

# Theatre and emergency services rendered by generalist medical practitioners in district hospitals in the Western Cape

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## Abstract

District hospitals play an important role in rendering comprehensive health services to communities. The district hospital is an integral part of the district health system providing not only curative level-one hospital services but also outreach and support to primary health care services. District hospitals are staffed by generalist medical practitioners who are required to perform a wide range of clinical duties and procedures. A situation analysis to identify the range of duties performed by medical practitioners in rendering emergency and theatre services at district hospitals in the Western Cape was conducted in 2001. Data was collected from the casualty register, theatre register, routine monthly hospital report, a medical officer questionnaire and a questionnaire collecting general information about all the district hospitals in the Western Cape province.

The 27 district hospitals were staffed by 147 full time, part-time and community service practitioners at the time of the study. The part-time practitioners had statistically significant more experience. Fifty percent of the respondents had done an ATLS or equivalent course, whilst only 5% were qualified family physicians. Musculo-skeletal problems were the most commonly presenting complaint at casualty departments, followed by lacerations and assaults. Female sterilization was the most frequently performed surgical procedure, and secondly caesarean section. General anaesthesia was the most common anaesthetic method used. The results of the study underlined the importance of district hospital medical officers being competent generalists, able to deal with undifferentiated problems ranging for simple primary health care complaints to multiple trauma. The need to perform procedures such as caesarean section and general anaesthetic in district hospitals has important implications for appropriate training of district hospital medical practitioners. (*SA Fam Pract 2003;45(7):15-19*)

## INTRODUCTION

District hospitals play a pivotal role in the District Health System by supporting primary health care services in the district and serving as a gateway to higher levels of care. District hospitals generally have between 30 and 200 beds, a 24-hour emergency service, and an operating theatre, with generalist staff supplying comprehensive level one-hospital services to in-patients and outpatients.<sup>1</sup> The World Health Organisation's functional definition of the hospital at the first referral level

includes comprehensive level-one hospital clinical services, support of PHC services, in-service training, intersectoral linking, and community involvement. The district hospital should be more than a curative facility and must be closely linked with all aspects of health care development within its district.<sup>2</sup>

The National Department of Health developed a comprehensive set of norms and standards for district hospitals, listing a broad range of services to be provided.<sup>1</sup> This range of services demands that a district hospital

medical officer be equipped with a broad body of knowledge and a wide proficiency of technical skills. The district hospital practitioner needs clinical skills, surgical skills, community health skills, management skills, as well as the ability to train other health workers and ensure quality improvement. They also need to support and mentor other team members, while being able to effectively work in the health team. The scope of practice in level-one hospitals furthermore includes procedural skills in obstetrics, general surgery, anaesthetics and orthopaedics.<sup>3,4,5</sup>

The Western Cape Province is divided into four health regions, and a total of 25 health districts. District hospitals play an important role in rendering health services to communities, as demonstrated by the shift in outpatient attendance and in-patient admissions from the academic hospitals in the Western Cape to regional and district hospitals. The provincial authorities intend to further increase the shift of patients to lower levels of care in their 2010 strategic operational plan. Annual in-patient admission to district hospitals was 91 748, compared to 109 080 in the 3 academic hospitals in the province. In the year 2000/2001, the district hospitals delivered 17 343 babies and carried out 18 484 operations, as well as seeing to 201 869 emergency and trauma patients.<sup>6</sup>

A situation analysis was conducted to identify the professional knowledge and skills base required by medical officers to deliver district hospital services in the Western Cape. The purpose of the study was to identify the knowledge and skills gap of medical practitioners delivering district hospital services and to utilize that to make recommendations regarding training and human resource strategies. This article reports on the demographic profile of medical practitioners in Western Cape district hospitals, emergency and trauma problems encountered at these hospitals, and operations and anaesthetics performed.

## METHODOLOGY

All twenty-seven district hospitals in the province were included in the study. A contact person (medical superintendent or hospital matron) who assisted in the collection of the data was identified at each hospital with the help of the medical superintendent. District hospital data was collected from the casualty register (reason for encounter); theatre register (surgical procedures, types of anaesthetic); and routine monthly hospital report; and by completion of a questionnaire on hospital details such as number of beds, staff, referral hospital etc. All the medical officers (part-time, full time or community service) received a self-administered questionnaire. The questionnaires were

piloted and adapted before administration.

Hospital reports and copies of theatre records were collected for one month (May 2001). Casualty records were collected for a period of one month, which was reduced to seven days in May 2001 at the request of several hospitals due to the large numbers of patients seen at casualty. Site visits were carried out at twenty district hospitals to collect the data, questionnaires and conduct in-depth interviews (reported elsewhere). Outstanding information was collected by post and courier service. Telephonic, faxed, e-mail and couriered reminders were used to improve the response rate.

