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REVIEW ARTICLE

Strategies for improving clinical teaching in emergency department: Applicable to clinical teachers and especially emergency medicine

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Abstract

The emergency department (ED) is one of the challenging educational environments in medical education. Clinical teaching at ED requires balancing the provision of patient care services, clinical teaching, and clinical experiences for learners at different levels of learning. Accordingly, using effective teaching strategies at teachable moments and getting feedback from learners provide a balance between patient care and education. This narrative review aimed to review strategies for improving clinical teaching in the ED. Searching the literature was done in ProQuest, PubMed, ISI Web of Science, as well as Science Direct databases, and Google Scholar search engine with the keywords, including "teaching model", "learning", "educational strategy", "training", "emergency department", "emergency medicine", "clinical teaching", "resident", and "medical student", in English language with no time limit for searching. Finally, after reviewing 53 abstracts, 19 articles were included in the present study. In this review, effective training in the ED and important determinants of adequate educational encounters were provided with suggestions on how to implement them in clinical settings. The eight main themes related to the study were extracted, including professional reflection, obvious expectations, interprofessional training, strategies for clinical teaching with limited time, strategies for effective bedside teaching, selecting a teaching strategy for ENGAGE multilevel learner, and applying the principles of adult learning and faculty development. Accordingly, to maximize learning opportunities in the ED, the faculty members' development is recommended for fulfilling accountability in the community.

Key words: Educational, Emergency departments, Models, Teaching

Introduction

Emergency department (ED) is one of the challenging educational environments in medical education. Several factors, including time constraints, interruptions, and negligible financial rewards for clinical educators and learners, also affect the quality of clinical teaching in the ED. In enormous and frustrating situations in the ED, learners can be taught taking into account the shortest educational opportunities with effective coaching (1). If clinical teaching, instead of asking questions in cases of ambiguity, only leads to the expression of medical knowledge and facts, the teaching of clinical experience is neglected. Hence, the role of a clinical teacher in providing new educational methods, including learner-center strategies for transferring learning experiences, is

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very effective.

Clinical teaching at the ED requires balancing the provision of patient care services, clinical teaching, and clinical experiences for learners at different levels of learning. Therefore, clinical educators should recognize the gap between clinical teaching, needs assessment of learners, and clinical environment and provide feedback for learners (1, 2). They should provide practical education with regard to learner's needs and training, take into account these needs, and provide feedback for learners' performance. Therefore, three steps are needed for training in limited time in parts, such as the emergency room. These steps include taking learner needs into account, teaching fast, and providing feedback (1). Planned clinical teaching can convey valuable experiences and skills to students (1).

Teaching in the ED has challenges, including long working hours, responsibility for teaching students, and managing a large number of patients (3-5). In the ED**,** training takes place on the patient's bed. Due to the limited interaction between doctor-patient and training of students, active teaching methods should be used, and the combination of science and art in medicine should be used to educate and evaluate learners (6). But given that most clinical educators spend less than 25% of the time at the patient's bed, clinical educators should use effective educational strategies in this sensitive clinical setting (7).

Medical students and residents with the help of a link between new learning and past experiences can acquire new knowledge and experiences, and by reflecting on past experiences they can understand the relationship of past learning to current education (3). In traditional education models, the methods, such as clinical rounds, patient-bedside teaching, and short speech, are used, but due to the importance of effective learner-centered education in the present era, it is necessary to use modern approaches in clinical teaching. However, the use of combined traditional and modern approaches is recommended for students' training (3).

In order to balance between patient care and clinical teaching, we need to use an organized approach to assess skills, provide constructive feedback, and create practice opportunities in a clinical setting. Therefore, clinical teaching is successful when combined with the training of clinical skills and procedures and improves other abilities, such as teamwork success, communication skills, and clinical judgment (8). Therefore, it is obvious that working in the ED causes to face difficulties, such as a busy environment and patients' prioritization, and if a clinical educator cannot manage the patient care and education, clinical teaching will be neglected and focused only on the patient.

