

Developing a Transitions of Care Elective for Medical Students during the COVID-19 Pandemic and Beyond

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Objectives: Health care in the United States is costly, fragmented, and often ineffective. Transitions of care (TOC), particularly from the inpatient to the outpatient setting, is an especially complicated time and one that is potentially fraught with errors that contribute to negative outcomes. The coronavirus 2019 pandemic exacerbated many of these challenges. In particular, vulnerable patient populations have experienced more barriers to successful care transitions. Effective care transitions should include interprofessional teamwork, robust patient education, and seamless communication among the various healthcare team members.

Increasingly, medical schools are working toward graduating systems-ready physicians who demonstrate competency in the health system sciences and are able to operate effectively within the healthcare system, including being able to navigate complex transitions of care issues. Undergraduate medical education, however, continues to provide experiential learning in the traditional silos of inpatient versus outpatient medicine, so that learners do not have the opportunity to directly participate in transitions of care. Although transitions of care is a pivotal part of patient care, it is rarely taught at the undergraduate level, and when it is, it is typically relegated to the classroom setting.

Methods: We used the disruption of the coronavirus 2019 pandemic to develop a TOC elective. The aim was to fulfill an acute educational need and to develop competencies around care transitions for students while concurrently providing support for patient care and teamwork. The elective was offered to second-, third- and fourth-year medical students. Our educational innovation was initiated within our safety-net hospital where we care for a high percentage of uninsured patients, with a high language discordance. In addition, our city has multiple care systems without a single or connected electronic health record system, further complicating patient care transitions. The work of the TOC elective

crossed inpatient and outpatient silos, with close collaboration with our local federally qualified health centers. This remotely conducted elective includes three main pillars: participation in team activities, including virtual participation in interdisciplinary rounds and care coordination; discharge planning; and communication, including goals of care and end of life communication.

Results: Medical students successfully integrated into team structures to directly counsel families, facilitate goals of care conversations, and engage a multidisciplinary team for discharge planning. Students found this experience valuable in their reflections. In addition, there was a value-added component from a patient care and teamwork perspective.

Conclusions: Participation of students in TOC is a valuable educational experience and contributes a value-added component to patient care and interprofessional teamwork. Moreover, an appreciation of the failures of the current system is pivotal as learners start to reimagine, explore, and design improved patient-centered systems in the future.

Key Words: COVID-19, healthcare equity, health systems sciences, medical education, transitions of care

Health care in the United States is costly, fragmented, and often does not deliver effective outcomes. One of the most fragmented parts of our current system is that of transitions of care (TOC). In particular, patient transitions from the inpatient to the outpatient setting can be an especially complicated time, and one potentially fraught with errors if there is insufficient coordination and communication. Ineffective TOC contribute to hospital readmissions, medication errors, lack of adequate follow-up visits, and further complications.¹ According to The Joint Commission, “Ineffective hand-off communication is recognized as a critical patient safety problem in health care; in fact,

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Key Points

- Transitions of care (TOC) is an important aspect of healthcare systems, and yet it is rarely taught to medical students.
- An understanding of healthcare systems issues, including TOC, is important for medical students.
- Participation of students in TOC is a valuable educational experience and contributes a value-added component to patient care and interprofessional teamwork.

an estimated 80% of serious medical errors involve miscommunication between caregivers during the transfer of patients.”² As such, there has been an increased awareness and calls to improve patient care transitions in recent years.

Effective TOC entail interprofessional teamwork, education and counseling of patients and family members, robust communication among inpatient and outpatient providers, and attention to detail.³ Important principles of value-based care are highlighted in TOC, such as the role of effective communication in avoiding unnecessary duplication of testing, ensuring adequate follow-up, and reducing barriers to care that may cause readmission to the hospital. In addition, improving TOC is an opportunity to address health inequities, as vulnerable populations often experience more barriers to successful transitions.

Developing systems-ready physicians is an emerging and increasingly emphasized part of undergraduate medical education.⁴ Systems-ready physicians are able to operate effectively within the complexities of the current healthcare system, including navigating TOC. Understanding TOC necessitates engagement in systems-based practice, as well as a good comprehension of the role of team-based care.

Traditionally, education around TOC has not been actively incorporated in the undergraduate medical education setting, and when it has, it has been relegated mostly to classroom-based teaching.^{5,6} When polled about perceptions of TOC incidents that they have observed, student descriptions revealed “high rates of strong negative emotions and of communication gaps that may adversely affect patient care.”⁷ Navigating TOC is an important and complex systems issue that medical learners must begin to learn about early in their education.

