The knowledge and skills gap of medical practitioners delivering district hospital services in the Western Cape, South Africa

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Abstract

Introduction

District (community) hospitals play an important role in the delivery of health services at community level, especially in rural areas. These hospitals provide comprehensive level-one health services to their communities, and serve as a resource for the whole health district. Most district hospitals are situated in rural areas, with medical services in these hospitals being rendered by generalist medical practitioners.

The education and training of generalist practitioners for rural practice needs specific attention. Firstly, the unique nature of rural practice makes it necessary for doctors to undergo relevant and focused instruction. Rural family practice requires that doctors have the knowledge and skills to practise in settings where high technology and specialist resources are not available, while at the same time requiring that they be able to perform a wide range of advanced functions and procedures.

Secondly, it is argued that appropriate education and training for rural practice can positively influence the recruitment and retention of medical practitioners in rural areas.[5] The teaching of the knowledge and skills required for rural practice should take place in an appropriate setting that promotes interest in rural practice and familiarises the student with its particular challenges.

There is a paucity of data in South Africa on medical practitioners staffing district hospitals, especially in terms of their knowledge and skills levels. Such information is critical if rural hospitals are to deliver equitable and quality health services, and also for guiding appropriate undergraduate, postgraduate and continuing professional education for rural practice.

With this as background, health service managers in the Western Cape requested a skills audit of medical officers in district hospitals to identify a possible gap in competencies that may impact on service delivery. The aim of this study was thus to identify the knowledge and skills of medical practitioners delivering these services in the Western Cape and to compare them with service needs in order to make recommendations for education and training. This article reports on the results of the knowledge and skills gap analysis, while the results of the district hospital performance data and in-depth interviews are reported elsewhere.

Method

The competencies of medical practitioners working in 27 district hospitals were explored by using a self-administered questionnaire containing a competency rating of proxy markers. The data were analysed using the SAS statistical package. Variables were examined for statistically significant differences.

Results

A response rate of 75% (110/147) was achieved. Part-time (older) medical officers regarded themselves as more experienced and more competent than full-time (younger) employees in most areas, except when managing problems relating to HIV/AIDS. Termination of pregnancy was the procedure most frequently not performed despite practitioners being competent to do so. A substantial need for supervision was identified for managing less common emergency conditions, as well as for some outpatient problems, including preventative, promotive and rehabilitation activities.

Conclusions

The knowledge and skills gaps varied considerably according to the individuals' education, training and experience, as well as their circumstances and working conditions. The superior competencies of the older practitioners reinforce the importance of the recruitment and retention of more experienced practitioners. The uneven skill and knowledge base in aspects of HIV/AIDS management should be addressed urgently by initiatives such as the internet-based course on HIV/AIDS developed by the Family Medicine Education Consortium (FaMEC). Departments of Family Medicine should urgently re-orientate their curricula to meet the training needs for level-one hospital practice.

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The education and training of generalist practitioners for rural practice needs specific attention. Firstly, the unique nature of rural practice makes it necessary for doctors to undergo relevant and focused instruction.[1,2] Rural family practice requires that doctors have the knowledge and skills to practise in settings where high technology and specialist resources are not available, while at the same time requiring that they be able to perform a wide range of advanced functions and procedures.[3,4]

Secondly, it is argued that appropriate education and training for rural practice can positively influence the recruitment and retention of medical practitioners in rural areas.[5] The teaching of the knowledge and skills required for rural practice should take place in an appropriate setting that promotes interest in rural practice and familiarises the student with its particular challenges.[6,7]

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Methodology

A questionnaire was developed to explore competency ratings of the knowledge and skills necessary to perform district hospital services in the following areas: emergency and trauma, in-patient function, general outpatient services, outreach support to primary health care (PHC), hospital management and public health. The questionnaire was available in English and Afrikaans and piloted prior to administration. Proxy markers defining the ability to function in a district hospital were identified, as it was impractical to include competency ratings in all the knowledge and skills areas required.[10] The questionnaire was sent to all 147 medical officers (full-time, part-time and community service doctors) staffing the 27 Western Cape district hospitals at the time of the study (2001).

The data were analysed by using the SAS statistical package (Statistical Analysis Systems, SAS Institute Inc, SAS Campus Drive, Cary, NC 27513). The dataset was examined for associations between the variables of medical officer category, gender, years of experience (1-5 yrs, 5-10 yrs, >10yrs), and knowledge and skills areas. A p-value of 0.05 or less was considered as statistically significant using the Wilcoxon and Kruskal-Wallis tests.

The study was approved by the Stellenbosch University Research Ethics Committee C (2001/C040). Permission to conduct the study was granted by the provincial authorities, as well as by each hospital's medical superintendent, and informed consent was obtained from all the participating medical practitioners.