Because the role of teachable moments is very important for learners and clinical educators in the busy educational environment; consequently, using effective teaching strategies in clinical teaching at equally teachable moments and getting feedback from learners provide a balance between patient care and education (2). Considering the importance of the ED in teaching essential skills and sensitivity in the provision of care services for patients, this study aimed to review the strategies for improving clinical teaching in the ED.

Methods

In this narrative review, we searched ProQuest, PubMed, ISI Web of Science, Science Direct databases, and Google Scholar search engine. The keywords of searching were "teaching model", "learning", "educational strategy", "training", "emergency department", "emergency medicine", "clinical teaching", "resident", and "medical student", in English language. We did not consider any time limit for searching. Only the abstracts of the articles that were available in full text were reviewed after excluding repeated articles and recognizing the direct connection of the articles to the study goals. Finally, after reviewing 53 abstracts, 19 articles were included in the present study.

For example, the search strategies in PubMed were ("educational strategy"[All Fields] OR "teaching method"[All Fields] OR "teaching model"[All Fields]) AND (clinical[All Fields] AND ("education"[Subheading] OR "education"[All Fields] OR "educational status"[MeSH Terms] OR ("educational"[All Fields] AND "status"[All Fields]) OR "educational status"[All Fields] OR "education"[All Fields] OR "education"[MeSH Terms])) AND (("education"[Subheading] OR "education"[All Fields] OR "training"[All Fields] OR "education"[MeSH Terms] OR "training"[All Fields]) AND ("learning"[MeSH Terms] OR "learning"[All Fields])) AND ("emergency medicine"[All Fields] OR ("emergency service, hospital"[MeSH Terms] OR ("emergency"[All Fields] AND "service"[All Fields] AND "hospital"[All Fields]) OR "hospital emergency service"[All Fields] OR ("emergency"[All Fields] AND "department"[All Fields]) OR "emergency department"[All Fields]).

Results

There was no comprehensive agreement on the

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methods or even styles that result in successful and effective clinical teaching within the ED (9).

This article summarized the literature regarding effective teaching of the ED, as well as some other important determinants of efficient educational encounters besides generating suggestions on how to implement them inside clinical settings. The eight main themes related to the study were extracted, including professional reflection, obvious expectations, interprofessional training, strategies for clinical teaching with limited time, strategies for effective bedside teaching, selecting a teaching strategy for ENGAGE multilevel learner, and applying the principles of adult learning and faculty development.

1. Professional reflection: Reflection for action, Reflection-in-action, Reflection-on-action

In fact, Professional reflection is reflection before, during, and after each activity, such as clinical teaching, which is essential for successful and effective teaching and is recommended (10). Reflection is vital to the process of teachers' education and further professional development (11). The Clayton (2005) study showed that reflection is as important in faculty development as it is in student learning. It also leads to teachers' deeper understanding of their role as educators and allows them to model the abilities and perspectives for their students' progress (12).

2. Making expectations obvious

Efficient teachers invest a small amount of time in getting to recognize learners and identifying their particular educational needs. With this kind of information, they could choose high-impact material that is remembered simply by learners due to its utility in addition to relevance (13).

3. Interprofessional education (IPE)

Increasing specialization in healthcare requires the opportunity for collaboration throughout professional boundaries to assure the delivery of qualified, safe, and effective care and attention, which has been acknowledged by providers worldwide, including medical education. Clinical teaching is provided in the designated part of the hospital's ED for teams involving medical, nursing, and paramedical learners. The Ericson (2017) study showed that the emergency ward provided an excellent environment for IPE (14).