At our medical school, we have taken active steps to incorporate health systems science teaching, including TOC, not only in the classroom but also in the clinical setting.⁸ In addition to the core clerkships developing multiple assignments that allow students to demonstrate health systems science competencies in the clinical setting, we have developed electives that allow students to further delve into this. One such example is the TOC elective. We describe how we used the disruption of the coronavirus 2019 (COVID-19) pandemic to implement a TOC elective for students, using the approach of value-added medical education. Value-added medical education entails experiential learning, which allows students to actively participate in patient care in ways that can enhance outcomes. The development of this TOC elective also was important as a means of piloting content that could later be incorporated into the required core medical student rotations.

Methods

Setting and Participants

Our educational innovation was initiated within our safety-net hospital where we care for a high percentage of uninsured patients, with high levels of language discordance. In addition, our city has

multiple care systems without a single or connected electronic health record system, making TOC even more challenging. Many of the patients whom we care for in our hospital have primary care providers (PCPs) at our local federally qualified health centers and are covered by the county’s medical assistance program. The work of the TOC elective crossed these inpatient and outpatient silos.

Our medical school is relatively new. It has a nontraditional curriculum, with students starting their clinical clerkships at the beginning of their second year. In addition to the traditional competencies, our school has a focus on student leadership and innovation, including innovation in health care systems, particularly related to community health.

In March 2020, as the COVID-19 pandemic first hit the United States, most medical schools pulled their students out of their clinical rotations, based on guidance from the Association of American Medical Colleges. While preclinical courses were rapidly transitioned to virtual formats, the biggest challenge was creating meaningful clinical experiences for medical students who were in the middle of clinical rotations. We therefore developed several new remotely administered clinical courses to fill that need. In considering options, we went back to our medical school’s mission, which includes developing systems-ready physicians who participate in leading healthcare systems innovations and applying strategic perspectives to problem solving in the setting of community health. One of these new courses was the TOC elective.

As well as fulfilling an acute need for student education, this elective was an ideal opportunity to reinforce the important concept of TOC for undergraduate medical education learners and concurrently provide support for patient care and teamwork.

Program Description

The objectives of the TOC elective are for students to be able to

- Identify the various types of transitions in patient care, such as discharge from the inpatient setting to home
- Review the complexities involved in TOC
- Explore the safety concerns involved in TOC
- Evaluate strategies for enhancing effective TOC and explore innovative approaches around this issue
- Demonstrate effective communication skills in interactions with patients, families, and other healthcare providers, including goals of care discussions

To develop our TOC elective, we started with a 1-week pilot, in which two volunteer students performed the duties that helped us outline the workflow of this elective. This was an opportunity to ensure that the logistical aspects were worked out, such as the ability to facilitate seamless virtual communication among the students, team members, patients, and families. After this successful 1-week pilot, we rapidly finalized the details of the course.

The elective was offered to students in their second, third, or fourth year of medical school.

During the TOC elective, each student is embedded into a hospital-based team and works remotely to contribute to and complement the care provided by that team. On average, each student participates in the care of approximately 5 to 6 patients at any one time. In addition, students are asked to reflect on and write about their experience, concerns that they noted with TOC, and potential solutions.

Transitions of Care Elective Pillars

There are three main pillars to the TOC elective work: direct participation in team activities, discharge planning, and communication.

Direct Participation in Team Activities

Medical students, although working remotely offsite to limit exposures during the pandemic, directly participate in patient care through this elective. This includes integration into the traditional academic team model. Students are assigned to follow multiple patients on the intensive care unit (ICU) and ward teams and continue to work with the patient even if the patient's care team assignment changes, further highlighting the principles of TOC. Students directly call into the patient rooms to establish rapport, screen for health-related social needs, and liaise between the primary medical team, specialists, and the patient's outpatient providers.

Students also observe the hospital's morning COVID-19 multidisciplinary operations conference call, in which all of the attending providers caring for COVID-19 patients and hospital leadership discuss admissions, discharges, and systemic issues identified on the wards. In addition, students actively participate in the team's multidisciplinary rounds, contribute to the assessment of health-related social needs, and work with case management and social work teams to address those social needs. We emphasize cultural humility, motivational interviewing, empathic inquiry, and asset-based assessment of resources to enhance our ability to care for patients admitted to the hospital.

