

An EPA for better Bedside Teaching

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Abstract

Background: Bedside teaching (BST), a time-honoured tradition of clinical teaching which integrates theoretical knowledge and clinical practice, has declined steeply over the last decade. Moreover, many clinician teachers today are not specifically trained in and/or comfortable in delivering effective BST. Resuscitating this valuable educational format may require a new approach to preparing teachers and setting the stage for effective BST. Framing BST as an entrustable professional activity (EPA) for teachers may be one strategy to enhance its application and quality.

Methods: We aimed to redefine, describe essential features and effective practices for high-quality BST, based on clinical teacher participant perspectives through a focus group discussion and open-ended questionnaires via e-mail, supplemented by insights from literature.

Results: Based on data collected, we generated a definition of BST and a list of suggested strategies to optimise BST, for example, preparation, safe learning environment, flexible teaching and patient's benefits. A structured EPA description was created based on this definition.

Conclusion: Effective BST requires skilled clinical teachers who are comfortable and confident in this mode of teaching; framing BST as a teaching EPA could guide faculty development and clinical teacher certification.

1 | INTRODUCTION

Sir William Osler's (1849–1919) famous quote '*Medicine is learned by the bedside and not in the classroom*' has been treasured for over a century.¹ Teaching learners to interact with patients, gather data at the bedside and generate a differential diagnosis has traditionally been the pinnacle of clinical teaching. At the bedside, clinical learners can acquire a broad spectrum of competencies, including history taking, physical examination, clinical reasoning, bedside procedural skills and a humanistic and holistic approach to patient care.² Through observation of seasoned clinician role models, learners can enhance their CanMEDS skills in clinical expertise,

communication, collaboration, health advocacy, scholarship and professionalism. Furthermore, improved clinical skills may lessen the overreliance on expensive and perhaps needless investigations.³ Despite these benefits, bedside teaching (BST) has been declining, and clinical learners spend more time interacting with technology than with patients.⁴

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... improved clinical skills may lessen the overreliance on expensive and perhaps needless investigations.

Teaching at the bedside requires different skills than teaching in other venues, yet clinical teachers, including faculty members and senior trainees, may not be systematically trained in BST. Other reported barriers are time constraints, numerous competing commitments, absence of BST role models and lack of confidence in own clinical skills.² How can some of these barriers be mitigated? The concept of Entrustable Professional Activities (EPAs), introduced in 2005 by Ten Cate, defined as units of professional practice that can be fully entrusted to a trainee after having demonstrated the necessary competence to execute this activity unsupervised may be useful.⁵ Originally developed to operationalise competency-based postgraduate medical education, now used in various health professions, EPAs can also be applied to teaching activities.⁶ An EPA for BST has potential benefits for teachers, and indirectly for learners and patients, and training clinical teachers using an EPA as a focus could not only lead to improved teaching, but also to better quality of care at the bedside. Our aim was to create an EPA for BST, following recommended guidelines.⁷

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Training clinical teachers using an EPA as a focus could not only lead to improved teaching, but also to better quality of care at the bedside.

The study was conducted with faculty members and residents from University Medical Center Utrecht, a tertiary referral hospital

with over 1000 beds, offering undergraduate and postgraduate medical education and training of allied health professionals.

2 | METHODS

To explore opinions of clinicians from a variety of backgrounds regarding their definition of BST and best practices, we used two data collection methods (a) a focus group discussion and (b) open-ended questionnaires through e-mail. Using purposive sampling, prospective participants were contacted by the first author (MD) including physicians and surgeons, generalists and specialists at different stages of their educator career.

2.1.1 | Focus group discussion

Participants were asked three open questions, posed by the moderator (OtC):

1. What is BST?
2. What are the characteristics of effective and ineffective BST?
3. What are the risks of poorly performed BST?

2.1.2 | Open-ended questionnaires via e-mail

To ensure a variety of perspectives, the investigator (MD) emailed 18 additional clinical teachers in January 2020, the following open-ended questions:

1. What is BST?
2. What are the characteristics of effective BST?

2.1.3 | Analysis and rigour

A thematic analysis⁸ was performed on the focus group transcript and e-mail narratives. Steps of thematic analysis include the following: review of data content; coding data segments referring to a specific concept; identification of themes representing investigator interpretation of codes; finalising of themes based on research team discussions.

Two investigators (MD and OtC) conducted independent data analysis and a third investigator (SR) was involved in review of codes and finalising of themes.

