Education and training

Learning opportunities within the clinical workplace

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Abstract

The clinical workplace provides a multitude of educational opportunities for trainees to provide them with the knowledge, skills and attitudes for independent practice. However, this environment is 'contested terrain' whereby educational and service provision has to be balanced by junior doctors. Furthermore, limitations on the number of hours within the working week have had an impact on the number of learning opportunities trainees are exposed to. As such, both trainees and trainers should assess every aspect of the clinical setting to maximise the educational opportunities conferred within the working day. Both the training opportunities and the level of supervision provided should reflect the trainee's educational needs, ensure patient safety is maintained and provide them with an appropriate level of autonomy. This paper aims to highlight potential learning opportunities within the clinical environment and maximise these educational encounters.

Keywords: Workplaced learning; Workbased learning; Postgraduate medical training; clinical teaching

Introduction

Postgraduate medical training should equip trainees with the skills, knowledge and attributes for independent practice[1]. They need to be equipped with the skills to become lifelong learners and continually develop their abilities throughout their careers by learning from colleagues, mentors, patients and disease. The challenge for clinical teaching is how to provide an optimal learning environment in which trainees can achieve their competencies for practice within a defined training rotation; both the limitations in the number of hours within a working week and the balance between learning and service commitments all can negatively impact on the educational experience of trainees[2]. Moreover, trainees need to balance their own development of skills, knowledge and attributes for independent practice against the requirement to provide high quality and safe healthcare[3]. The appropriate level of supervision must be provided to trainees performing any patient interaction and this is gauged by the trainer-trainee relationship, regular assessment and feedback. The clinical workload of a trainee needs to be finely balanced between overstretching them with tasks outside their competencies and being left with all the routine and menial tasks[4]. Thus whilst trainees should work within their competencies, they must be given the opportunities to expand their repertoire of skills, which may result in errors (and potentially patient harm) – supervision should limit these errors, which should be reflected on to provide a learning opportunity within a 'no-blame' culture[5]. As a trainee gains competence of their necessary skills, the amount of supervision required can be stepped down, until distant supervision (i.e. advice via a telephone) may be all that is required.

An understanding of how each learning environment within the hospital setting can be maximized may enhance the learning opportunities conferred upon trainees. Both technical skills and the professional attributes of being a clinician can be learnt in clinical and non-clinical environments. These learning environments will be explored in the subsections below.

Bedside Teaching and Ward Rounds

Bedside teaching is a stalwart of medical education, allowing clinical history and examination to be performed under guidance, in an appropriate setting and with relevant clues (observation charts, oxygen, etc.) present. This patient-trainee interaction provides an opportunity to develop professionalism and communication, and can also be the source of training of diagnostic techniques ranging from venesection and cannulation to more invasive techniques (e.g., pleural aspiration, drainage of ascitic fluid)[1].

Presentation of patients during ward rounds allows a professional conversation between trainees and trainers to occur, which justifies their role in management and provides an insight into understanding and thought processes[6]. The multidisciplinary nature of rounds creates a community of practice[7], allowing social learning to occur, and an opportunity to voice differing perspectives on patient care[3]. In order to maximize these learning opportunities, learning objectives can be discussed prior to commencement and reflection undertaken once they it has been completed[6]. Teaching rounds should be carried out when the ward is quiet, at a suitable pace, with regular questioning and opportunities for trainees to 'lead' the process[8]. Factors that hinder this educational process include

time pressures, patients not being available, and the availability of trainees[8].

Outpatient Clinics

Outpatients provides a mixture of new and follow-up patients that enables a trainee to learn management of patients in an ambulatory setting. Trainees may be in the same room as their supervisor (learning the basics of the consultation), or can practice semi-autonomously as their experience increases (with discussion with their supervisor as required); they must select an appropriate investigation and treatment plan, with a time frame for review, once the investigation or intervention has been performed[3]. Outpatient teaching is more highly valued by trainees and students compared to ward based tuition[9]. Factors that hinder this educational opportunity include room availability, time constraints, staffing levels and attitudes to teaching[9].

Operating Theatre and Interventional Suites

Invasive procedures should be performed by adequately trained (or supervised) personal in the relevant area of the hospital (e.g. endoscopy, interventional radiology suites, theatre), with the necessary equipment and monitoring for the technique to be performed. Even before patients enter these environments, trainees have an opportunity to review the patient and their relevant investigations, discuss the procedure with the patient and obtain consent for the intervention[1]. Trainees can learn a wide spectrum of skills within these environments including both technical (both procedural related and anesthetic related) and non-technical skills, including Human Factors, anatomy, identification of instruments, aseptic technique, effective hand-washing and donning of surgical gowns[10]. Teaching invasive procedures represents a dichotomy for clinicians, not only do trainees need to gain exposure and experience in the relevant technique, but patients need to be prevented from undue harm. Prior to undertaking an intervention, trainees should be familiar with the relevant anatomy and physiology of the system they are about to operate upon, will have watched the procedure being performed and may have learnt the basics of the procedure in a simulated setting.

