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RESEARCH

Remote clinical support by telephone for rural district hospital medical officers in the Eastern Cape

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Background: Rural district hospitals are frequently understaffed and inexperienced medical officers must make clinical decisions with no supervision. Medical officers from rural district hospitals in the Eastern Cape attending a two-week 'in-reach' anaesthesia training course at the Port Elizabeth academic complex were provided with subsequent telephonic support that enabled them to contact an experienced anaesthetist in the urban centre with clinical problems for advice. This survey was to determine user perceptions of the utility and effectiveness of the telephonic support system.
Methods: Two questionnaires designed for both rural and urban-based doctors were completed either online or telephonically and were used to assess perceived values and limitations of the support system.
Results: A total of 17 rural doctors, of whom 14 were foreign medical graduates, were eligible and agreed to participate; all were positive about the useful role and value of the programme, although many felt that the telephonic support system needs to be more structured and formalised. Open-ended questions revealed feelings of isolation and insecurity amongst the participants.
Conclusion: The telephonic system is valuable and readily accessible. However, its ready acceptance by the participants should be viewed in the light of the lack of other resources. A systemic approach towards clinical support of medical officers in rural district hospitals should be adopted, which might include remote supervision by telephone.

Keywords: foreign medical graduates, remote clinical support, rural doctors, telephonic consultation

Introduction

The Saving Mothers report of 2010 recorded 4 867 maternal deaths in South Africa (SA) between 2008 and 2010.[1] One hundred and twenty-one (2.5%) of these deaths were anaesthetic related, the majority (72%) of which occurred in level 1 hospitals. Complications associated with spinal anaesthesia were more common (71.9%) than those associated with general anaesthesia (27.3%). However, the majority of errors and areas of substandard care were not specific to anaesthesia technique; 63.6% of avoidable factors related to inadequate resuscitation. Also, 61.6% of avoidable factors occurred in district hospitals and lack of appropriately trained doctors accounted for 35.3% of administrative-related avoidable factors.

The Eastern Cape (EC) province is the second largest province in South Africa, has the third largest (13.5%) population (63% living in rural areas),[2] was the third largest contributor to maternal deaths overall, and contributed 13 of the deaths associated with anaesthesia. In 2010 the anaesthetic department in the Port Elizabeth (PE) hospital complex commenced two-week 'in-reach' anaesthesia training courses for inexperienced medical officers in rural district hospitals. The doctors were then encouraged to consult the urban doctors when necessary by telephone as a clinical support programme.

This study is a retrospective questionnaire survey to determine user perception of the value of this support programme.

Methods

Following Biomedical Research Ethics Committee approval and permission from the Port Elizabeth hospital complex, names of doctors registered for the PE short course and their contact details were obtained from the records kept by the course organiser. Data were collected in two ways: doctors were sent an email informing them of the research and its aims and the questionnaire was attached for those who preferred to complete it in writing. Doctors were also contacted by telephone and, if acceptable, recorded interviews were conducted and responses transcribed onto the data sheet. Two questionnaires, one for rural doctors and another for urban doctors, were used to assess this support programme in terms of quality, accessibility, availability, effectiveness and limitations. Questionnaires were anonymised before analysis.

The questionnaire to rural doctors contained 11 questions requiring a yes/no or graded response related to frequency of use, accessibility and practicality of the system. There were also four open-ended questions:

(1) What do you like about the system?
(2) What don't you like about the system?
(3) What are the system's limitations?
(4) What can be done to improve the system?

A space was also available for additional comments.

Inclusion criteria for rural doctors were that they must have attended the two-week anaesthetic training in PE, be medical officers (including community service doctors [CSMOs]) without extra anaesthetic training other than during internship, were working at a rural district (level 1) hospital, and must have used the telephonic support. For the purpose of this study 'rural' was defined as > 50 km away from regional (level 2) or tertiary (level 3) hospitals.

Urban doctors were all experienced specialist trainees or consultants who accepted calls between January 2012 and March 2013. The questionnaire sent to these participants was