The records in the "presenting problem" column on the Casualty register were firstly coded and then grouped according to the ICPC-2 Classification.<sup>7</sup> The theatre procedures were grouped according to categories of surgery and anaesthetic (e.g. general surgery, obstetric etc). The numbers and categories, the information on the hospital reports and the questionnaire data were recorded on Microsoft Excel spreadsheets, and analysed with the SAS statistical package. (Statistical Analysis Systems, SAS Institute Inc, SAS Campus Drive, Cary, NC 27513).

Stellenbosch University Research Committee approved the study protocol (approval number 2001/C040). Permission to conduct the study was granted by the provincial authorities and additional permission was obtained from each hospital's medical superintendent. Informed consent was provided by each of the participating medical practitioners. The Health Systems Trust supported the project with a research grant.

## RESULTS

All 27 district hospitals provided a 24-hour casualty and emergency service. All but 2 had a theatre service. The mean distance to a secondary referral hospital was 117,5 kilometers with the furthest 300 kilometres away. Eleven district hospitals indicated that they did not take part in outreach programmes to primary health care services. See Table I for the list and size of the district hospitals in the Western Cape.

A response rate of 75% was achieved

**Table I: District hospitals and number of beds**

Hospital	Beds
Oudtshoorn	146
Knysna	98
Malmesbury	98
Stellenbosch	97
Mossel Bay	90
Vredendal	84
Ceres	80
False Bay	65
Caledon	65
Riversdale	60
Beaufort West	60
Swellendam	57
Vredenburg	53
Clanwilliam	52
Montagu	49
Robertson	46
Bredasdorp	46
Hermanus	37
Prince Albert	35
Ladismith	35
Citrusdal	34
Laingsburg	28
Atlantis	28
Uniondale	26
Piketberg	22
Murraysburg	22
Porterville	15
<b>TOTAL</b>	<b>1528</b>

with the practitioners' questionnaire as 110 medical officers returned completed questionnaires. Table II shows the proportional percentages of respondents compared with the total medical officer staff complement. Almost all (107; 97%) of the respondents were South African citizens. Twenty-eight (25%) of the respondents were female and 82 (75%) male. The average age of the respondents were 40.3 years (standard deviation 11.6; range 25-69). The female practitioners were statistically significantly younger than the males and had less years of experience, according to the Wilcoxon test ( $p < 0.05$ ).

The average length of time in practice since qualification was 15.6 years (standard deviation 11.1; range 2-48). The respondents' previous work experiences were mainly in general practice and secondly in district hospitals. There was a statistically significant difference ( $p < 0.05$ ), using

Table II: Comparison of questionnaire respondents with total medical officer complement

MO Category	Fulltime		Part-time		Community Service		Total	
	Number	%	Number	%	Number	%	Number	%
Total	32	22	95	65	20	14	147	100
Respondents	24	22	69	63	17	16	110	100

Table III: Most common presenting complaints in casualty departments (18 hospitals, 7-day period)

Reason for encounter	Number	Percentage
Musculoskeletal problems	399	12,1
Lacerations, bites, bruises	388	11,8
Assaults	294	8,9
Diarrhoea, vomiting, gastroenteritis	264	8
Tight chest, asthma	211	6,4
Chest problems (excluding asthma)	165	5
Upper respiratory tract problems	156	4,7
Neurological complaints, headaches	147	4,5
Abdominal pain	118	3,6
X-ray, ECG	90	2,7
General complaints (i.e. fever, weakness)	87	2,6
Procedures –POP, stitches, I and D	83	2,5
Bandages / dressings	76	2,3
Skin infections (abscess, cellulites, impetigo)	65	2
Psychiatric problems	65	2
Cardiovascular problems	57	1,7
Poisonings, drug overdose/reactions	55	1,7
Urological & male genital problems	48	1,5
Motor vehicle accidents	47	1,4

Table IV: Most commonly performed theatre procedures

Procedure	Number	Percentage
Dental procedures	264	15
Sterilization (female)	210	11,9
Caesarean section	196	11,1
Excision lumps, bumps	174	9,8
Tonsillectomy	112	9,6
Evacuation uterus, D & C	104	5,9
Incision and drainage	82	4,6
Closed reductions	59	3,3

the Kruskal-Wallis test, in ages and length of experience between the categories. The part-time practitioners had more experience and were older; the full timers younger than the part-timers and the community service doctors the youngest of all the categories.

