

Transitioning to a General Surgery Residency: An Ethnographic Study

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Abstract

Aims and objectives: To explore and describe struggles encountered by surgical interns during the first month of residency and how they overcome those difficulties.

Background: A performance gap has been widely noted between undergraduate and graduate medical education. Previous studies have identified areas of focus to prepare graduating students for residency. Concerning surgical education, bootcamps are a current means of addressing this gap. However, curricula lack an emphasis on non-technical skills. Moreover, the specific process by which interns overcome barriers is absent from the literature.

Design: Ethnographic

Method: Access to an ACGME accredited 5-year general surgery residency was obtained and total purposive sampling was used in the recruitment of 9 participants. Two series of semi structured interviews were conducted before and after the first month of residency. During, approximately 300 hours of participant observation took place and field notes were collected. Additional ethnographic interviews were conducted in the field. Data from all sources was transcribed and underwent thematic analysis.

Results and Discussion: Interns encounter two overarching types of barriers – general barriers and novel barriers. General barriers describe obstacles related to use of skills acquired in medical school and are often overcome in an individual manner. Novel barriers relate to struggles that are unique to residency. Interns take an approach to novel barriers that often involves asking for help. Quasi-novel barriers are a subset of novel barriers that hold a general component. Skills related to quasi-novel barriers may have been introduced in medical school but occurred too infrequently or to a degree that did not yield development of competence. Similar to novel barriers, interns often overcame quasi-novel barriers by asking for assistance.

Conclusions: General barriers, novel barriers, and quasi-novel barriers differed in how residents overcame obstacles. However, each type of barrier did not present as a lasting challenge to the intern.

Relevance to Surgical Education: Incoming surgical interns reported a nearly unanimous concern over quasi-novel barriers. However, these obstacles were surmounted relatively quickly. Strengthening competencies to fortify against general barriers, particularly medical knowledge, may be a more productive use of resources concerning non-technical skills in residency preparation.

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Figure(s)

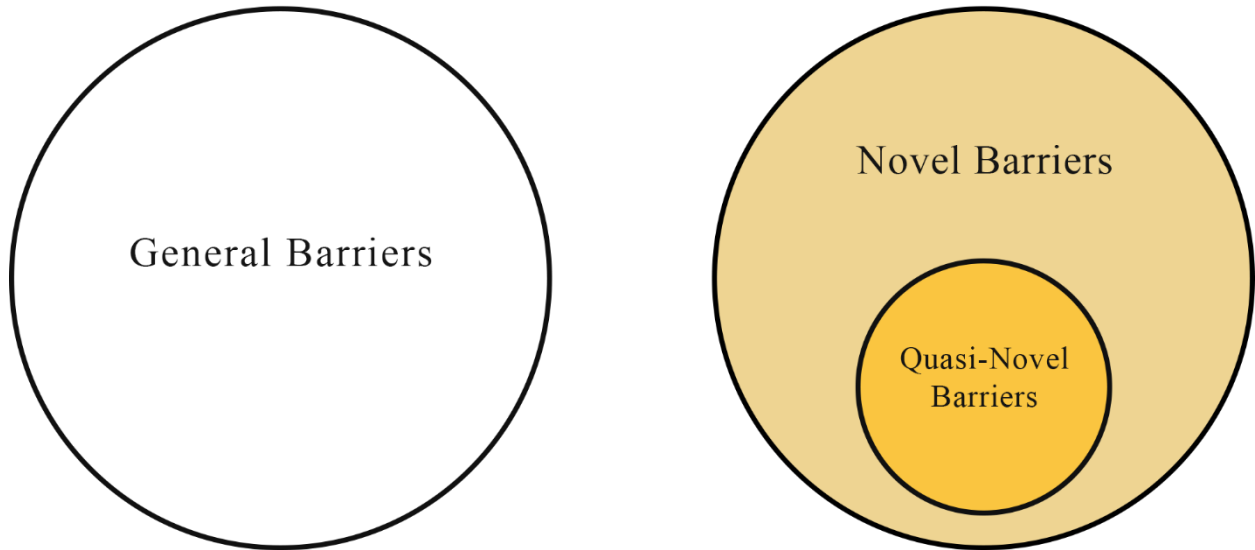


Figure 1 General Barriers, Novel Barriers, Quasi-Novel Barriers. General barriers are distinctly separate from novel barriers. However, quasi-novel barriers share a syllogistic relationship with novel barriers.

