters of the respondents (75.5 %) were not aware of an occupational health sister or clinic in the facility in which they were working. Of the 25% who were aware, only two had made contact with the service.

Despite the law, 98.2% of the women did not have a health assessment by the occupational health service at their place of work during their pregnancy.

None of the women had their workplace assessed regarding the need for adjustments during their pregnancy. However, 15.4% had their working conditions adjusted to meet their needs. One woman requested to avoid consultations with patients infected with TB, and another requested to work less overtime from 34 weeks' gestation. One respondent was accommodated by working in only one ward to avoid having to walk between different wards on different floors.

Pregnant doctors usually gave timely notification of their pregnancies to employers. Almost half (49.1%) of the doctors informed their employers of their pregnancy in the first trimester; 47.2% in the second trimester; and only 3.8% in the final trimester.

Only one respondent provided her private pregnancy health care records to the occupational health sister. This was after she sustained a needle-stick injury at work.

Work-related risks

The vast majority (94.3%) of the doctors felt that they were exposed to diseases and biological products that could seriously impact on the health of their babies or themselves while pregnant. More than half (57.7%) reported moderate to maximum exposure to harmful physical or ergonomic factors. Concerns included exposure to patients with Tuberculosis (TB), the risk of needle-stick injury, the risk of being physical assaulted by mentally ill patients, exposure to radiation (with portable X-rays) and anaesthetic gases, lifting patients, and prolonged standing.

One doctor described her concern about her workplace,

> "*No proper ventilation in an overcrowded unit, with exposure to TB, MDRTb, XDRTb on a daily basis. There was no filter/ triage system for contagious diseases like Rubella etc.*"

Other physical risks were mentioned*:*

> *"Working in orthopaedics in my third trimester, putting back hips, radiation during ORIFS, also doing anaesthetics after hours, and lots of exposure to anaesthetic gases."*
>
> *"Heavy work load, high number of patients to see, long standing hours in trauma, excessive standing for long resuses, suturing mutilated patients,*
>
> *"I was working as a medical officer in internal medicine. The hours were extremely long, and there was no compassion or sympathy in terms of extra help. I was running up and down all the time, and had quite frequent threatened miscarriage episodes. If there was a resus, I was forced to do chest compressions despite being pregnant. I also had to deal with aggressive patients, and lifting of heavy patients to get procedures done."*
>
> *"We always have to help support or carry very sick patients because we do not have things like porters, and everyone else is also very busy, so it is very difficult to ask for help."*
>
> *"I do not believe this was harmful to me and my pregnancy, but I did 24 hours plus calls throughout my pregnancy (at least once per week), with reasonably physically demanding work, e.g. standing during operations etc."*

While most respondents (86.3%) felt they had adequate availability of safety equipment, 13.7% said they did not. Safety equipment included N95 masks to protect against TB, gloves, radiation-protection gowns, ventilated rooms, and soap for hand washing.

Knowledge of laws

There was very little knowledge of pregnancy-related laws among respondents with 63.0% knowing very few or none of the laws, besides the two laws regarding maternity leave duration and protection against discrimination.

Table II: Respondents knowledge of pregnancy-related laws

Specific legal right or obligation	**Percentage of women who knew about the law**	**Law or Code of Good Practice**
Women may take 4 months of maternity leave starting one month before their due date.	95.9%	Section 25 of the BCEA
No person may be dismissed or discriminated against because of pregnancy.	46.9%	The Constitution and The Employment Equity Act
Employees have a duty to take reasonable steps to protect their own health and safety and that of other employees.	34.7%	OHSA 85 of 1993
A worker who is pregnant or nursing may not do work that is unsafe for her or her child.	18.4%	Section 26 of the Basic Conditions of Employment Act (BCEA)
The employer should provide pregnant and breastfeeding employees with information and training regarding risks to their health and safety at work and measures for eliminating or minimizing such risks. This includes allowing the worker to attend antenatal clinics.	14.3%	Code of Good Practice (Section 5.9)
An evaluation of your work situation should be made throughout pregnancy and during breastfeeding so as to put appropriate measures in place to protect the employee and her child at work	4.1%	Code of Good Practice (Section 5.1 & 5.7)
The employer should maintain a list of jobs not involving risk to which pregnant or breastfeeding employees could be transferred. The terms should be similar to the employees' usual job.	2.0%	Code of Good Practice (Section 5.3 & 5.10)
Where there is an occupational health service at a work place, appropriate records should be kept of pregnancies and the outcome of pregnancies, including any complications in the condition of the employee or child.	2.0%	Code of Good Practice (Section 5.14)

The evaluation of a pregnant employee at her workplace should include an examination of the pregnant employee's physical condition by a qualified medical professional, an examination of the employee's job, and an examination of the employee's workplace practices and potential workplace exposures that may affect the employee or her foetus.	0 %	BCEA & Code of Good Practice (Section 5.7)

More than one third of the respondents (37.0%) felt that knowledge of these laws of pregnancy during their pregnancy might have changed things, 38.9 % were not sure if knowledge of these laws would have changed anything for them, and 24.1% felt it would not have changed anything.

One woman describes her regret at not knowing her rights:

> "*I was never made aware of the fact that I was entitled to five days off during pregnancy for health visits. I used to rush post call to see my gynae, go for scans etc. During my last pregnancy in 2010, I had pre-eclampsia/ HELP syndrome, and my baby was delivered at 25 weeks. I was never made aware of the fact that I was entitled to sick leave plus maternity leave then. I believe that the number of demanding night calls I worked then, negatively impacted on my health during both pregnancies."*

Some women felt that work always had to come first and saw their own needs as secondary:

> *"There are always days where you were a little bit more exhausted than another, but I did not feel I had the liberty to see a little less patients, or rest a bit longer*".

> *"Within service pressure context, it is hard to make adjustments"*

Close to eighty-five percent of respondents said that no information was provided by their employer regarding health and safety at work during pregnancy and how to minimize risks.

Respondents' work conditions

More than half of the participants (61.2%), felt the need to decrease their overtime hours while pregnant, and of these only 31.4% were able to do that. Decreasing overtime was not allowed for 40% of those who felt the need to do so. As one respondent said *"Overtime should have been a choice, and not forced upon employees."*

Some women made their own plans: Two respondents paid their colleagues to do their calls, while others obtained letters from their obstetricians giving medical reasons for decreased overtime.
Over half (57.4%) said their work did not allow for full tea and lunch breaks while pregnant. Some of the participants took breaks regardless of how busy the clinic was.

More than half of the respondents (61.1%) reported that the department they were working in while pregnant was short-staffed.

Lack of access to clean toilet facilities was experienced by 22.2% of the respondents.

Some (22.2%) felt that their particular work made it hard during their pregnancy. These disciplines included internal medicine, obstetrics and gynaecology, as well as emergency departments, casualty, and paediatrics.

> *"Internal medicine is always a very busy department, and while pregnant I had difficulty coping"*

> *"Casualty is a difficult and demanding place to work with long shifts and night duty, and exposed to all kinds of diseases."*

> *"Dealing with sick children is emotionally and physically exhausting"*

> *"In the 3rd trimester, working in O and G, it became very tiring doing overtime, especially doing caesarean sections in the early hours of the morning and then still doing ward rounds the next morning"*

All the respondents were practising clinical medicine, but 9.3% were also involved in non-clinical work, and 11.1% were involved in academic work.

