Teaming in Graduate Medical Education: Ward Rounds and Beyond

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ABSTRACT: Teamwork in graduate medical education (GME) is often hindered in clinical learning environments where discontinuity among residents, supervisors, and other health care professionals is typical. *Teaming* is a conceptual approach to teamwork in dynamic environments with constantly changing team members and goals. Teaming is built on principles of project management and team leadership, which together provide an attractive strategy for addressing teamwork challenges in GME. Indeed, teaming is now a requirement of the Accreditation Council for Graduate Medical Education Clinical Learning Environment Review program. However, many clinician-educators and leaders may be unfamiliar with teaming and how to integrate it into their GME programs. In this article, the teaming framework is described with a specific example of how it can be applied to improve hospital ward rounds, a common setting of teamwork breakdown. The goal of this article is to educate and encourage GME leaders as they learn new ways to implement teaming to improve patient care and education in their programs.

KEYWORDS: teamwork, graduate medical education, teaming, clinical learning environment

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Introduction

Teamwork in graduate medical education (GME) is challenged by an evolving clinical landscape defined by fragmentation of care and discontinuity among residents, supervisors, and other health care professionals (HCPs) who must collaborate to care for patients and to learn.[1-9] Effective teamwork is critical for patient outcomes and high-quality medical education.[10] However, residents' perception of teamwork in the clinical learning environment (CLE) may fall short of national ideals.[11] GME programs must be equipped with conceptual models to optimize teamwork in their CLEs.

Teamwork can be defined simply as "the collaborative effort of a group to achieve a common goal."[12] However, merely bringing together a group of skilled individuals is insufficient to achieve a team's goal. Successful teamwork depends on many factors, such as organizational context, individual resources, and team processes. Recent teamwork models, such as the Input–Mediator–Outcome–Input[13] and Big Five[14] frameworks, have helped to advance our understanding of the mediators of team function and success. While these models have many strengths, they are based on team stability assumptions that do not exist in the modern CLE.[15,16] Therefore, teamwork approaches that account for the transient nature of the teams that form in GME are needed.

Teaming is one such approach.[17] Popularized by Amy Edmondson,[17] teaming is a conceptual model of teamwork in dynamic environments with constantly changing team members and goals. In this article, we aim to describe the teaming framework and suggest how residents, clinician-educators, and program leaders can apply teaming to GME, specifically to internal medicine residency training. To this end, we consider the following hypothetical clinical scenario based on the perspective of Sarah Liu, MD, a fictitious first-year internal medicine resident.

Typical Day on Ward Rounds

Dr Liu suddenly awakens to a 5 AM phone call; her chief resident asks her to cover a shift in the Internal Medicine ward for a sick colleague. Dr Liu quickly goes into work for the 6 AM handoff of the 10 patients she will be caring for today. She searches the busy workroom for her senior resident, Amir Patel, DO, who she has not met in person. She is unsure of what Dr Patel looks like, and no one makes eye contact with her. She quickly stops trying to find Dr Patel and begins reviewing her patients' health records and checking on the patients in their rooms. She is nervous because she heard that she is working today under Monica Schwartz, MD, who is an experienced attending physician known for her high expectations of residents.

Two hours later, Dr Liu hurries to her first patient's room to begin morning rounds. Drs Schwartz and Patel are waiting in the hallway outside of the room.

> Dr Liu: "Good morning; sorry for running late. I am just learning about these patients because I am covering for one of my colleagues this morning."
>
> Dr Schwartz: "We have been performing rounds with these same patients all week, so please keep it brief. I have a meeting at 10 AM, and we have a full list of patients to see before then."

Disconcerted, Dr Liu quickly searches through her papers to find her notes about the first patient, who has chronic obstructive pulmonary disease (COPD).

Dr Liu: "Oh, okay, this is Mr Walker, who was admitted to us 3 days ago with dyspnea and concern for a COPD exacerbation. Comorbid conditions include…."