Discharge Planning

Teaching and engaging students in effective discharge planning is a key objective in this elective. This includes discharge counseling for patients and their family members, reviewing Centers for Disease Control and Prevention–based recommendations for isolation and quarantine following coronavirus exposure, medication counseling, and coordinating with PCPs and outpatient teams.

On the first day of the elective, students attend a didactic session to discuss pertinent patient/family counseling tools, learn to assess health-related social needs using a standardized tool,⁹ techniques for medication counseling, the discharge process, and methods for coordination with PCPs—all important aspects of a safe and effective discharge plan. The students also directly participate in daily multidisciplinary rounds, an

interprofessional huddle consisting of the wards team, pharmacy, case management, social workers, and charge nurses to identify and address barriers to discharge.

During the course of the elective, students are paired with patients to complete the necessary tasks around discharge coordination. This includes completion of the health-related social needs tool and coordination with the case management and social work team to address patients' social needs around the time of discharge, by engaging hospital, public, and private resources and connecting patients directly with services.

Before discharge, students provide a “warm handoff” to the PCP for each of the patients they follow. They also reach out to their patients after discharge with a post-hospitalization telephone call to assess symptoms and address any outstanding concerns.

Communication, Including Goals of Care and End of Life Communication

Learning and implementing higher-level communication skills are an important aspect of TOC. Communication falls into two main categories: communication with patients and their families and communication with other healthcare providers, especially the outpatient PCP.

Communication with Patients and Families. Communication with patients and families includes topics such as updating family members about patients' clinical status while the hospital had a no-visitor policy in place, as well as participating in goals of care, code status, and end of life discussions with the patient and family, under attending physician supervision. One of the elective directors, who is a palliative care physician, conducts a didactic session about how to lead potentially challenging and complex conversations. Students initially participate in these discussions, under supervision, and are then given the opportunity to lead some of them. All of the discussions occur with patient permission, or if the patient is unable to communicate, with the patient's family or surrogate decision maker.

Moreover, students attend daily Palliative-COVID ICU team rounds to report back to the primary team about family questions and concerns, along with obtaining clinical updates for family telephone calls. Students document conversations in the electronic health record, again under attending supervision.

Communication with Other Healthcare Providers, Including the PCP. Using HIPAA-compliant texting software, the students are in direct communication with the primary team continuously despite being offsite. Student participation in multidisciplinary conference calls allows students to identify high-level systems issues, to advance individual care plans they develop in conjunction with the supervising team, and to communicate these care plans to all parties involved. Students help serve as the “glue” among the various medical teams, other healthcare professionals, and inpatient-based and outpatient-based providers. Moreover, an important part of communication entails student participation in bidirectional communication with PCPs within 24 hours of admission and before discharge, as noted above.

Table 1. Student reflections on TOC challenges and potential solutions**Student Reflections on Challenges with Transitions of Care**

Challenges at the individual provider level

Difficulty in contacting PCPs for “warm handoffs”—long hold times >30–60 min at times

Lack of documentation of PCP in the chart

Patient does not have a PCP

Lack of clarity around who would resume care of a particular aspect of patient care after discharge—PCP vs specialist (eg, for follow-up on seizure disorder)

No contact information for PCP in chart or incorrect contact information for PCP in chart (eg, 1 PCP had 3 numbers listed, all of which were incorrect)

Focus on the problem at hand (eg, in acute care) at the expense of long-term plans for patients

Challenges at the institutional level

Many transitions even within the same hospital stay

Inadequate handoffs and communication between teams

Different electronic health records; pieces of story are missing and not cohesive

Consolidating provider communication

Challenges at a national/healthcare systems level

Cultural barriers to healthcare change in the US

Political barriers to healthcare change in the US (“restricted free market”)

High levels of uninsuredness

Lack of transparency in healthcare information

Severe system fragmentation

Student Reflections on Potential Solutions

Proposed solutions at the individual provider level

Assess social determinants of health during a patient’s hospital stay

Speaking to PCP while patient is in the hospital to provide continuity of care—verbal summary of patient’s hospital stay should be standard of care

Have a healthcare partner who “travels with the patient” throughout his/her journey (eg, from admission to discharge) to follow-up visits (eg, medical students)

Close medication reconciliation at every transition step

More robust education around time of discharge (eg, with teach-back method)

Ensure everyone has postdischarge follow-up

Contact patients after discharge since some instructions may not be clear at first

Ensure that patients have a reliable way to be contacted after discharge

Proposed solutions at the institutional level

HIPAA-compliant messaging systems that crosses networks

Registry of email addresses and contact information for PCPs

Appropriate staffing levels of telephone operators in outpatient clinics

Physician telephone line operator system

Assess patients’ discharge needs in a standardized manner (eg, using the PREPARE tool or the Health Leads Social Needs Screening Toolkit); more closely explore discharge needs (eg, patient lives in a mobile home or on the streets: how does this affect discharge planning?)