Conditions suffered during pregnancy

Table III: Conditions suffered during pregnancy and exacerbated by work

Condition	**Experienced by % of women**	**% of those who experienced the condition who felt that it was worsened by their work**
morning sickness	66.7%	27.3%
extreme fatigue	73,1%	89.7%
backache	57.7%	69.4%
varicose veins	13.7%	33.3%
urinary tract infection	9.8%	5.9%
hypertension in pregnancy	9.8%	17.7%
pre-eclampsia	5.9%	21.4%
pre-term labour	9.8%	31.3%
miscarriage	3.9%	6.7%
anxiety during their pregnancy	21.6%	47.4%
depression	8.2%	18.8%
post-partum depression	11.8%	23.5%
babies small for gestational age	11.8%	11.8%

Adaptation of working conditions

Most women (62.3%) felt that their employers could have done more to make their work environment more comfortable during their pregnancies.

Adaptations recommended by the study participants were:

- Ability to take full tea and lunch breaks (61.7%)
- Less exposure to serious health risks (61.7%)
- Option to decrease overtime (59.57%)
- Less physically demanding work (57.4%)
- More supportive colleagues (23.4%)
- Protective equipment readily available to protect from serious health risks (19.2%)
- Access to clean toilet facilities (14.9%)

Rearrangement of work was also suggested:

> *"More time in OPD, as opposed to ward rounds and gynae emergencies, and a busy labour ward with caesarean sections."*

> *"Place pregnant staff in an area of less intensity, with a colleague to assist, so you don't have to bear the workload solely by yourself"*

Respondents gave ideas regarding intervention for a safer and more comfortable pregnancy:

> *"More comfortable chair at work"*

> *"They could have given me an assistant to help see patients in the ward. Instead I was left to cope with the workload"*

> *"Adjusting rotations to ensure less time on your feet. Allow you to reduce or stop overtime for the duration of third trimester"*

> *"Half overtime and proper breaks"*

"More sympathy from employers and seniors and adjusting the work conditions as appropriate"

Maternity leave and sick leave

While most women (77.4%) took maternity leave between 36 and 38 weeks of pregnancy, 25.9% needed to take maternity leave before 36 weeks.

Pregnancy-related problems and complications resulted in 40.7% of women needing to take sick leave while pregnant. Over one third (37.7%) of respondents felt they would not have been able to take sick leave should they have needed it for complications or ill health. Their reasons included feeling guilty (82.5 %); feeling that the facility was already short-staffed (65%); non-supportive seniors (12.5%); and non-supportive colleagues (10%)

Collegial Support

Most of the doctors in the sample found their colleagues to be supportive:

Table IV: Colleagues' Support

Colleagues were:	**Percentage**
very supportive	37.7%
somewhat supportive	50.9%
showed very little support	5.7%
not supportive at all	1.9%

The doctors made comments regarding support from colleagues:

"They were supportive, but always short staffed, therefore it was difficult to allow the pregnant staff to take breaks when needed."

"There were quite a few occasions where I was working alone, where the locum I was with just didn't turn up, or would leave early, and the burden of all the work fell on me. I begged for help which didn't ever happen. Also on the days I had an antenatal visit at the gynae, I still had to rush and return to work, and no-one would offer to help and see my patients for the ICU round, and my patients would just go unseen till I got there. I also suffered from numerous bouts of hypotension/ threatened miscarriage in the first trimester that I ended up taking quite a few days of sick leave, because if I came in there would be no sympathy."

"I requested not to see patients with active TB, and the staff were quite accommodating"

Self-Care

While 49.1% of respondents took steps to protect their health and safety during their pregnancies *most of the time*, only 37.7% said they took steps *all* of the time, and 9.4% said they took steps *very little of the time*.

One comment was, *"I wore masks (to prevent TB), and tried to eat and have small breaks."*

DISCUSSION

The majority of study participants were between the ages of 25 and 35. These are the prime childbearing years for women, especially for those who study for six years to become medical doctors. The majority of respondents were employed as medical officers during their pregnancy.

Occupational health experiences of pregnant women doctors

The working conditions experienced by the majority of respondents during their pregnancy were poor, and against the legal prescriptions for the occupational health of these women and their foetuses. Almost all women (94.3%) felt that they were exposed to biological risks by the nature of their work; and 13,7% said that they did not always have access to the safety equipment required to protect themselves from serious infections.

Health and safety equipment should by law be provided by the employer according to the Occupational Health and Safety Act.[9] In two instances this was reported but not acted upon. More than half of the respondents (57,7%) had moderate to maximum exposure to physical and ergonomic risk factors. Long working hours, standing, strenuous physical activities such as lifting patients and relocation of hips, and forced overtime were mentioned. In a meta-analysis based on 29 studies, it was found that physically demanding work was significantly associated with preterm birth, small for gestational age babies, and hypertension or pre-eclampsia.[10]

For a pregnant doctor to ask for help was difficult, as one's colleagues were already over-worked. A culture of pulling together and self-sacrifice in an overburdened system prevailed. Many commented on their departments being short staffed (61, 1%), and said they felt guilty if they had to take sick leave. One in eight women felt that the senior doctors would not be supportive if they required sick leave while pregnant.

The majority of the respondents who worked overtime wanted to reduce their overtime hours (61, 2%), especially in the last trimester of pregnancy. Forty percent of these women did not have their requests granted. The financial impact of decreasing overtime was a concern for some of the respondents. There is currently a campaign in South Africa to reduce the amount of overtime hours worked by junior doctors, as deaths have resulted from fatigue post call, and the hazards of overwork are evident.[11]

In a study by Mozurkewich et al, they found that the occupational exposures significantly associated with preterm birth included prolonged standing, shift and night work, and cumulative fatigue.[10]Ninety percent of women who experienced severe fatigue felt it was worsened by their work. Morning sickness, backache, and anxiety were the next most common symptoms. Close to 10% of the respondents experienced pre-term labour, 3.9% experienced miscarriage, 9.8% had hypertension in pregnancy, 5.9% experienced pre-eclampsia, and 11.8% had small for gestational age babies. The research did not collect data on the pregnancy-related conditions experienced by the general population so comparisons are not possible.

Despite the difficult working conditions of doctors in public sector in South Africa, exacerbated while being pregnant – some doctors did not experience negative impact on their pregnancy. One respondent commented – "I do not believe this was harmful to my pregnancy, but I did 24 hour plus calls throughout my pregnancy (at least one per week), with reasonably physically demanding work e.g. standing during operations etc.

This could be explained by "the healthy worker effect", - "women who work are more likely to be educated and of higher socio-economic status, smoke less, present for antenatal care earlier, and gain more weight in pregnancy. All these variables would be expected to improve obstetric outcome.[12]

Developing countries face many occupational health and safety hazards but lack the resources to be able to deal with these. Health and safety priorities differ in industrialised and developing countries. Health and safety of employees is given a higher priority in industrialised countries.[13]

Poor knowledge of pregnancy-related laws

The majority of the respondents knew very little about the laws in our country regarding occupational health and pregnancy. While women knew about maternity leave and the right of pregnant women not to be discriminated against, they knew little about laws that made employers responsible for adjusting work and the workplace to meet the needs of pregnant and breastfeeding employees.

Only 37% of respondents felt that knowledge of the laws would have made any difference to their pregnancy. One of the comments was – "*the state of the health care institution dictates.*" This respondent felt that if the health care institution is unable to meet the needs of pregnant staff then the laws can't be applied, even though this is unlawful and unconstitutional. The respondents seem to lack confidence in the application of the law and felt helpless in their situation.