Dr Liu looks up to see that Dr Schwartz has stopped paying attention and is checking her email on her phone.

Dr Liu: "Oh, sorry, you said to keep it brief. Well, I did not hear about anything happening overnight. The patient was sleeping this morning when I checked in on him, but he briefly woke up and said that he is feeling somewhat better than when he came in. He still requires 5 L of oxygen, although he does not use any at home. I recommend stopping antibiotic treatment because he does not appear to have an infection that precipitated the COPD exacerbation."

Dr Patel: "What makes you think that the patient does not have an infection?"

Dr Schwartz looks up impatiently from her phone.

Dr Schwartz: "I want to continue antibiotic treatment for 5 days total. That is how I have always treated COPD exacerbations, and it has not failed me yet. Let's go talk to the patient…."

Nurse Quinn, the patient's nurse, walks quickly from around the corner to them.

Nurse Quinn: "Oh, I did not realize that you had already started rounds. Did you talk about the plan for the patient's black bowel movement overnight? Also, I had a question about…."

Anxious, Dr Liu looks at Dr Patel, wondering if he had heard about the patient's black bowel movement and seeking advice on what to do. Before Dr Patel can respond to Dr Liu's inquiring look, Dr Liu's service pager goes off.

Dr Liu: "Sorry, hold on. Radiology is asking about another patient who will undergo intravascular embolization. Let me find out what is going on."

Having stepped away for 5 min, Dr Liu returns to rounds to find Drs Schwartz and Patel talking quickly.

Dr Patel: "Oh good, you are back. Dr Schwartz and I were discussing that we will continue with the antibiotic treatment and monitor for further melena because his vital signs are stable. Also, the patient appears to still be sleeping, so Dr Schwartz and I will come back later to check on him."

Dr Schwartz: "Great, let's move on to the next patient. We have taken up too much time on this one patient already."

Teamwork Breakdown During Hospital Ward Rounds: A Lesson in Complexity

Our clinical scenario highlights a familiar context for teamwork breakdown in internal medicine—hospital ward rounds. Successful ward rounds necessitate collaboration among residents, attending physicians, other HCPs, and patients, all of whom may be geographically separated across multiple hospital units. Moreover, residents, attending physicians, and other HCPs often do not know each other. Effective ward rounds require residents and their attending physicians to shift focus as they move from one *team* (ie, a patient and his or her HCPs) to another. Ward rounds also require residents and their attending physicians to manage multiple priorities related to patient care and learning.[18,19] Because of these obligations, teamwork understandably often breaks down during ward rounds, which was the case for Dr Liu and her colleagues. Indeed, previous reports cite many examples of residents, attending physicians, other HCPs, and patients expressing their frustration and unmet needs when teamwork breaks down during ward rounds.[20-22] The challenge for clinician-educators is to find ways to overcome the complexity inherent to ward rounds.

Teaming to Thrive During Hospital Ward Rounds: Embracing the Dynamic CLE

Teaming is a novel approach to organizational learning and improvement that solves teamwork problems in dynamic environments. Broadly, teaming involves "purposeful interactions in which team members quickly identify and capitalize on their various professional strengths."[23] Specifically, the teaming framework is built on best practices of project management (ie, the *hardware* of teaming) and team leadership (ie, the *software* of teaming).[24] This framework considers shifting team structures and goals, similar to those encountered during ward rounds. Many businesses and large organizations use teaming to address complex problems for which a single best solution is not available.[17] These organizations encounter many of the same barriers to teamwork as do HCPs and patients in the CLE. For these reasons, the Accreditation Council for Graduate Medical Education (ACGME) introduced teaming as a new focus area in its CLE Review program.[23]

Despite the benefits of teaming and the ACGME requirement that teaming be incorporated into residency training, examples of successful teaming in medical education are scarce. Gorsky and colleagues[25] provide practical tips for applying the teaming framework to academic projects in medical schools. Although that report is valuable for medical school directors who lead educational projects, it did not specifically focus on CLEs.[25] Within the CLE, Stoller offers his approach for building teams.[26] While he does not explicitly describe the teaming framework, he emphasizes teaming elements including physician leadership, psychological safety, and open communication. We aim to build on this work, recognizing that many clinician-educators and leaders are unfamiliar with teaming and how to implement it in their GME training programs. In the following sections, we elaborate on the teaming framework and provide examples of how teaming applies to hospital ward rounds.