Having a person dedicated to transitions of care (eg, during COVID care)

Ensure good communication between medical providers and social workers and case managers in the hospital setting and beyond

Invest in community health workers who are rooted in the community, especially for vulnerable populations (eg, patients who are illiterate)

Medical student involvement as an “immersive” experience with a value-added component; include this in curricula for students

Train medical learners on good handoffs; the same principles apply to transitions of care

Proposed solutions at the national/healthcare systems level

Political solution with changes in laws and regulations

Amplification of the voices of those on the frontlines of health care

Insurance changes (eg, de-attaching health insurance from employment)

Universal EMR to enhance communication, avoid duplication of tests, and improve patient safety

COVID, coronavirus disease; EMR, electronic medical record; HIPAA, Health Insurance Portability and Accountability Act; PCP, primary care provider; TOC, transitions of care.

The TOC elective was initially made available to students who were out of the clinical setting; however, once students returned to the direct patient care clinical setting in June 2020, the TOC elective still satisfied an important area of need. Students who developed potential COVID-19 symptoms or had an exposure and who therefore needed to be removed once again from the clinical setting, sometimes for 1 to 2 weeks at a time, were enrolled in TOC work during that time. They received course credit for their time, while continuing to learn and support their patients and their team. The number of students doing this TOC elective work varied from one to three students at any time. Of note, although typically students have been assigned to COVID-19 teams, since this is where the most acute need was, the principles of this TOC work can be extended to any patient care team.

Results

Upon completion of the course, students are invited to give feedback. Because this elective was new, faculty and residents who worked with the students also were invited to provide feedback. The initial feedback received has been extremely positive. Reflections from students who were enrolled in this TOC elective work can be divided into two main narrative groupings. The first narrative grouping includes students’ reflections on the challenges with patient TOC at the individual provider level, institutional level, and national healthcare systems level. The second narrative grouping includes students’ proposed solutions to TOC challenges at each of those levels. Representative comments from students include the following:

“This elective has shed some light on the extent of the complexities of our medical system and highlights the need to strive for adequate communication between these complex parts for the benefit of the patient!”

“...this immersive experience in care coordination has been immensely beneficial to me as I feel like I have a better grasp on what needs to happen for a safe discharge with proper follow-up. I am prepared to take what I have learned and apply it to my patients when I return to the hospital.”

“It was a privilege to be able to work alongside the physicians caring for COVID-19 patients in the ICU. I gained a new appreciation for the value of team communication regarding clinical updates as well as clear, concise, and compassionate communication with family members.”

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In addition, feedback included comments regarding students' work on each of the three pillars of the elective: participation in team activities, discharge planning, and communication. For example, one representative quote from a faculty member noted that students "worked with several teams during this time and played a pivotal role in communication with the family members of acutely sick patients, interprofessional collaborations, as well as discharge planning and follow-up."

The feedback has highlighted not only the educational value of the elective for students but also a value-added component, with students complementing teamwork in providing excellent patient care, particularly during the hectic time of the COVID-19 pandemic. Table 1 outlines student reflections on TOC challenges and potential solutions, drawn from themes noted in students' written assignments. Table 2 displays general feedback on the TOC elective received from students, as well as faculty and residents.

Although initial feedback has been highly encouraging, the next steps will entail gathering further data regarding the effectiveness of the elective. This includes gathering formal student evaluations of the elective, evaluations from faculty and residents who supervise this work, as well as focus groups to discuss the role of students in patient TOC, both in the COVID-19 pandemic era and beyond.

Discussion and Conclusions

Initial feedback from the TOC elective is encouraging. Students found this immersive experience in TOC work to be informative and valuable. We found that students can quickly learn and perform the duties of the three pillars outlined above, with appropriate supervision. This improved patient care at a time of great disruption, provided students with a valuable educational experience, helped them develop skills that are not typically obtained until residency, and complemented the work of a multidisciplinary team.