Implementation of the laws

A large number of the respondents (84.6%) said that no information or training was provided by their employer regarding health and safety at work and how to minimize health risks during pregnancy. Although 84.6% of respondents informed their employers timeously of their pregnancy, still the occupational health laws were largely not complied with.

No health and work assessments were done, nor were adjustments made to working conditions to avoid exposure risks. Only a small proportion (15.4%) managed to negotiate adjustments to their working conditions.

Most respondents were unaware of access to an occupational health service. While the law states there should be a health and safety representative in any workplace with more than 20 employees,[9] most respondents were not aware of the existence of representation in their facility.

Employees have a legal duty to notify the employer should there be risks to their health or that of their foetus that are not being addressed, as well as take steps to protect their own health and safety. However, only 37.7% of respondents took any such action.

Strengths and limitations of the study

Although the sample was fairly small, there was a high response rate from women who were contacted thus increasing the validity of the study. Data collection was by means of an electronic survey which was emailed to respondents. While this was a useful way to contact people, one barrier noted was that some internet providers allocated it to junk or spam.

Another disadvantage of a self-administered questionnaire as opposed to face-to-face interviews is that it was difficult to gain clarity on some responses and gain more depth of understanding of the women's experiences.

Two respondents emailed the researcher to clarify that their responses would remain anonymous – fear of respondents' identity being known could impact of the honesty of the responses.

CONCLUSIONS AND RECOMMENDATIONS

This study shows that there is a lack of knowledge and implementation of occupational health laws and services for pregnant doctors in the public health sector in the Western Cape.

The Department of Health needs to fulfil its legal responsibilities towards pregnant doctors regarding occupational health in the facilities in which they work. The individual health care facilities should be accountable for their employees' Occupational Health. The findings of this study will be provided to the Department of Health in order to draw their awareness to the health and safety problems currently experienced in their facilities by pregnant doctors.

Specifically, according to South African law (BCEA, Code of Good Practice and OHSA), employers should:

- implement a flow chart for care of the pregnant employee as per the law;
- make legal rights and responsibilities known to pregnant employees by providing them with information via posters, brochures, and information sessions;
- conduct a health assessment of the employee in each trimester of pregnancy;
- assess the workplace environment and working conditions at each stage in relation to the health and stage of pregnancy;
- And adjust working conditions if problems are found. [4,9]

In order for employers to fulfil their legal obligations occupational health facilities need to be available. While pregnancy is a physiological condition, it does require adaptations to be made. These adaptations should not be seen as special favours, but as the implementation of equity in the workplace, where people are treated according to their needs.

One way to meet the above recommendations would be to institute the system currently used in the UK in the form of the Health and Safety Executive management standards.[13]

It is recommended that in South Africa, and specifically the public health care system that "Management standards" be introduced for employee health and wellness. This is a set of principles agreed on by organisations in order to enhance health and wellness by identifying work-related stress hazards and reducing associated risks. With this approach, all role players (employees, labour unions, organisations and government) can be involved in the governance of employee health and wellness. It includes targets for organisations to aim towards, and is more self-governed. [13]

In order to promote employee health and wellness strategies, certain conditions are prerequisites

- Legal and policy instruments
  (Enforce laws through health and safety representative inspections, create management standards, and establish an executive body for dealing with policy and operational matters)
- Infrastructure
  (Working labour inspection system and occupational health service system)
- Education and training (conferences, symposia, workshops and employee training – this can be brought in the undergraduate medical curriculum)
- Information
  (Relevant measurement tool needs to be developed so that performance can be measured against a standard. Government can support the process in funding the development of such a tool and providing it to organisations free of charge)
- Recording, storing and disseminating information
  (Registers for the collection and systemic evaluation of information)[13]

The public health sector has a set budget to service the needs of the majority of South African citizens. It makes economic sense to retain doctors in the public sector by allowing adaptations to meet the needs of doctors during the months of pregnancy. Those planning health services need to take this all into account when planning health service delivery staffed with a higher proportion of women doctors

Recommendations from Research findings and feedback from the pregnant respondents:-

1. Better ventilation should be provided in health care facilities where pregnant staff are working (This falls within the Health and safety laws for workplaces & these laws should be implemented)
2. Avoid pregnant women being exposed to highly contagious infectious diseases (triage patients prior to them being seen by pregnant colleagues).
3. Ensure pregnant staff do not do heavy manual duty e.g. In Orthopaedics – putting casts on legs, resuses – doing chest compressions, lifting patients etc.
4. Avoid pregnant colleagues standing for prolonged periods and provide them with comfortable chairs, rest areas and access to clean toilets.
5. Ensure pregnant staff are not exposed to more than minimal amounts of anaesthetic gases
6. Decrease the total number of hours worked by pregnant doctors as needed, and allow overtime to be voluntary for them.
7. Ensure staff and colleagues are available to help with the work load of pregnant colleagues

8. Ensure that pregnant doctors and their colleagues are made aware of their right and the law e.g. leave. This can be done through use of pamphlets, posters and staff talks.
9. Ensure that pregnant doctors are provided with information on health and safety in the workplace, and how to minimise their risks. At the same time ensure that there is easy availability of protective equipment, and that this is used by pregnant staff at all times.
10. Ensure that pregnant staff take full tea and lunch breaks.
11. Ensure that pregnant staff are moved from departments/ areas within departments of high intensity work to areas of lower intensity e.g. Clinics instead of casualty or ward rounds
12. Ensure that there is an environment of support and empathy from senior staff filtering down to the juniors and other work colleagues. This should help to decrease the guilt feelings experienced by many pregnant doctors.

It is hoped that these adaptations will enable more work to be done safely by pregnant staff so that less morbidity is experienced in pregnancy, and less full days off work are needed by pregnant colleagues. I.e. this should create a win-win situation for all team players.

Further research could include the implementation of occupational health rights for pregnant employees other than doctors, the occupational health services in other government facilities, and a comparison of pregnancy symptoms and complications in doctors and women in other fields of work.

ACKNOWLEDGEMENTS

- The participants who gave of their time to complete the questionnaires and share their experiences.
- Richard Jordi from ReWrite services for editorial work done (Richard.Rewrite@gmail.com)
- Yvette Daffue from Health Professions Council South Africa's IT department for the latest statistics given.
- Western Cape Department of Health and City of Cape Town for assisting with the details of the doctors needed for the research.

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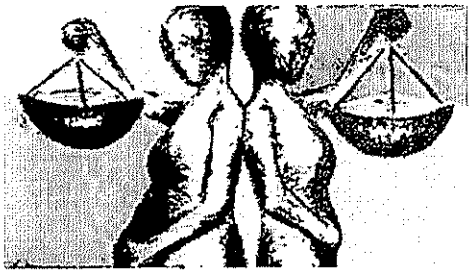
PART D: Appendix

- Paper copy of Electronic survey sent
- Ethics approval letter
- University of Cape Town Faculty of Health Sciences research guidelines
- South African Family Practice Journal guidelines



The Occupational Health experience of pregnant women doctors working in the public health sector in the Western Cape, from 2009 - 2015.

Welcome to My Survey

This survey is being done by Dr Colleen Hiscock, a UCT Family medicine Registrar who is completing her Masters Research project for MFamMed.

The research topic is:- "The occupational health experience of pregnant women doctors working in the public health sector in the Western Cape, from 2009 - 2015." This includes all doctors employed in these facilities during this time period.

The *aim* of this research is to describe the occupational health experience of pregnant women doctors while they were practicing medicine in the public health sector in the Western Cape from 2009 - 2015.