4. Strategies for clinical teaching with limited time

ED STAT

The ED STAT (Strategies for Teaching Any Time) is both a program and a mnemonic (a way of organizing the essential elements to be used every day) (15). The ED STAT has two phases. The initial phase involves setting expectations (E) and diagnosing the student (D). When an educator takes these critical ways while first interacting together with a learner, they underpin both efficiency and usefulness. When the steps are usually well performed, the rest of the strategies can become implemented easily. The next phase frames each specific teaching encounter involving the setup (S), a particular teaching point or rule (T), assessment and provision of positive constructive feedback (A), and role model through demonstration and clinical practice, the realization of each one is always the teacher (T) (16).

One-minute Preceptor/Five-Step "Microskills" Model

The five-step "Microskills" model of clinical teaching is commonly known as the One-Minute preceptor because of the short time available for teaching in the clinical environment. Neher et al. introduced a five-step model that utilizes simple discrete teaching behaviors or "Microskills". The skill sets that make up the model are (1) asking for commitment, (2) probing for underlying reasoning, (3) teaching involving general rules, (4) supporting which was done or offering positive feedback, and (5) correcting mistakes. The model can be utilized as a set framework with the most clinical teaching encounters (6, 16, 17).

SNAPPS

The SNAPPS aims to encourage the two diagnostic and clinical reasoning in a dynamic style. At the core of SNAPPS, there is actually a shift in paradigm in which the preceptor no longer plays the key role. The SNAPPS, similar to the One-Minute Preceptor, is a mnemonic for *Summarizing* the patient's history and findings, *Narrowing* the differential to two or three relevant possibilities, *Analyzing* the differential by comparing and contrasting the possibilities, *Probing* the preceptor by asking questions about uncertainties or alternative approaches, *Planning* management for the patient's status, and *Selecting* a new case-related issue for self-directed learning (6, 16).

Aunt Minnie

The Aunt Minnie model of teaching focuses on developing rapid pattern identification. In this model, trainees see a patient, acquire a brief history, perform an actual physical exam, and present a short summary, which has a presumptive diagnosis. The teacher evaluates the patient,

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diagnoses the problem category, and makes a management plan. Typically, the teacher then discusses the particular case with the student and provides teaching details about the patient and particular condition. This efficient model is flexible to the ED workflow because the teacher may see the patient just before or after getting together with the student (6, 16).

Two-minute observation model

The "two-minute observation model" is a well-described method in which the teacher observes a patient encounter to be able to obtain more specific details about the trainee's learning needs, which can be useful for providing guidance or even feedback. This technique is effective for teaching the two history and physical examination skills as well similar to teaching communication abilities. Before the particular patient encounter, the teacher and learner should acknowledge which element of the particular interaction will be focused on for the brief observation, such as establishing a patient relationship, history taking, physical examination, or discussion with health professionals, consultant, or family member. As with other learner-centered models, the instructor needs to set clear expectations and observe the learner directly in addition to providing specific feedback and even teaching (6, 17).

Activated demonstration

"Activated demonstration" is a model in which the learner asks to observe the particular clinical teacher performing the skill that is not familiar for the learner. After setting up the learner with the preview with the upcoming educating points, the learner is usually given a specific task to complete while seeing and providing expectations throughout the participation. Following the demonstration, the teacher activates the learner simply by asking him or her to describe the thing that was discovered. A brief discussion occurs regarding relevant learning points after that in which the explanation for the actions will be examined, and further analysis may be assigned (6, 16, 17).

Teaching scripts

The teaching script is a strategy for being prepared for “teachable moments” in busy clinical settings. "Teaching scripts" are usually concise pre-prepared highyield lessons by the teacher that target a specific concept or topic. To become most beneficial, the script needs to be adapted to consider the trainees’ levels, the patient's clinical conditions, and the disease process under consideration (6, 17).

See one, do one, teach one

These well-known teaching procedural skills need the trainer to illustrate the procedure, observe the student performing the task, and provide feedback about his/her performance (6). The Kotsis (2013) study showed that the traditional method of medical learning with "see one, do one, teach one" is simple despite being applicable. Nevertheless, it can be developed and greatly improved with various learning guidelines, committed mentors, and enhanced technology, such as medical simulators (18).