Table 1. Definitions and examples of the teaming hardware and software elements.

	Definition	Example of How to Implement this Concept on Ward Rounds
Hardware	Teamwork processes that facilitate management of resources for the execution of tasks, with the ultimate goal of learning and improvement.	
Scoping	Determine what expertise or resources are needed. Finding collaborators. Outlining roles and responsibilities.	- Additional expertise: Involve additional HCPs (physical therapy, social work, etc) to facilitate the day's plan - Physical Resources: Take a tablet or bedside ultrasound on rounds to engage in diagnostic reasoning
Structuring	Establish boundaries and targets to make it easier to coordinate and communicate.	- Discuss the targets for how you would like rounds to flow (location, order of presentation, time for team member input, questions, and learning) - Assign team members different roles (placing orders, answering pager, presenting patient, etc)
Sorting	Conscious prioritizing of tasks according to factors such as time constraints and level of interdependence between activities.	- Create a plan for the order in which patients will be seen on rounds based upon location or acuity - Involve specialty consult teams to adjust plans according to the expertise of additional stakeholders
Software	Teamwork attitudes that facilitate the execution of tasks for learning and improvement, with an emphasis on leadership.	
Emphasizing Purpose	Articulating what's at stake for motivation. Fundamentally about shared values.	- Emphasize that the patient is the center of the team - Reiterate the overall goal of the day for each patient after discussing the plan
Building Psychological Safety	Creates an environment where people feel comfortable and safe to speak up, share their ideas/opinions, and disagree without fear of repercussion.	- Encourage all team members voice their opinions in a non-punitive environment - Recognize your own knowledge gaps and ask for team member input in situations of uncertainty
Embracing Failure	Failures provide essential information that guides next steps.	- Acknowledge the need to trial different formats of ward rounds based upon acuity, patient needs, and team member comfort levels. And after experimenting, foster reflection on what worked and did not work well - Openly discuss areas of diagnostic uncertainty or knowledge gap with your peers for the intent of fostering a learning environment
Putting Conflict to Work	Teaming involves the interaction of diverse cultures, priorities, and values. Learning from conflict requires us to balance our tendency from advocacy to inquiry.	- Invite people to share their diverse perspectives on matters, such as patient disposition or therapeutic plans - Transform conflicting ideas into inquisitive behaviors that allows for the sharing of ideas and opportunities for learning

The Hardware of Teaming: Applying Project Management

The hardware of teaming focuses on team processes and is based on principles of project management, which is defined as "planning, organizing, and managing resources to bring about the successful completion of project goals and objectives."[27] Ward rounds can be viewed as a series of *projects* as residents and attending physicians examine each of their patients; therefore, incorporating project management principles is practical. The hardware of teaming consists of *scoping* of the problem, *structuring* to set boundaries, and *sorting* tasks for execution among members (see Table 1).[24]

Scoping

Scoping begins by determining first what the team is trying to accomplish and then who and what is required to accomplish that goal. In the context of ward rounds, scoping is needed for each patient. For one patient, the goal may be to formulate a discharge plan; thus, involving a social worker, physical therapist, and family caregivers may be critical. For another patient, the goal may be to engage in diagnostic reasoning for nonspecific symptoms, with a focus on bedside teaching. For this patient, having the necessary physical resources to achieve the team goal (eg, computer access to the electronic health record and a bedside ultrasonography instrument to augment the physical examination) is important.

