THE PROCEDURAL SKILLS OF RURAL HOSPITAL DOCTORS

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Objectives. To describe the spectrum of procedures performed by general medical officers in South African rural hospitals, and the attitudinal issues associated with these tasks.

Design. A descriptive study combining quantitative and qualitative methods: a quantitative audit of operating theatre records of 15 rural hospitals in KwaZulu-Natal and 4 rural hospitals in Northern Province, and a qualitative analysis of 8 focus group discussions in which rural hospital doctors discussed their procedural work.

Outcome measures. Quantitative results included patient age, type of anaesthetic, type of procedure, and whether a separate anaesthetist was present or not for each recorded procedure performed in the operating theatre. Qualitative results comprised major and minor themes that arose from the focus group discussions.

Results. Quantitative results revealed a high proportion of obstetric and general surgical procedures, often performed by a single doctor acting as anaesthetist as well as surgeon. The range of surgical procedures undertaken varied widely between hospitals. Anaesthetic usage patterns revealed extensive use of ketamine and spinal anaesthetics, with relatively more general anaesthetics being administered in the Northern Province. Qualitative results revealed two scenarios in the rural hospital situation: one where doctors felt that they were coping and learning from the work under the supervision of peers or senior colleagues, and the other where they felt stressed by being alone and having to deal with emergencies, especially when short-staffed.

Conclusions. The broad range of skills demanded in rural hospital practice requires specific preparation and ongoing support. Without it, a vicious cycle is established leading to poor output and morale. The phenomenon of the single-handed anaesthetist-surgeon that emerged from this study deserves specific attention, particularly with regard to staff shortages in rural areas. Under circumstances of adequate staffing and support, the rural hospital is an ideal learning site for generalists. This study has significant implications for the proposed introduction of obligatory vocational training for all medical graduates.

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The role and scope of practice of the generalist doctor in rural community hospitals in South Africa is extremely wide, and poorly documented.[1] In the absence of specialist support, the rural generalist is called upon to perform clinical duties ranging from primary care to emergency surgical procedures, as well as administrative, teaching and leadership functions within the health team.[2] The definition of the general practitioner as someone who is able to 'deal with any patient with any problem at any time'[3] applies particularly to the isolated rural doctor in this country. While this description captures the essence of the issue, the specific skills required to carry out this function have yet to be described for South Africa.

To add an element of urgency to the matter, compulsory community service for all medical graduates in South Africa is currently being implemented, and a 2-year period of vocational training is planned.[4] However the end-point of this training has yet to be defined in specific terms. The need for well-rounded generalists has been put forward, but the actual skills required of them have not been specified. What is an accepted level and scope of practice for the generalist? What is an acceptable minimum standard of practice? And when should a rural generalist refer a patient on to a referral hospital for specialist care, rather than attempt to manage the patient alone?

In looking for answers to these questions, we often find a large gap between theory and practice. The needs of the situation determine the scope of practice more than written standards: teaching hospital norms are very different to those found in practice.[5] Furthermore, there are huge variations in the scope of practice of generalists, depending on their context. Skill in performing caesarean sections, for example, is standard practice for rural hospital generalists, but increasingly rare in urban practice. Certain procedures that are the exclusive preserve of the specialist in certain contexts are performed solely by generalists in others.[6]

This study is the beginning of a process aimed at describing what is in fact currently happening in rural hospitals. Surgical skills are the most quantifiable component of this spectrum and have been described in rural practices in other areas of Africa,[7-12] but little systematic research has been carried out in this country[13] despite a specific symposium on the issue in 1997.[14-18] Surgical skills can be viewed as an indicator of the scope of practice, but are only a part of it. Non-surgical skills, while less visible and less dramatic, are no less important, but are difficult to describe and quantify, and have not been investigated in this study.

Using the results of this and other studies, it is envisaged that there will be a need to build consensus with relevant stakeholders regarding the norms and expected standards of practice for rural generalists, as previously suggested.[1,17,18] This process could significantly inform the educational component of national vocational training, the end result of which will be equivalent to the competency expected of the well-rounded generalist practising in the absence of easily accessible specialist support, such as is found in rural practice.