2.1.4 | Ethical considerations

Ethical approval was obtained from the Ethical Review Board of the Netherlands Association for Medical Education (NERB 2018.5.11). Audiotapes, transcripts and e-mails are only accessible to the first and last author.

3 | RESULTS

A total of 19 clinician teachers participated in the study (seven in one focus group and 12 via e-mail). Characteristics of the participants are shown in Table 1.

TABLE 1 Participants' characteristics

Data collection method	Resident, fellow or staff physician (number)	Specialties (number)
Focus group	Residents (3) Fellow (1) Staff physician (3)	Intensive care (2) Ophthalmology (1) Paediatrics (1) Paediatric intensive care (1), Surgery (1)
Open-ended questionnaires via e-mail	Residents (3) Fellow (0) Staff physician (9)	Anaesthesiology (5) Cardiology (1) Intensive care (3) Internal medicine (2) Surgery (1)

3.1 | Defining Bedside Teaching

Based on thematic analysis of data, the following defining features of BST were identified as depicted in Table 2.

Based on these features we defined BST as: *A planned or spontaneous but deliberate educational encounter for a limited number of learners by a clinical teacher who has responsibility for the care of the patient, with the purpose of education about signs and symptoms, physical examination, clinical reasoning and/or bedside procedures. It is conducted either at the bedside or in a consultation room and all learners must actively take part in the encounter.*

3.2 | Features of excellent Bedside Teaching

Participants recommended that clinical teacher training and certification should include several key features to promote excellence in BST. These suggestions are summarised in Table 3.

TABLE 2 Features of bedside teaching

BST features	Recommendations	Quotes from study participants
1. Participants	These should include a patient, sometimes with family members; at least one teacher; and one or more learners at the same or multiple stages of training	
2. Number of learners	Although the number of learners was never specified precisely, participants cautioned that the group should not be too big, preferably one to four to provide an active role for all learners	
3. Purpose	Several learning goals for BST were described, including recognition of signs and symptoms, clinical reasoning, connecting theoretical knowledge with clinical practice, physical examination of patients and bedside procedures	"..goal of BST is promoting knowledge, and especially clinical insights and reasoning of the learner.." (fg) ".. The patient may be used as a demonstration-model, with consent of course.." (eq)
4. Role of the teacher	The clinical teacher should preferably have clinical responsibility for the particular patient, and the interaction with the patient should align with the current context of patient care	"..clinical teaching moment in presence of patient, student and supervisor.." (fg) "..education in 'real life' clinical situations.." (eq)
5. Nature	BST should be interactive, that is, teachers should not just demonstrate but should ensure that all learners have an active role, either by questioning the patients, performing elements of physical examination or a procedure while being coached by the teacher	"...BST may consist of performing physical examination together and concluded with feedback, creating a differential diagnosis based on the findings..." (eq)
6. Components	BST should consist of three deliberate phases: (a) goal setting and pre-briefings with learners and the patient; (b) the actual bedside session; and (c) debriefing of the learners and the patient	
7. Timing, structure and focus	BST should generally not be a limited add-on to daily clinical routines, but a structured and planned activity with a clear focus	"...All routine clinical activities to be suitable for BST..." (fg) "...BST could also be organized at very short notice, if a patient and the context were deemed suitable for a teaching session. Though such situations may arise spontaneously they can still be deliberately organized as a teaching event..." (eq)

Abbreviations: fg=focus group; eq=e-mail questionnaire.

TABLE 3 Features of excellent Bedside teaching

Features	Recommendations	Quotes from study participants
1. Preparation by teachers	Well-prepared BST ensures that the teacher attends to the following steps: preparation, patient consent, deliberate learning objectives, not only providing feedback to learners, but also receiving and processing feedback from them and from the patient to learners	
2. Safe learning environment	The clinical teacher should create a safe and motivating environment, in which patients feel safe and learners are not punished for 'wrong' questions or ignorance. That may require diplomatic skills, developed through sufficient practice	"...a safe setting: all questions may be posed, within the limits of proper behavior of course..." (eq) "...a safe learning environment is both critical for the student and patient. The patient should not lose trust in the doctors..." (fg)
3. Geared to learner level of development	Learners in BST may range from junior medical students to senior residents and fellows, and frequently include multiple levels at the same time. A skilled BST teacher should be able to titrate teaching to the level of learners at different stages of training	"...BST requires flexibility from the teacher: adjusting the level of teaching if necessary..." (fg)
4. Stress the uniqueness of personalised care	A skilled teacher can optimise the unique context for learning, apply theoretical knowledge to individualised clinical care, show how practice can deviate from theory and demonstrate clinical decision making within uncertainty	"...BST is observing 'signs & symptoms' from the textbooks and lectures in practice. This will help to connect patients and how to use theoretical knowledge in clinical practice..." (eq)
5. Focus on patient satisfaction and benefits	The patient should be comfortable, treated with respect to avoid confusion or distrust in their care, derive personal satisfaction and benefit from the event, have opportunities to ask questions and understand their diagnosis and treatment plans	"...Input by the patient is very important, as far as complaints the patient has experienced and the effect they have on their lives etc..." (eq)