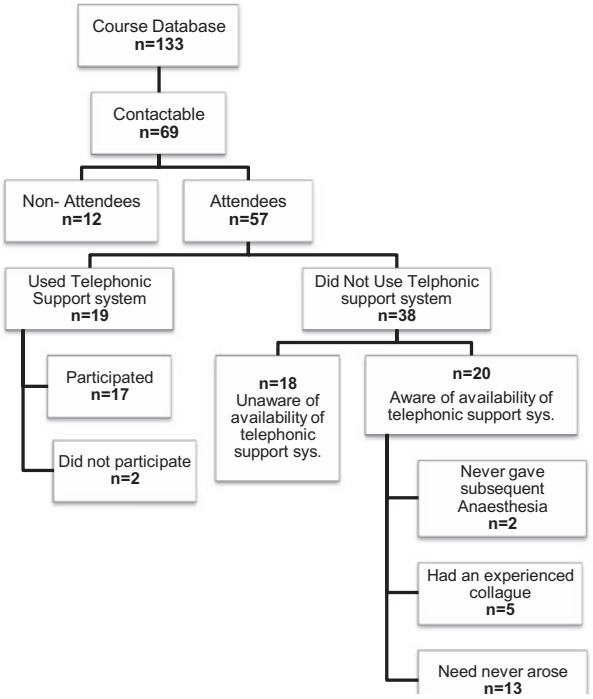

Figure1: Breakdown of the 133 doctors on the In-reach Course Database.

similar (appropriately changed wording) to that sent to the rural doctors.

Verbatim answers to open-ended questions were subjected to independent content analysis by the authors.

Results

Of the 133 rural doctors on the course database, 69 were contactable. Of these, 57 had attended the In-reach Course at Port Elizabeth, 19 confirmed that they had used the telephonic support system and 17 agreed to participate in the survey. Twelve questionnaires were completed over the phone, five were scanned and e-mailed. Of the contacted doctors, 20 did not use the telephonic support system because they had no need of it (two because they never subsequently gave anaesthesia, five because they had experienced colleagues available for assistance, and 13 because a situation of need never arose). See Figure 1

Despite having attended the 'In-reach' Course, 18 contactable doctors were unaware of the availability of the telephonic support system. Fourteen (82%) participants were foreign medical graduates (FMGs), compared with 15 (38%) of the 40 'in-reach' attendees who were excluded because they had not used the telephonic support system (p = 0.0032, Fisher's exact test). No participants were Community Service Medical Officers.

Questionnaire results: Rural doctors

Table 1 summarises user perception of the practical value of the telephonic service. Of note, all rural respondents expressed satisfaction with the advice given, which they followed. Feedback by rural doctors and follow-up by urban advisers was patchy.

Regarding accessibility to and availability of advice, the majority (10/17) of doctors reported always being able to contact urban-based doctors using the hospital telephone and seven reported varying success. Thirteen respondents reported that there was always someone available during the day, but three had experienced occasional difficulty; nine experienced no difficulties after hours but seven reported occasional difficulties (only 16 participants responded to this question). When asked who should be contacted after hours, seven said the consultant on call, two said the medical officer on call and eight of the rural doctors would have preferred to speak to the head of the anaesthetic department who was also the PE course coordinator.

All respondents found the system effective, helpful and valuable.

Open-ended questions, rural doctors

1. What do you like about the system?

Sixteen of the 17 responses were definitely positive about the system. One was ambiguous ('that it exists'). The most common responses (13 of 17) expressed appreciation for the advice given and its source; 10 comments related to accessibility/availability, five saw it as a supportive system, 4 related to the rapidity of the response, four found the system academically stimulating, 2 commented on the system's benefits to patient care and 2 felt that the responses increased their confidence in dealing with clinical problems. Other themes that emerged were 'enabling' (16), 'access to knowledge' (six), 'empowering' (four), the sense of achievement associated with improved patient care (two), and 'expanding relationships' (one).

2. What don't you like about the system?

There were 10 responses with extractable information. Seven participants responded 'nothing' or its equivalent. Seven expressed issues relating to the urban adviser, e.g. 'calling someone that you are not familiar with might be a problem…', three expressed frustration with inadequate resources, one voiced issues related to inadequacy of training time, and one complained that there had been no information provided as to the availability of the telephonic support service. Other emergent themes included feelings of insecurity (seven) reflecting what could best be described as 'otherness' ('to be advised by … who don't understand the circumstances under which we work', 'there's no replacement for having someone on site', 'if you don't know the person you're speaking to', 'he might not advise you properly'), or a lack of self-confidence in clinical communication and fear of repercussions ('Medico-legal issues – sometimes we forget who we have spoken to for documentation. Other details of the patient may be missed by us or presented wrongly'). Two respondents expressed frustration with the inadequacy of resources ('inadequate staffing and hospital phones that don't work') and one felt that hospital management represented a barrier to his perceived training needs and the 'in-reach' course was too short.