METHODS

The study design was descriptive and employed two different methods, qualitative and quantitative. Both methods were used in two different sites: KwaZulu-Natal (KZN) and Northern Province (NP). Fifteen of the 34 rural hospitals in KZN were chosen randomly and the operating theatre records for two separate months during the period January to December 1995 were analysed. In NP 4 rural hospitals were chosen and the theatre records analysed for a 6-month period during 1995. Data were collected for each individual procedure with regard to patient age, the type of anaesthetic used, whether an anaesthetist was present or not, and the type of procedure performed. Results were analysed using the Epi-Info programme.

For the purposes of this study, a rural hospital was defined as an institution in which general practitioners deliver primary and secondary inpatient health services; with the institution situated a significant distance from a referral centre.

The qualitative component consisted of four focus group discussions with rural hospital doctors in KZN and four similar discussions in NP. The hospitals were chosen purposively in order to give a range of responses. The focus groups took place at a prearranged time at the hospital where the doctors worked, and participation was voluntary. The interviewers, trained in qualitative research methods, used the Free Attitude Interview technique described by Meulenberg-Buskens.[19] The following exploratory question was used: 'What is your experience of the surgical and obstetric part of your work?' The discussions were audiotaped and fully transcribed. Analysis involved the identification of major and minor themes, using a cut-and-paste technique, followed by the organisation of the themes into a representative diagram. The major themes from the discussions were then combined into a composite diagram.

RESULTS

A total of 2 634 records in 14 KZN hospitals and 4 575 records in the 4 NP hospitals were analysed (see Table I). General surgical procedures accounted for the largest proportion (46%) of all procedures, closely followed by obstetric and gynaecological procedures (43%) in both KZN and NP, with orthopaedic and diagnostic procedures accounting for the remainder (Fig. 1). In the general surgical category the 10 commonest procedures are given in Fig. 2. A higher frequency of circumcision and laparotomy was found in NP compared with KZN. Caesarean sections were the single most common of all operations performed in both KZN and NP, but the range of obstetric and gynaecological procedures was limited (Fig. 3). A

Table I. Analysis of hospital records from 14 KZN and 4 NP rural hospitals

	Groups of procedures					
	KZN ($N = 2\,634$)	% KZN	NP ($N = 4\,575$)	% NP	Total ($N = 7\,209$)	% Total
General surgical	1 221	46	2 018	44	3 239	44
Obstetrics and gynaecology	1 136	43	1 724	38	2 860	40
Orthopaedic	156	6	497	11	653	9
Diagnostic	116	4	296	6	412	6
Other	5	1	40	1	45	1
Total	2 634	100	4 575	100	7 209	100

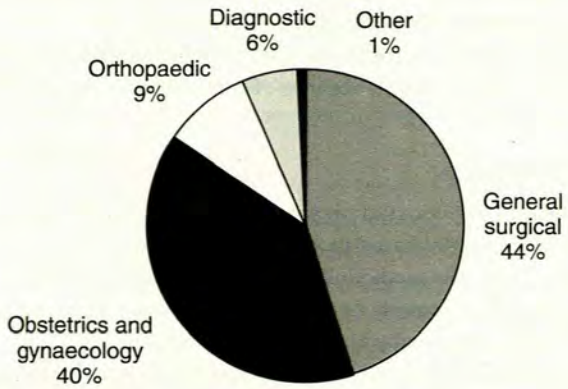

Fig. 1. Frequency of types of operative procedures (N = 7 209) performed at KZN and NP rural hospitals.