Structuring

Structuring of team activities allows team members to function effectively as a unit. Structuring happens at the level of the team (eg, team processes and boundaries) and the team member (eg, team member roles and responsibilities). During ward rounds, team-level structuring may involve deciding how much time team members will spend preparing for rounds, where patient information presentations will take place (hallway vs bedside), and what information residents should share when they present patient information to others (ie, what information is relevant). Individual-level structuring may involve assigning a

team member to answer the pager/phone when his or her colleague is presenting, a team member to place orders, and a team member to ensure that the patient's nurse is present to participate in rounds. Structuring serves as scaffolding for building a path toward team goal(s).

Sorting

Sorting involves proactively prioritizing team activities according to factors such as time constraints and level of interdependence between activities. Ward rounds has many opportunities for sorting. For example, the order in which the team members examine their patients during rounds is often based on the location of the patients' rooms, beginning with the patient room nearest to the team workroom. Although this is convenient for the team, this strategy does not consider the patients' needs. When teams use sorting of the order of rounds according to clinical needs (eg, severity of illness, diagnostic uncertainty, and discharge urgency), patients have better outcomes.[28] Successful teams may even choose to defer seeing a patient during rounds if they are waiting for a key piece of information or a family member to be in attendance.

The Software of Teaming

Teaming software highlights the specific teamwork attitudes that facilitate the execution of tasks for learning and improvement, with an emphasis on leadership. Teaming software consists of *emphasizing purpose*, *building psychological safety*, *embracing failure*, and *putting conflict to work* (Table 1).[24]

Emphasizing Purpose

Emphasizing purpose involves creating shared mental models (SMMs) among team members and is essential for collaboration in dynamic environments. According to Salas et al,[29] SMMs are "the consensus understanding of the team's dependencies and interrelationships, objectives, mechanisms, activity patterns, roles, and functions."[29] Thus, emphasizing purpose defines the most important goal of the team and answers questions, which may include determining what matters and what success looks like. The leader of ward rounds (eg, attending physician or senior resident) should emphasize purpose by defining the factors that matter most to the team: caring for patients, learning, and supporting one another. This allows team members to appraise and adapt their activities to achieve these goals.

Building Psychological Safety

Teaming creates an environment in which team members are empowered to voice their ideas, opinions, and questions without fear of repercussion. The HCPs participating in ward rounds have different professional backgrounds and levels of experience, and some will be less comfortable voicing their opinion if they disagree with or do not understand a patient care plan.[10,16] Ward rounds leaders can build psychological safety explicitly by inviting questions from ward rounds participants and implicitly by modeling their own knowledge gaps and asking for team member input when uncertain.

Embracing Failure

Failure is natural and expected in teaming because, by definition, the optimal approach to achieving the team's goal is unknown. Leaders should help their team members accept failure by viewing it as necessary for team and individual learning. During ward rounds, this may involve experimenting with different presentation formats to balance the needs for communicating clinical information, assessing resident performance, and evaluating team efficiency. After such experimenting, the team leader can foster group reflection on what worked and what should be performed differently next time.

Putting Conflict to Work

Because of the interaction of diverse values and priorities involved in teaming, conflict may arise. Learning from conflict requires self-awareness of personal biases and views, in addition to an interest in understanding the perspectives of others. In the context of ward rounds, HCPs may disagree about the safest discharge plan for one patient or how to best perform a diagnostic workup for nonspecific symptoms in another patient. For another patient who is critically ill and at the end of life, the HCPs and family members may disagree about the goals of care. Additionally, HCPs may have differing views on the ward rounds process itself (eg, duration, team size, and prioritizing tasks). Learning from conflict consists of a balance between the desire to explain or teach and curiosity with active listening to understand the point of view of others.