3.3 | Development of the EPA for Bedside Teaching

Applying the rubrics comprising key components of an EPA description, we drafted the EPA for BST based on participants' definition and recommendations.⁷ This EPA could be used in faculty development as well as for assessment of BST, after which teachers can be deemed to have achieved competencies to perform unsupervised BST. The EPA is applicable to all levels of clinicians, including trainees, who provide BST, and is described in Table 4.

Fine-tuning the EPA checklist and behaviours are essential at regular intervals once implemented and used in teacher training and evaluation.

4 | IMPLICATIONS

Based on our participants' definitions and recommendations, we conclude that essential elements of BST can be categorised under three phases: (1) before, (2) during and (3) after the BST session (Figure 1).

Most clinical teachers, involved in teaching at the bedside and other clinical settings, do not have formal training in these skills.² Clinical teaching at the bedside is nuanced and comprises several implicit and explicit aspects including: demonstration, teaching and assessment of trainee clinical skills sometimes on-the-fly; role modelling of professionalism, humanism and empathy; showing respect for patients and learners; adjusting to unexpected

clinical events and teachable moments; and engaging the patient in all aspects of the teaching encounter.² Our participants indicated that training would be useful especially in the context of modern clinical care where clinicians have limited time, and must juggle multiple competing commitments while at the same time technology pervades clinical data gathering. It is important for BST to respond to the challenges of modern day clinical care as well as explore the impact of time-efficient practices and models on patient satisfaction and quality of clinical care. In their recent review on BST rounds, Haddon Mullins et al. suggested that standardising rounding practices may increase the efficiency of bedside rounds.⁹ The authors also reported an increase in patient satisfaction when standardised practices were used,⁹ and in the end patients are the most important stakeholders of BST encounters.

The EPA developed includes essential behaviours along with a developmental entrustment scale to guide clinical teachers in performing effective and efficient BST. Following the guidelines of EPA development,⁷ we propose that novice clinical teachers are observed by more experienced teachers at the bedside with debriefing conversations to discuss any gaps between observed and expected performance. Once teachers have reached the entrustment level, they can teach independently and indeed serve as observers of other teachers. This system can be easily adapted at institutions in faculty development programs where clinical teachers need to be formally certified in teaching competencies.

This study has several limitations. The study was performed at one academic medical centre and findings cannot be automatically applied to all clinical teaching contexts. Between one focus group

1. Title	Bedside teaching			
2. Specifications and limitations	Certification for this EPA includes or may include: <ul style="list-style-type: none"> • Selecting and informing the patient and/or family or representative and obtaining consent for participation in education • Pre-briefing the patient and/or family prior to the teaching session • Pre-briefing students prior to the teaching session • Conducting teaching at the bedside or in a consultation room, which may include role modelling a conversation with, examination of and/or procedure with a patient and requesting one or more student to enact aspects of a history and/or examination and/or procedural intervention • Debriefing students after the teaching sessions and providing feedback to support learning • Debriefing with the patient Certification for this EPA does not include execution of: <ul style="list-style-type: none"> • Patient-based large group lectures 			
3. Potential risks in case of failure	An unsafe learning environment for students, an unsafe environment for the patient, breach of the patient's privacy, incomplete knowledge and skills transfer both to the students and the patient and negatively affecting the doctor-patient relationship built on trust.			
4. Most relevant competency domains**	Development	O	Coaching	X
	Organisation	X	Assessment	O
	Execution	X	Evaluation	O
5. Required knowledge, skills, attitudes and experiences to allow for summative entrustment	<ul style="list-style-type: none"> • Thorough content knowledge of the disease and its natural history and management • Excellent skills in physical examination • Attitude of joy in teaching • Organisational skills and flexibility • Didactic skills (preferably with completion of a focused teacher training) • Professionalism 			
6. Information sources to assess progress and support summative entrustment	Unsupervised practice of bedside teaching is expected for every faculty member and resident after being observed for two consecutive performances by a colleague granted level 5 for this EPA Assessment of progress is pursued through observation and multi-source feedback (including patient, students and nursing opinions)			
7. Entrustment / supervision level expected at which stage of training	Formal entrustment decisions (i.e. formal acknowledgement) on performing BST unsupervised (level 3/4) should lie with the management team of the clinical department. The decision will be documented in the teacher's educational portfolio.			
8. Time period to expiration if never practiced	This EPA expires 5 years after not performing bedside teaching			