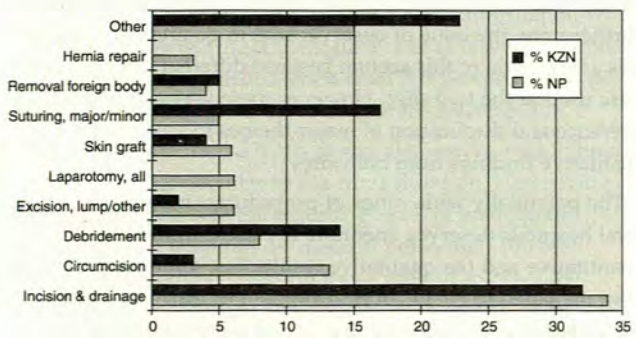

Fig. 2. Frequency of general surgical procedures performed in rural hospitals.

wide repertoire of procedures was found in some hospitals, while others were restricted; the range of different procedures carried out at a single hospital varied in number between 14 and 34. Unusual procedures recorded as having been performed included 10 hip replacements, lens extraction, mastectomy, nerve repair, oesophagoscopy, orchidopexy, rib resection, tenotomy, tracheostomy and wiring of the mandible.

The patterns of anaesthetic usage were somewhat different in

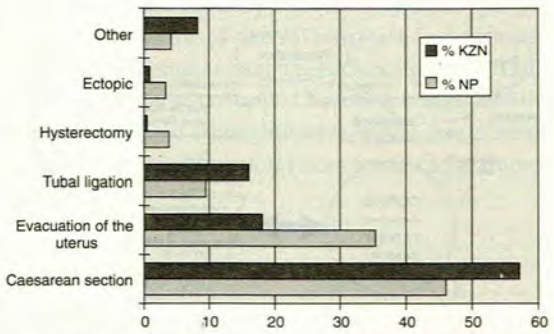

Fig. 3. Frequency of obstetric and gynaecological procedures performed in rural hospitals.

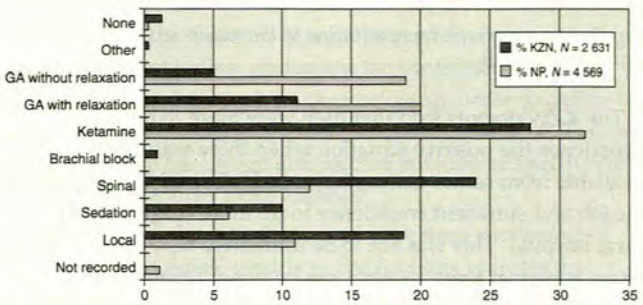

Fig. 4. Frequency of anaesthetics used in rural hospitals (GA = general anaesthetic).

KZN and NP (Fig. 4). In both provinces the commonest anaesthetic used overall was ketamine. However spinal anaesthetics were found to be used more frequently in KZN, whereas general anaesthetics were used more commonly in NP. A single doctor acting as anaesthetist as well as surgeon was recorded as having been present at 48% of all procedures in KZN, and 61% in NP. If local anaesthetics are excluded, then 43% of all procedures were attended by only one doctor in KZN. In KZN most anaesthetics involving ketamine and spinals (84% and 61%, respectively) were attended by the surgeon alone, whereas most general anaesthetics (89%) were attended by a separate anaesthetist. Of the caesarean sections,

62% were performed under spinal anaesthetic in KZN, and half of these were attended by a single doctor acting as anaesthetist and surgeon.

The qualitative results revealed two different pictures in the two sites. In KZN the major themes that emerged from the focus group discussions were those of learning on the job and coping positively with the procedural work on the one hand, as opposed to feeling stressed, particularly by emergencies and being alone (Fig. 5). The latter situation was described as potentially 'terrifying', especially as 'when things go wrong they can go horribly wrong'. This scenario worsened when there was a shortage of staff, resulting in an increased referral rate with referrals seen as 'getting rid of the problem'.