The most common additional qualification acquired were various Colleges of Medicine of South Africa Diplomas, with 24% of respondents being in possession of such a qualification. 50% of the respondents had completed either an ATLS, ACLS or APLS course. Only 5% of the respondents were qualified family physicians.

A total of 20 hospitals submitted copies of casualty registers, of which 18 were suitable for analysis, totalling 3297 patients. Table III shows the nature, number and percentages of the commonly presenting complaints for casualty encounters. Musculo-skeletal problems were the most prevalent, followed by lacerations, bites, bruises, assaults, diarrhoea, vomiting and gastroenteritis.

Twenty-two hospitals submitted theatre records for 1 month, totaling 1770 theatre procedures. Figure 1 shows the comparison between groups of procedures, demonstrating that obstetrics and gynaecological procedures were the most commonly performed (34%), followed by general surgery (27%). Overall, dental extractions were the single most commonly performed procedure in district hospital theatres. Female sterilization, closely followed by caesarean section, was the most frequently performed procedure after dental extraction. Table IV shows the list of the commonly performed theatre procedures in the Western Cape district hospitals.

Table V demonstrates the obstetric and gynaecological procedures performed in the district hospitals. Evacuation of the uterus or dilatation and curettage (D&C) was performed most frequently after caesarean sections and sterilizations. Surgery for ectopic pregnancy was rarely performed. Table VI shows the procedures performed in the general surgery category. Excision and removal of lumps and bumps were performed most frequently followed by incision and drainage of various lesions.

Figure 1: Theatre procedures per discipline  
(1 month 22 hospitals)

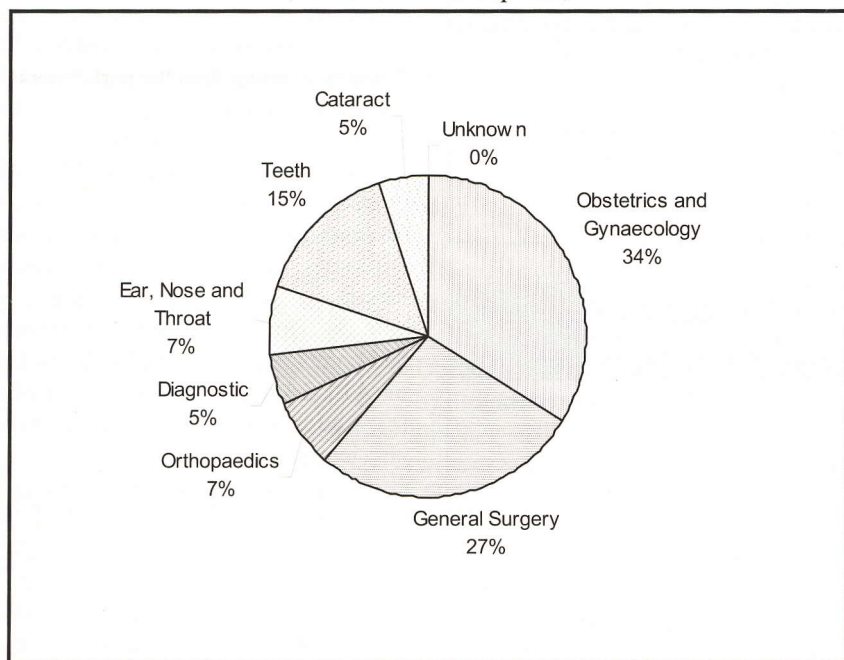


Table V: Obstetric and gynaecological procedures

Procedure	Number	Percentage
Sterilization	210	11,9
Caesarean section	196	11,1
Evacuation, D&C	104	5,9
Others#	61	3,4
Hysterectomy	13	0,7
Ectopic pregnancy	7	0,4

# Others: 3<sup>rd</sup> degree tears, Bartholin cysts, Shirodkar sutures

Table VI: General surgery procedures

Procedure	Number	Percentage
Excision lumps, bumps	174	9,8
Incision and drainage	82	4,6
Urological procedures	44	2,5
Appendectomy	30	1,7
Hernia repair	27	1,5
Debridement	27	1,5
Suturing major, minor	26	1,5
Various others#	21	1,2
Skin transplant	13	0,7
Laparotomy	13	0,7

#Others: gastrectomy, colostomy, Trendelenburg, mastectomy, thyroidectomy, cholisystectomy, and abdominoplasty.

Skin transplant, laparotomy and haemorrhoidectomy were performed rarely. Visiting specialists generally performed the procedures listed under various others. Orthopaedic procedures were less frequently performed, and were predominantly closed reductions of fractures and dislocations. Cataract operations were performed at two hospitals during the study period as part of a private-public partnership.