TABLE 4 Clinical teaching EPA*: Bedside teaching

*Format based on Ten Cate & Taylor⁷

**Domains based on Molenaar et al.¹⁰

discussion and one brief e-mail survey, we may not have captured the full spectrum of opinions on BST. Specifically, we did not explore the impact of poorly conducted BST from participants who provided e-mail narratives, this needs to be explored further from multiple perspectives—teachers and learners.

Future research would benefit from including a larger number of study participants, across multiple levels of clinical teachers (faculty members and residents) as well as recipients of these learning encounters (students and postgraduate trainees). Finally, it is important to evaluate the impact of implementing such an EPA not only on

teachers' and learners' satisfaction but more importantly on patient satisfaction and quality of clinical care.

A return to bedside clinical teaching could enhance patient-centred clinical care and possibly decrease overreliance on investigations and technology. A clear definition along with a systematic approach for teachers, in the form of an EPA, can facilitate clinical teacher training, and re-energise increased time spent on BST and role modelling. To end with another quote from Sir William Osler: *'The good physician treats the disease; the great physician treats the patient who has the disease'*.

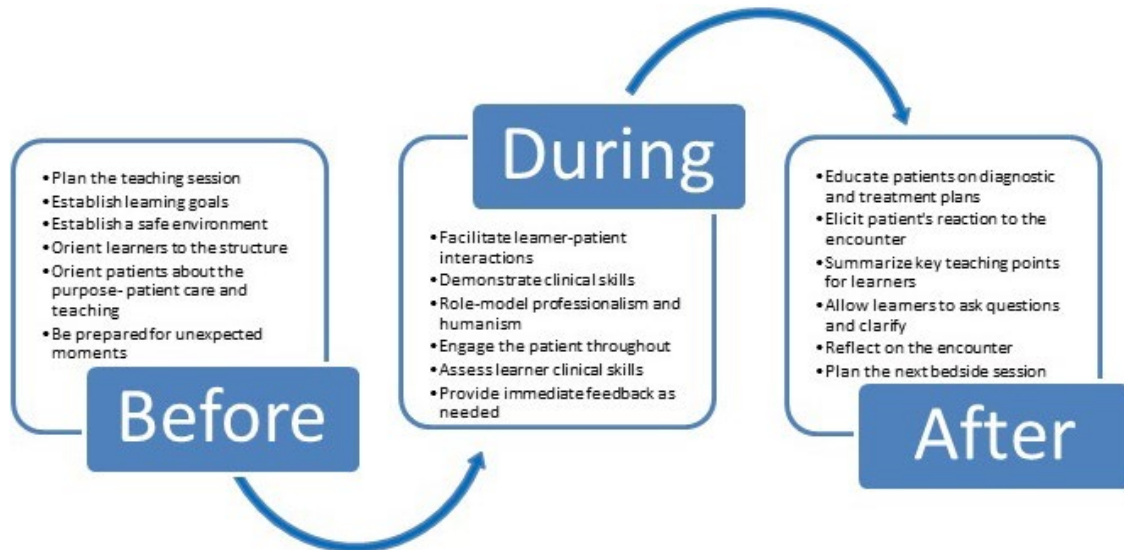


FIGURE 1 The 3-Phases of bedside teaching

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CONFLICT OF INTEREST

The authors have no potential conflict of interest to report.

AUTHOR CONTRIBUTIONS

MD contributed to the design, drafting and revision of the work. SR contributed to the design and revision of the work. OC contributed to the design and revision of the work. All the authors (MD, SR and OC) provided final approval to the submitted work and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ETHICAL APPROVAL

Ethical approval was obtained from the Ethical Review Board of the Netherlands Association for Medical Education.

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