

Review of final-year medical students' rural attachment at district hospitals in KwaZulu-Natal: student perspectives

Diab P, MBChB, MFamMed, Senior Lecturer

Department of Rural Health; University of KwaZulu-Natal

McNeill PD, MBChB, MFamMed, Facilitator

Centre for Rural Health; University of KwaZulu-Natal

Ross AJ, MBChB, DCH, MMed(FamMed), FCFP(SA), Principal Specialist and Lecturer

Department of Family Medicine; University of KwaZulu-Natal

Correspondence to: Paula Diab, e-mail: diabp@ukzn.ac.za

Keywords: rural hospital attachment, community-based education, quality improvement project, programme review

Abstract

Objectives: This study aimed to investigate the views of students involved in rural community-based medical attachments during their final year at medical school. The programme has been in existence for some time, but no formal evaluation thereof has yet taken place. This paper describes the first two phases of what is described as a quality improvement project: namely to describe the problem state and to discuss possible activities to improve the programme.

Design, setting and subjects: The study adopted a mixture of quantitative and qualitative type research. Data were collected by means of a self-administered questionnaire which students at Nelson R Mandela Medical School, University of KwaZulu-Natal, completed at the end of their Family Medicine rotation. Consent was obtained from the participants and ethical approval granted by the University of KwaZulu-Natal Humanities and Social Science Ethics Committee.

Results: Students were generally positive about their rural attachment experience. The majority (86%) believed that their skills adequately prepared them to enter the community. Allocation of a supervisor and rostering were found to be of great importance. Academic activities provided adequate learning opportunities. The majority (76%) of students who used hospital accommodation found it to be satisfactory, although it was an area that needed attention. Technological support was lacking. Fewer than 50% of students had access to such facilities.

Conclusion: Students' responses were generally positive about the rural attachment experience, but logistical and technological support issues, as well as that of accommodation, need to be addressed if the programme is to flourish. Community-based education in a rural district hospital can provide unique learning opportunities for students if the opportunities are identified and the programme is well managed.

Peer reviewed. (Submitted: 2013-11-15. Accepted: 2013-02-17.) © SAAFP

S Afr Fam Pract 2014;56(1)57-62

Introduction

This paper presents the first phase of an ongoing quality improvement review of the rural attachment undertaken by final-year medical students during their Family Medicine rotation at the University of KwaZulu-Natal. Academic programme development should be iterative and context-specific. As such, the reporting of this evaluation may not lend itself to a traditional reporting format that is geared towards experimental protocols within a tightly controlled research setting.¹ Quality improvement research aims to describe four distinct elements of any quality improvement project. These elements are a description of the problem state, improvement activities, implemented changes and evaluation methods.²

This paper is set against the first phase of a quality improvement project and describes medical students' opinions of factors that influenced their experience at a rural, district-level hospital. A description of such factors is relevant as there has been no initial evaluation of aspects that pertain to rural hospitals, such as mentoring, orientation and continuing medical education opportunities at the study site. These factors are considered to be necessary for medical students to gain an overall positive experience of a community-based education programme.^{3,4}

Community-based medical education in South Africa has its roots at the University of KwaZulu-Natal. In 1945, the Institute of Family and Community Health was established to teach and conduct research in community health practices. This institute became the Medical School of the

then Natal University.⁵ In 1951, Dr Sydney Kark created the term “community-orientated primary health care” while working at the Polela Health Centre in KwaZulu-Natal.⁶

In order for the community-orientated primary healthcare model to be effective, students need to be attached to a decentralised, rural site. Training at a decentralised site could add value and supplement medical student teaching in traditional academic hospital settings.⁷

It is being increasingly recognised that an advantage of sending students to rural communities to serve the community and to reflect on their experiences, may help students rediscover some of the initial altruism that they may have felt and which declined during their medical training.⁸ Another potential advantage of community-based medical education is that medical students may practise alongside and within multidisciplinary teams and this experience may prepare them to work with other health professionals in their future careers.⁹

There are several ways of presenting community-based medical education to medical students. In some instances, universities offer it as an elective experience, in which the student can voluntarily choose to attend a rural practice.¹⁰ At other universities, such as the university at the study site, students participating in a Family Medicine rotation are obliged to fulfil a compulsory attachment for two weeks at an urban district hospital and two weeks at a rural district hospital. This review focuses on the rural component of the attachment.