Chapter 1 – Introduction

Medical education is punctuated by three great lurches. These lurches occur at stages of transition: pre-clinical to clinical, medical student to resident, and resident or fellow to attending.¹ Each lurch is underscored by a theme of increased expectation. Clerkship students are asked to exhibit higher orders of thinking and development of clinical skills.^{2,3} Moreover, the previously individual student undergoes medical socialization. Not uncommonly, this shift is accompanied by performance anxiety.⁴ From student to resident, the second lurch carries a sudden weight of newfound responsibility. Similarly, the autonomy awarded in transitioning to attending is followed by an expectation of accountability. Inadequacies in training between either lurch can lead some graduates to feel unprepared and ill-equipped.^{5,6} Their feelings may be real or simply perceived. In any case, each gap is an opportunity for scholarly inquiry and a site for innovation. The second lurch is of considerable interest. It represents a handoff in education from one accrediting body to another (LCME to ACGME). Like any handoff, there is potential for malalignment between sender and receiver.

Graduating students view their fourth year as a time for residency selection and preparation.⁷ Upon graduating, rank and expectation shift suddenly while ability lags behind. Potentially, this is the result of a stall in education during a student's final year. A medical student on their last day is essentially no different than an intern on their first. However, the former is vastly underpowered with respect to team contribution. This is due to a variety of factors. First, the regulatory environment surrounding electronic health records (EHR) has largely excluded students. Only recently has policy been lifted that barred the use of student notes.⁸ Yet, walking back this policy has proven more difficult than implementing it. Second, graduating students are just one subset of learners within health care ecology. They share, and in some cases compete for learning opportunities with new residents at the other side of the transition. When unable to contribute in meaningful ways, students are doves in a game filled with hawks.

This substantial performance gap prompted new guidelines to be published by the AAMC in 2014. Core Entrustable Professional Activities (EPA) outline 13 activities medical students should be able to perform prior to entering residency.⁹ However, research involving core EPAs is ongoing. Current graduates are still managing to overcome obstacles, despite the gap. It cannot be understated that new interns do experience a learning curve, but their capacity for eventually reaching the expectations of their program is not compromised. How they navigate this learning curve is largely unexplored. Investigation of this process would enrich medical education as a whole.

Chapter 2 - Background

2.1 | Previous Research

Surgery has taken an active approach in addressing the transitional issues of new interns. Bootcamps seek to bolster the skills of graduating students in preparation for residency. Frequently, needs assessments that guide bootcamp curricula focus on technical over non-technical skills.¹⁰⁻¹³ Moreover, it is unclear whether or not bootcamps instill competence or just confidence. Considering the core EPAs, graduating students describe high levels of confidence in performing each of the 13 activities. Comparatively, over half of surgery program directors felt new interns were incapable of performing all but three.¹⁴ Areas that received lower ratings included ‘entering orders and prescriptions’ along with technical procedures involving IV catheters and phlebotomy. Together, bootcamps and the core EPAs share a common goal of identifying and addressing the struggles a new intern may encounter. What is missing from the literature is a detailed inquiry into how interns summit the existing learning curve. Understanding what they encounter and how they overcome it would provide value information when designing new curricula; whether it be for surgery bootcamps or the late clinical curriculum as a whole.

2.2 | Research Questions

Research Question #1: Regarding non-technical skills, what barriers do general surgery residents encounter within the first month of residency?

Research Question #2: How do general surgery residents overcome these barriers?

2.3 | Aim

This project is exploratory in design and attempts to survey what struggles are encountered by new surgical interns. By describing how the interns overcome these obstacles, the author intends to provide insight aimed at future studies and curricular innovation. Intervention may be applied on either side of the gap. Findings from this study may enhance the late clinical experience of medical students. They may also influence goals and objectives of orientation prior to beginning residency. By illuminating, mapping, and attempting to explain, later studies can ask more specific questions or apply increasingly bespoke interventions.

