Clinical undergraduate medical student training at Kimberley Hospital, Northern Cape, South Africa: 'A test of fire'

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Background. Medical schools in South Africa (SA) are challenged to increase the annual output of medical doctors. Satellite medical training campuses at remote public health facilities to expand the undergraduate clinical training platform may be a solution. Kimberley Hospital, Northern Cape, SA has been identified as a remote training site affiliated to the University of the Free State, Bloemfontein, SA.

Objectives. To profile the clinicians at Kimberley Hospital Complex in terms of their knowledge of, skills in and perspectives on the added responsibility of clinical undergraduate medical student training prior to the launch of the proposed undergraduate student rotations.

Methods. The study followed a qualitative research design using semi-structured interviews with full-time SA- or foreign-qualified specialists at Kimberley Hospital Complex.

Results. We identified the strengths and weaknesses of Kimberley Hospital, opportunities created for local healthcare providers, Kimberley town and the Northern Cape province, and threats to the success of the programme. Overall, responses were optimistic and depicted excitement about the new challenge.

Conclusion. The perspectives of emerging clinician teachers at Kimberley Hospital Complex may serve as a point of reference for preparation of both clinician educators and programme administrators at the complex and other emerging satellite medical schools in the SA setting.

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Medical schools in South Africa (SA) are challenged to recommend innovative cost-effective strategies to honour the ministerial directive of increasing the annual number of doctors trained in the country.[1] The intention is to address the disparity in healthcare services between urban and rural areas and, more explicitly, its associated morbidity and mortality.[2] One approach is to establish satellite medical training campuses at rural public health facilities to expand the undergraduate clinical training platform.[3]

Kimberley Hospital Complex is a 657-bed tertiary healthcare facility in the Northern Cape, SA. The hospital employs 39 medical specialists, 14 of whom are foreign-qualified professionals. The available specialties are internal medicine, oncology, paediatrics, dermatology, emergency medicine, family medicine, radiology, intensive care, general surgery, obstetrics and gynaecology, anaesthesiology, orthopaedics, otorhinolaryngology, ophthalmology, urology, plastic surgery and burn unit, and cardiothoracic surgery. Clinicians are committed to continuous professional development, and structured academic programmes are followed in each clinical department.

The hospital is affiliated to the University of the Free State, Bloemfontein, SA and is a Health Professions Council of South Africa (HPCSA)-accredited training institution. It hosts internship and registrar training programmes in several clinical departments. The Faculty of Health Sciences, University of the Free State, has earmarked Kimberley Hospital as a satellite clinical undergraduate medical student training site and spearheaded the facility's HPCSA accreditation for undergraduate training. The first group of undergraduate students started their clinical rotation early in 2016.

One of the major challenges facing institutions envisaging a new medical school is building a relationship with clinicians to ensure the provision of suitable clinical tutoring experiences for students.[4] The availability of the required range of clinical departments within potential healthcare facilities, and the aptitude and willingness to accommodate medical students in each of the required clinical domains, are equally important.[4]

Expansion of the training platform also expects clinicians to perform the additional task of clinical student teaching over and above their health service delivery responsibilities.[5] During the 2014/2015 financial year, Kimberley Hospital served a total of 382 740 new patients at the specialised outpatient clinics, attended to 96 018 patients presenting to the casualty department, and managed 24 687 in-patients and 7 165 theatre cases (Ms Thembi Magabane – personal communication).

Blitz *et al.*[6] retrospectively described the experience of emerging clinician educators at a local rural clinical school as a journey: starting from cautious optimism, through a period of uncertainty and insecurity as teachers, to fully fledged trainers enjoying the teaching experience and taking responsibility for their students' successes.

Students' prior knowledge, how they organise knowledge, and their personal motivation influence what they learn, as well as how they apply and continuously practise acquired knowledge and skills. Through goal-directed practices and specific feedback, students become self-directed learners integrating their learning approaches with the intellectual, social and emotional aspects of an inclusive teaching environment.[7]

The specialists at Kimberley Hospital are a diverse group of professionals with variable levels of clinical teaching experience. The specialist pool also comprises a mixture of SA- and foreign-trained professionals. It is therefore imperative to obtain a baseline profile of the potential clinician teachers at the institution.