Results

A response rate of 75% (110/147) was achieved. Twenty-eight of the respondents were female (25.5%) and 82 (74.5%) were male. The mean age of the respondents was 40.3 years (range 25-69 years). There was a statistically significant difference ($p<0.05$) between the genders in relation to age (females younger than males) and professional experience (males greater than females).

Table I shows that the categories

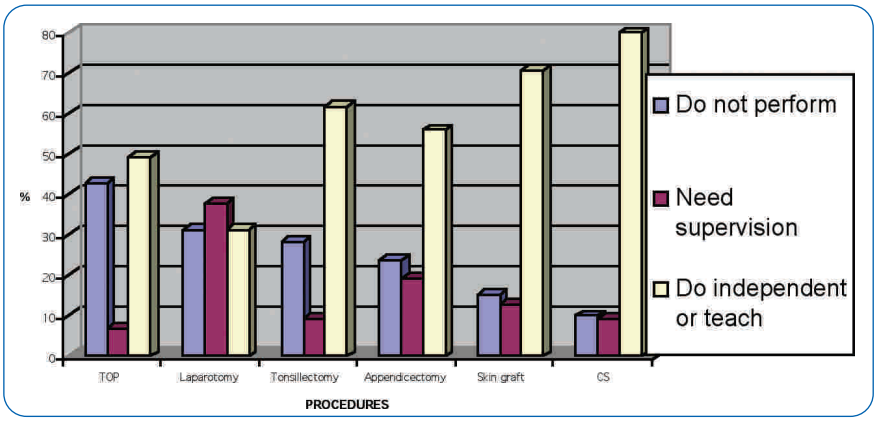
Table I: Comparison of respondents with total medical officer complement

Medical officer category	Full time		Part time		Community service		Total	
	Number	%	Number	%	Number	%	Number	%
Total medical officers	32	22	95	65	20	14	147	100
Respondents	24	22	69	63	17	16	110	100

Table II: Competency ratings relating to emergency and trauma services

Procedure/problem	SCORE – FREQUENCY (%)			
	N	Do not perform	Need supervision	Do independently or teach
Tracheotomy	106	22 (20.7)	55 (51.9)	29 (27.4)
Head injury: Glasgow 3	106	2 (1.9)	23 (21.7)	81 (76.4)
Acute severe burns	106	2 (1.9)	20 (18.9)	84 (79.2)
Acute poisoning	106	2 (1.9)	23 (21.7)	81 (76.4)
Neonatal resuscitation	110	1 (0.9)	23 (20.9)	85 (77.3)
Acutely suicidal patient	106	0	28 (26.4)	78 (73.6)
Full CPR with intubation	106	0	11 (10.4)	95 (89.6)

Figure 1: Comparison of competency ratings for the surgical procedures most commonly not performed



of the respondents were similar to the total medical officer population at the time. There was a statistically significant difference ($p<0.05$) in age between the medical officer categories, with part-time medical officers being the oldest, full-time medical officers being in the middle and community service doctors being the youngest of the three categories.

Diplomas awarded by the Colleges of Medicine of South Africa were the most frequently awarded postgraduate qualifications. Only 5% of the respondents were qualified family physicians through vocational training. ATLS, ACLS and APLS courses were the most commonly attended short courses. The three most popular forms of continuing professional development (CPD) activities were journal reading (85.4%), learning from working with colleagues (77.3%) and attending pharmaceutical industry CPD meetings (72.7%).

Table II shows that most of the knowledge and skills areas in the emergency and trauma category drew high competency ratings, except for tracheotomy, which was considered to be rarely needed. There were a number of areas in which a substantial proportion (20-28%) of the practitioners indicated the need for supervision, for example dealing with severe head injuries, acute burns, poisonings, suicide, and neonatal resuscitation.

The six surgical in-patient procedures that were most commonly not performed are compared with one another in Figure 1. The recorded pattern of competencies for termination of pregnancy (TOP) and laparotomy differed from the other skills demonstrated on the graph in that the ratings for not performing and being able to teach each procedure were similar for these two procedures. This indicated that, although the respondents rated themselves competent to perform these procedures, they did not perform these procedures. TOP was not performed because of ethical objections. Patients needing a laparotomy were mostly referred for specialist care because medical officers felt they were not sufficiently confident to deal with unexpected complications, as well as being concerned about the potential medico-legal implications.

The respondents indicated high levels of competency in dealing with most of the problems relating to outpatient services (see Table III). However, a substantial need for supervision was indicated in a number of areas, such as dealing with amputee problems (33.3%), family violence (30.2%), dementia in the elderly (27.4%), the management of resistant childhood asthma (23.8%), counselling for HIV/AIDS (23.8%) and for the cessation of tobacco use (19.2%). Again, a substantial proportion (37.7%) of the respondents indicated that they were not doing consultations related to TOP requests, mainly due to moral, ethical and religious objections.