Chapter 3 - Method

3.1 | Design

This study's methodological approach was inspired by reverse design thinking. For any problem, attempts to improve the experience begin with a study of the issue and the end user.^{15,16} This project identifies the 'gap' between UME and GME as the issue and nascent interns as the end user. Ethnography was chosen for this study as a methodology that seeks to produce rich descriptions of phenomena.¹⁷ By collecting multiple sources of data, this project intends to triangulate data and fully describe struggles encountered by interns in the first month of a general surgery residency.

3.2 | Participants and Setting

A 5-year, ACGME accredited residency in general surgery was selected for this study. The program maintains university affiliation and operates between three hospitals. During 2019, the surgical residency matched 7 categorical residents and 3 preliminary surgery residents. The schedules and expectations of the categorical residents and preliminary surgery residents are indistinguishable from one another. In sight of this, total purposive sampling was utilized and all 10 incoming interns were recruited. Consent was obtained at time of recruitment. Participants were compensated for participation in accordance with IRB guidelines. At any point, participants could withdraw from the study without loss of compensation. Of the 10 available residents at this site, 9 consented for participation. No participants withdrew from the study prior to completion.

3.3 | Approach

Semi-Structured Interview(s)

Two series of semi-structured interviews were conducted. Each semi-structured interview was directed by way of an interview guide. This guide was piloted in an iterative manner with help from newly matched surgical interns from the previous year. This was performed to avoid questions that were potentially ambiguous, confusing, or ethically concerning. Additionally, piloting of these interviews allowed for the discovery, refinement, and vetting of probes. Each of the interviews were held in person and recorded for later transcription. Audio files were destroyed once transcription was complete to protect participant privacy.

Semi-Structured Interview #1 was held prior to the official residency start date of July 1, 2019. This semi-structured interview was intended to assess an intern's initial thoughts, feelings, and concerns. Particular attention was paid to the intern's previous experiences interacting with surgical interns during UME. Moreover, the interview attempted to capture perceived areas of strengths and weaknesses.

Semi-Structured Interview #2 was held after the first month. At this point, interns had completed one full rotation within this general surgery residency. This interview was composed

of two halves. The first was a semi-structured and paralleled questions asked in the initial interview. Questions also attempted to explore themes that related to patient care and ward management. The second half of the interview was open and born out of observations made during the past month. These questions encouraged participants to reflect on previous experiences and analyze their own growth.

Participant Observation

The author of this study integrated into the daily lives of the surgical interns. Acting in the role of a fourth-year medical student, the author collected fieldnotes through participant observation. Participants were made aware of the researcher as occupying both roles, ethnographer and medical student, simultaneously. Residents were observed during their first month across varying services: trauma, surgical intensive care, and emergency general surgery. Selection of these services afforded the greatest exposure to 7 of the 9 participants. Field notes were collected in shifts of 12 hours and 24 hours at a time. In total, approximately 300 hours were spent working along side the participants and creating field notes.

Data was collected on naturally occurring events and conversations involving general surgery interns. Initially, descriptive observations were made to capture a wide range of events involving floor care, patient management, and general non-technical skills. Field notes were transcribed daily and repeated findings were focused upon on future days. Frequently, clarifying efforts were made to ensure concordance between observation and the intern's perception of an event.

Ethnographic Interview(s)

During periods of participant observation, complimentary ethnographic interviews were conducted. These occurred in an open format and generally related to the intern's thoughts regarding patient management, interdisciplinary interactions, education, and experiential reflection. These were performed to capture thoughts in real time as events arose. On occasion, these interviews were recorded for later transcription. Audio files were discarded after transcription to protect participant privacy.

3.4 | Analysis

Typical of ethnographic methodology, a reflective form of analysis was performed alongside data collection. Thoughtful study of detailed field notes on one day focused observation on the subsequent day. After all data had been collected, transcriptions were compiled into a qualitative data analysis software program, Dedoose. A small random assortment of data was open coded, producing a code book. This code book was utilized for the remaining data. Reorganization of these codes allowed for new linkages and factors to emerge from the data. Attempts were made to triangulate findings across multiple sources of data. This process was iterative. Themes emerged by studying the coded data. Thematic sufficiency was inductive and considered to have been reached when no new themes were generated from coded data.