Typical Day on Ward Rounds With Teaming

We revised the previous clinical scenario to include the components of the teaming framework described above. This revised scenario highlights how teaming can improve ward rounds for both HCPs and patients:

> Dr Liu suddenly awakens to a 5 AM phone call; her chief resident asks her to cover a shift in the Internal Medicine ward for a sick colleague. Dr Liu quickly goes in to work for the 6-AM handoff of the 10 patients she will be caring for today. She searches the busy workroom for her senior resident, Amir Patel, DO, who she has not met in person. She is unsure of what he looks like but fortunately sees a resident who is smiling and waving to her. She quickly realizes that the resident waving to her must be Dr Patel. He walks up to her and introduces himself.
>
> Dr Patel: "Welcome to the team, Dr Liu! Thank you so much for helping us today. I am excited to work with you. [Building psychological safety] Let me give you a quick orientation to our team workflow. We use morning rounds to make sure we develop a

management plan for the day with each patient and his or her nurse. [Scoping] We will spend the next 2 h reviewing our patients' health records and checking on the patients in their rooms. Because you are covering for someone else, it may be best to focus on the big picture and uncompleted items that have been listed in the handoff. [Structuring and Sorting] We typically set aside time for teaching in the afternoon, so please make note of any topics that you would like to learn about later today." [Sorting]

Dr Patel: "I know that learning about a new group of patients without any preparation can be difficult, so please let me know if there is anything that you do not understand. [Building psychological safety] I can provide any details about the patients' histories and assist with other tasks, such as speaking with patient family members and discharge planning when you are busy. [Sorting] It is most important that we work together and learn from one another!" [Emphasizing purpose]

[Note how Dr Patel helps prioritize responsibilities and compartmentalizes large tasks into smaller, more manageable tasks.]

Dr Liu: "Thank you. That would be incredibly helpful."

Two hours later, Dr Schwartz arrives at the workroom to meet Drs Liu and Patel. They review the patient list and decide to see Mr Walker first because he requires the most decision-making from his care team. [Sorting] They arrive in the hallway outside of Mr Walker's room.

Dr Schwartz: "Before we begin, let us make sure that Nurse Quinn, Mr Walker's nurse, is present." [Scoping]

Nurse Quinn comes from around the corner.

Nurse Quinn: "I am here. Thank you for including me in rounds."

Dr Schwartz: "Of course, you are a valuable member of our team. [Building psychological safety] Because we have some new people on our team today, let us begin by introducing ourselves. I also want to mention the way I prefer our team conducts rounds. We have been experimenting with different presentation formats, and I think bedside rounds have worked well. [Embracing failure] Our patients are why we are here, and they are just as much a part of this team as any of us. [Emphasizing purpose] However, if anyone has a question or concern about discussing a patient's care at the bedside, please let me know now. [Putting conflict to work and Building psychological safety] We want to make sure that we are all in agreement before we go into the patient's room."

Dr Schwartz: "Dr Liu, as the intern, I would like you to present the patient's case to Dr Patel as if he is the team leader. Please be sure to provide an opportunity for Nurse Quinn to update us on overnight events and share her thoughts because this will show Mr Walker that his doctors and nurses are communicating with each other. [Emphasizing purpose] Provide us with a 1-sentence background of the patient, a summary of overnight events, key objective findings, and then your proposed plan for the day. [Structuring] Dr Patel can provide feedback regarding the plan and do some bedside teaching, and then I will offer my input." [Sorting]

[Note how Dr Schwartz exemplifies strong leadership without being overbearing by outlining team member roles and responsibilities and stating targets for Dr Liu to focus her presentation on. Dr Schwartz also creates a comfortable working environment that is not hindered by the dynamic nature of the team. Finally, her emphasis on the patient being a member of the team is a key factor in reiterating the team's purpose as a motivator to provide the best possible care.]

After introductions, the team enters Mr Walker's room.