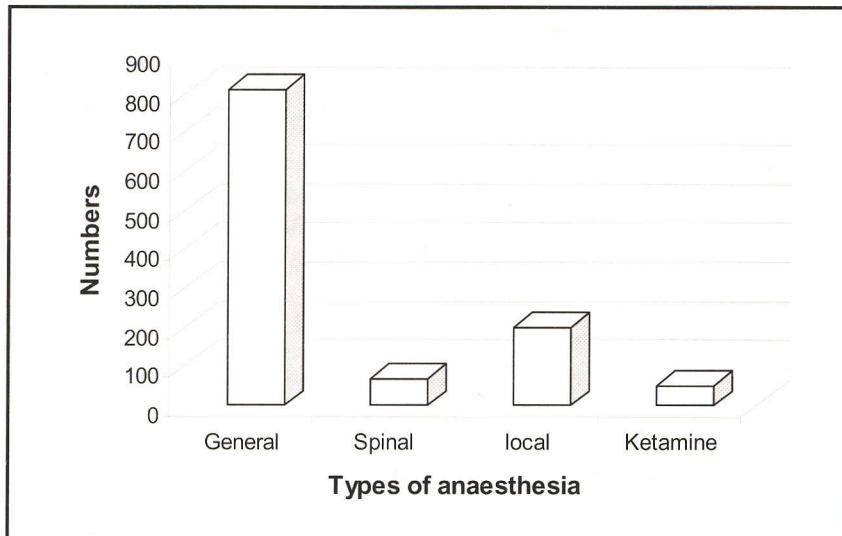
The types of anaesthesia used in the Western Cape district hospitals are reflected in Figure 2 demonstrating predominant use of general anaesthesia.

## DISCUSSION

The district hospitals in the Western Cape conformed to WHO criteria of a first referral level-one hospital, but need to play a more substantial role in outreach and support of PHC services.<sup>2</sup> The demographic characteristics of district hospital medical practitioners in the Western Cape suggest that practitioners follow a career path via full time to part-time practice in combination with private practice. Almost half of doctors of rural origin currently in rural practice in South Africa, combine private practice with sessions at a public hospital or clinic, thus significantly contributing to the public health service.<sup>8</sup> This confirms the observation that "going back home" is not a common reason for doctors to work in public hospitals in South Africa, but is indeed the case in rural private practice.<sup>9</sup> The fact that almost all the medical officers staffing Western Cape district hospitals were South African is surprising, given the difficulties to recruit and retain South African doctors to other rural areas. A critical success factor for retaining experienced generalists in district hospital practice is the establishment of effective public-private partnerships with family practitioners in the private sector.

The morbidity profile of patients presenting at casualty departments indicated that district hospital medical officers spend a considerable amount of their time dealing with the effects of violence, which remains a major public health dilemma.<sup>6</sup> A large number of patients also present with PHC complaints. Practitioners must be educated in the morbidity profile of

Figure 2: Types of Anaesthesia used in district hospitals



patients presenting at emergency and trauma departments. They need to be equipped not only with the clinical and technical skills to deal with undifferentiated problems, but also develop and understand the impact of violence on health services and health care workers. ATLS or equivalent courses appear to be useful in acquiring trauma and emergency knowledge and skills. These courses utilize a learning process which is effective in acquiring technical psychomotor skills.<sup>10</sup> The short sampling period for casualty data unfortunately limits the generalisability of these results.

One of the most striking findings from this study was that caesarean section, second to female sterilizations, was the most commonly performed surgical procedure in district hospitals. Caesarean section was also found to be commonly performed in district hospitals in KwaZulu-Natal, North West Province, Nigeria, and rural hospitals in Canada.<sup>4,11,12</sup> Outcomes of caesarean sections performed by family doctors compared favourably with national standards, and is thus a cost-effective way to provide an essential service to rural communities.<sup>13,14</sup> Maintaining viable obstetric units in community hospitals is however not a simple task, requiring staff with appropriate knowledge and skills and sufficient experience to provide a 24-hour maternity service.<sup>15,16</sup> Training in performing a caesarean section is thus of crucial importance for practitioners staffing district hospitals.