In the literature, several factors have been identified as being necessary to enhance a student's positive experience of community-based medical education. Firstly, assigning students to supervisors at the decentralised site has long been employed by successful community-based medical education programmes with the aim of improving the students' experience.¹¹ The supervisor should be a health professional who is based at the rural site and who acts as a mentor throughout the student's stay and who provides support and contact between the student and the academic training institution.¹¹ Secondly, the literature supports the concept that a supervisor should supply students with a roster of activities which the student should aim to accomplish while at the district hospital site.¹²

Thirdly, a medical student should receive academic support from the university (visits from the academic department, Internet access and web-based support). Innovative means of increasing available support to supervisors and to medical students in a community-based medical education programme include the use of video-conferencing and teleconferences. The rationale is that bridging the geographical barriers between the remote site and the academic training institution may reduce the student's

perception of academic isolation and enhance his or her positive experience.¹³ Students are also encouraged to participate in continuing medical education programmes which are a joint effort between the rural hospital and the university.

Fourthly, the literature supports that a community-based medical education programme should pay attention to student accommodation. The quality of students' accommodation can have a disproportionate influence on the students' perceptions of the attachment.¹⁴ Every effort should be made to meet students' expectations regarding accommodation.

The objectives of this study were to document student experiences during their rural district hospital attachment, and based on the findings of this study, to make changes to the course and curriculum if necessary, and to ensure that students and facilitators benefit from the attachment.

Method

Data were collected by means of a self-administered questionnaire which final-year (5th year) students completed at the end of their Family Medicine rotation upon return from the district hospital. The questionnaire was not validated, nor was any standardised tool available, but it was developed in consultation with an expert in the field and based on prior experience of student comments in such an environment. All students completing the rotation were sampled. One hundred and sixty-eight of the 182 students completed the questionnaire; a 92% response rate. The questionnaire used a mixed-methods approach to evaluate student views. Quantitative data were then entered into EpiData[®] and analysed descriptively. Qualitative data were analysed thematically and used to support and explain the obtained quantitative data. Ethical approval for this evaluation was received from the University of KwaZulu-Natal Human Social Sciences' ethics committee as part of a district-based learning project (HSS/1347/010) evaluation. Consent was obtained from the students who completed the questionnaire.

Results

These were grouped into the following themes:

- Preparation and skills training prior to entering the community.
- Logistical issues, including allocation of a site supervisor, rostering and orientation.
- On-site teaching and supervision, including academic activities.
- Accommodation.
- Available technical support.
- Overall benefit from the experience.

Theme 1: Preparation and skills training prior to entering the community

Students received a briefing at the university prior to their departure, as well as specific skills training in practical procedural skills. Eighty-six per cent of students who answered this question found the skills training useful as it was a good revision of skills previously learnt, and a solid introduction to the practical exposure at the district hospitals: "We had the opportunity to practice previously learnt skills and refresh knowledge",

"Skills laboratory training was useful", and "I was able to do a lumbar puncture with confidence".

Students also expressed the view that "insufficient time was given to practicing the skills under supervision".

Some students gave conflicting views about the skills training that they had received prior to leaving for the district hospitals, stating that "None of the skills were done in the hospital". Of the total group, 31% mentioned that they had had to perform skills at their district hospital attachment for which they were not trained, and for which they felt inadequately prepared: "The skills session did not cover all the skills".

The skills related to surgery mainly, e.g. circumcision, assisting in Caesarean sections, abscess drainage and removal of foreign bodies. Such skills are difficult to simulate in a skills laboratory and are also taught in other disciplines.

Theme 2: Logistical issues

Allocation of a site supervisor, rostering and orientation

Upon arrival at the rural hospital, 85% of students received orientation to the hospital, 93.5% were allocated a specific supervisor for the duration of their stay, and 55.4% received a formal roster of activities for them to carry out. The students who commented on poor orientation at the rural hospitals highlighted the relevance of such an orientation, and the importance of a dedicated supervisor: "They were busy with ward rounds and supervisors did not take note of us".

One of the main reasons for poor orientation and rostering seemed to relate to poor communication between the university and the supervisors with regard to what was expected and when the students were arriving: "The coordinator was expecting us on the next Monday", and "We arrived on a Saturday and no-one was expecting us."

Theme 3: On-site teaching and supervision, including academic activities

Teleconference

During their rural attachment, two conference calls were arranged with staff from the department. Seventy-eight per

cent of students said that they found these interactions to be useful. In the first week, logistical concerns about the rural attachment were discussed, and students were given the opportunity to interact with their peers at other sites. Students reflected on these benefits: "In terms of feeling supported while in unfamiliar surroundings, it helped", and the teleconference "helped alleviate some feelings of isolation".

