SAJS
General Surgery

The evaluation of bedside teaching – an instrument for staff evaluation and student experience: A pilot study at a South African university

L. GREEN-THOMPSON, M.B. B.CH., F.C.A. (S.A.)
P. MCINERNEY, PH.D.

Centre for Health Science Education, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg

M. VELLER, M.B. B.CH., F.C.S. (S.A.), M.MED. (SURG.)

Department of Surgery, University of the Witwatersrand

Summary

Background. Bedside teaching is the core teaching strategy in the clinical study years of the medical undergraduate degree at the University of the Witwatersrand. The quality of this teaching strategy has not been formally evaluated by students as other teaching strategies have been.

Method. A quantitative, descriptive study was undertaken in the final year of study of the graduate entry medical programme (GEMP). The sample comprised medical students who were completing their surgical block during September and November 2008. There were approximately 30 students in each of these 2 blocks. A bedside teaching evaluation questionnaire was developed, based on previously validated peer review questionnaires used in evaluating small group formal classroom-based lectures. The purpose of the study was to determine the reliability of the instrument for evaluating bedside teaching.

Results. A sample of 112 evaluations was obtained and the constructs and sub-constructs were subjected to an analysis using Cronbach's alpha.

Conclusion. The overall Cronbach's alpha was 0.9627, demonstrating that the instrument is reliable and can be used to evaluate bedside teaching.

The benefits of teaching at the patient's bedside have been well documented and described. Ramani *et al.*[1] identify these as being the demonstration of communication skills, the findings of the physical examination, the teaching of humanistic aspects of clinical medicine, and the opportunity to role-model professional behaviour. These qualities cannot be as effectively demonstrated in the classroom. In addition, bedside teaching also gives the teacher the opportunity to observe the learners.[2]

Despite the fact that bedside teaching is acknowledged for the unique benefits which it brings to the student's learning, the time allocated to bedside teaching has been shown to be on the decline. El-Bagir and Ahmed[3] report a decline from '75% of teaching time 30 years ago to just 16% by 1978' and note that it is much lower now. Ramani *et al.*[1] report that estimates of actual time spent at the bedside vary from 15% to 25%. Several barriers to bedside teaching have been identified: new technology, increased workloads,[3] and the fact that teaching is not as highly valued in our academic settings as is research. El-Bagir and Ahmed[3] go on to say that bedside teaching 'has been neglected and rendered haphazard, mediocre and lacking in intellectual excitement, so much so that the clinical examination skills of young doctors have been seriously compromised'. This is of some concern when one considers the findings reported by Nair *et al.*[4] Only 48% of learners reported that they had been given enough bedside teaching during their undergraduate training, while 100% thought that bedside learning was the most effective way of learning clinical skills.

In the first 2 years of study of the graduate entry medical programme (GEMP) at the University of the Witwatersrand, the key approach to teaching and learning is problem-based learning. This teaching and learning approach uses trigger scenarios to stimulate learning. In addition, students are introduced to the clinical environment and spend one day a week in hospitals or community clinics. In the 3rd and 4th years of study, these trigger scenarios are replaced by actual cases in the wards, and bedside teaching then forms the core approach to teaching and learning. Students in the third and fourth years of study of the GEMP are divided into groups and rotate through 'blocks' of study in the various clinical disciplines. There are approximately 30 students in each of these blocks at any one time. The students are divided between 3 teaching hospitals, so that there are approximately 10 students allocated to a hospital for a particular clinical discipline at a time. Bedside teaching forms the core teaching and learning strategy during these rotations. The bedside teachers are usually members of the faculty staff, who are in joint appointments with the provincial health departments and have a teaching responsibility to the university. Rewards

for good teaching are limited, and remaining motivated to teach is teacher-dependent. The purpose of the bedside teaching instrument is to motivate good teaching.

During the first 2 years of study, attention is given to evaluation of a number of aspects of the teaching-learning process, such as the case used in the trigger, the facilitator, the week's activities and the system block. However, little or no attention has been given to the evaluation of bedside teaching.

Problem statement

While bedside teaching forms a core component of a problem-based learning curriculum for medical students at the University of the Witwatersrand, there was no formal evaluation of this teaching-learning modality and therefore no information as to whether this learning strategy was achieving its objective in terms of developing understanding about content and interpersonal skills. Therefore, the purpose of this pilot study was to determine the quality of bedside teaching in one group of students in the medical curriculum with a view to validating an instrument for evaluating bedside teaching.