The *purpose* of the research is to ascertain whether occupational health laws and guidelines for pregnant women are being taken into consideration, and implemented for pregnant women doctors working in public sector health facilities in the Western Cape, and what their experience was of working during pregnancy in these facilities.

This is being done in order to provide feedback to Western Cape department of health, so that if found necessary, recommendations for improved occupational health of pregnant doctors can be implemented.

We require you to click on the *link below* and complete the Survey linked. It should take approximately 10-15 min of your time to complete.

Your participation in this Survey and Research will be *greatly appreciated* and hopefully your contribution will help us to make recommendations to improve the Occupational Health of future pregnant doctors in the Western Cape department of Health and City of Cape Town facilities.

By reading this and clicking on the link below, you will give *consent* to participate in this Research and allow us to use the information obtained in this research survey

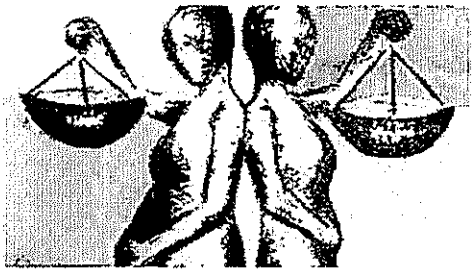
Please Fill in your responses for the survey based on your most recent completed pregnancy - even if you did not carry to full term. You are welcome to complete the survey more than once if you have had more than one pregnancy in the last 5 years and wish to provide survey answers for all your pregnancies in that time.

Your response will at all times remain anonymous. Survey Monkey stores the answers to the various questions in the survey in an Anonymous way with no link to the email address from which it was sent. No person completing this survey will at any time be identified.

No person will be contacted again after completion of this survey unless you email me for a copy of the completed research article. For any queries or comments please email colleenhiscock@yahoo.com or if you have questions related to the Ethical aspect contact Marc.Blockman@uct.ac.za with reference: HREC.....

Thanking you in advance,

Kindest Regards,
Dr Colleen Hiscock. (UCT Family Medicine Registrar)



The Occupational Health experience of pregnant women doctors working in the public health sector in the Western Cape, from 2009 - 2015.

SURVEY QUESTIONAIRE

1. How old were you when you began your most recent pregnancy?

20 - 24 years old

25 - 30 years old

31 - 35 years old

35 - 40 years old

> 40 years old

Other (please specify) _____

_____

2. During which year did you become pregnant with your most recent pregnancy?

2009

2010

2011

2012

2013

2014

2015

3. What post were you employed in for the most part of your most recent pregnancy?

Intern

Community service doctor

Medical officer

Registrar

Consultant

Other (please specify)

4. In which medical facility did you work for the most part or duration of your most recent pregnancy ?

Tertiary hospital

Secondary hospital

District hospital

Community Health Center / Primary Health Care facility

Other (please specify)

5. Were you aware of an Occupational health clinic / Occupational health sister in the hospital you were working in ?

Yes

No

Other (please specify)

6. If the above answer was yes -
Did you contact the Occupational Health clinic or sister regarding your pregnancy ?

Yes

No

Other (please specify)

7. At what stage of pregnancy did you inform your employer/ HR department/ occupational health sister you were pregnant?

1st trimester (up to 12 weeks)

2nd trimester (13 - 24 weeks)

3rd trimester (25 - 40 weeks)

Other (please specify)

8. Did you have a health assessment done by an Occupational health sister or doctor at your workplace during your pregnancy?

Yes

No

Other (please specify)

9. Did you provide your private health care records during pregnancy to the occupational health sister or clinic ?

Yes

No

Other (please specify)

10. Were your workplace environment and working conditions assessed during pregnancy by the Occupational health sister / Occupational health clinic staff ?

Yes

No

Other (please specify)

11. Were your working conditions adjusted by your employer/ supervisor to suite the stage of your pregnancy / health during pregnancy ?

Yes

No

Other (please specify)

12. Did you feel the need to decrease your overtime hours worked while pregnant ?

Yes

No

Please verify:-

13. If you answered YES to Question 12 - Was this allowed by your employer?

Yes

No

Other (please specify)

14. Did your workload allow for full tea and lunch breaks? i.e at least 15 minutes for tea and at least half an hour for lunch. (As per the Basic Conditions of Employment Act)

Yes

No

Other (please specify)

15. Were you at any stage of your pregnancy exposed to diseases/ biological products that could seriously impact on the health of your fetus/ yourself while pregnant ?

Yes

No

Other (please specify)

16. If the answer to the above was yes -
Did you have adequate available safety equipment (masks, gloves, ventilated rooms, soap for hand washing etc)

Yes

No

Other (please specify)

17. At any stage of your pregnancy were you exposed to harmful physical / ergonomic factors E.g. prolonged sitting or standing, physically demanding work, having to lift heavy patients/ or harmful radiation/ gases (E.g in Anesthetics or Radiology)/ other?

minimal exposure

moderate exposure

maximum exposure

please specify -

18. Was access to clean toilet facilities at your place of work during pregnancy a problem ?

Yes

No

Other (please specify)

19. Health conditions during pregnancy:-

	Did you suffer from any of the following health conditions during you most recent pregnancy?	If yes : - Do you believe your condition was made worse or exacerbated by your working conditions?
morning sickness		
extreme fatigue		
backache		
varicose veins		
urinary tract infection		
hypertension during pregnancy		
pre-eclampsia/eclampsia		
pre-term labour		
miscarriage		
anxiety		
depression		
post partum depression		
small for gestational age baby		

Other (please specify)

20. Did you feel more could have been done by your employers to make your work environment during pregnancy more comfortable?

Yes

No

Please clarify:-

21. What adaptations at work might have improved your comfort & health during pregnancy/ outcome of pregnancy? (more than one answer may be selected)

- less physically demanding work
- more supportive colleagues
- option to decrease overtime if you wished/ needed (with pay reduction as per hours worked)
- ability to take full tea & lunch break (as per the Basic conditions of employment act)
- access to clean toilet facilities
- less exposure to serious health risks including harmful radiation, gases, infective agents, blood, body fluids, violence etc.
- protective equipment readily available to protect from serious health risks
- or other (please specify):-

22. Did you feel the need to take maternity leave before 36 weeks of pregnancy (36 weeks being the norm as allowed by law) due to difficult working conditions which were making it difficult to continue working at your stage of pregnancy?

- Yes
- No

Other (please specify)

23. At what stage of pregnancy did you take maternity leave ?

- prior to 36 weeks pregnant
- from 36 weeks pregnant
- from 37 weeks pregnant
- from 38 weeks pregnant
- from 39 weeks pregant
- from 40 weeks pregnant

Other (please specify)

24. Did you need to take sick leave during your pregnancy for any pregnancy related complications/ problems ?

Yes

No

Other (please specify)

25. Was the department you were working in short staffed during your pregnancy ?

Yes

No

26. Which department/s were you working in during your pregnancy ?

day hospital

casually

internal medicine

surgery

obstetrics and gynae

pediatrics

anaesthetics

Other (please specify)

27. Did you feel the discipline of medicine you were working in made it more difficult during your pregnancy?

Yes

No

Please clarify.-

28. Was your work during pregnancy :-

__ Clinical

__ Non- clinical

__ Academic

__ Other (please specify)

_____

_____

29. Overall, did you feel that your work colleagues were supportive of your pregnancy?

Very supportive

Somewhat supportive

Showed very little support

Not supportive at all

Please clarify:-

_____

_____

30. Are you aware of the laws regarding pregnancy in South Africa ?

I know the law very well

I know some of the laws

I know very little of the laws

I know none of the laws

31. At the time of your most recent pregnancy, of which of the following laws as regards being a pregnant employee in South Africa were you aware? :- (more than one answer may be selected)

