

Invited Article

MEDICAL EDUCATION

Collaboration in Healthcare: Implications and Educational Strategies for Postgraduate Medical Education

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Introduction

The positive impact of multidisciplinary teamwork on patient outcomes is becoming increasingly evident in today's healthcare delivery context. The landmark report on medical errors in the United States released two decades ago 'To Err is Human' [1] highlighted the role of human factors, especially related to team performance, on patient safety and advocated for the development of collaborative competencies in health professions education. Interestingly, studies suggest that breakdowns in teamwork result in a larger proportion of medical errors among trainee doctors compared to specialists. A study of medical malpractice claims in the United States suggests that this figure can be as high as 70% of all medical errors [2]. The purpose of this paper is to discuss some concepts and related competencies in collaborative healthcare practice, particularly for medical trainees, and present important ideas on the development and assessment of such competencies in postgraduate medical education.

The nature of collaborative healthcare practice and its educational implications

Healthcare delivery in contemporary health care systems is almost always achieved by teams rather than by individuals. The transition from individual practitioner-based healthcare to team-based care accelerated following the demonstration of the effectiveness of multidisciplinary surgical and medical teams during the 2nd World War [3]. Healthcare team organization can be classified as multiprofessional, interprofessional and transprofessional based on the level of integration in workload, decision making and resource management [4]. In multiprofessional teams, for example in the coordination of care between a general practitioner and medical specialists/allied health, individuals from different professions work in parallel to provide care to a patient. In interprofessional teams, for example in a medical or surgical unit, these individuals work towards shared goals in patient care which cannot be achieved without interdependency on their complementary skills. In transprofessional teams found in dynamic domains of

healthcare that are known as 'action teams', for example an emergency resuscitation team or a theatre team, these individuals assemble for a defined period of time/ task to perform team roles with even some overlap of professional boundaries. Contemporary definitions of healthcare teamwork focus on interprofessional and transprofessional team processes, and emphasize the need for shared health goals, effective communication, shared decision-making, and an understanding of and respect for complementary backgrounds and skills [5]. Multidisciplinary team-based care has progressed so much that even related sub-specialties are established, for example Liaison Psychiatry. In this context it is important for postgraduate trainees to understand teams and team processes in their specialties/ practice settings.

The competencies which a profession needs to collaborate within its ranks and with other professions are termed 'collaborative competencies', as opposed to competencies which all professions value (such as practitioner-patient communication) and competencies which distinguish one profession and complement other professions (such as scientific knowledge) [6]. The collaborative competencies for a medical practitioner can be broadly described based on the interprofessional and transprofessional team performance models. The competencies highlighted in interprofessional practice and interprofessional education include understanding each other's professional backgrounds and team roles and responsibilities and when and how to involve them (*shared understanding*); respecting other professionals' contributions and their decisions, teaching other professions (*team support*); *clear communication*, and *leadership* attributes such as conflict management and shared decision making between different professions [7]. Competencies more relevant to transprofessional 'Action Teams' can also be classified along these four competency domains, with emphasis on situational awareness of the changing environment (shared understanding), mutually monitoring others' performance and backing up when needed (team support), succinct communication with checking back, and adaptability of roles including taking leadership when necessary.

The place of a trainee doctor in these teams and the required collaborative competencies is a key consideration for postgraduate medical education. Studies conducted in Australia and Sri Lanka have identified that the role of a junior trainee (e.g. intern or registrar) includes practicing under supervision of medical specialists, acting as a patient care liaison with members of the interprofessional team and taking an infrequent team leadership role [8]. Within these roles three key collaborative competencies and sixteen related behaviours were identified: self-awareness and responsibility (behaviours such as accepting responsibilities and adapting to situational roles while recognizing own limitations), supportive team relationships (behaviours such as coordinating patient needs, recognizing roles of other health professionals and respecting their perspectives) and safe communication (behaviours such as communicating significant patient changes and expressing appropriate urgency and concern in requests). Initial development of these competencies should be supported from the time the trainee is a senior medical student and these competencies should be nurtured from day one of postgraduate education.