This study aimed to profile the clinicians at Kimberley Hospital Complex in terms of their knowledge of, skills in and perspectives on the added responsibility of clinical undergraduate medical student training before the launch of the proposed undergraduate student rotations in 2016. The results may serve as a point of reference for the preparation of clinician educators at Kimberley Hospital Complex and other emerging satellite medical campuses in the SA setting.

Methods

The study followed a qualitative research design and comprised semi-structured interviews with full-time SA- or foreign-qualified specialists at Kimberley Hospital Complex. Written informed consent was obtained from participants prior to the interviews.

Participants received the interview guide in advance to allow preparation for the interview. Discussions were digitally recorded, transcribed, coded and organised into broader themes pertaining to the perspectives of the upcoming clinician teachers at the institution.

Ethical approval

The study was conducted with the ethical approval of the Ethics Committee of the Faculty of Health Sciences, University of the Free State (ref. no. ECUFS 102/2015) and the Northern Cape Provincial Health Ethics Review Committee (ref. no. NC2015/0021).

Results

The number in brackets next to the quotes given below refers to the respondent and 'T' indicates that the quote was translated from the original Afrikaans.

Demographic profile of interviewees

Twenty-seven of the 39 full-time specialists at Kimberley Hospital were interviewed during a 6-week period from September to October 2015. Interviews continued until data saturation was reached (i.e. no new information would be gathered by continuing interviews) and included at least one consultant of every discipline proposed to be involved in clinical student training. Community-based education relies heavily on family medicine; hence, all of the family medicine specialists were interviewed.

Table 1 describes the demographic profile of the interviewees. Foreign qualifications were obtained in Cuba (n=5), Pakistan (n=3), Brazil, Ghana, Nigeria, Zimbabwe and Northern Ireland (n=1 each). Foreign-qualified specialists have a higher number of years of postgraduate experience. All but 2 SA interviewees spent their entire career in the public sector. The average number of weekly hours spent on undergraduate student training before employment at Kimberley Hospital ranged from 1 to 15 clinical bedside teaching hours per week. Only 2 of the 27 interviewees (7.4%) had experience in student assessment.

Results of the qualitative interviews

The overall perspective on the proposed undergraduate training programme in Kimberley Hospital was positive:

'I am very excited. It is a good opportunity to influence the quality of doctors produced.' (S9)

'We have a good reputation, good potential trainers; it is doable, we can perform.' (F3)

Table 1. Demographic profile of interviewees (N=27)

Demographic parameter	Interviewees, *n* (%)	Respondent codes
Gender		
Male	20 (74)	-
Female	7 (26)	-
Country where qualifications were obtained	14 (52)	S1 - S14
South African	6 (22)	F1 - F6
Foreign	7 (26)	C1 - C7
South African and foreign		
Postgraduate experience, years		
<5	11 (41)	S = 8, C = 3
5 - 10	5 (18)	S = 3, C = 2
11 - 20	5 (18)	S = 2, C = 2, F = 1
>20	6 (22)	S = 1, F = 5

S = undergraduate and postgraduate qualifications were obtained locally; F = undergraduate and postgraduate qualifications were obtained abroad; C = undergraduate or postgraduate qualifications were obtained locally and abroad.

Twenty-two (81.5%) and 5 (18.5%) participants displayed overall positive and negative perspectives, respectively, on the proposed programme. All 5 interviewees who displayed apprehension towards the project were from one clinical department:

'I'm not thrilled with the idea.' (S3T)

'I am not interested; I do not think we are ready for students.' (S5)

'It has no real benefit; you are taking time away from our patients.' (C5)

Strengths of the institution

Interviewees expressed several strengths of Kimberley Hospital Complex. The hospital has an outstanding reputation and the specialist team is focused on quality, evidence-based patient care. Every department has an established academic and bedside clinical training programme. Students will receive ample exposure to pathology, personal attention and additional opportunities to develop clinical and practical problem-solving skills. Overall, the specialists find teaching rewarding:

'It is rewarding if someone with no self-confidence develops into a doctor who can work independently in paediatrics. The day they start questioning my opinion, then I know I taught them to practise evidence-based medicine, to develop their own opinion and challenge current thinking.' (S8T)