- [ ] A worker who is pregnant or nursing may not do work that is unsafe for her or her child ***(Section 26, of the Basic conditions of employment act)***
- [ ] Pregnant women may take 4 months of maternity leave starting 1 moth before their due date ***(Basic conditions of employment act)***
- [ ] The ***code of Good Practice on the protection of Employees during Pregnancy & after the birth of a child*** states your Employer is obligated to:-
  Encourage female employees to tell them of their pregnancy as soon as possible so that an assessment of potential health and safety risks in her workplace can be made & they can be dealt with
- [ ] An evaluation of your work situation should be made throughout pregnancy & during breastfeeding so as to put appropriate measures in place to protect the employee & her child at work. ***(Code of good practice - as above)***
- [ ] The employer should provide pregnant & breastfeeding employees with information & training regarding risks to their health & safety at work and measures for eliminating or minimizing such risks. This includes allowing the worker to attend antenatal clinics.***(Code of good practice - as above)***
- [ ] The employer should maintain a list of jobs not involving risk to which pregnant or breastfeeding employees could be transferred. The terms should be similar to the employee's usual job. ***(Code of good practice - as above)***
- [ ] Employees have a duty to take reasonable steps to protect their own health & safety and that of other employees. ***(The Occupational Health & Safety Act (OHSA) 85 of 1993.)***
- [ ] The evaluation of a pregnant employee at her workplace should include:-
  -an examination of the pregnant employee's physical condition by a qualified medical professional
  - an examination of the employee's job
  - an examination of the employee's workplace practices & potential workplace exposures that may affect the employee/ her fetus. ***(BCEA)***
- [ ] Where there is an occupational health service at a workplace, appropriate records should be kept of pregnancies and the outcome of pregnancies, including any complications in the condition of the employee or child ***(BCEA)***
- [ ] The ***code of Good Practice*** states that no person may be dismissed or discriminated against because of pregnancy ***(section 4.2)***
- [ ] other:-

32. Would having knowledge of the laws regarding pregnancy during your most recent pregnancy have changed anything for you?

Yes

No

Unsure

Other (please specify)

33. Were you provided with information and training in your pregnancy by your employer regarding health and safety at work during your pregnancy and how to minimize your risks ?

A lot of information was provided

Some information was provided

very little information was provided

no information was provided

Other (please specify)

34. Did you take steps to protect your own health and safety during pregnancy ?

At all times

Most of the time

Very little of the time

Never

describe steps taken:-

35. Did you fail to take needed sick leave during your pregnancy for any of the following reasons - (multiple answers may be selected)

- you felt guilty not going to work
- the department you were working in was short-staffed and needed you to be at work
- non-supportive colleagues
- non-supportive seniors
- you had no more sick leave allowance

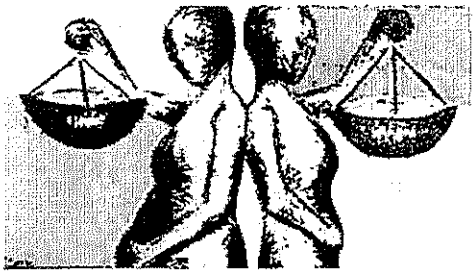
36. Pregnancy is a physiological condition. If you had had complications/ ill health during your most recent pregnancy, did you feel you could not take the required time off / sick leave ?

Yes

No

Other (please specify)

37. What suggestions do you have to improve the comfort and safety of pregnant women doctor in government health facilities?



The Occupational Health experience of pregnant women doctors working in the public health sector in the Western Cape, from 2009 - 2015.

The End

Thank you very much for taking the time to complete this survey.

Your time as a medical doctor is very valuable, and we understand this. Hopefully through your participation we can make a difference to pregnant women doctors in the future as regards their Occupational Health experience.

Once the results are collected and analysed - feedback will be provided to the Western Cape department of health, and the various HR departments. We would also like to publish the results in the SAMJ and SAFP journal.

For any queries or comments on this survey, or if you would like to request a copy of the completed research article please contact
Dr Colleen Hiscock at
colleenhiscock@yahoo.com

Thanks again.

Kindest Regards,

Dr Colleen Hiscock.

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee

Room E52-24 Old Main Building
Groote Schuur Hospital
Observatory 7925
Telephone [021] 406 6338 • **Facsimile** [021] 406 6411
Email: nosl.tsama@uct.ac.za
Website: www.health.uct.ac.za/fhs/research/humanethics/forms

13 November 2015

HREC REF: 824/2015

Dr B Schweitzer
Division of Family Medicine
Room 2.17, Level 2, Entrance 5
Falmouth Building

Dear Dr Schweltzer

PROJECT TITLE: A RETROSPECTIVE, SURVEY-BASED, DESCRIPTIVE STUDY OF THE OCCUPATIONAL HEALTH EXPERIENCE OF PREGNANT WOMEN DOCTORS WORKING IN THE PUBLIC HEALTH SECTOR IN THE WESTERN CAPE FROM 2009-2015 (MMeD-candidate-Dr C Hiscock)

Thank you for submitting your study to the Faculty of Health Sciences Human Research Ethics Committee for review.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year until the 30thNovember 2016 subject to amending the title. This is not a retrospective study. Please amend accordingly.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

Please quote the HREC REF in all your correspondence.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Yours sincerely

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN RESEARCH ETHICS COMMITTEE
Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938
This serves to confirm that the University of Cape Town Human Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), Food and Drug Administration (FDA-USA), International Convention on Harmonisation Good Clinical Practice (ICH GCP), South African Good Clinical Practice Guidelines (DoH

2006), based on the Association of the British Pharmaceutical Industry Guidelines (ABPI),and Declaration of Helsinki guidelines.
The Human Research Ethics Committee granting this approval is in compliance with the ICH Harmonised Tripartite Guidelines E6: Note for Guidance on Good Clinical Practice (CPMP/ICH/135/95) and FDA Code Federal Regulation Part 50, 56 and 312.

UNIVERSITY OF CAPE TOWN

FACULTY OF HEALTH SCIENCES

MMed/MPhil Part III (minor dissertation)

Guidelines for candidates, supervisors and examiners

The MMed minor dissertation (or the MPhil dissertation in the case of sub-specialities) is one of three examination components of the MMed/MPhil degree. This minor dissertation carries one third of the weight of a full master's dissertation in terms of its credit weighting.

The dissertation must be a study containing the results of an analytical, quantitative, or epidemiological study carried out by the candidate (for certain disciplines, the candidate may chose instead to do a qualitative study, an audit cycle or a formal systemic review). A case report is not acceptable for the dissertation.

The dissertation must be the result of independent work of the candidate conducted under the guidance and direction of a supervisor(s) and should demonstrate evidence of an ability to undertake research, to adequately interpret results and to comprehensively and critically review the relevant literature. Although the findings of the research need not necessarily be original, they must be seen to advance scientific understanding. The topic and scope of research will depend on the particular disciplines and must be agreed upon in consultation with the supervisor(s).

Research protocol

Candidates intending to register for the MMed/MPhil Part III are required to submit a full research protocol for approval to their respective Departmental Research Committee (DRC). The candidate must also obtain FHS UCT Ethics approval prior to conducting their research. This full research protocol (together

with a copy of the ethics approval letter) must be submitted to the postgraduate administration for approval by the Board of the Faculty of Health Sciences, prior to commencement of the research. For most disciplines, submission of the research protocol should be made no later than the end of year 2.