Methods

A quantitative, descriptive study was undertaken in the final year of study of the GEMP. The sample comprised medical students who were completing their surgical block during September and November 2008. There were approximately 30 students in each block.

The objectives of the study were to determine:

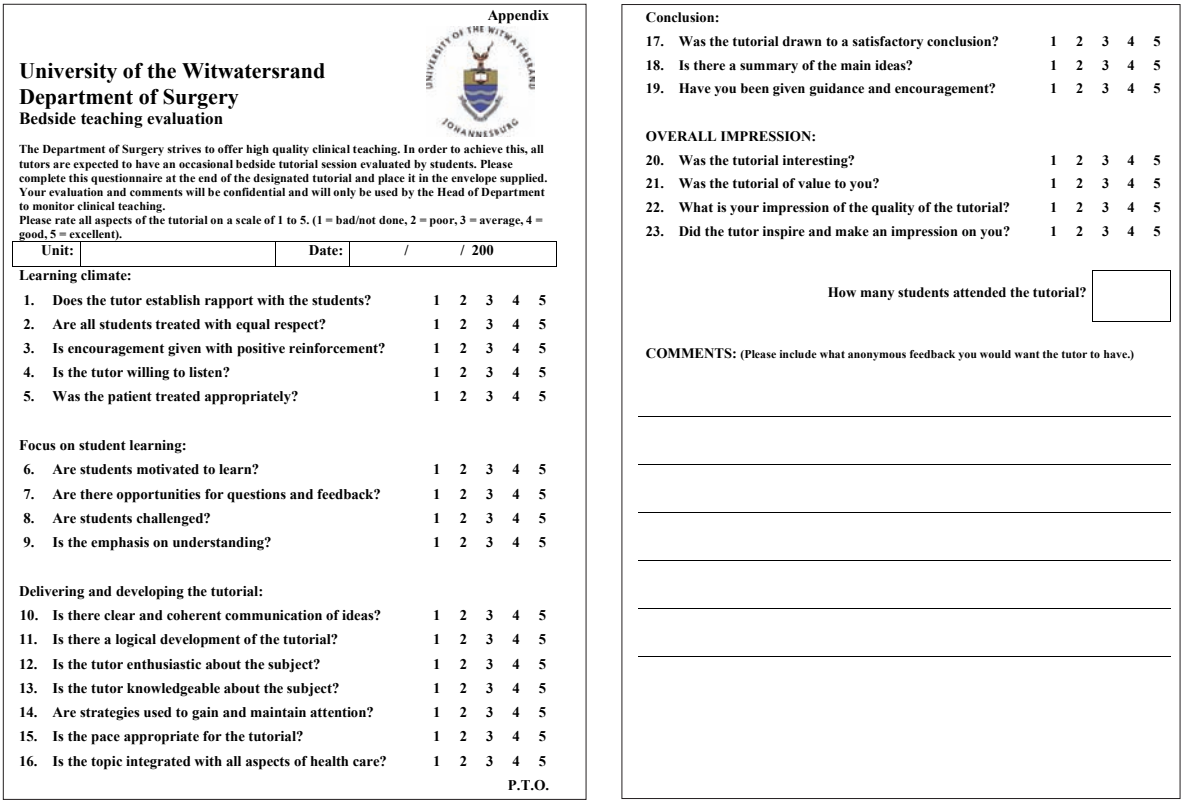
- whether the tutor gave attention to establishing interpersonal relations with both the students and the patient
- the quality of the teaching and the learning experience for the student
- the reliability of the instrument.

The bedside teaching evaluation questionnaire (Fig.1) was adapted from similar peer review questionnaires evaluating small-group formal lectures. It comprised 23 questions. Five questions related to the learning climate, 4 to the student's learning, 10 to the actual tutorial at the bedside, and 4 to the student's perceptions of the tutorial.

The students were asked to rate each of the 23 questions on a scale of 1 - 5, with 1 meaning 'not done' and 5 'excellent'.

One of 2 study co-ordinators made the students aware of the study prior to the tutorial and gave the forms to the students. The bedside teacher was aware that the study was being undertaken, and one of the study co-ordinators attended each session evaluated by students. Students were asked to complete the questionnaires immediately after the tutorial without the teacher being present, and to place the completed questionnaires into an envelope which was sealed by the study co-ordinator once all the forms had been returned. The sealed envelopes were returned to the study co-ordinator's office where they were kept in a locked cupboard.