3.5 | Ethical Considerations

Study site access and IRB approval were obtained prior to any recruitment efforts or collection of data. The surgical interns participating in this study were considered primary participants. Informed consent was collected by primary participants prior to collecting data. To preserve the identities of participants, each was assigned a pseudonym chosen at random. In this study, state names were used as pseudonyms for ease of reference. Individuals who interacted with primary participants were considered secondary participants. Information pertaining to the identities of secondary participants was not collected but verbal consent was obtained. Additionally, a study information sheet was made available to all areas where participant observation took place. Secondary participants are referenced in interviews, fieldnotes, and the writing of results by title only. Concerning observations involving patients, no field notes contained data related to any patient health information.

Chapter 4 – Results & Discussion

The aim of this study was to characterize barriers encountered by new surgical interns and investigate how these obstacles are surmounted. A specific focus was placed on non-technical skills. From the analysis of ethnographic data, three categories emerged: General barriers, Novel barriers, and quasi-general barriers.

4.1 | General Barriers

Certain non-technical skills carry over from medical school to residency. Upon entering a surgical residency, the intern is expected to exercise these skills with proficiency. For the purposes of this thesis, some non-technical skills are adherent to traditional denotation: leadership, communication, efficiency, interprofessional skills, managing stress, coping with fatigue, etc. Others are more actionable and directly related to patient care: oral presentations, documentation, gathering history, focused physical exams, recognition of patient stability, receiving handoffs, and utilization of medical knowledge. Concerning these skills, surgical interns enter residency in varying stages of development. Some enter at the peak of proficiency; others arrive and find their abilities to have dulled. These struggles that relate to previously practiced competencies can be described as ‘general barriers.’ The following excerpt illustrates two general barrier examples on an intern’s first day of residency:

Hawaii begins her presentation and is quickly interrupted. *“Was his foot actually broken?”* asks the attending. Hawaii hesitates, reviewing her notes. The attending asks another question, *“So, what are we doing for him?”* Hawaii lets out a soft sigh and collects herself. In a forgiving tone, the attending lets her know that it’s okay. Hawaii straightens her posture, collects herself once more, and proceeds with her presentation. She reaches her plan and the attending asks again, *“What do you want to do for him?”* Hawaii states that she wants to pull the chest tube. *“Which one,”* asks the attending. *“Right side,”* retorts Hawaii. The attending shakes his head. *“The right side is on suction. We can’t pull suction. Go to water seal, then we can think about pulling it.”*

Field Notes – Set #1

The selection above describes one competency that had weakened (oral presentations) and one that was limited (medical knowledge). Both can be described as examples of general barriers as they represent deficiencies in skills acquired in UME. Neither were concerns of this particular intern preceding this moment. Prior to starting residency, new interns showed awareness that months of inactivity may have caused some of their skillset to have waned. Individual lengths of inactivity ranged. For example, some described their last practice with documentation only a few months prior. Others reported having not written a note in over a year. Despite this, very few interns predicted they would find difficulty with general barriers. That is to say, interns did not expect to find difficulty with general barriers at the level they were previously familiar with in UME. This is discussed in a later segment of results, [section 4.2].

General barriers varied greatly between interns. Some found difficulty with documentation while others struggled to perform physical exams with discretion and efficiency.

First encounters with general barriers were experienced as both first and secondhand. The following illustrates an example of the latter.

I met up with Oregon on the morning of day 8 in the SICU fishbowl. He had just seen his patients and was prepping his notes prior to table rounds.

Oregon: *“I’m just running through my note, thinking of things I could say better.”*

Ethnographer: *“Are notes getting easier throughout the week, or harder?”*

Oregon: *“Um, I would say a little easier. I’m just not used to system-based notes. I’m not used to EPIC either. At my medical school, some services were so packed we just couldn’t even try. But yeah, it’s a little easier.”*

Prior to this exchange, the attending on call had addressed all residents in the SICU regarding inadequacy of notes. Kentucky was the focus of her concern, but Oregon also takes notice of his own documentation habits.