The research protocol should outline the scope and content of the dissertation and must include the title of the proposed dissertation, name of the supervisor(s) and their brief curriculum vitae.

Submission of dissertations

On completion, the dissertation should be submitted to the Faculty Postgraduate Officer. The candidate should inform the Faculty Officer one month in advance of the intention to submit.

Submission deadlines:

1. March 15th for June graduation
2. August 15th for December graduation

Supervisors will be requested by the Faculty Postgraduate Officer to submit a letter supporting submission. This letter should be supplied by the primary supervisor. If this supervisor is external, the internal supervisor must be kept informed at every stage of the process. Specific submission requirements may be set by individual disciplines.[2]

Note on fees: To avoid attracting fees, dissertations need to be submitted before the beginning of the first quarter (first day of academic year), and before the start of the second semester (mid July) to qualify for a 50% fee rebate.

Supervisors

One cannot overemphasize the importance of identifying a dissertation supervisor as early as possible. The supervisor should be an individual who can relate to the candidate's research project, be available for frequent and regular discussion and advice, and someone with whom the candidate can develop a good working relationship. Where specialised equipment and/or laboratory work is required for the study, the supervisor should assist in facilitating such access to such facilities.

Supervisors may assist candidates in developing scientific communication skills but they are not required to do detailed editing or correction of spelling, grammar, or style. They may refer candidates to the UCT Writing Centre for this purpose.
The primary supervisor may be based outside the candidate's home department, faculty or university. In such a case, an internal (or secondary) supervisor will be required in addition to the primary supervisor, to serve as a guide and link to discipline-specific procedures. Primary supervisors retain responsibilities to the candidate and the university until the dissertation process is complete.

Please note: in order to assist a candidate with a master's research topic the supervisor needs to hold a master's degree or higher, or have relevant research experience. If the primary supervisor does not hold a higher degree or equivalent (such as a Fellowship of The College of Medicine of South Africa), then a secondary supervisor who has a higher degree will need to be appointed in addition to the primary supervisor.

Candidates are strongly encouraged to publish the study with the supervisor(s) as co-author(s). This may require work beyond the graduation date. Such arrangements should be discussed and documented in advance.

2 For Public Health Medicine and Occupational Medicine the dissertation must be submitted for examination at least *4 months* prior to the deadline for registration for the examinations of the relevant College. This is in order to ensure that a final examination mark for the dissertation can be submitted by the candidate to the College of Medicine of South Africa (CMSA) at the time of registration as required by CMSA examination regulations.

The dissertation

Submission of the dissertation should satisfy the following criteria:

1. The title page should contain the candidate's name, dissertation title and the name of the university. It must also state the degree, e.g. Master of Medicine (MMed) in Public Health Medicine, Occupational Medicine, Family Medicine, Surgery, etc. The title page should also include a statement to the effect that the research report is based on independent work performed by the candidate and that neither the

whole work nor any part of it has been, is being, or is to be submitted for another degree to any other university. It must also state that this work has not been published *prior to registration* for the abovementioned degree.

2. The body of the dissertation, which must be structured in 4 parts, should include the following:

   Part A: The *protocol* (as approved by the Departmental Research Committee and Faculty Research Ethics Committee). The protocol should not exceed 4000 words.

   Part B: A *structured literature review* appropriate to the subject matter and methods of the dissertation. The literature review must, amongst other things, show that the student is sufficiently acquainted with the relevant literature and is able to perform a critical appraisal and, if appropriate for the topic, show a good understanding of evidence-based medicine.

   The review should be between 3 000 and 4 000 words.

   A suggested structure for the literature review is as follows:

   a) Objectives of literature review
   b) Literature search strategy, including inclusion and exclusion criteria
   c) Quality criteria - some leeway will be allowed here, as candidates will vary in their ability to appraise studies. This will also vary with the nature of the dissertation.
   d) Summary or interpretation of literature
   e) Identification of gaps or needs for further research
   f) References (which will overlap with but will not be the same lists as in the journal article and protocol)

   Part C: The results of the study must be presented in the form of a *manuscript* of an article for a named peer reviewed journal, meeting all the requirements set out in the "Instructions for Authors" of that journal, including the word count and referencing style. (Unless specially motivated, the journal chosen will need to allow for *at least* 3000 words excluding abstract, tables, figures and references). The "Instructions to Authors" of the journal must be appended. The journal

chosen for publication must be appropriate to the subject matter of the dissertation and accredited by the Department of Education or listed in the citation index of the Institute for Scientific Information (ISI).

Important note: the candidate need not have submitted the article, not is the acceptance of the article and requirement for passing the degree. The norm of practise is to publish the study with the supervisor(s) as co-author(s) and candidates are strongly encouraged to submit their manuscript either before or after examination of the mini-dissertation.

Part D: All *supporting documents* including:

- Questionnaire/data capture instrument
- Consent forms and any related participant information sheets
- Technical appendices, including, if considered necessary, any additional tables not included in the main manuscript for the examiner to have available. These should be accompanied by a brief narrative.
- Official Ethics approval letter from the Faculty Research Ethics Committee

3. The article does *not* have to be submitted to the journal in order to meet academic requirements.

4. A candidate must submit 2 copies of the dissertation in temporary binding, and an electronic copy on compact disc in a universally readable format (e.g. pdf).

Examiners

The full dissertation will be submitted for examination through the Postgraduate office of our Faculty to two external examiners (nominated by the supervisors and HOD).Three examiners will be nominated, two of which are invited to examine, and one held as an alternate. All examiners must be external to UCT. These nominations are circulated to the Faculty Dissertation Committee. It is the *supervisor's (or co-supervisor's)* responsibility to submit names of potential examiners to the Faculty Officer when the candidate is ready to submit.

The examiners will be well briefed regarding the specific requirements and criteria for submission and examination of the mini-dissertation. Such criteria will clearly explain the difference between the mini-dissertation and a Master's degree by dissertation alone.

Details required for each examiner are: academic qualifications, postal and/or physical address, telephone and fax numbers and e-mail address, and one paragraph description of their standing in the relevant field (drawn from their CV if need be.)

The candidate may not be informed of the identity of the examiners. After the outcome of the mini-dissertation has been finalised, the examiners' identities are made known if the examiners have indicated that they do not object to this.

GUIDELINES ON THE LAYOUT AND STYLE OF THE DISSERTATION OR THESIS

To assist you in organising the presentation of your dissertation, the guidelines below may be useful.

DISCUSSION WITH SUPERVISOR REGARDING DISSERTATION/THESIS

Discuss the layout of your dissertation/thesis with your supervisor. During this discussion you will decide what sections to include in the dissertation/thesis, such as:

- The abstract which forms the preface of the dissertation/thesis
- Introduction
- Section on the study design and research methods used
- How many chapters there will be and what each chapter should encapsulate
- The conclusion or summary section

Please note: Supervisors, although they may assist with this, are not required to do detailed editing nor correction of spelling and grammar, or style. Students who need assistance in academic writing are encouraged to make use of support services available, e.g. The UCT Writing Centre.