3. What are the limitations?

Eleven responses contained information. Of the six participants who responded 'nil', three had responded 'nil' to question 2. Four comments related to inadequacies of training, with respect to timing, location or brevity of the course associated with the programme and lack of access to additional courses and updates. Seven responses related to issues surrounding the urban adviser either relating to accessibility ('I don't know which consultant is on call', 'Maybe at the time of the call, the person may be unavailable…', 'not having access to the call roster') or quality of the advice ('junior doctors who don't understand the circumstances under which we work…','Some advices [*sic*] are not practical; sometimes you need someone to show you practically'. One respondent pointed out that in an emergency situation he/she 'would be unhappy to pick up the phone, so there is little the system can do in that situation'. Another commented that commitment of the urban-based doctors was a limitation. The comments surrounding the urban adviser reflect a theme of

Table 1: Frequency of use and perceived utility of the telephonic support system

		1–5	> 5
How many times you have used the system?		3	14
	Always	Sometimes	Never
Did you follow the advice?	17		
Were you satisfied with the advice?	17		
Did you report back (provide feedback)?	8	6	3
Did the doctor you contacted follow up on the cases?	6	5	6

insecurity and again 'otherness', e.g. the above comments about junior doctors and lack of commitment (also 'the advising doctor has not been to see the equipment', 'tertiary institutions are far from rural areas'). Some comments suggested feelings of disempowerment or lack of control of the system. Two comments clearly expressed that the system provided insufficient support and that more was needed.

4. What can be done to improve the system?

All participants responded to this question. Eleven comments related to the advisers; three of these were suggestions on how to improve logistics (making call rosters available to switchboard, communication between the (rural) hospital managers and the (urban) head of anaesthetic department, use of a dedicated cell-phone); seven comments suggested that the urban doctors should be more directly involved with the rural centres through outreach programmes, (to 'see what's going on here', 'to see firsthand what is exactly happening at the rural hospital', 'see equipment we are having because they are different from the ones we learnt from in PE', 'to see the working conditions', 'have a feel of what's going on…'). There were six comments related to training issues either expressing the need for more ('teaching hours dedicated to rural doctors … maybe weekly.', 'longer courses should be offered', 'involve more rural doctors', 'structured programme for rural doctors') or suggesting an alternative method ('teleconference in the anaesthetic related issue can help us more', 'training must be done on site'). Five of the adviser-related questions (not the training comments) included a request for senior doctors or consultants to participate at the urban site. Again the theme of otherness arises, with nine of the comments emphasising the differences between urban and rural centres, and strong (11 out of 17) expression of the need for regular personal contact between the two.

Additional comments

Seven participants made additional comments. Three were strongly positive: 'very laudable and innovative', 'great programme that assists rural doctors', 'very useful and I have formed lasting friendships'. Four were more critical, emphasising the need for improved communication and direct involvement of the urban advisers at rural hospitals 'visit and see the equipment and conditions we work under', 'send anaesthesiologist to reinforce what they've learnt … there's lack of continuity and … feedback', 'the urban based doctor should phone us to find out if we're coping. It's a two-way communication.' One called for a more formalised system.

Questionnaire results: Urban-based doctors

There were five urban doctors (one consultant, three registrars and one experienced medical officer) who dealt with calls from rural doctors and gave clinical advice. Of these, four agreed to participate in the study. All reported that they were always available when on call. Three doctors received and one never received feedback on subsequent clinical outcome. One always actively followed up the referrals, two did this sometimes and one admitted to never re-contacting the rural doctors.

Three responded that rural doctors were always reachable and one responded 'only sometimes'. All four respondents were available both day and night. At least two urban-based doctors thought that the consultant on call should be the one contacted after hours, the rest thought the senior medical officer on call. All believed that the support system worked, was useful, helpful to rural doctors and presented value.

Responses to open questions

The urban-based doctors felt that telephonic support was a practical, easy and inexpensive way to assist rural doctors to deal with anaesthetic challenges (Q1).

Reservations were expressed about being the only available clinical opinion at the urban centre, that the system was dependent on the willingness of the rural doctor to seek advice, the inability to personally assess the patient, and lack of familiarity with resources available at the rural hospitals and referral protocols (Q2 and Q3).

All agreed that the support process should be extended, by increasing resources, such as audio-visual links and the number of consultants to provide advice. All wanted to formalise the process with compulsory feedback, provision of structured training programmes and organised monthly meetings. Logistic improvements in terms of a transferrable cell-phone and published call rosters were also mentioned (Q4).

Additional comments included a call for more regular contact, for example video-linked morbidity and mortality meetings, rural workgroups. A third comment, by someone who had experienced 'both ends' of the programme, emphasised how helpful and inspiring it could be.

Discussion

The focus of this study was user-perceived evaluation of the utility and efficacy of clinical support by telephone of medical officers in rural district hospitals. The preponderance of foreign medical graduates in the rural study group modified this focus to that largely seen through their eyes. Furthermore, the information obtained from open-ended questions extended the focus to include additional perceived needs of the respondents.