Field Notes – Set #8

New interns primarily favored an individual approach to overcoming general barriers. In the aforementioned excerpt, Oregon overcame his struggle with documentation over many days of trial and error. Private improvement through trial and error was a trend when overcoming general barriers but not the only method. Other interns utilized peer modeling, seeking feedback, and occasionally asking for assistance.

Previous familiarity with the competency usually dictated whether the intern would take an individual approach or seek help. For instance, medical knowledge was highly contingent on previous experience. Some interns entered residency with a well-rounded fund of knowledge; spending equal amounts of time on many surgical rotations. Others had only rotated through a single narrow subspecialty for multiple months. This led some interns to experience a more severe learning curve than others.

“On day one, I was just running around like lost. I think it took me like an actual like week to kind of get like a rhythm down. Like even basic things like physical exam. Totally. I was leaning towards going into ortho, so all my rotations were ortho, so all ortho related physical exams that I would do. I didn’t even think about doing the abdominal exam. Like, didn’t think about doing like a neuro exam for cranial nerves and cerebellar signs and stuff like that.”

Semi-Structured Interview #2 - Alaska

New interns were quick to recognize the limits of their medical knowledge. When unsure, they would defer to other residents and chief residents before initiating an action. In these moments, their question would either be answered readily or the request for help would produce an impromptu teaching session.

Overwhelmingly, general barriers were often more of a stumble than a struggle for interns. These barriers were readily recognized when encountered and overcame in a relatively short amount of time. General barriers were highly variable and contingent on previous exposure as well as entering proficiency. Overall, new interns had little trouble in surmounting general barriers. They occurred less frequently in the latter half of the month and were usually the result of oversight due to competing interests, not inability.

4.2 | Novel & Quasi-Novel Barriers

Novel Barriers

New interns also encountered barriers during their first month that are unique to residency. Interns find difficulty with these tasks as they are unfamiliar or unpracticed. These ‘novel barriers’ fall outside of what is expected of a student. For example, a novel barrier may include coordination of care teams to facilitate discharge. While a student may be aware of this task, gaining competency in this area is not within the scope of their educational objectives. The following illustrates an intern’s response regarding previous exposure to care management:

Interviewer: *“Had you ever done those types of things in medical school? Did you ever have any exposure to them?”*

Hawaii: *“Absolutely not. No. Never.”*

Interviewer: *“Did you ever talk about SAR placement or LTAC or those kinds of things?”*

Hawaii: *“I think it was something that people would talk about in rounds and I would just kind of like, not think about it. Because somehow, I thought that was like...I don't know, care management dealt with that. I didn't realize how much the residents or the physician kind of had to like, clinically say where they should be going. I just thought like, PT/OT deals with that and case management. So, yeah...”*

Semi-Structured Interview #2 – Hawaii

Novel barriers present challenges that may be specific to a single health system. While preparing students for residency, UME cannot predict specific nuance regarding policy, logistics, role, or regional trends. Orientation can provide some insight, but working through the struggle of encountering a novel barrier relies on the use of a reference schema. For many, there are no such schemas available as these problems have never arisen. In contrast to how intern’s overcame general barriers, new interns managed novel barriers most often by seeking help. Assistance was sought from not only residents or attendings, but on an interprofessional level as well. The following responses illustrate the range of individual’s interns felt most comfortable asking questions:

“I typically ask the APP (Advanced Practice Provider) if I feel like it's a like a logistics question, like something related to case management or contacting another service. I feel like they are very much in the know and connected and know all the ins and outs of getting a patient in and out of the hospital. So, I typically ask them. If it's something related to like the medical management of a patient. Um, I typically will go to a senior and I feel like I can approach all of them equally. Not one more than the other.”

Semi-Structured Interview #2 – Hawaii

“Right now, it's my chief, cause I've worked with him for a month. I worked with him last month, but he's one of the best. But the current residents that I've had, they're fine too. If it's nights, whoever's around.”

Semi-Structured Interview #2 – New York

“A singular person? [PGY-2 Resident] ...Cause she's exceptionally nice. Happy to teach, always gives really thorough answers.”

Former interns, now second year residents, were particularly aware of novel barriers new interns may encounter. Particularly in the first week, more experienced team members were proactive in providing assistance to new interns.