Dr Liu: "Hello again, Mr Walker. I have brought my team with me to discuss your care so that we may work together to create a plan for today. I will be presenting your case to my senior resident, but if you have questions or anything to add, please let us know at any time. [Structuring] Mr Walker is a 67-year-old man who was admitted to us 3 days ago with shortness of breath, which was thought to be due to an exacerbation of COPD…" [Dr Liu continues through her presentation.] "…Before we discuss the plan for today, Nurse Quinn, do you have anything to add?" [Building psychological safety]

Nurse Quinn: "Actually, I did want to bring to your attention that we noticed that Mr Walker had a black bowel movement overnight. I was also wondering if you could explain why we are treating Mr Walker with antibiotics?"

Dr Liu: "Thank you for bringing the black bowel movement to our attention. [Building psychological safety] We can discuss that in a few minutes, but I am glad that you raised the question regarding antibiotic treatment because that brings me to my proposed plan. I recommend discontinuing antibiotic treatment today because we have no evidence to suggest that Mr Walker's shortness of breath is due to an infection."

[Note how Dr Liu's brief acknowledgement of Nurse Quinn's question creates an environment in which team members can freely share their thoughts and questions.]

Dr Patel: "That is a great point, and I agree that Mr Walker has limited signs to raise concern for a concomitant infection. However, did you know that some data also suggest that certain antibiotics have anti-inflammatory properties that may benefit patients with a COPD exacerbation?" [Putting conflict to work]

[Note how Dr Patel's comments on the alternate reasons for antibiotic treatment transform conflict into inquisitive behaviors that allow for the sharing of ideas and creation of opportunities for learning.]

Mr Walker: "It has been years since I had an exacerbation of my COPD requiring treatment in the hospital, but the last time this happened I was given antibiotics. I think they also saw pneumonia on my chest x-ray at the time though. If the antibiotics might not be necessary, I am all for discontinuing them."

Dr Patel: "Thank you, Mr Walker, that is important background information to have. [Building Psychological Safety] Dr Schwartz, what are your thoughts?"

Dr Schwartz: "Well, I have always treated patients with COPD exacerbations with a course of antibiotics in case pneumonia may be involved, but I wonder if any new studies have suggested that this is not necessary. [Embracing failure] Let us all take 5 min

after rounds to do a brief search of the published data, and we can all learn and discuss this further. [Scoping] Perhaps we can ask our colleagues in Infectious Diseases their opinion on this topic." [Sorting]

[Note how Dr Schwartz is embracing the teaming hardware theme by enabling execution of a plan, while also encouraging learning. Suggesting to use the resource of the Infectious Diseases department shows how reciprocal interdependence can be used to adjust plans according to the expertise of additional stakeholders. Dr Schwartz also acknowledges her personal uncertainty about the latest studies of antibiotics and COPD exacerbations, which creates an environment of psychological safety.]

Dr Liu's team pager goes off.

Dr Schwartz: "Dr Patel, would you mind stepping out of the room to answer that page, while we finish up here with Mr Walker?" [Structuring and Sorting]

Opportunities for Teaming in GME

Ward rounds are one of the many opportunities for teaming in GME. Teaming can be incorporated into medical practice in numerous ways, and the above vignette is one example of its utilization. For example, hospital discharges require dynamic communication among patients, residents, and other HCPs in many disciplines.[30] However, the current state of communication during hospital discharges is often one of confusion at best and chaos at worst.[31,32] Teaming provides the structure and SMMs that patients, residents, and other HCPs require when discharging patients from the hospital. Other common opportunities for applying teaming in GME range from activities with a broad scope (eg, morbidity and mortality conferences)[33] to those with a narrow scope (ie, working together to obtain prior authorization for a patient's medication).[34] By combining ideas from people with various backgrounds, areas of expertise, and cultures, stronger teams can be created, with new challenges and opportunities to learn and to provide better care to patients.