The literature relating to 'clinical support' of rural doctors contains little that is orientated towards the doctors' needs rather than the health care needs of the community or the political requirements of health care systems. A recent review of physician perceptions concerning clinical supervision and educational support via videoconferencing[3] found only 13 of 1 288 studies between 1990 and 2013 that fulfilled the inclusion criteria.

Reliance of rural district hospitals on FMGs has been highlighted in a survey of obstetric anaesthesia practice in KwaZulu-Natal in which they were identified as an important group for targeted training and support.[4] The absence of Community Service Medical Officers (CSMOs), another important group identified by Theron, from this study should be considered when interpreting our results, and any recommendations may not address their specific needs.

The quantitative aspect of the study is limited by the small sample size (only 69 contactable of a possible 133, further reduced by those who had not used the telephonic support). Nevertheless all questionnaire results from rural doctors gave a superficially favourable view of the system, although reservations were expressed about the urban advisers not always being contactable and not all cases were followed up. This was reinforced by the responses to question 1 that expressed appreciation for the advice, which was beneficial to patients and generally enabling/empowering. The latter was echoed by the urban advisers.

By contrast, the qualitative results (reflecting emergent themes not limited by participant numbers) provided a richness of information encompassing both the perceived value of the clinical support process and the declared support needs of the rural doctors (largely FMGs). This led the study in an unanticipated direction that included social, training and academic needs.

There is currently no national or provincial custodianship of FMGs. This is most acutely felt in disciplines such as anaesthesia that have limited (or no) exposure at undergraduate and internship level in the curricula of foreign medical schools, whether in developed or developing countries.[4]

A support system for these doctors should encompass their needs within the health care needs of the community they serve and available resources. The doctors in most need of support are unfamiliar with the working environment, ignorant of the available support structures and reticent to voice their needs. The latter may be reflected by the reduced number of participants prepared to comment on negative aspects of the support system. The most appropriate nexus for support should be the regional hospital to which referrals are made. Theron has highlighted difficulties experienced by rural district hospitals with referral of patients to regional centres,[5] so it is disturbing that criticism of the telephonic support system included comments by both rural doctors and urban advisers regarding advisers' unfamiliarity with resources at rural hospitals and referral protocols.

Notwithstanding the above comment regarding reticence, it was enquiry into the negative aspects of the telephonic support system that produced the richest information. In asking what respondents like about a system and providing checklists of options, there is a danger of acquiescence bias in the responses. The themes of frustration, lack of self-confidence and insecurity emerging from the responses to questions 2 and 3 are unsurprising from inexperienced or foreign doctors working alone in an unfamiliar environment. A recent survey of junior doctors on rural rotations in Queensland suggests that their clinical performance had to be at a higher level than their previous experience in metropolitan hospitals[6] and while this can build confidence and character, in the absence of direct supervisory support (as identified in KZN[5]) it represents an additional stress.

Support should not only be based on transmission of expertise, but also on the development of personal relationships and trust.[7] Notable are the five rural doctors who did not use the system because they already knew somebody they could call. The first step in developing trust has to be a physical presence, even if intermittent. It would make more sense to attach this sort of clinical support system to an outreach programme to the district hospitals, rather than an 'in-reach' training course at the urban centre. This would fulfil the rural doctors' need for familiarity and help overcome their sense of isolation (reflected in several responses to open-ended questions).

There has been very little planning of support and professional development of rural doctors in South Africa, many of whom have limited clinical experience and scant local knowledge. In KwaZulu-Natal as many as 27% of full-time doctors at rural district hospitals are FMGs, and another 27% are CSMOs;[4] it is unlikely that the Eastern Cape is much different. The South African take on the world Health Organizations's policy recommendations on increasing access to health workers in remote and rural areas includes personal and professional support (outreach, improved living conditions, safe and supportive working environment, and continuing professional development).[8] However, these factors do not appear in its second guiding principle for human resources, to 'understand the workforce', which concentrates on the numbers rather than personal needs.

Conclusion

The favourable response to telephonic clinical support by both rural and urban doctors may reflect the unavailability of any other support, but should be seen as a step in the right direction. To be more effective it should be part of a systemic approach to support doctors and other health professionals, and incorporate tertiary, regional and district hospitals. Although there is a strategy to provide medical care to rural areas (including deployment of CSMOs and FMGs), this will not become sustainable until doctors want to stay there. This is not going to happen if they are left to fend for themselves in a one-horse town in the middle of nowhere.

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Conflict of interest – This paper represents the research component of Dr Nqala's Master of Medicine (Anaesthesia) at the University of KwaZulu-Natal. Chris Rout and Colleen Aldous co-supervised Dr Nqala's research project.

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