PAGE SET-UP:

- Left margin at least 4cm; right margin about 2.5cm. This will allow for the binding of the dissertation/thesis
- Use A4page set-up
- Page numbers in the same font as the font you are using for the text. Use fonts such as Arial, Times New Roman, Book Antiqua, or Bookman Old Style. Avoid the "**comic**" fonts.
- Font size 11 or 12
- Set language to English [South Africa] – avoid the American spellings e.g. *behavior*

- Line spacing of 1.5 is recommended. We also suggest that you set your spacing to allow 6pts after each paragraph – this improves the look of the document and you don't have to put in an extra paragraph break.

GENERAL SUGGESTIONS

- Make sure that your tables, graphs, and other graphics are properly numbered and that you refer to them correctly
- Make sure that your write in an easily understood manner. Don't make paragraphs consisting of one sentence. Use shorter rather than long, complicated sentences. Academic writing is meant to be clear, not jargon! The ideal is one idea/thought/result per sentence.
- Mind your grammar
- When you use a term in full (for which there is an acknowledged abbreviation) the first time then put the abbreviation in brackets. After that you can use the abbreviation, but ensure that you write it down correctly. It is always a good idea to include a list of abbreviations used in your text. This will be included in the text just after the Table of Contents
- When you use lots of technical terms it may be a good idea to include a glossary of terms used. You will insert this after the list of abbreviations
- Always do a spell-check once you have completed a paragraph or a section. This will be easier and faster than running a spell-check right at the end. Be very particular with the spelling because there is nothing that irks an examiner as much as spelling error after spelling error.
- Print on only one side of the page
- Decide on which referencing method you will be using and ensure that you do not deviate from that. It is a good idea to stipulate somewhere which referencing method you are using

PRINTING OF THE DISSERTATION/THESIS

- Master's candidates must submit two copies of the dissertation in temporary binding (e.g. ring binding) for examination, and a CD containing the dissertation in one continuous file in a universally readable format. Master's candidates must submit their dissertations to the Manager: Postgraduate Administration on the specified dates (see ***Dates to Remember*** below)
- Doctoral candidates (MD) must submit three copies of the thesis. Three (3) copies must be temporary binding, and a CD containing the dissertation in one continuous file in a universally readable format.
- Doctoral candidates (MD) must submit their theses to the DDB Officer on the specified dates (see ***Dates to Remember*** below)
- Doctoral candidates must submit 3 copies of the thesis in temporary binding, and a CD containing the thesis in one continuous file in a universally readable format. Doctoral candidates must submit their theses to the DDB Officer on the specified dates (see ***Dates to Remember*** below)

UNIVERSITY OF CAPE TOWN
FACULTY OF HEALTH SCIENCES

MMed/MPhil Part III (minor dissertation)
Guidelines for candidates, supervisors and examiners

The MMed minor dissertation (or the MPhil dissertation in the case of sub-specialities) is one of three examination components of the MMed/MPhil degree. This minor dissertation carries one third of the weight of a full master's dissertation in terms of its credit weighting.

The dissertation must be a study containing the results of an analytical, quantitative, or epidemiological study carried out by the candidate (for certain disciplines, the candidate may chose instead to do a qualitative study, an audit cycle or a formal systemic review). A case report is not acceptable for the dissertation.

The dissertation must be the result of independent work of the candidate conducted under the guidance and direction of a supervisor(s) and should demonstrate evidence of an ability to undertake research, to adequately interpret results and to comprehensively and critically review the relevant literature. Although the findings of the research need not necessarily be original, they must be seen to advance scientific understanding. The topic and scope of research will depend on the particular disciplines and must be agreed upon in consultation with the supervisor(s).

Research protocol
Candidates intending to register for the MMed/MPhil Part III are required to submit a full research protocol for approval to their respective Departmental Research Committee (DRC). The candidate must also obtain FHS UCT Ethics approval prior to conducting their research. This full research protocol (together with a copy of the ethics approval letter) must be submitted to the postgraduate administration for approval by the Board of the Faculty of Health Sciences, prior to commencement of the research. For most disciplines, submission of the research protocol should be made no later than the end of year 2.

The research protocol should outline the scope and content of the dissertation and must include the title of the proposed dissertation, name of the supervisor(s) and their brief curriculum vitae.

Submission of dissertations
On completion, the dissertation should be submitted to the Faculty Postgraduate Officer. The candidate should inform the Faculty Officer one month in advance of the intention to submit. Submission deadlines:

1. March 15th for June graduation
2. August 15th for December graduation

Supervisors will be requested by the Faculty Postgraduate Officer to submit a letter supporting submission. This letter should be supplied by the primary supervisor. If this supervisor is external, the internal supervisor must be kept informed at every stage of the process. Specific submission requirements may be set by individual disciplines.[2]

Note on fees: To avoid attracting fees, dissertations need to be submitted before the beginning of the first quarter (first day of academic year), and before the start of the second semester (mid July) to qualify for a 50% fee rebate.

Supervisors

One cannot overemphasize the importance of identifying a dissertation supervisor as early as possible. The supervisor should be an individual who can relate to the candidate's research project, be available for frequent and regular discussion and advice, and someone with whom the candidate can develop a good working relationship. Where specialised equipment and/or laboratory work is required for the study, the supervisor should assist in facilitating such access to such facilities. Supervisors may assist candidates in developing scientific communication skills but they are not required to do detailed editing or correction of spelling, grammar, or style. They may refer candidates to the UCT Writing Centre for this purpose.

The primary supervisor may be based outside the candidate's home department, faculty or university. In such a case, an internal (or secondary) supervisor will be required in addition to the primary supervisor, to serve as a guide and link to discipline-specific procedures. Primary supervisors retain responsibilities to the candidate and the university until the dissertation process is complete.

Please note: in order to assist a candidate with a master's research topic the supervisor needs to hold a master's degree or higher, or have relevant research experience. If the primary supervisor does not hold a higher degree or equivalent (such as a Fellowship of The College of Medicine of South Africa), then a secondary supervisor who has a higher degree will need to be appointed in addition to the primary supervisor.

Candidates are strongly encouraged to publish the study with the supervisor(s) as co-author(s). This may require work beyond the graduation date. Such arrangements should be discussed and documented in advance.

2 For Public Health Medicine and Occupational Medicine the dissertation must be submitted for examination at least *4 months* prior to the deadline for registration for the examinations of the relevant College. This is in order to ensure that a final examination mark for the dissertation can be submitted by the candidate to the College of Medicine of South Africa (CMSA) at the time of registration as required by CMSA examination regulations.

The dissertation

Submission of the dissertation should satisfy the following criteria:

1. The title page should contain the candidate's name, dissertation title and the name of the university. It must also state the degree, e.g. Master of Medicine (MMed) in Public Health Medicine, Occupational Medicine, Family Medicine, Surgery, etc. The title page should also include a statement to the effect that the research report is based on independent work performed by the candidate and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree to any other university. It must also state that this work has not been published *prior to registration* for the abovementioned degree.

2. The body of the dissertation, which must be structured in 4 parts, should include the following:

   Part A: The *protocol* (as approved by the Departmental Research Committee and Faculty Research Ethics Committee). The protocol should not exceed 4000 words.

   Part B: A *structured literature review* appropriate to the subject matter and methods of the dissertation. The literature review must, amongst other things, show that the student is sufficiently acquainted with the relevant literature and is able to perform a critical appraisal and, if appropriate for the topic, show a good understanding of evidence-based medicine.

   The review should be between 3 000 and 4 000 words.