In addition, during the second call, students were asked to present a patient, whom they had encountered, who required transfer from district to regional level care, where department staff and colleagues acted as the receiving doctor. Students were made aware of the need for clear communication, documentation and motivation on their patient's behalf, and of the resource limitations that are inherent in such clinical scenarios. Students felt that the teleconferences "made it easier and to know when to transfer patients and which kind of patient and what investigation and initial management to undergo before referring". During the teleconference, they "learnt things that we do not usually get at school", and "It was a fun way to share our experiences and practice referring patients".

However, the teleconference experience was marred by logistical problems with regard to setting up the calls and maintaining good connectivity during the call. These factors included "poor sound quality", "a poor signal", "a bad telephone connection" and "constant interruptions".

Quality improvement project

During the district hospital rotation, students were asked to perform a quality improvement project on a predetermined topic and review hospital practices in that regard. They were then required to present their recommendations to the hospital, as well as to the university department, during their exam week.

Again, students seemed to have conflicting views on the relevance of this activity. Some failed to see the benefit of the task and described the quality improvement project as "time-consuming" and "of no benefit".

Those students who engaged with the task recognised that it was as a useful learning opportunity that was relevant to themselves and to the hospital: "It helped me understand how to conduct a retrospective analysis and present the findings", and "Shortfalls in recordkeeping are very common and result in a waste of resources".

Academic learning

Journal clubs were not frequently available to students. Only 9.5% of students participated in such an activity. Continuing medical education meetings were well attended, with 85.7% of students stating they had participated in such a learning activity. Formal consultant visit teaching

was reported to have occurred by 71.4% of students who attended a rural hospital.

Multidisciplinary teamwork

58.3% of students said they were exposed to the multidisciplinary team. This was only a recommendation to students and no formal mark allocation or activity was planned with the multidisciplinary team. However, those who engaged in this experience were able to appreciate the benefit of working in a team: "We learnt the roles of other health professionals", and "We broadened our knowledge ... the dependence on each other was emphasised for the best outcome for our patients".

Theme 4: Accommodation

Eighty-seven per cent of students at rural hospitals utilised the hospital accommodation that was provided to them. Of the students who made use of the accommodation, 76% found it to be "above average" or "average", indicating that there are still some concerns with regard to student accommodation that need to be addressed.

Theme 5: Available technical support

In general, less than half of the students had access to any technical support while at the rural hospitals. Even basic resources, such as computers (available to 44% of students), and the Internet (available to less than 35% of students), were not readily available. The technical facilities and resources that were accessed by students are detailed in Figure 1.

Student activities rely quite heavily on the use of computers and on accessing Internet resources. If such activities are to be continued, the availability of technical support needs to be addressed as less than half of the students reported having access to such facilities.

Theme 6: Overall benefit of the experience

Benefits to the hospital

The majority of students viewed their main benefit to the hospital as being practical support through providing assistance by seeing patients and performing various

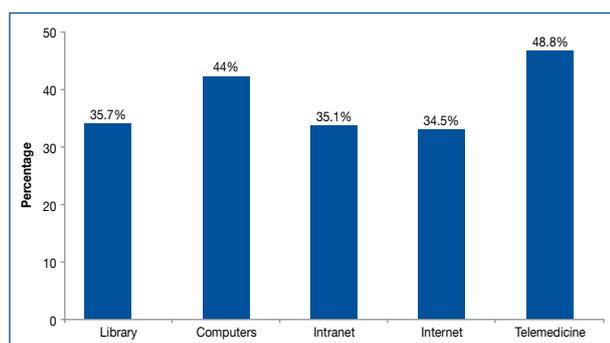


Figure 1: Resources that were available to the students at the rural hospitals

procedures: "In the out-patient department, we clerked patients and presented them to the consultant. This helped patients because they did not stay for so long in the queue. We also assisted in theatre and took blood and did other procedures".

They recognised that the district hospitals were understaffed and saw themselves as part of the medical team: "You become a member of the team and work very hard, especially in a busy outpatient department".

They also saw the benefit that they provided to the hospital in terms of offering up-to-date information on new management protocols. Through their quality improvement project, students were also able to make hospitals aware of issues that could be improved and gave feedback where necessary: "At (the hospital), they were out of touch with current practice guidelines and required a refresher", and "Many staff members do not have time to do a quality improvement project, therefore by getting students to do it, it gives the hospital an indication as to what is happening that they might not have been aware of".

Benefits to the students

Students viewed their rural attachment as an important way in which to gain practical skills. They enjoyed the smaller groups and the more direct supervision from willing supervisors: "We got to do a lot of procedures and the staff was friendly", and "Smaller groups gave us more of a chance to perform clinical skills", and "The doctors were extremely helpful".