'We can teach them the family medicine way of doing things. We see a lot of patients, if we do all the examinations in the department, it will increase our expense tremendously. You teach them to save costs. If you work in the primary healthcare setting, you need to know these things. You cannot go to the clinic and do a lot of special examinations; you will deplete the budget in no time. You need to decide what you are going to need to make a decision whether you must refer the patient at a certain stage. It is a skill you only learn when you pay attention in the department. The best place to learn is at the bedside; a student should see the patient, read up and come back to teach the entire group the next day.' (C3)

'We can teach them and show them the reality of casualties being overcrowded, bed management, theatre time, waiting times, overcrowded clinics. We can teach them to be proactive in problem-solving to improve the service.' (F3)

'Students will be drawn into the team to teach them that everybody must work together to reduce hospital stay and get the patient back into the community.' (S2T)

Fig. 1 summarises the local specialists' grasp of what good teaching entails.

Weaknesses of the institution

It became apparent that the interviewees were concerned about potential institutional weaknesses. Although the institution has a strong corps of specialists, the numbers of experienced medical officers and registrars are limited. Patient care relies heavily on interns, community-service doctors and medical officers in their first year after community service. Specialists have to be actively involved in service delivery to patients with tertiary-level medical conditions. Our referral centre recently experienced severe financial and human resource constraints, reducing the number of patients our facility could refer for higher levels of medical care and hindering the referral centre's outreach programme to Kimberley Hospital:

'There must be enough people in the collective pool of consultants and permanent medical officers and time to teach. Service delivery will always take preference, but students cannot be neglected – you cannot miss a lecture. If some mishap happens it will be a problem; you cannot say you were busy teaching. Teaching as part of service delivery is fine for doctors, but students are a sacred, special group. The concept you teach them now must be correct – they will remember it for the rest of their lives. Their base should be sound and strong.'(C5)

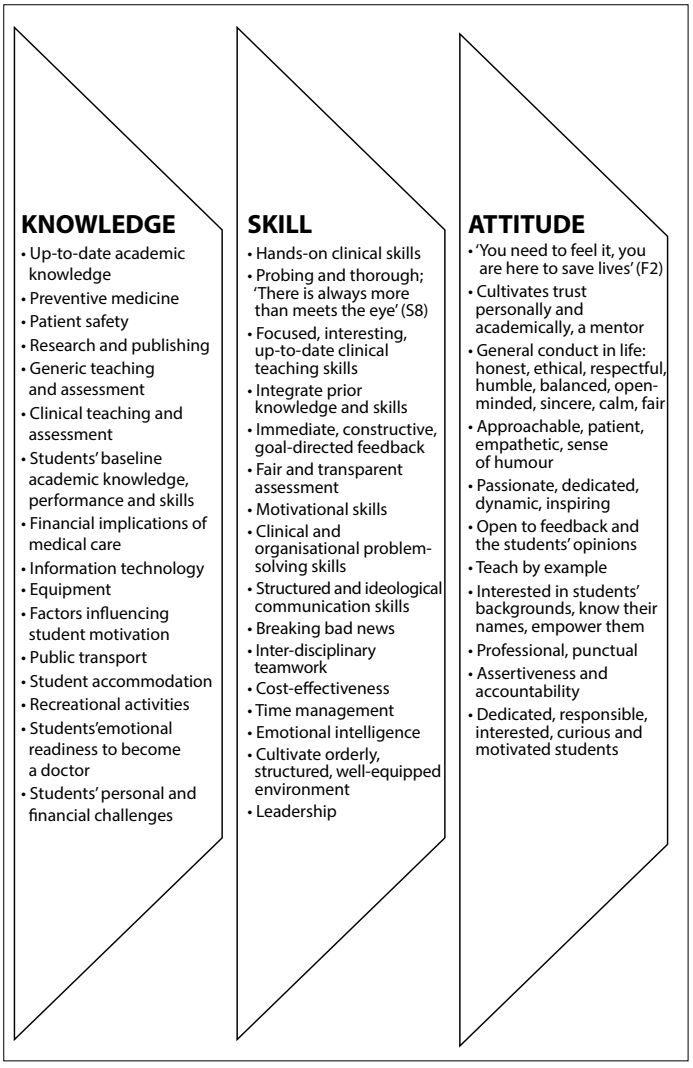

Fig. 1. Summary of specialists' grasp of what good teaching entails.