Permission was granted by the Head of Surgery to undertake this pilot study in the surgical block. Participation in the study was voluntary – participants were assured that their responses would be treated confidentially and that the completed evaluation forms would not be shown to the teachers. The bedside teachers were told about the study and individual permission for the study co-ordinator to attend the teaching session was obtained from each teacher before commencement of the teaching session. Permission to



Appendix

University of the Witwatersrand
Department of Surgery
Bedside teaching evaluation

The Department of Surgery strives to offer high quality clinical teaching. In order to achieve this, all tutors are expected to have an occasional bedside tutorial session evaluated by students. Please complete this questionnaire at the end of the designated tutorial and place it in the envelope supplied. Your evaluation and comments will be confidential and will only be used by the Head of Department to monitor clinical teaching.
Please rate all aspects of the tutorial on a scale of 1 to 5. (1 = bad/not done, 2 = poor, 3 = average, 4 = good, 5 = excellent).

Unit:		Date:	/ / 200

Learning climate:

1.	Does the tutor establish rapport with the students?	1	2	3	4	5
2.	Are all students treated with equal respect?	1	2	3	4	5
3.	Is encouragement given with positive reinforcement?	1	2	3	4	5
4.	Is the tutor willing to listen?	1	2	3	4	5
5.	Was the patient treated appropriately?	1	2	3	4	5

Focus on student learning:

6.	Are students motivated to learn?	1	2	3	4	5
7.	Are there opportunities for questions and feedback?	1	2	3	4	5
8.	Are students challenged?	1	2	3	4	5
9.	Is the emphasis on understanding?	1	2	3	4	5

Delivering and developing the tutorial:

10.	Is there clear and coherent communication of ideas?	1	2	3	4	5
11.	Is there a logical development of the tutorial?	1	2	3	4	5
12.	Is the tutor enthusiastic about the subject?	1	2	3	4	5
13.	Is the tutor knowledgeable about the subject?	1	2	3	4	5
14.	Are strategies used to gain and maintain attention?	1	2	3	4	5
15.	Is the pace appropriate for the tutorial?	1	2	3	4	5
16.	Is the topic integrated with all aspects of health care?	1	2	3	4	5

P.T.O.

Conclusion:

17.	Was the tutorial drawn to a satisfactory conclusion?	1	2	3	4	5
18.	Is there a summary of the main ideas?	1	2	3	4	5
19.	Have you been given guidance and encouragement?	1	2	3	4	5

OVERALL IMPRESSION:

20.	Was the tutorial interesting?	1	2	3	4	5
21.	Was the tutorial of value to you?	1	2	3	4	5
22.	What is your impression of the quality of the tutorial?	1	2	3	4	5
23.	Did the tutor inspire and make an impression on you?	1	2	3	4	5

How many students attended the tutorial?

COMMENTS: **(Please include what anonymous feedback you would want the tutor to have.)**

Fig.1. The bedside teaching evaluation questionnaire used in the study.

undertake the study was obtained from the Ethics Committee of the University of the Witwatersrand.

Results

A total of 12 groups of students in 2 surgery blocks were asked to evaluate the bedside teachers. The 12 groups of students were approached at the 3 main hospitals used by the faculty for surgical blocks. The 12 groups yielded a total of 112 evaluations. The 23 items from the 4 subsets (learning climate, student learning, delivering and developing a tutorial, and value of the tutorial) and each subset were subjected to a Cronbach's alpha (CA) analysis. The results of each of the subsets are as follows:

- Learning climate: 0.8303
- Student learning: 0.8158
- Delivering and developing a tutorial: 0.8935
- Value of tutorial: 0.9104.

The overall Cronbach's alpha was 0.9627, demonstrating that the instrument was reliable.

When the single constructs within each subset were analysed individually, the only item that was inconsistent within its subset was the question 'Are students challenged?' This question had a CA of 0.8259 while the others in the same subset ranged between 0.7258 and 0.7761. However, as it still yielded a positive numerical value, it was recommended that the statement be left unchanged, as it does not detract from the construct of the subset.