“Who wants to learn how to discharge a patient?” asked [PGY-2 Resident]. Hawaii, Alaska, and Montana gathered around and the PGY-2 walked them through this task within a live patient chart.

Field Note – Set #1

Asking for help or offering help had utility other than overcoming certain novel barriers. These moments were a rather natural means of fostering relationships among a new team. In this particular residency, new rotations are accompanied by the formation of a new team. Moreover, nearly all individuals within this team are occupying a new role in the first month of a new year. Interns become second year residents. Senior residents become chiefs. Former interns fielding questions from new interns helped to strengthen relationships.

Quasi-Novel Barriers

A particular subset of barriers new interns face is novel by definition but holds a ‘general-barrier’ component. These barriers can be described as ‘quasi-novel.’ That is to say, quasi-novel barriers may have presented in medical school but occurred too infrequently or to a degree that did not yield any development of competence. In actuality, they are a struggle unique to residency.

Many barriers found to be quasi-novel relate to using an electronic health record for entering orders, documentation, admitting, and discharging. A student may develop a schema for placing orders, but the skill is stuck in a state of conceptualization. The regulatory environment surrounding the EHR precludes students from further developing this skill through active learning. The following illustrates a common response when asked about placing orders as a medical student:

“I mean, we had a system at [Medical School] where like you could write an order and send it to your supervising resident and they could sign it. But like. Do you think about the workflow for that? It creates just as much work for the resident as them putting in the order because they have to review everything that you did and sign it. So, like we had a chance to do that. I think I’ve done it twice and both times my resident was like, “how do I even sign orders? I don’t know how to sign somebody else’s orders. I’m just putting them in myself.” So, I think my orders are floating out there somewhere for somebody to sign. But no, I never had a chance to do that.”

Semi-structured Interview #1 – Montana

Overwhelmingly, each pre-residency interview revealed some feelings of anxiety or uncertainty regarding use of the EHR. These feelings were coupled with fears of being perceived as inefficient or an ineffective member of the team. Interestingly, interns in pre-residency interviews also conveyed that they were most excited to feel useful and contribute as a full team member.

As of a subset of novel barriers, quasi-novel barriers were overcome in a similar manner. New interns sought help from a variety of team members for assistance in learning how to place orders, admit, discharge, and interact with the EHR. Active learning in real time was highly efficacious in overcoming quasi-novel barriers. The following responses were provided after day one of residency:

Ethnographer: *“Do you feel more proficient at the end of the day than you did at the beginning?”*

Hawaii: *“Absolutely. 100%,”*

Alaska: *“The best part is that you feel like you’re doing something.”*

Ethnographer: *“As opposed to what?”*

Alaska: *Just kinda’ sitting around kinda’ watching, as a med student.*

Ethnographer: *Do you feel like you learn more because of that?*

Alaska: *Oh yeah dude. Even trying to learn the EPIC system, like before, even yesterday, just going through the paperwork we got. I learned like 10 times more just actually doing it. Just having the residents sit down with ya, having the residents teach you like ‘ok, this is how you do it.’ Definitely felt like I was more proficient in one day than I was in a 48-hour weekend...”*

Field Note – Set #1

Another common quasi-novel barrier was adapting to increased patient loads. Medical students often follow two to three patients and involve themselves with their care. An expectation of writing a note may or may not exist. In comparison, new interns in this study were often assigned four to six patients on average. Interns on call or night float managed even more patients across one or more services. In addition to simply following more patients, interns were responsible for elements of care that were generally blocked in medical school. Despite this, interns gradually gained efficiency as they overcame new struggles. Not only did they know more about the patients they were directly responsible for, but the rest of the team’s list as well. Here, interns would initially seek help to overcome initial barriers. Then, they would make individual adjustments to enhance their efficiency.

Hawaii: *“I’m real slow and so we’re supposed to get here at five, but I get like palpitations and I wasn’t finishing my notes on time and I just felt terrible. Like. It was taking me too long to get through the chart. So, to ease my anxiety, I look at the list before I leave my house in the morning. And that dictates whether I sit at home and have coffee or if I come in early and see my patients because I want to know what my day is going to start like. Did they get creamed overnight and all of a sudden, their list doubled?”*

Interviewer: *“When you’re coming in early or earlier, where are you coming in?”*

Hawaii: *“I usually try and be on the floor at 4:45am”*

Semi-structured Interview #2 - Hawaii

Neither novel barriers or quasi-novel barriers were severely limiting to new interns. Initial difficulties were overcome and interns consistently rose to their new set of expectations. Concern over efficiency did linger. However, objective ability far surpassed the intern’s perception of their ability.

