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EFFECTS OF CURRICULUM CHANGE ON MEDICAL GRADUATES' PREPAREDNESS FOR INTERNSHIP

Kathleen Bridget Smuts

A thesis submitted to the Faculty of Health Sciences, University of the Witwatersrand in fulfilment of the requirements for the degree of
Doctor of Philosophy

Johannesburg, August 2011

DECLARATION

I, Kathleen Bridget Smuts, declare that this thesis is my own work. It is being submitted for the degree of Doctor of Philosophy in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

…… [signature of candidate]

…….. day of …….. [month], 2011

DEDICATION

For Butch, Ryan and Andrew
and in loving memory of Karen
1973 - 1995

ETHICS CLEARANCE CERTIFICATE

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
R14/49 Smuts

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER M050453**
PROJECT	Effects of Curriculum Change on Medical Graduates' Internship Performance
INVESTIGATORS	Mrs KB Smuts
DEPARTMENT	Health Science Education
DATE CONSIDERED	05.04.29
DECISION OF THE COMMITTEE*	Approved unconditionally

Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.

DATE 05.05.09 **CHAIRPERSON** .....
(Professor PE Cleaton-Jones)

*Guidelines for written 'informed consent' attached where applicable

cc: Supervisor :

DECLARATION OF INVESTIGATOR(S)

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I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to a completion of a yearly progress report.**

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

PRESENTATIONS ARISING FROM THE STUDY

Conference presentations

1 Smuts, K.B. and Prozesky, D.R. 2008 The Development and Validation of a model of the competent South African intern. Paper Presentation, Southern African Association for Health Science Education (SAAHE) Conference, Cape Town, June 2008.

2 Smuts. K B, Prozesky, D.R., Hammond, K.D and Libhaber, E.N. 2009. Effects of curriculum change on medical graduates' internship performance.
Paper Presentation, Southern African Association for Health Science Education (SAAHE) Conference, Cape Town, 2-4 July 2009.

ABSTRACT

INTRODUCTION: The University of the Witwatersrand (Wits) changed its medical curriculum in 2003 from a traditional, six-year curriculum to an integrated, problem-based, four year Graduate Entry Medical Programme (GEMP), preceded by two years of basic and medical sciences at university level or a suitable undergraduate degree.

AIMS: To compare the preparedness for internship of Wits graduates from the old and new curricula on fifty seven items grouped into nine categories which were identified during the development and validation of a Model of the Competent South African Intern.

METHODS: A stratified random sample of interns was drawn from the last graduates of the traditional curriculum and a matched sample of interns from the first graduates of the GEMP. Both quantitative and qualitative methods were used. For each sampled intern a supervisor, colleague and patient were selected by convenience sampling. A questionnaire was completed by interns, supervisors and colleagues followed by an interview to qualify responses at the extremes of the Likert-type scale and link them to curriculum learning opportunities. A semi-structured interview was conducted with patients and a global score allocated. The Cochran-Mantel-Haenszel Statistic for ordinal data was used. Comparisons were drawn between the competence of graduates from the traditional and GEMP curricula from the perspectives of interns, supervisors, colleagues and patients. Interview data were analysed using thematic analysis techniques.

RESULTS: Significant differences were reported by interns in six of the nine categories. In one category, "fundamental theoretical knowledge" the GEMP graduates rated themselves significantly less prepared in the basic medical sciences (Pathology, Microbiology and Pathophysiology, **p=0.01**; Pharmacology, **p<0.0001**) but highly significantly better prepared in the theory of interpersonal communication, **p<0.000001**). The GEMP graduates rated themselves significantly better prepared in the other five categories, "medical problem solving" (**p=0.009**), "holistic patient management" (**p=0.0004**), "community health" (**p=0.0002**), "communication skills" (**p=0.02**) and "self directed learning" (**p=0.0001**).

Supervisors reported significant differences in “teamwork” (**p=0.045**) and “personal attributes” (**p=0.045**) giving fewer low scores to the GEMP graduates. There were no significant differences between the category scores for colleagues. Qualitative analysis included vertical summaries of interview data and horizontal or comparative interpretations with quotations in order not to lose the voice of the interns, supervisors, colleagues and patients.

DISCUSSION AND CONCLUSION: GEMP graduates rated themselves better prepared in those areas which had been identified as reasons for curriculum change but less prepared in specific basic medical sciences. Although these were not reported as significantly different by supervisors or colleagues they require attention. Other than this, according to the judgements of the informants, the competence of GEMP graduates was similar to that of traditional graduates in certain areas and significantly better in others, which appears to justify the major medical curriculum change undertaken at this University.

KEYWORDS: clinical performance, comparative study, competence, complexity, curriculum change, graduate entry, internship, internship performance, medical education, South Africa

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NOMENCLATURE

OPERATIONAL DEFINITIONS OF CONCEPTS

INTERNSHIP – A post graduate period of 12-24 months (24 months from 2006 for universities on a five year curriculum and from 2007 onwards for universities on a six year curriculum) for the training and practice under supervision of junior, newly graduated doctors prior to the Community Service Year. Interns and Community Service doctors have partial registration with the Health Professions Council of South Africa but are not registered for independent practice until successful completion of both.

CURATORS OF INTERNS – Doctors given the specific role of overseeing the interns in an intern training facility.

INTERN LOGBOOK- Compulsory completion of a logbook by interns came into place in 2002. Logbooks are submitted as a prerequisite for registration as a medical practitioner to perform community service.