Overall, the respondents indicated low competency ratings in outreach support to PHC and the skills related to district hospital management or public health issues. The reasons given included personnel shortages, inadequate infrastructure, a lack of training, or the perception that these functions were the duty of others.

There was a general trend toward higher competency levels being recorded for the more experienced practitioners, with a few interesting exceptions. There were no statistical differences in performing cardiopulmonary resuscitation (CPR) with intubation, suggesting similar competencies across the board, while practitioners with more than 10 years' experience were more likely ($p<0.05$) to rate lower competencies in providing HIV/AIDS care.

Despite male doctors (more experienced) rating themselves more competent in performing a TOP, female doctors were more likely to

Table III: Competency ratings relating to general outpatient services

DEALING WITH	SCORE – FREQUENCY (%)			
	N	Do not perform	Need supervision	Do independent or teach
TOP request	106	40 (37.7)	11 (10.4)	52 (49.1)
HIV/AIDS counselling	105	8 (7.6)	25 (23.8)	71 (67.6)
HIV/AIDS confidentiality	105	7 (6.7)	20 (19.0)	76 (72.4)
Amputee problems	105	7 (6.7)	35 (33.3)	62 (59)
Family violence	106	4 (3.8)	32 (30.2)	69 (65.1)
Dementia in the elderly	106	4 (3.8)	29 (27.4)	72 (67.9)
Counselling tobacco cessation	104	3 (2.8)	20 (19.2)	80 (76.9)
Child with resistant asthma	105	2 (1.9)	25 (23.8)	77 (73.3)

actually carry out the procedure ($p<0.05$). All categories of experience were similar in their reluctance to perform a laparotomy, despite the fact that the experienced doctors rated themselves as more competent to do so. Community service doctors were the most likely to carry out spinal anaesthesia ($p<0.05$), whilst the more experienced doctors rated higher in competency to perform general and ketamine anaesthetics ($p<0.05$).

Discussion

The results of this study indicate the areas in which district hospital medical practitioners lack confidence. Further exploration of the perceived gaps shows that the knowledge and skills of individuals vary considerably according to their education, training, experience and the circumstances of a particular district hospital. The results need careful interpretation, taking into account working conditions and training deficiencies as the two most influential factors.

The competency ratings in all service categories clearly demonstrate the superior self-confidence and self-perceived wider range of competencies of the older and more experienced practitioners. Newly qualified doctors do not believe they have the skills and experience to function unsupervised in a district hospital. Two factors have been found to influence the competencies of interns and community service doctors, namely the degree of supervision available and the management of the institution.[11] The level of competence and the confidence of the more senior doctors are critical in making the community service doctor's work a positive learning experience.[12,13] This reinforces the importance of the recruitment and retention of experienced practitioners for district hospital practice.

The high proportion of medical officers who do not perform a TOP for ethical reasons is a concern. TOP services have been documented to be more readily available at regional than at district hospitals in South Africa.[14] This causes inequitable service delivery to rural women and needs to be addressed by both educators and service managers. The reasons for the greater willingness of female practitioners to perform this procedure need further research.

The low reporting of skills related to outreach, management and public health in this study is similar to research from the Gordonia Hospital in Upington in the Northern Cape.[15] The World Health Organisation (WHO) emphasises the importance of close co-operation between the district hospital and PHC services, it being one of the key factors in the effective functioning of a district hospital.[16,17] Until district hospital medical officers have time made available outside their clinical responsibilities, it will be difficult, if not impossible, for them to perform any additional functions.

The identified knowledge and skills gap in managing different aspects relating to HIV/AIDS, especially in the more experienced practitioners, needs urgent attention. It confirms other findings that many of the skills required for HIV/AIDS clinical treatment and management are still lacking amongst frontline health workers.[18] The Family Medicine Educational Consortium (FaMEC) has developed an internet-based short course on HIV/AIDS for primary care healthcare workers that will go some way to addressing this gap.

The benefit of having practitioners record their perceived competencies lies in defining the strengths and weaknesses of their education and training and in designing interventions to address gaps.[19] The limitations of this study include perceptions that may relate more to individual confidence than objectively measured competence.[20] Furthermore, only a sample of knowledge and skills areas could be explored, and specialities such as dermatology and ophthalmology were not assessed. The results may also not be generalisable to the rest of the country, as health needs and circumstances vary between provinces.

Despite the high levels of self-assessed competency recorded in managing most of the problems relating to outpatient services, a need was expressed for supervision in core activities, such as dealing with family violence and managing problems related to health promotion, preventative medicine and rehabilitation. This underlines the importance of acknowledging the similarities between family practice and district hospital practice and the need to move towards comprehensive training as opposed to focusing on technical skills only.[5,11] Our study illustrates the role that the discipline of Family Medicine should play in education and training for rural practice, including the urgent review of postgraduate programmes for training in level-one hospital services.

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