They also said that their learning was more than just practical skills and knowledge acquisition, as they were "exposed to different aspects of medicine, like resource management", and "The doctors at (the hospital) are passionate, helpful and hardworking, and make good role models".

Some students concluded that "the whole of the Family Medicine block should be done at rural hospitals as we are getting enough exposure to urban hospitals in other blocks".

Discussion

It has been stated that a negative rural experience for students is worse than no experience at all.¹⁵ Knowing the components that go towards making such an experience positive,¹² it is incumbent upon departments that provide a rural training experience to ensure that this experience engenders a positive attitude in participants.

Therefore, the rural placement of students in the Family Medicine block needs to be reviewed regularly to ensure that the students' experience remains positive.

Research into a parallel rural curriculum in Australia³ identified the importance of building relationships with

healthcare providers who supported students, and of orienting students when they arrived on site. Orientation upon arrival is important. It is of concern that 15% of students who visited rural sites received no orientation on arrival. The reasons for this need to be clearly understood, but this may indicate a need for the university department to engage more closely with the various sites to ensure that standardised orientation is offered to arriving students. The rostering of various activities should be closely linked with the orientation that is given to students. This is well justified in the literature, where adequate entry into the community is noted to be pivotal to meaningful engagement in the community.¹⁶

The pre-departure skills training offered to the students during their orientation was found to be useful by the majority of students, but it is of concern that 15% of the class thought that it was unnecessary. This may be because many of these skills are taught elsewhere in the curriculum by other departments, and the students viewed this as a waste of time, rather than necessary revision. What is significant though is that 31% of students reported being exposed to procedures that they had not been prepared for by the training. Further work needs to be carried out to establish what these skills are, and to adapt the skills training, if necessary.

Research in Australia on the parallel rural curriculum¹⁷ showed that students benefited from working with a variety of healthcare professionals, including allied healthcare professionals. Learning to work within a multidisciplinary team has been shown to have the advantages of allowing students to appreciate the contribution of other disciplines, of providing comprehensive patient care, and sharing clinical skills among disciplines.¹⁸ This exposure to allied healthcare professionals needs to be structured with clear learning outcomes if students are to benefit from the exposure.³ It is disappointing that just over half the class only was exposed to the working of the multidisciplinary team as this was an expressed outcome of the attachment.

The quality improvement project that was undertaken was viewed as a useful task that gave students valuable insight beyond the clinical concerns of patients only. They highlighted the importance of this task and said that it was a positive benefit for the hospital in return for hosting them in the community.

There seemed to be adequate exposure to formal teaching at the rural sites, both in the form of consultant visits and continuing medical education activities. In addition, some students even stated their preference for teaching at the rural hospitals as there was less competition for teaching and learning opportunities than that in larger, urban hospitals.

This is consistent with studies in rural Australia where medical students actively participated in undergraduate, postgraduate and continuing medical education programmes, often with improved academic results, in comparison to students who were urban-based.^{3,19} Students also described an awareness of learning more than just knowledge and skills. Some reported developing attitudes of empathy and respect for staff and patients at the district hospital. This is an issue that could be exploited as a learning objective while at the rural sites.²⁰

In an age where telecommunication is of vital importance, not only to academic learning, but also to daily communication, it is of concern that students did not have these resources made available to them. When evaluating rural longitudinal integrated teaching sites, Couper concluded that communication strategies to limit student isolation and improve teaching and support, were essential for rural programmes.¹⁹ The department of Family Medicine and the University of KwaZulu-Natal needs to make more of an effort to provide students with the means to access the Internet. Some novel approaches could be adopted as network availability at most of the sites is now no longer an issue.²¹

The issue of student accommodation needs to be acknowledged, especially as the vast majority of students at the rural sites were obliged to use what the university supplied. The focus of the university should be on providing good, rather than adequate, accommodation, if this programme is to flourish.¹²

Conclusion

In order for the rural attachment to remain relevant, there needs to be a continual process of re-evaluation. This paper documents some of that review process, and is hopefully of relevance to institutions that are involved in similar activities. Students were generally positive about their experience at the rural hospitals.

An issue that was highlighted as a possible area of improvement was more formal communication between the academic institution and the teaching site. This, in turn, would also improve the orientation, rostering and supervision that the students receive from the site mentors. Technological support needs to be improved, both to allow students to maintain contact with the university and their peers, as well as to complete assignments while at the rural site.

Further effort needs to be made to include exposure to the multidisciplinary team as part of the explicit learning objectives of the programme, and to ensure that the full benefit is derived from this interaction. Accommodation will remain a challenge when using any remote sites,

and the university will need to ensure that appropriate accommodation is always available.