Discussion

The 4 main constructs of the evaluation form (i.e. learning climate, student learning, delivery of the tutorial, and the value of the bedside tutorial) have all received attention in the literature. Ramani[5] poses 12 tips to improve bedside teaching. Four of the tips relate to aspects evaluated in the section of 'learning climate', i.e. telling the students what is to be taught, introducing oneself and the students to the patient, role-modelling the physician-patient interaction, and observation as a necessary part of learner-centred bedside teaching. In their discussion of the learning climate, Kroenke and Omori[6] state that fear of appearing ignorant in front of a patient is one of the concerns of physicians when they have to examine patients during teaching rounds. They postulate that this fear may be greater in younger clinical teachers who themselves may have had inadequate exposure to bedside teaching during their clinical teaching. They added that the role modelling of professionalism is a quality which experienced physicians have developed through numerous patient encounters, but that students dislike bedside rounds for reasons such as boredom and embarrassment; therefore, establishing rapport with the students at the beginning of the teaching session will contribute to a positive learning climate.

The second construct (student learning) in the current study relates to issues such as students' motivation to learn, opportunity to ask questions, challenging of students, and an emphasis being placed on understanding. Again, these concepts have consistencies with Ramani's 12 tips;[5] his 7th tip[5] states that the bedside teacher should 'challenge the learners' minds without humiliating' and suggests that teachers should avoid asking impossible questions and should keep all the learners engaged. The latter can be done by ensuring that all students get an opportunity to answer questions, which also prevents them becoming bored. Essential to the promotion of student learning is the need for teachers to be aware of and to assess the students' needs; this requires clinical teachers to be informed and knowledgeable about the curriculum, community needs and the health care system in which teaching and learning is taking place.

In developing the tutorial, the current study focused on concepts such as the ability to communicate information clearly, being knowledgeable and enthusiastic about the topic, integration of all aspects of health care, and teaching strategies used to maintain attention. The concept of developing the tutorial may be consistent with Parsell and Bligh's[7] concept of 'knowing learners'. While it is important for teachers to have an understanding of teaching strategies, motivation is important in stimulating self-directed learning and 'other forms of knowledge, including, for example, communication skills, the ability to manage emotions, and a knowledge of curricula, health care organizations, ethics and health care costs are also necessary'. Sutkin *et al.*[8] undertook a review of the literature concerning 'What makes a good clinical teacher in medicine?' Three of the themes that they identified from the literature were 'positive relationships with students and a supportive learning environment', 'communication skills' and 'enthusiasm'.

The last construct (the value of the bedside tutorial) related to students' perceptions of whether the tutorial was of value to them, and their overall impression of the quality of the tutorial. The value of the bedside tutorial has been well documented in the literature. Kroenke and Omori[6] describe the patient's bedside as the 'ideal setting' for teaching physical examination, history taking and interpersonal skills. The bedside teaching tutorial allows the teacher to demonstrate asking difficult questions (e.g. about alcohol consumption), managing emotions such as fear and anger, and providing patient education and support. Janicik and Fletcher[9] report that there is evidence that patients enjoy bedside teaching as they gain better understanding of their illnesses.

Conclusion

The value of bedside teaching in the education of medical students cannot be under-estimated, and therefore the evaluation of teaching sessions at the bedside needs to be assigned the same degree of value as formal lectures. Our study demonstrated that evaluation of bedside teaching sessions can be done in a formal manner and contribute to the quality of medical education.

REFERENCES

1. Ramani S, Orlander JD, Strunin L, Barber TW. Whither bedside teaching? A focus group study of clinical teachers. *Acad Med* 2003; 78: 384-390.
2. Aldeen AZ, Gisondi MA. Bedside teaching in the emergency department. *Acad Emerg Med* 2006; 13: 860-866.
3. El-Bagir M, Ahmed K. What is happening to bedside clinical teaching? *Med Educ* 2002; 36: 1185-1188.
4. Nair BR, Coughlan JL, Hensley MJ. Student and patient perspectives on bedside teaching. *Med Educ* 1997; 31: 341-346.
5. Ramani S. Twelve tips to improve bedside teaching. *Med Teach* 2003; 25(2): 112-115.
6. Kroenke K, Omori DM. Bedside teaching. *South Med J* 1997; 90(11): 1069-1075.
7. Parsell G, Bligh J. Recent perspective on clinical teaching. *Med Educ* 2001; 35: 409-414.
8. Sutkin G, Wagner E, Harris I, Schiffer R. What makes a good clinical teacher in medicine? *Acad Med* 2008; 83(5): 452-466.
9. Janicik RW, Fletcher KE. Teaching at the bedside: a new model. *Med Teach* 2003; 25(2): 127-130.