   A suggested structure for the literature review is as follows:
   a) Objectives of literature review
   b) Literature search strategy, including inclusion and exclusion criteria

c) Quality criteria - some leeway will be allowed here, as candidates will vary in their ability to appraise studies. This will also vary with the nature of the dissertation.
d) Summary or interpretation of literature
e) Identification of gaps or needs for further research
f) References (which will overlap with but will not be the same lists as in the journal article and protocol)

Part C: The results of the study must be presented in the form of a *manuscript* of an article for a named peer reviewed journal, meeting all the requirements set out in the "Instructions for Authors" of that journal, including the word count and referencing style. (Unless specially motivated, the journal chosen will need to allow for *at least* 3000 words excluding abstract, tables, figures and references). The "Instructions to Authors" of the journal must be appended. The journal chosen for publication must be appropriate to the subject matter of the dissertation and accredited by the Department of Education or listed in the citation index of the Institute for Scientific Information (ISI).
Important note: the candidate need not have submitted the article, not is the acceptance of the article and requirement for passing the degree. The norm of practise is to publish the study with the supervisor(s) as co-author(s) and candidates are strongly encouraged to submit their manuscript either before or after examination of the mini-dissertation.

Part D: All *supporting documents* including:

- Questionnaire/data capture instrument
- Consent forms and any related participant information sheets
- Technical appendices, including, if considered necessary, any additional tables not included in the main manuscript for the examiner to have available. These should be accompanied by a brief narrative.
- Official Ethics approval letter from the Faculty Research Ethics Committee

3. The article does *not* have to be submitted to the journal in order to meet academic requirements.

4. A candidate must submit 2 copies of the dissertation in temporary binding, and an electronic copy on compact disc in a universally readable format (e.g. pdf).

Examiners

The full dissertation will be submitted for examination through the Postgraduate office of our Faculty to two external examiners (nominated by the supervisors and HOD).Three examiners will be nominated, two of which are invited to examine, and one held as an alternate. All examiners must be external to UCT. These nominations are circulated to the Faculty Dissertation Committee. It is the *supervisor's (or co-supervisor's)* responsibility to submit names of potential examiners to the Faculty Officer when the candidate is ready to submit.

The examiners will be well briefed regarding the specific requirements and criteria for submission and examination of the mini-dissertation. Such criteria will clearly explain the difference between the mini-dissertation and a Master's degree by dissertation alone.

Details required for each examiner are: academic qualifications, postal and/or physical address, telephone and fax numbers and e-mail address, and one paragraph description of their standing in the relevant field (drawn from their CV if need be.)

The candidate may not be informed of the identity of the examiners. After the outcome of the mini-dissertation has been finalised, the examiners' identities are made known if the examiners have indicated that they do not object to this.

SOUTH AFRICAN
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Submissions can only be made online at www.editorialmanager.com/safpj. Authors need to register online with the journal prior to submitting a manuscript. Once registered, simply log in and begin an easy 5 step process to upload your manuscript. All manuscripts must be submitted in MS Word®, Open Office, or RTF format using Times New Roman font size 10 and single-spacing. Headings must be in Bold.

The author must always retain a copy. All the named authors must have approved the final manuscript. Pages should be numbered consecutively in the lower right corner. Please note that the Original Research section will follow a ";print-short, web-long"; policy, which means that only the abstracts will be published in print, with the full article published on the web. Some review articles may also be published under these provisions.

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 SAFP. 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.

Please consult the Section Policies for more details regarding CPD articles.

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.

The style for references should follow the format set forth in the ";Uniform Requirements for Manuscripts Submitted to Biomedical Journals"; prepared by the International Committee of Medical Journal Editors.

Abbreviations for **journal titles** should follow *Index Medicus* format. Authors are responsible for the accuracy of all references. Personal communications and unpublished data should not be referenced. If essential, such material should be incorporated in the appropriate place in the text. List all authors when there are six or fewer; when there are seven or more, list the first three, then ";et al.";

When citing URLs to web documents, place in the reference list, and use following format: Authors of document (if available). Title of document (if available). URL. (Accessed [date]).

The following are sample references:
1. London L, Baillie R. Notification of Pesticide Poisoning: Knowledge, Attitudes and Practices of Doctors in the Rural Western Cape. S A Fam Pract 1999;20(1):117-20.
2. FDA Talk Paper: http://www.fda.gov/bbs/topics/ANSWERS/2002/ANS01151.html (Accessed 04/10/2002).

Click here for more sample references.

Tables. Tables should be self-explanatory, clearly organised, and supplemental to the text of the manuscript. Each table should include a clear descriptive title on top and numbered in Roman numerals (I, II, etc) in order of its appearance as called out in text. Tables must me inserted in the correct position in the text. Authors should place explanatory matter in footnotes, not in the heading. Explain in footnotes all nonstandard abbreviations. For footnotes use the following symbols, in sequence: *,†,‡,§,||,,**,††,‡‡

Figures. All figures must be inserted in the appropriate position of the electronic document. Symbols, lettering, and numbering (in Arabic numerals e.g. 1, 2, etc. in order of appearance in the text) should be placed below the figure, clear and large enough to remain legible after the figure has been reduced. Figures must have clear descriptive titles.

Photographs and images: If photographs of patients are used, either the subject should not be identifiable or use of the picture should be authorised by an enclosed written permission from the subject. The position of photographs and images should be clearly indicated in the text. Electronic images should be saved as either jpeg or gif files. All photographs should be scanned at a high resolution (300dpi, print optimised). Provision is made to upload individual images on the website as *supplementary files*. Please number the images appropriately.

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Ethical considerations. Papers based on original research must adhere to the Declaration of Helsinki on ";Ethical Principles for Medical Research Involving Human Subjects"; and must specify from which recognised ethics committee approval for the research was obtained.

Conflict of interest. Authors must declare all financial contributions to their work or other forms of conflict of interest, which may prevent them from executing and publishing unbiased research. [Conflict of interest exists when an author (or the author's institution), has financial or personal relationships with other persons or organizations that inappropriately influence (bias) his or her opinions or actions.]*
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The following declaration may be used if appropriate: ";I declare that I have no financial or personal relationship(s) which may have inappropriately influenced me in writing this paper.";

Submissions and correspondence. All submissions must be made online at www.safpj.co.za and correspondence regarding manuscripts should be addressed to:

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General Facsimile: (012) 664 6276. href="mailto:editor@safpj.co.za"> editor@safpj.co.za

Submission Preparation Checklist

As part of the submission process, authors are required to check off their submission's compliance with all of the following items, and submissions may be returned to authors that do not adhere to these guidelines.

1. The submission has not been previously published, nor is it before another journal for consideration (or an explanation has been provided in Comments to the Editor).
2. The submission file is in Microsoft Word, Open Office or RTF document file format.
3. All URL addresses in the text (e.g., http://pkp.sfu.ca) are activated and ready to click.
4. The text is single-spaced; uses a 10-point font; employs italics, rather than underlining (except with URL addresses); and all tables and figures are placed within the text at the appropriate points, rather than at the end.
5. The text adheres to the stylistic and bibliographic requirements outlined in the Author Guidelines, which is found in About the Journal.
6. Electronic images are saved as either jpeg or gif files. All photographs were scanned at a high resolution (300dpi, print optimised) and saved/numbered appropriately corresponding with the text.
7. All tracking changes in the document must have been accepted before sending to SA Fam Pract.
8. Have you asked a colleague or language expert to proofread your final manuscript?
9. All supplemantary files such as survey instruments or scanned photographs are separated from the main text and will be uploaded as supplementary files.
10. In the case of a research paper, prior approval has been obtained from a research ethics committee, and this fact is declared in the methods section of the manuscript.

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