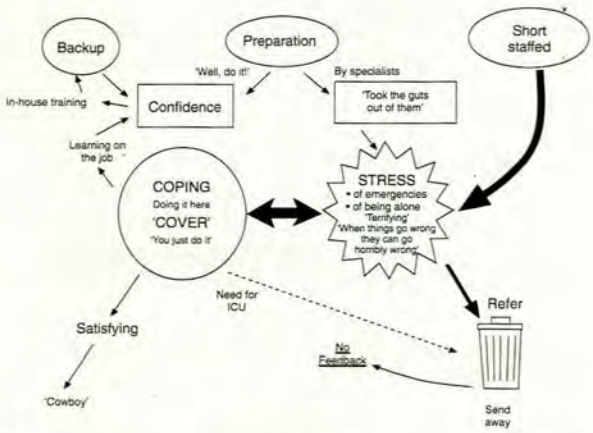

Fig. 5. Diagrammatic representation of the results of the KZN focus group discussions.

The KZN doctors said that they were more likely to experience the positive situation when there was backup available from senior colleagues, which allowed for learning on the job and sufficient confidence to do more surgery at the rural hospital. This was felt to be ultimately very satisfying, as 'there is no real limit' to what can be done. Taken to an extreme, this could lead to doctors exceeding their scope of practice, which was referred to as the 'cowboy' attitude. However, they felt that a training background with the attitude of 'you can do it' helps more than the teaching hospital attitude which 'takes the guts out of them' (i.e. the rural doctors). Referrals to distant specialist hospitals in this situation were limited to those cases where the doctor had no real choice, for example when there was a need for intensive care facilities. Lack of feedback from these referrals was mentioned as being a problem.

The NP focus groups described their scope of procedural work as being basic, mostly involving emergencies when on call. Major surgery was either referred or kept for the visiting specialist — two focus groups had visiting specialist anaesthetists, gynaecologists and surgeons during the study period. Their feelings varied from 'we are fortunate to have specialist backup', to 'there is no exposure, it is frustrating not to do what we can do'. Accessibility of referral centres, availability of specialists, fear of contravening the law, staff shortage and perceived hostility towards foreign-qualified doctors were among the reasons why patients were handed over to bigger centres or to specialists. Their position, both with regard to the doctor and the patient, was one of 'Why take unnecessary risks?'

However doctors said that the great majority of procedures can be dealt with in the rural hospital by generalists, provided adequate training and support are given. Opinions differed as to how exactly this training should be structured; some thought it was better to learn from experienced colleagues 'along the road', while others preferred the input of the specialist consultant in a tertiary environment or visiting rural doctors in their workplace. Others suggested a revision of the undergraduate curriculum so as to prepare young doctors more adequately for the realities of rural hospital practice.

Discussion

The findings of this study represent a real, contemporary picture of hospital-based procedural care in rural areas in South Africa. The methodologies used were designed to complement one another in order to give a comprehensive description of procedural care in rural hospitals. The quantitative data show what procedures were actually being performed, and the qualitative results show how the doctors experienced the work, which makes it possible to envisage ways of improving the situation. The quantitative data from KZN and NP were not directly comparable because of the different samples taken, but proportions were still comparable. Furthermore, the issue of observer bias in qualitative research was a limitation of this section because different interviewers were used at the two sites. However there was sufficient cross-reference and duplication of major themes to validate the qualitative findings from both sites.

The potentially wide range of procedures undertaken in rural hospitals deserves attention. It is clear from both the quantitative and the qualitative results that some hospitals have managed to create an environment of learning and a positive approach to the work at hand, whereas others are doing the minimum, never attempting anything too risky, and referring the rest. The latter have a very restricted range of procedural care, and are clearly responsible for overloading the referral hospitals unnecessarily with uncomplicated problems.[20] Well-supported peripheral hospitals performed most of their own surgery and referred in exceptional cases when there was no choice in the matter, for example, when there was a need for intensive or tertiary care. This phenomenon is likely to pertain not only to procedural care, but also to other disciplines, as has been shown in the case of medical and paediatric referral hospitals.[21,22]