Ask-tell-ask

In this model, the instructor must first set the particular stage for providing comments by telling the student 'I want to give individual feedback'. Then, the instructor asks the student to assess his/her individual performance. Next, the instructor tells his/her own correction, addresses the learner's self-assessment, and offers an action strategy for improvement. Finally, the educator asks with respect to the learner's understanding and approaches for development. This strategy incorporates the learner's perspective, avoids judgeship, and promotes the lifelong skill of reflection (6).

5. Strategies for Effective Bedside Teaching in Emergency Department

The ED as great training ground is an ideal and suitable environment for practice regarding bedside teaching because the high number of patients increased the acuity of illness; in addition, various pathologies provide abundant patient-centered teaching opportunities. However, the pressures of ED overcrowding at many organizations now limit the accessible moment for formal bedside teaching per patient. Several useful ways to increase bedside teaching by academic emergency medical professionals are as follows:

1. Plan the teaching session before your next work plan.
2. Be aware of your team, know your current goals.
3. Choose the best moment to teach.
4. Establish realistic expectations for yourself.
5. Limit the time per patient.
6. Be professional and role model.
7. Use the Socratic approach with caution.
8. Review and evaluate.
9. The particular ''teach-only attending''
10. Teach residents how to educate in bedside (19).

6. Select a Teaching Strategy for ENGAGE Multilevel Learner

-Everyone teaches: All team members

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(Medical students and interns, senior residents and fellows, interprofessional staff, and family) are involved in daily learning.

-Novel topics: Assign pairs or groups to review new guidelines, studies, and protocols.

-Guide: Explicitly role model humanism, professionalism, communication, or

diagnostic bias.

-Ascend the ladder: Perform targeted questioning of each team member based on the anticipated knowledge base of each learner to build a shared understanding.

-Groups within group: Create pairs or groups to complete a task.

-Empower learners for autonomy: Promote autonomy among all team members by delegating duties appropriate to each learner's level of training (20).

7. Applying principles of adult learning

Due to the fact that the teachers' audience in the ED is made up of adult learners, it is necessary to consider the principles of adult learning in clinical teaching. The principles of adult learning consist of feedback needs, being reflective, clear goals and objectives, requiring meaning, relevance, active involvement in learning, having a specific purpose in mind, and voluntary participants in learning (13).

8. Faculty development

Improving the level of clinical teachers in teaching knowledge and skills will improve the quality of teaching and learning, as well as their professional duties (21). Coates (2003) states that continuous faculty development and firm mentoring relationships help the educational advancement of clinical teachers (22).

Discussion and Conclusion

The ED needs to be an excellent learning environment; however, it is often not really true (9). Faculty memebers must meet the needs of a diverse number of learners in the ED while dealing with a spectrum of challenging and unpredictable clinical presentations (23). Together with the growth of medical students in addition to residents in the ED, there is an increase in expectations for clinicians in order to teach. Therefore, Clinical teaching in an ED is both challenging and rewarding. Simply by incorporating multiple and diversified strategies, we are able to become a lot more effective and efficient teachers. Because only some of these strategies may work in any given circumstance, it is important to be flexible and innovative (24). To maximize learning opportunities, teachers must be mindful to identify these times and then make them relevant to a learner's needs. Even short periods regarding time aimed at teaching could offer important learning opportunities for trainees to get insights and skills (17). Therefore, the faculty members' development is very necessary to achieve the goals mentioned above. In fact, empowering faculty is the need of today and tomorrow to fulfill accountability in the community.

The present study had two main limitations. Firstly, all of the reviewed studies were found in English language. So, this may reflect a publication bias. Secondly, the quality of each article was not assessed; thus, there was a need for future studies to remove these limitations.

Conflict of Interest

The authors declare that there is no conflict of interest in this work.

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