Educational strategies for the development of collaborative competencies

Several considerations are important in planning the development of collaborative competencies among learners in the health professions. Best practice advocates explicit team learning in educational environments where teams work interdependently toward common goals and are given explicit instruction and practice in teamwork [9]. Further, a staged approach where the collaborative skills that learners develop at each stage of medical education (undergraduate, postgraduate and CPD) contribute and cumulate towards developing the overall outcome of healthcare collaboration is important [10]. Taken together, these considerations suggest that the learning environments could be classroom based, simulation based or workplace based as appropriate for the stage of student learning while the collaborative competencies and team tasks appropriate for each stage should be made explicit to learners. Involving learners in the co-construction of the curriculum is also important [11], especially in postgraduate education where the hidden curriculum, with intraprofessional hierarchies and professional silos, plays a major role. An educational theory which provides a useful perspective for development of collaborative competencies is Situated Learning in Communities of Practice (CoP) [12]. Members of CoP e.g. clinical teams can actively participate in team tasks and learn about collaboratively working together at the same time. Every individual learner within the CoP needs to understand which competencies are essential for effective participation. Learners start by observing the CoP and gradually begin to integrate in the team functioning within defined roles, termed legitimate peripheral participation.

The two key learning strategies widely described in the literature for explicit team learning are Interprofessional Education (IPE) and Crisis Resource Management (CRM) based training. In IPE learners of different health professions learn with, from and about each other in classroom and clinical learning environments. A systematic review of IPE identifies that a safe learning environment close to authentic clinical practice and regular feedback and reflection are important in achieving the learning outcomes [13]. Emerging from the aviation industry, CRM-based team training is more targeted at Action Teams and is mostly simulation-based. A narrative review of CRM training advocates for providing hands-on experience in a safe environment while providing timely and relevant feedback [14]. In postgraduate education, workplace-based IPE with targeted opportunities for simulation-based CRM training could be promoted. Within these strategies, explicit focus on stage appropriate collaborative competencies and team tasks combined with opportunities for feedback and reflection would promote Situated Learning.

Considerations in assessment of collaborative competencies

A key consideration for a valid and reliable assessment is clarity on what is measured. Many measures of collaboration in medical education are based on team performance or output, for instance a group project report or, in clinical settings, patient care related performance targets. However, CRM-based research suggests that measurement should focus on team process and on direct observation of critical behaviours related to team member interactions [15]. The identification of critical collaborative behaviours for medical trainees as described earlier [8] is useful for designing valid and reliable assessments.

Assessment is a powerful strategy to support Situated Learning, especially workplace-based assessment. However, a systematic review of assessment tools for healthcare collaboration found that only a few instruments assess teamwork in actual clinical settings [16]. One of the four instruments recommended in this review based on the strength of validity evidence and generalizability of scores is the Teamwork Mini-Clinical Evaluation Exercise or the T-MEX [17], a workplace-based assessment targeted at transition to internship that focuses on six prioritized collaborative behaviours. More importantly, the T-MEX formalised the learning process and supported the legitimate peripheral participation of students in the healthcare team [18]. Instruments such as the T-MEX can be easily adapted to postgraduate education.

Summary

Healthcare collaboration is a complex outcome that is vital for healthcare quality and safety. Collaborative competencies in healthcare could be broadly classified in the domains of shared understanding, team support, communication and leadership. Specific behaviours related to the first three domains are particularly critical for medical trainees. Educational designs for the development of these competencies can use the theory of Situated Learning, and target learning strategies found to be useful are IPE and CRM-based training. Workplace-based assessment creates focused opportunities for legitimate peripheral participation, direct observation of team behaviours, feedback and reflection. Such assessments for learning hold much promise for the development of collaborative competencies in postgraduate medical education.

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