Chapter 5 - Conclusion

This study's findings identify and deconstruct barriers encountered by surgical interns in the first month of residency; with a particular focus on non-technical skills. Themes that emerged from the data categorize types of barriers discovered and general trends for how these obstacles were overcome. General barriers involve difficulty performing competencies that were previously practiced as part of medical school. Comparatively, novel barriers represent new obstacles that are unique to interns in residency or the residency itself. Competencies involving novel barriers may be entirely unfamiliar or practiced too infrequently within medical school to yield operational competence. Considering the former, this subset can be described as quasi-novel barriers and they are syllogistic to novel barriers. That is to say, all quasi-novel barriers are novel; not all novel barriers are quasi-novel (Figure 1).

General barriers were often conquered through individual practice. By contrast, interns took an approach to novel barriers that favored asking for assistance. In this setting, multiple members of the team were willing to offer support to new interns. In doing so, teams gained familiarity with one another and the overall efficiency of the team increased. Quasi-novel barriers were a ubiquitous concern among new interns prior to starting. However, these fears dissipated as quickly as day one. Generally, no early struggle persisted for unreasonable amounts of time and interns increased in competence dramatically. There are two reasonable suggestions to explain this rapid increase in proficiency. First, new interns are granted access to forms of active learning that were otherwise blocked in previous environments. Second, increased responsibility facilitated increased engagement and patient ownership. Combined, these two factors were a catalyst for the development of nontechnical skills; annulling the effect of a gap in transition.

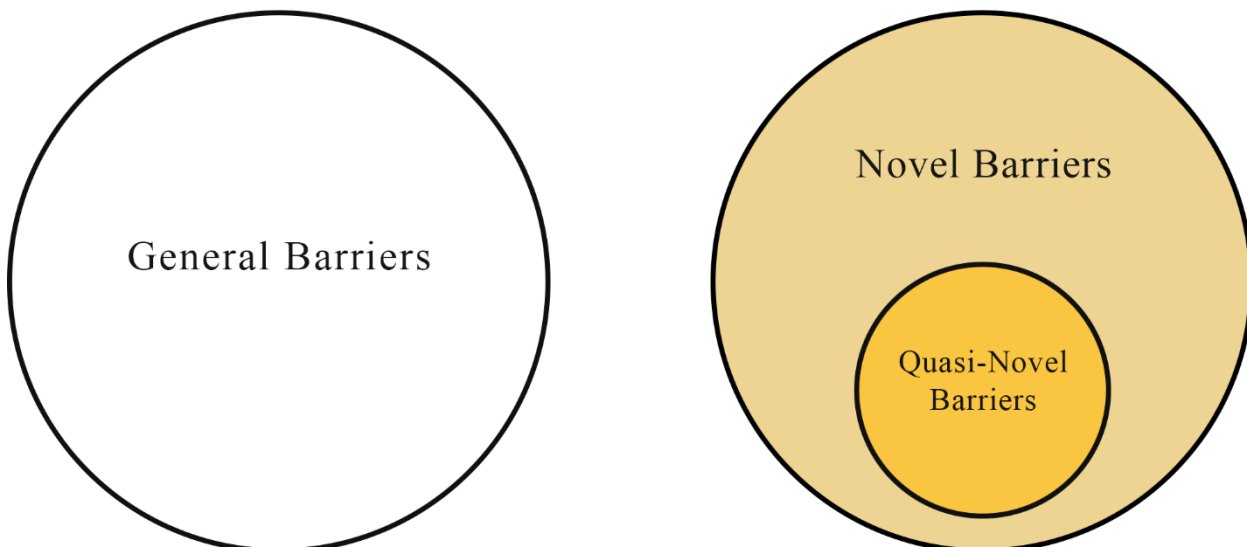


Figure 2 General Barriers, Novel Barriers, Quasi-Novel Barriers. General barriers are distinctly separate from novel barriers. However, quasi-novel barriers share a syllogistic relationship with novel barriers.