The availability of on-site teaching and supervision was not mentioned as a concern. Students have access to adequate opportunities for knowledge and skills acquisition during their rural district hospital attachment. They reported enjoying the small group teaching the most, but the opportunity to develop an attitude of curiosity and respect needs to be better utilised. This is an issue that could be exploited at the rural sites.

If these conditions are fulfilled, the rural attachment could provide the ideal platform for a mutually beneficial learning experience for students and their hosts.

Limitations

This review has focused on a relatively small sample of 2011 students only. The results of this study are not generalisable to other institutions, but may provide useful indicators for consideration.

Declaration

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Acknowledgements

Financial assistance for this study was obtained through Atlantic Philanthropies, as part of a larger evaluation that was undertaken of a district-based learning project. The authors wish to convey their gratitude to various staff members of the Centre for Rural Health, University of KwaZulu-Natal, who assisted with the data collection and analysis.

References

- Davidoff F, Batalden P, Stevens D, et al. Publication guidelines for quality improvement in health care: evolution of the SQUIRE project. *Qual Saf Health Care*. 2008;17 Suppl 1:i3-i9.
- Sifrim ZK, Barker PM, Mate KS. What gets published: the characteristics of quality improvement research articles from low- and middle-income countries. *BMJ Qual Saf*. 2012;21(5):423-431.
- Walters LK, Worley PS, Mugford BV. Parallel rural community curriculum: is it a transferable model? *Rural Remote Health*. 2003;3(3):236.
- Couper I, Worley PS, Strasser R. Rural longitudinal integrated clerkships: lessons from two programs on different continents. *Rural Remote Health*. 2011;11(2):1665.
- Noble V. A Medical education with a difference: a history of the training of black student doctors in social, preventive and community-oriented primary health care at the University of Natal Medical School, 1940s-1960. *South African Historical Journal*. 2009;61(3):550-574.
- Tollman SM. The Pholela Health Centre: the origins of community-oriented primary health care. An appreciation of the work of Sidney and Emily Kark. *S Afr Med J*. 1994;84(10):653-658.
- Whitcomb ME. Redesigning clinical education: a major challenge for academic health centers. *Acad Med*. 2005;80(7):615-616.
- Seifer SD. Service-learning: community-campus partnerships for health professions education. *Acad Med*. 1998;73(3):273-277.
- Peabody C, Block A, Jain S. Multi-disciplinary service learning: a medico-legal collaboration. *Med Educ*. 2008;42(5):533-534.
- Norris TE, Schaad DC, DeWitt D, et al. Longitudinal integrated clerkships for medical students: an innovation adopted by medical schools in Australia, Canada, South Africa, and the United States. *Acad Med*. 2009;84(7):902-907.
- Strasser R. Training for rural practice: lessons from Australia. *Can Fam Phys*. 2001;47:2196-2198.
- Page S, Birden H. Twelve tips on rural medical placements: what has worked to make them successful. *Med Teach*. 2008;30(6):592-596.
- Eley DS, Young L, Wilkinson D, et al. Coping with increasing numbers of medical students in rural clinical schools: options and opportunities. *Med J Aust*. 2008;188(11):669-671.
- Han GS, Wearne B, O'Meara P, et al. Medical students' and GP registrars' accommodation needs in the rural community: insight from a Victorian study. *Aust Health Rev*. 2003;26(1):92-105.
- Influences on participation in the Australian Medical Workforce. Sydney: Australian Medical Workforce Advisory Committee; 1998.
- Kaye D, Mwanika A, Burnham G, et al. The organization and implementation of community-based education programs for health worker training institutions in Uganda. *BMC In Health Human Rights*. 2011;11 Suppl 1:S4.
- Worley P, Silagy C, Prideaux D, et al. The parallel rural community curriculum: an integrated clinical curriculum based in rural general practice. *Med Educ*. 2000;34(7):558-565.
- Chesney BH, Chesney AP. Student reactions to a community-based experience for health professions education. *J Allied Health*. 1981;10(2):120-125.
- Couper ID. Rural hospital focus: defining rural. *Rural Remote Health*. 2003;3(2):205.
- McNeill PD, Campbell LM. A qualitative study: using students' experiences to explore a potential role of a rural clinical attachment in teaching empathy in KwaZulu-Natal. *S Afr J Fam Pract* (pending publication).
- Sturmsberg JP, Crowe P, Hughes C. Computer-assisted instruction: guiding learning through a key features approach in a community-based medical course. *Medical Teach*. 2003;25(3):332-335.