Only 6 of the 27 interviewees admitted to having formal teaching qualifications and experience. They are foreign-trained specialists from Cuba and Brazil. Six other specialists indicated that they attended a recent short course for lecturers at the University of the Free State:

'Teaching is an art, a skill; you need to be taught how to do it.' (C3)

None of the specialists has training in assessment methods:

'We must initially observe assessments at the university. The university compares students; we will compare them to the interns in the ward when giving them ward marks. We may be too strict. Our measure will be whether they will be safe doctors if they return to Kimberley Hospital.' (S1T)

Other healthcare professionals, especially nursing staff, play a vital role in student teaching:

'Our nurses are overworked and short staffed. Nowadays, it is difficult to get the nurses to join a ward round. It is not a good example to students; they learn you just go on with your round, write down and tell the nurse afterward what she must do.' (F3)

Opportunities

The general opinion is that an academic environment, research and up-to-date evidence-based medicine underscore service delivery:

'Students are going to challenge us academically, ethically, in terms of work environment, the quality of what we are doing. You have to think twice about what you are doing because what I am doing is what I am teaching.' (F3)

Specialists will have the opportunity to gain teaching and assessment training and experience over and above their clinical expertise:

'Skills to manage different varieties of students with different levels of academic performance and attitudes.' (C3)

Training sessions should preferably be periodic short courses presented in Kimberley by facilitators with undergraduate medical student training experience. Topics suggested were: the background to the current SA and Cuban student curricula, generic and medical teaching, and assessment techniques. Facilitators could also attend the local departmental academic sessions and ward rounds to give feedback about the quality to the consultants at Kimberley Hospital.

This venture is the first step towards a medical school in the Northern Cape. The vision is to recruit specialists and registrars, train our own doctors, retain them in the province and ultimately enhance the accessibility of medical care in the Northern Cape:

'I see it as a way to awaken interest in younger colleagues to offer their future services to our communities.' (F2)

'It will be a socioeconomic injection into Kimberley. Students drive smaller towns like Stellenbosch.' (S6T)

Threats to the programme

Interviewees expressed their concern about threats to the proposed undergraduate programme. The main threat identified was balancing

quality patient care with quality student training, specifically pertaining to time and human resources. The hospital has a high turnover of medical officers, mostly because they move into registrar posts elsewhere in the country. The core workforce remains inexperienced, demanding continuous consultant supervision and involvement to ensure quality tertiary service delivery. Some departments have only one consultant; the programme may be jeopardised if the specialist resigns. It is very difficult to compete with academic institutions, the private sector and other more popular provinces in terms of recruitment and retention of specialists. Furthermore, financial pressures in the public sector preclude the creation and funding of additional senior medical officer and specialist posts:

'I will have less time with my patients and it may compromise patient care. We need registrars to assist with the workload and service delivery. We need more subspecialists to assist with training.' (S5)

'You have to look for patients with clinical signs; this takes time.' (C5)

Active clinical and academic support from our referral hospital and specialists at the main campus through outreach and in-reach programmes is imperative:

'We are not an island; we are an extension of their academic departments.' (S6T)

The venture demands strong leadership and continuous buy-in of stakeholders in the Free State and Northern Cape departments of health, the University of the Free State and the Kimberley satellite campus.

Our specialists' motivation to invest teaching time relies heavily on the baseline standard of clinical knowledge, skills and attitude of the students rotating at Kimberley for their clinical training:

'It is better to teach someone with sound baseline knowledge than a student who doesn't know anything. I am worried about the Cuban-trained students. They need special attention. We do not have time to motivate and support struggling students. The pace is too fast here; they will fall behind.' (S1T)

Some junior doctors' attitudes towards patients, colleagues, nursing staff and the profession are occasionally disrespectful and unprofessional:

'Their etiquette, they are role models.' (F3)

Student selection

Although student participation is voluntary, certain minimum selection criteria are important. A student's motive for choosing the satellite campus must ideally be determined by an interview process. The ideal student is independent, self-disciplined, resilient, committed, responsible, hardworking and reliable:

'If we take the top students, obviously they will do well and we did not actually achieve that much because we started with the best. Achievement would be if you take the average student, say 60% to 65%, and try to mould him into a top achiever or over 70%. The group must be small. A guy who has the ability to the top might have a better chance when he is part of a small group. The top achiever's chance to return to the Northern Cape is slim; they specialise and super-specialise and stay in the main hubs.' (S10)

Students must be prepared to accept foreign-trained specialists as teachers and English as the language of tuition:

'I am worried that students will not accept me as a foreign-qualified specialist.' (F3)

In terms of demographics, 'rural origin' should not be a selection criterion. Students from the Northern Cape, especially Kimberley, have a logistical and financial advantage, but allowing students from other provinces into the programme may be a marketing strategy to recruit future doctors into the province.

Other considerations

Findings show that piloting of the project in the family medicine department is the ideal objective:

'Piloting the project will make us more comfortable with the expectations and give us opportunities for feedback on the logistical abilities of our clinics; how much time and resources are necessary.' (C4)

Transport of students to and from clinics, the psychiatric unit, Kimberley Hospital, and the student residence must be well co-ordinated:

'Administrative office space for specialists and secretarial support with internet connectivity to prepare assessments, load marks, making sure it is correct is crucial.' (S7)

End-of-block assessments should take place in Kimberley, but the final exit examination must still be hosted at the main campus. The Kimberley consultants must have the opportunity to submit questions for the written examination papers:

'People must feel they are part of this new challenge and new way of doing things.' (S11)

'Briefing of all medical personnel at Kimberley Hospital and the district clinics is very important. The nurses at clinics must also give feedback on the number of students they can accommodate.' (C4)

Discussion

Medical schools in SA are challenged to recommend cost-effective strategies to increase the annual number of doctors trained in the country.[1] The intention is to address the disparity in healthcare services between urban and rural areas and its associated morbidity and mortality.[2] One approach is to establish satellite medical training campuses at rural public health facilities.[3]

A major challenge is building a relationship with clinicians to ensure the provision of suitable clinical tutoring experiences for students.[4] The availability of a range of clinical departments within potential healthcare facilities, and an aptitude and willingness to accommodate medical students, are important.[4]

This study aimed to profile the clinicians at Kimberley Hospital Complex in terms of their knowledge of, skills in and perspectives on the added responsibility of clinical undergraduate medical student training. The overall perspective on the proposed undergraduate training programme at Kimberley Hospital was positive. The apprehensive clinicians were from one department, their main concern being the lack of senior medical officer and registrar support in the particular department.

Study strengths

Strengths identified were: academically inclined clinicians motivated to teach students the realities of clinical medicine, teamwork, critical thinking and problem-solving skills. They have strong opinions about the concept of good

teaching. The limited number of senior healthcare professionals draws specialists and nurses into front-line service delivery; hence, the added responsibility of student training and assessment will be a challenging balancing act.

Study limitations

The relative inexperience of the respondents regarding this particular subject may be seen as a limitation to the study. One must keep in mind that the study aimed to assess the clinicians' knowledge of, skills in and perspectives on the added responsibility of clinical undergraduate medical student training. Moreover, at the time of the study, the specific semester or year of clinical study was not yet finalised. This information could potentially have influenced the interviewees' responses.

Conclusion

This venture was the first step towards a Northern Cape-based medical school that trains healthcare professionals from the province and for the province. Ultimately, it should improve accessibility to quality medical care and provide a socioeconomic injection into Kimberley and the province. It is also a personal and professional career opportunity for local specialists to become more proficient in teaching and assessment methods and may be an important recruitment and retention strategy. If the teaching of medical students is instituted in a rural area, it may also be an alternative option and perhaps a drawcard for specialists who are interested in teaching and would like to live and work in a more rural environment.

The success of the proposed satellite medical campus relies heavily on buy-in from key role-players in Kimberley Hospital, the Northern Cape districts, the University of the Free State, as well as national and provincial executive and financial stakeholders.

The perspectives of emerging clinician teachers at Kimberley Hospital Complex may serve as a point of reference for preparation of clinician educators and programme administrators at Kimberley Hospital Complex and other emerging satellite medical schools in the SA setting.

As one of the respondents indicated, 'The first group will be the most difficult: a test of fire. We must work on our mistakes and prepare for the next group. We will get better and better.'

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