In writing this article, we aimed to fill a gap in the literature by introducing Teaming and its applications in GME, with a specific focus on the CLE. We hope this inspires medical educators to adopt Teaming in their programs. The next natural question for many reading this article is; "how do I implement Teaming in my residency program"? Unfortunately, we are unaware of curricular interventions specifically for the Teaming framework; this lack of empirical evidence limits our suggestions. However, program leaders can look to other successful approaches to Team Training. Examples include general team training methods such as didactics, demonstration, and simulation, as well as specific team training interventions such as debriefs, crew resource management,[15] or TeamSTEPPS™,[35] a "systematic approach… to integrate teamwork into clinical practice."[36] We hope future research will identify the ideal methods for successful Teaming in specific residency CLEs.

Conclusion

Medical education involves leading, discovering, changing, and maturing. Medical educators should consider alternatives to stable teams with uniform goals and ideas when teaching about teamwork. Teamwork should be accepted as a process of innovation and learning, in which diverse people contribute their skills and knowledge to address novel challenges. Team building is a skill that can be fostered, and it is important to encourage individuals of all positions, not just those in leadership, to develop these habits early on in medical training. Teaming is needed in GME for ward rounds and beyond.

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REFERENCES

1. Bolster L, Rourke L. The effect of restricting residents' duty hours on patient safety, resident well-being, and resident education: an updated systematic review. *J Grad Med Educ*. 2015;7(3):349-363.
2. Chaiyachati KH, Shea JA, Asch DA, et al. Assessment of inpatient time allocation among first-year internal medicine residents using time-motion observations. *JAMA Intern Med*. 2019;179(6):760-767.
3. Detsky AS, Berwick DM. Teaching physicians to care amid chaos. *Jama*. 2013;309(10):987-988.
4. Drolet BC, Spalluto LB, Fischer SA. Residents' perspectives on ACGME regulation of supervision and duty hours–a national survey. *N Engl J Med*. 2010;363(23):e34.
5. Holmboe E, Ginsburg S, Bernabeo E. The rotational approach to medical education: time to confront our assumptions? *Med Educ*. 2011;45(1):69-80.
6. Lingard L, McDougall A, Levstik M, Chandok N, Spafford MM, Schryer C. Representing complexity well: a story about teamwork, with implications for how we teach collaboration. *Med Educ*. 2012;46(9):869-877.
7. Schumacher DJ, Slovin, SR, Riebschleger MP, Englander R, Hicks PJ, Carraccio C. Perspective: beyond counting hours: the importance of supervision, professionalism, transitions of care, and workload in residency training. *Acad Med*. 2012;87(7):883-888.
8. Stange KC. The problem of fragmentation and the need for integrative solutions. *Ann Fam Med*. 2009;7(2):100-103.
9. Warm EJ, Englander R, Pereira A, Barach P. Improving learner handovers in medical education. *Acad Med*. 2017;92(7):927-931.
10. Schmutz JB, Meier LL, Manser T. How effective is teamwork really? The relationship between teamwork and performance in healthcare teams: a systematic review and meta-analysis. *BMJ Open*. 2019;9(9):e028280.
11. Bump GM, Calabria J, Gosman G, et al. Evaluating the clinical learning environment: resident and fellow perceptions of patient safety culture. *J Grad Med Educ*. 2015;7(1):109-112.
12. Wikipedia. *Teamwork*. [cited 2023 April 10]; Available from: https://en.wikipedia.org/wiki/Teamwork.
13. Mathieu J, Maynard MT, Rapp T, Gilson L. Team effectiveness 1997–2007: a review of recent advancements and a glimpse into the future. *J Manage*. 2008;34(3):410-476.
14. Salas E, Sims DE, Burke CS. Is there a "big five" in teamwork? *Small Group Research*. 2005;36(5):555-599.
15. Roberts AP, Webster LV, Salmon PM, et al. State of science: models and methods for understanding and enhancing teams and teamwork in complex sociotechnical systems. *Ergonomics*. 2022;65(2):161-187.