HOSPITAL CATEGORIES – Hospitals in South Africa are categorised according to staffing, services offered and referral structures.
LEVEL 3 - TERTIARY / CENTRAL
LEVEL 2 - SECONDARY / REGIONAL
LEVEL 1 – DISTRICT
SPECIALIST HOSPITALS were not included in this study. They treat only patients with particular conditions and may be at any hospital levels eg. Specialised District Hospitals for Tuberculosis or Specialised Regional Hospitals for Spinal Injuries.

ABBREVIATIONS AND ACRONYMS

AIDS – Acquired Immune Deficiency Syndrome

CD – Community-Doctor (theme)

BCS – Basic and Clinical Sciences (theme)

CHB or Bara – the Chris Hani-Baragwanath Hospital in Soweto, Johannesburg

CHSE – Centre for Health Science Education. A centre in the Faculty of Health Sciences, University of the Witwatersrand tasked with the introduction, improvement and support of modern curricula and teaching methods and their evaluation. It is headed by a Director (Professor) and approximately 30 academic and administrative staff.

EBM – Evidence Based Medicine

EDL – Essential Drug List

GEMP – The Graduate Entry Medical Programme, the final four years of the revised MBBCh degree, instituted at the University of the Witwatersrand Medical School in 2003.

GEMP (GEMP curriculum interns) – 2007 interns

HIV – Human Immunodeficiency Virus

HPCSA – Health Professions Council of South Africa

IE – Integrated Examination

IPC – Integrated Primary Care

IT – Information Technology

JUDASA – Junior Doctors Association of South Africa

MBBCh – Bachelor of Medicine and Bachelor of Surgery degree from the University of the Witwatersrand, Johannesburg. (Some other universities use the abbreviation MBChB).

MCQ – Multiple Choice Questions

MEQ – Modified Essay Questions

MO – Medical Officer. Registered Medical Practitioner, registered for independent practice

OSCE – Objective Structured Clinical Examination

PBL – Problem Based Learning

PCMS – Preliminary Concepts in Medical Science (see Table 1.1 for details)

PD – Patient-Doctor (theme)

PPD – Personal and Professional Development (theme)

PSEs - Problem Solving Exercises

REG – Registrar. Registered Medical Practitioner undergoing specialist training

RIDIT – Relative to an Identified Distribution together with "it" to resemble other terms in statistical use such as logit or probit (Selvin 1996, p. 175)

The model – Model of the Competent South African Intern developed in Phase 1

TRAD (traditional curriculum interns) – 2006 interns

Wits – The University of the Witwatersrand, Johannesburg. The abbreviation 'Wits' is frequently used in this thesis to allow for ease of reading as the pronunciation of the Afrikaans word "Witwatersrand" is difficult for some. The term "Wits" is widely used and accepted when referring to the University.

CONVENTIONS

The following conventions are used throughout:

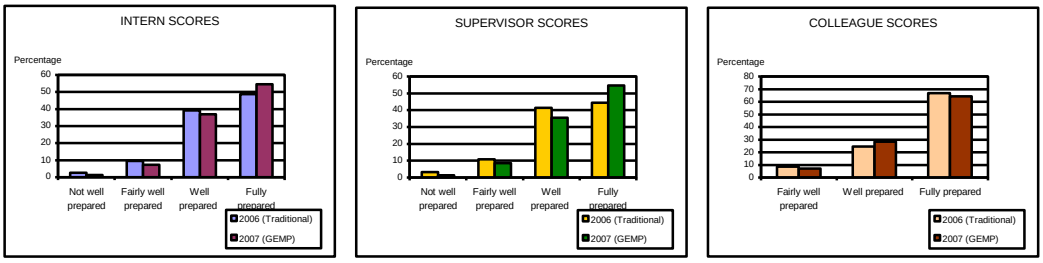
1 Each set of Intern, Supervisor, Colleague and Patient data was given the same code number, prefixed by the following identifiers:

IRC – Intern research code
SRC – Supervisor research code
CRC/PRC – nurse /intern (peer) colleague research code
PtRC – Patient research code

Example: IRC118, SRC118, CRC118, PtRC118

2 CHART COLOURS – The same chart colours have been used throughout the thesis for clarity and ease of reading.

INTERNS – blue (2006/Trad) and purple (2007/GEMP)
SUPERVISORS – yellow (2006/Trad) and green (2007/GEMP)
COLLEAGUES (nurses or intern peers) – beige (2006/Trad) and brown (2007/GEMP)



3 In 2008, after the completion of the data collection for this study, three Gauteng hospitals were renamed after struggle heroes.
http://www.news24.com/SouthAfrica/News/3-Gauteng-hospitals-renamed-20080929 (accessed 28/02/2011).
The Johannesburg Hospital is now the Charlotte Maxeke Johannesburg Hospital.
The Pretoria Academic Hospital is now the Steve Biko Academic Hospital.
The Coronation Hospital is now the Rahima Moosa Mother and Child Hospital.
The old names are used throughout as they were in use during the research study.

4 Significant results are given in bold typeface and significant p-values are included in the respective bar diagrams as well as in the text.

5 References and citations are in the Harvard style

PREFACE

The reason for undertaking a study of this nature stemmed from the need to gather comprehensive empirical evidence of the outcomes of the major curriculum change that was occurring in medical education at the University of the Witwatersrand.

The research was made possible through the support of the Faculty of Health Sciences and thanks are extended to the then DEAN, Professor Max Price, Professor James Ware who was the first Director of the Centre for Health Science Education (CHSE) and the current Director, Professor Detlef Prozesky who generously allowed time to conduct the study, contributed additional funding and gave valuable guidance throughout the study.

The writer, as an academic member of the CHSE, had an intimate knowledge of both the traditional and GEMP curricula and was thus suitably qualified to undertake the study.

The research would not have been possible without the willing participation of the graduates, hospital staff and patients who completed the questionnaires and interviews with openness and candour.