Trainees must to be able to self-reflect on their own skills and record of the number of procedures they have performed (which can act as a proxy for ability) to ensure that the correct level of supervision is provided alongside an intervention of suitable difficulty. Trainers need to be sure that their trainees have the necessary skills and knowledge to perform a technique, with experience often being gained in a stepwise reflecting both the difficulty of intervention and the gaining of skills, competence and confidence by the trainee[11]. This skills acquisition should be accompanied by regular discussion and feedback to maximise learning opportunities; when no supervision is available, trainees should consider video-recording the procedure as this allows reflection and review at a later date. A video diary can also be used as a portfolio of a trainee's repertoire from beginner to expert during their training rotation. The challenge for trainees is to achieve competence in the relevant invasive technique within their training rotation; the number of interventions required to gain competence will vary between each trainee and technique[11].

Handover

Handover allows the care of patients to be transferred from one group of individuals to another on a temporary or permanent basis. Handover confers an opportunity to present a clinical synopsis of patients with key information to ensure continuity of care and patient safety is maintained[3]. Most handovers are trainee led which provides an opportunity for peer learning to occur, checking comprehension and sharing interesting cases or tips for practice[12]. Handovers should be considered to be a high risk procedure, as communication errors can result in vital information being omitted; as such the process should be undertaken in suitable environment away from distractions, in a structured written and oral manner supported by an electronic format[12]. A further review at the patient's bedside can be performed if required, which can highlight high risk patients.

Multidisciplinary Team Meetings

Multidisciplinary team (MDT) meetings are small formal meetings focused on all aspects of a patient's care that involve a wide range of medical personal, nursing staff and allied health care professionals[1]. Meetings ensure that evidence-based guidelines are followed, and help to streamline management, removing unnecessary delays in treatment and improving cost effectiveness. MDTs represent a Community of Practice[7] allowing social learning to occur as each individual can share their relevant expertise; MDTs enable best practice to be shared and help break down barriers between different specialties. Trainees can learn from the didactic teaching that occurs within the MDT (in relation to clinical details, investigation and management), but can also contribute to the meetings and practice their presentation skills.

Morbidity and Mortality Meetings

Morbidity and Mortality (M&M) meetings can help ascribe accountability and be used to highlight improvements in patient safety. They provide an opportunity for professional education, especially if the discussion can be held within a no-blame culture, and the meeting can voice discrepancies in how to manage patients, especially in ambiguous situations[13]. Trainees may be tasked with presenting a case and the potential learning aspects associated with patient care.

Grand Rounds/Formal Teaching

Grand rounds are traditional formal teaching opportunities that typically revolve around a case, whereby salient findings are presented prior to a discussion of management. These meetings allow opportunities for trainees to present cases and learn management, but their educational benefit may be decreasing as they are being replaced with lectures with limited clinical relevance[14]. However "audience apathy, deteriorating decorum and shrinking attendance" have diminished these learning

opportunities[14]. Targeted teaching and the establishment of learning objectives for trainees can improve the educational content and the provision of feedback to the speakers can also enhance these meetings.

Journal Club

Journal clubs confer an opportunity for current scientific research and developments to be presented, critiqued and discussed by trainees. These clubs confer an opportunity to appraise the current literature and how that can be translated into evidence based patient care[15]. Journal clubs tend to be both voluntary and occur outside of working hours, resulting in highly motivated groups of participants whom are protected from interruptions.

eLearning and mLearning

Electronic learning (eLearning) and multimedia learning (mLearning) enable trainees to work informally, away from desks and computers, and at their own pace through a series of educational modules. Any intervention that engages trainees and promotes learning should be encouraged and these online learning platforms can be combined traditional learning resources should be promoted to ensure that all aspects of the curriculum are covered. mLearning in particular can be 'dipped into' allowing the learner optimal flexibility of how and when they want to use it. elearning can be referred to during point-of-care patient interactions when a trainee is unsure of how to proceed with patient management[1]. These increasingly important and under-utilized resources should be supported by educational institutions that support both undergraduate and post graduate trainees. By developing a virtual learning environment, individual tailored learning programs can be created that allow a trainee to develop and control their own online learning[16].

Simulation

Simulation is becoming increasingly important for medical training. , anything can be simulated from learning clinical skills to human factors training, for both individuals and teams, focused on patient care and current medical practice in both the undergraduate and postgraduate setting. The availability of simulators coupled with competency based training and a decreased amount of training within the workplace has led to an increase use of this teaching format[1]. In addition, trainees need to understand how to use certain pieces of equipment prior to employing them on patients and this familiarity can only be gained in a simulated setting. Simulation can either occur within the workplace (allowing point-of-care simulation to see how teams react in a situation) or on formal taught courses; it can be low-technology and cheap (e.g., tying surgical knots on the back of a chair), but can also be high-fidelity and expensive (e.g., a virtual reality training simulator for laparoscopic operations), or use animal or cadaveric tissue. Simulation that increases trainee's familiarity with certain techniques is likely to improve their clinical performance, decreasing potential patient

harm and shorten the time taken for trainees to achieve competence[1]. A simulation should be completed with feedback from the supervisor to ensure that trainees gain the most from the session and clarify any facts or concerns about the simulation; a video recording of the session can also enable participants to reflect on their performance in a manner that is almost impossible in everyday clinical practice.

Competing Interests
None declared
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