16. Weller J, Boyd M, Cumin D. Teams, tribes and patient safety: overcoming barriers to effective teamwork in healthcare. *Postgrad Med J*. 2014;90(1061):149-154.
17. Edmondson AC. *Teaming: How organizations learn, innovate, and compete in the knowledge economy*. San Francisco: Jossey-Bass; 2012.
18. Hulland O, Farnan J, Rabinowitz R, et al. What's the purpose of rounds? A qualitative study examining the perceptions of faculty and students. *J Hosp Med*. 2017;12(11):892-897.
19. Rabinowitz R, Farnan J, Hulland O, et al. Rounds today: a qualitative study of internal medicine and pediatrics resident perceptions. *J Grad Med Educ*. 2016;8(4):523-531.
20. Sandhu AK, Amin HJ, McLaughlin K, Lockyer J. Leading educationally effective family-centered bedside rounds. *J Grad Med Educ*. 2013;5(4):594-599.
21. Subramony A, Hametz PA, Balmer D. Family-centered rounds in theory and practice: an ethnographic case study. *Acad Pediatr*. 2014;14(2):200-206.
22. Redley B, McTier L, Botti M, et al. Patient participation in inpatient ward rounds on acute inpatient medical wards: a descriptive study. *BMJ Qual Saf*. 2019;28(1):15-23.
23. Co JPT, Weiss KB, C.E. Committee. CLER Pathways to excellence, version 2.0: executive summary. *J Grad Med Educ*. 2019;11(6):739-741.
24. Edmondson AC. *Teamwork on the fly: How to master the new art of teaming*, in *Harvard Business Review* 2012.
25. Gorsky D, Mann K, Sargeant J. Project management and leadership: practical tips for medical school leaders. *MedEdPublish*. 2016;5:127.
26. Stoller JK. Building teams in health care. *Chest*. 2021;159(6):2392-2398.
27. Moustafaev J. *Delivering exceptional project results: A practical guide to project selection scoping estimation and management*. Fort Lauderdale: J. Ross Pub; 2011.
28. Tang B, Sandarage R, Chai J, et al. A systematic review of evidence-based practices for clinical education and health care delivery in the clinical teaching unit. *Cmaj*. 2022;194(6):E186-e194.
29. Salas E, Wilson KA, Murphy CE, King H, Salisbury M. Communicating, coordinating, and cooperating when lives depend on it: tips for teamwork. *Jt Comm J Qual Patient Saf*. 2008;34(6):333-341.
30. Pinelli VA, Papp KK, Gonzalo JD. Interprofessional communication patterns during patient discharges: a social network analysis. *J Gen Intern Med*. 2015;30(9):1299-1306.
31. Trivedi SP, Kopp Z, Williams PN, et al. Who is responsible for discharge education of patients? A multi-institutional survey of internal medicine residents. *J Gen Intern Med*. 2021;36(6):1568-1575.
32. Trivedi SP, Kopp Z, Tang AJ, et al. Discharge communication: a multi-institutional survey of internal medicine Residents' education and practices. *Acad Med*. 2021;96(7):1043-1049.
33. Kuper A, Nedden NZ, Etchells E, Shadowitz S, Reeves S. Teaching and learning in morbidity and mortality rounds: an ethnographic study. *Med Educ*. 2010;44(6):559-569.
34. Kim H, Srivastava A, Gabani P, Kim E, Lee H, Pedersen KS. Oncology trainee perceptions of the prior authorization process: a national survey. *Adv Radiat Oncol*. 2022;7(2):100861.
35. TeamSTEPPS®: Strategies & Tools to Enhance Performance and Patient Safety. 2010. [Falls Church, VA]: Dept. of Defense, TRICARE : Agency for Healthcare Research and Quality, [2010].
36. King HB, Battles JB, David P, et al. TeamSTEPPS™: team strategies and tools to enhance performance and patient safety. Advances in patient safety: New directions and alternative approaches (Vol. 3: Performance and tools), 2008.