General anaesthesia is the most frequently performed form of anaesthesia used in district hospitals in the Western Cape. More use should be made of local, regional and spinal anaesthesia, and all doctors practicing in level one hospitals should learn and practice these techniques.<sup>11,17</sup> Of concern is a recent finding that South African interns expressed a lack of confidence in their ability to administer a general anaesthetic at the end of their internship year, despite a two-week obligatory anaesthetic rotation under supervision.<sup>18</sup>

The role of the generalist doctor in district hospitals in South Africa is extremely wide. Our study further clarified the scope of practice required for a medical practitioner to successfully practice in a level-one hospital. The data supports the importance for district hospital medical officers to be competent generalists, able to deal with undifferentiated problems ranging from simple primary health care complaints to multiple trauma cases. Emergency care skills, and the ability to perform a range of obstetric, surgical and orthopaedic procedures are essential.<sup>19-22</sup> Given that district hospital doctors carry out a wide variety of procedures, educators should ensure that graduates planning a career in such settings are competent in performing a defined spectrum of procedures.<sup>23,24</sup> Family Medicine training programmes should give particular attention to the provision of relevant education for district hospital medical practice. □

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### References

1. Department of Health. A district hospital service package for South Africa. A set of norms and standards. Pretoria: Department of Health, 2002.
2. WHO Technical Report Series. The hospital in rural and urban districts. Report of WHO Study Group on the functions of hospitals at the first referral level. WHO Technical Report No 819. Geneva: World Health Organisation, 1992.
3. Hill PV. Procedural skills in rural practice. *S Afr Fam Pract* 1995;16:674-677.
4. Jacques P, Reid S, Chabikuli O, Fehrsen S. Developing appropriate skills for rural doctors. Phase 1. Procedural skills of rural doctors in South Africa. Durban: Health Systems Trust, 1998.
5. Doolan T. Australian College of Rural and Remote Medicine Prospectus. Brisbane: ACRRM, 1997.
6. Provincial Administration Western Cape: Department of Health. Health Status Report and Health Services Evaluation Report 2000/2001. Cape Town: Department of Health, 2002.
7. WONCA International Classification Committee. ICPC-2. International Classification of Primary Care. Second Edition. Oxford: Oxford University Medical Publications, 1998.
8. De Vries E, Reid S. Do South African rural origin medical students return to rural practice? Durban: Health Systems Trust, 2002.
9. Couper I. Why doctors choose to work in rural hospitals. *S Afr Med J* 1999;89(7):736-738.
10. Kovacs G. Procedural skills in medicine: linking theory to practice. *J Em Med* 1997;15(3):387-391.
11. Solanke TF. Training of medical practitioners in Nigeria (West Africa) for surgery in the rural areas. *S Afr J Surgery* 1997;35(3):139-141.
12. Chiasson PM, Roy PD. Role of the general practitioner in the delivery of surgical and anaesthesia services in rural Western Canada. *Can Med Assoc J* 1997;153(10): 1447-1452.
13. College of Family Physicians of Canada, Society of Rural Physicians of Canada, Society of Obstetricians and Gynaecologists of Canada. Joint position paper on training for rural family practitioners in advanced maternity skills and caesarean section. *Can Fam Phys* 1999;45:2416-2422.
14. Deutchman M, Connor P, Gobbo R, FitzSimmons R. Outcomes of caesarean section performed by family physicians and the training they received: a 15-year retrospective study. *J Am Board Fam Pract* 1995;8:81-90.
15. Norris TE, Reese JW, Pirani J, Rosenblatt RA. Are rural family physicians comfortable performing caesarean sections? *J Fam Pract* 1996;43(5):455-460.
16. Larsen J. Increasing stresses in O & G units in district hospitals. (Letter) *S Afr Med J* 2003;93(4):236.
17. Working Group of the Society of Rural Physicians of Canada in cooperation with the College of Family Physicians of Canada and the Canadian Anesthesiologist Society. Joint Position paper on Training for rural family physicians in Anesthesia. Ottawa: CCFP, 2001.
18. Cameron D, Blitz J, Durrheim D. Teaching young docs old tricks – was Aristotle right? An assessment of the skill training needs and transformation of interns and community service doctors working at a district hospital. *S Afr Med J* 2002;92(4):276-278.
19. Jacques P. Surgery in rural areas. *CME* 2002;20(1):650-652.
20. Watts RW. The GP proceduralist. *Austr Fam Phys* 1993;22(8): 1475-1478.
21. Kelly L. Surgical skills for family physicians. Do family physicians make the cut? *Can Fam Phys* 1998;44:469-470.
22. Wise AL, Hays RB, Adkins PB, Craig ML, Mahoney MD, Sheehan M, Siskind V, Nichols A. Training for rural practice. *Med J Austr* 1994;161:314-318.
23. Rourke JTB. Postgraduate training for rural family practice. Goals and opportunities. *Can Fam Phys* 1996;42:1133-1138.
24. Chaytors RG, Szafran O, Crutcher RA. Rural-urban and gender differences in procedures performed by family practice residency graduates. *Fam Med* 2001;33(10):766-71.