The pattern of anaesthetic usage, particularly the extensive use of ketamine and spinal blocks, most likely reflects the pressure on rural doctors to operate without a separate anaesthetist because of staff limitations. The comment 'We do things differently here,' recorded during one of the focus group discussions, becomes clear when one analyses the phenomenon of the single-handed anaesthetist-surgeon. It is alarming to note that in KZN one-third of all caesarean sections were performed by one doctor alone — one must consider that the anaesthetic, the patient and the neonate may need urgent attention simultaneously, quite apart from the medico-legal implications of this practice. Virtually all of these deliveries were done under spinal anaesthetic, but acute hypotension or a high spinal can demand immediate corrective measures, which put the attendant nursing staff under pressure for which they may not be adequately prepared or legally accountable. General anaesthetics were almost exclusively administered by a separate doctor, which is entirely appropriate, but the use of ketamine alone for caesarean sections in five recorded cases is highly questionable.

The variation in procedural practice between the two provinces investigated is an interesting finding that is difficult to explain. The most significant difference was the use of spinal anaesthetics as opposed to general anaesthetics for caesarean sections, which may simply be a matter of tradition, although other factors may also play a part. This phenomenon points to the variability in practices considered standard by some, but unusual by others.

A limitation of this study is that it did not attempt to quantify the morbidity and mortality rates associated with the procedures performed, nor were the quantity or quality of referrals to regional hospitals analysed. This information would have complemented the current data well as it would involve analysing the same phenomenon from the perspective of the receiving specialist. It deserves a separate investigation.

The findings from the focus group discussions highlighted a number of issues peculiar to the rural situation. Underlying all of the discussions was the recurring issue of inadequate staffing of rural hospitals by medical personnel. Too few doctors means added stress on those present to carry the clinical load, particularly after hours when coping with emergencies alone can be 'terrifying', in the words of one focus group participant. Inadequate staffing has direct implications for the safety and legality of anaesthetic practice in these situations, as the case of the single-handed anaesthetist-surgeon shows. Recruitment and retention of professional staff in rural areas is an issue of national and international concern, and remains the responsibility of the provincial and national health services.[23] In the absence of sufficient numbers of doctors, serious attention needs to be given to the training of nursing staff to fill these roles, a practice that has been shown to be successful in other African countries.[16,24,25]

The major themes arising from the qualitative results revolved around the issue of confidence. A doctor operating alone needs a certain amount of self-confidence to tackle procedural work, and this may be encouraged by an appropriate training background, as well as on-site support.[17,18] The presence of experienced senior colleagues available for backup and in-house training allows doctors to tackle procedures without the pressure of full responsibility. The attitude 'You can do it', rather than 'Only a specialist can do this', is vital in terms of the empowerment of doctors-in-training. The systematic disempowerment of the generalist, and the mystification of many simple procedures, needs to be reversed. Without confidence, the isolated doctor becomes progressively restricted to a narrow repertoire of clinical interventions and unnecessary referrals increase, with consequent overloading of referral hospitals. In developed countries rural generalists have been 'deskilled' as a result of restriction by specialist-controlled licensing bodies and the threat of litigation; we cannot afford to repeat this experience in South Africa as referral centre services are already strained to the limit.

CONCLUSION

This study constitutes only one step in the process of understanding the competencies required of the rural hospital generalist in this country; it analyses the spectrum of procedures actually performed and the attitudinal issues associated with these tasks in the isolated rural setting. A second step is the building of consensus with all relevant stakeholders, including academics, the professional bodies, rural doctors and the trainees themselves, in order to define an acceptable level of competence for the rural generalist. This, in turn, will make the design and implementation of specific rural training programmes more feasible.

In the light of the introduction of obligatory community service for all medical graduates the findings indicate the urgent need for well-planned support strategies for doctors who find themselves in rural hospitals at a distance from specialist support. Couper[5] has given two scenarios for the future of rural medicine in this country: a 'high road' and a 'low road', which are reflected in the qualitative findings of this study. It is incumbent upon all those who have an influence on rural medicine to ensure that the high road is actively chosen, so that we do not find ourselves on the low road by default.

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