Traditionally, undergraduate medical education is siloed into various compartments, and the ability to follow and participate in the care of patients across various settings is a crucial missing educational piece. It is imperative that we continue to develop opportunities that allow students to gain insight into this crucial aspect of patient care, and train the future generation of healthcare leaders to address the gaps in our current system.

Future of the Elective

The TOC elective fulfilled an educational need for the medical students when they were outside the direct patient care setting because of the COVID-19 pandemic. Even with the reentry of students into the clinical setting, we believe that there is a continued role for this elective. We continue to use this elective for students who may be pulled out of direct patient care and are in quarantine, while awaiting clearance to return to direct patient care. We also envision potential additions to this elective in upcoming months and years by adding components that further highlight the centering of the patient. One example may be adding a component

Table 2. Transitions of Care Elective General Feedback

Faculty/ Resident Feedback about Student Participation in TOC Elective

"Without her, the care coordination would have been almost impossible."

"He was an essential part of the team."

"I had the opportunity to witness the students' involvement this morning. They called into the huddle rounds to simultaneously discuss the patient. They're really complementing the work needed for our COVID-19 patients in the hospital."

"...worked with several teams during this time and played a pivotal role in communication with the family members of acutely sick patients, interprofessional collaborations, as well as discharge planning and follow-up."

"Should we be looking for a new care transitions student next week? As I have said, we find them incredibly helpful and we will just stumble forward if necessary without them."

Student Feedback about the Transitions of Care Elective Experience

"It was a privilege to be able to work alongside the physicians caring for COVID-19 patients in the ICU. I gained a new appreciation for the value of team communication regarding clinical updates as well as clear, concise, and compassionate communication with family members. I very much appreciate being brought on to the care team and included in such a special aspect of patient care!"

"This elective has shed some light on the extent of the complexities of our medical system and highlights the need to strive for adequate communication between these complex parts for the benefit of the patient! It has been a great experience participating in their care during this time. I have especially enjoyed communicating with family members who are unable to visit their critically ill loved ones. It has been very rewarding and they have really appreciated frequent updates in lieu of physically being there."

"The transitions of care elective provided an opportunity for me to learn about the many types of transitions patients can experience. Working with patients as they traveled from ICU to floor to home highlighted the need for different support and resources at each stage, and reinforced my interest in systems change. It was a privilege to play a small role in the care team, especially with the added complexity of the current COVID-19 pandemic."

"The transitions of care elective was a wonderful and enriching opportunity to help my frontline colleagues dealing with the COVID pandemic. It was an honor to be able to work with them and help in whatever way I could during this time. Through this experience, I was able to practice both patient-centered and interprofessional communication skills that will be beneficial to me moving forward."

"I had a patient who was very thankful for spending time with her and her family every day to walk them through requests for their family member, clinical updates, and an opportunity to share family photos. It was really heartwarming to be able to help in this capacity."

"...this immersive experience in care coordination has been immensely beneficial to me, as I feel like I have a better grasp on what needs to happen for a safe discharge with proper follow-up. I am prepared to take what I have learned and apply it to my patients when I return to the hospital."

"I believe that it would be beneficial for all medical students at Dell to be exposed to this in some form."

COVID-19, coronavirus disease 2019; ICU, intensive care unit; TOC, transitions of care.

regarding healthcare inequities and vulnerable populations, for whom the current system is particularly challenging to navigate.

Lessons Learned and Broader Applicability

The educational value of the TOC elective and the value-added component of the students' work underline the importance of expanding the teaching around TOC beyond the classroom and into the clinical setting, taking students from "knowing" to "doing."¹⁰ Beyond elective experiences, we have now also

embedded required TOC exercises for all students in the internal medicine clerkship and acting internship rotations. Moreover, we believe that this TOC model has applicability beyond the realm of medical education, and lessons learned can be applied to patient care more broadly.

An understanding of healthcare systems issues, such as TOC, is important for learners at the undergraduate medical education level. Effective care transitions are essentially the “glue” that connects the various siloed parts of the healthcare system, a system that, not infrequently, fails our patients. Highlighting the importance of effective care transitions also is important for learners in graduate medical education and faculty. Furthermore, an appreciation of the failures of the current system is pivotal for our learners—the physicians of the future—as they start to reimagine, explore, and design improved, patient-centered systems, solutions that physicians who are currently embedded in the system may not be seeing.

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