5.1 | Study Limitations

A variety of limitations were present in this study. First, the author of this thesis is highly aware of his novice status as an ethnographer. Coincidentally, an active learning approach was utilized in a similar manner to the interns participating in this study. While proficiency was gained, the quality of the product is limited by experience. Moreover, attempts were made to mitigate bias and ensure descriptive validity. However, qualitative research is often subject to these factors to some degree. Second, collection of field data necessitated that the ethnographer divide time between participants. In doing so, some participants were allotted more time than others. This fundamentally limited opportunities for exposure that may have yielded a more longitudinal picture of an intern's growth. As this work is exploratory, recognition of these limitations will be taken into account during future iterations.

5.2 | Relevance to Surgical Education

This study recommends curricular innovation in UME prioritize skill development to combat general barriers over novel barriers. Incoming surgical interns report a nearly unanimous concern over quasi-novel barriers. However, these obstacles are surmounted relatively quickly. Moreover, doing so aids in the development of team relationships. It is the opinion of this author that strengthening medical knowledge, exposure to 'floor-work,' and building skillsets in communication or efficiency are a more productive endeavor. However, this particular claim has not been studied specifically. Findings from this work may be used to look into these recommendations in a more detailed manner.

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Appendices

Semi-Structured Interview #1 Guide

Questions	Follow-up Probes
<p style="text-align: right;">Warm-Up Questions</p> <p>Where are you coming from? What area of surgery is most interesting to you? What lead to you picking this residency? What service are you starting on?</p>	
<p>Before starting this residency, how would you describe your previous role on a surgical service as a medical student?</p> <p>How did your role differ from the intern or other residents?</p>	<ul style="list-style-type: none"> - What was expected of you? - What was expected of the intern? - Tell me about managing patients on the wards - [Describes anecdote]: Tell me more about that
<p>How do you view your current role on the team?</p>	<ul style="list-style-type: none"> - How do you expect that role to change over this month? - How do you expect that role to change over this year?
<p>Prior to starting, would you describe yourself as nervous, excited, or a combination of both?</p>	<ul style="list-style-type: none"> - [If excited]: What are you excited about? - [If nervous]: What are you nervous about? - [If both]: Could you tell me more about what makes you feel nervous and excited?
<p>Do you believe that your medical school adequately prepares students for the responsibilities of residency?</p>	<ul style="list-style-type: none"> - [If yes]: In what ways have you felt that you were prepared? - [If no]: In what ways have you felt that you are not prepared?
<p>Could you tell me about experiences in medical school where you were able to take more responsibility than normal?</p>	<ul style="list-style-type: none"> - [Describes anecdote]: Tell me more about that - What/who allowed this scenario to happen? - Did this/these experiences influence your career goals?
<p>Could you tell me about experiences in medical school where you felt as though your role was limited?</p>	<ul style="list-style-type: none"> - [Describes anecdote]: Tell me more about that - What/who allowed this scenario to happen? - Did this/these experiences influence your career goals?
<p>Tell me about how your M3 clerkship experiences compared to your M4 clerkship experiences.</p>	<ul style="list-style-type: none"> - [Describes anecdote]: Tell me more about that - What was expected of you? - Did your role change from M3 to M4?
<p>Could you tell me about what you anticipate will be difficult in the transition from medical student to resident?</p>	<ul style="list-style-type: none"> - Why?
<p>Could you tell me about what you anticipate will be manageable or easy in the transition from medical student to resident?</p>	<ul style="list-style-type: none"> - Why?
<p>This concludes our interview. Is there anything else you would like to share? Thank you for meeting with me today.</p>	

Second Semi-Structured Interview #2 Guide

Questions	Follow-up Probes
<p>What service are you currently on? How would you describe residency so far? Has anything surprised you about residency?</p> <p style="text-align: right; margin-right: 20px;">Warm-Up Questions</p>	
<p>Could you tell me a about your role, right now, on your current service?</p>	<ul style="list-style-type: none"> - What is expected of you? - What are your responsibilities to patients? - What are your responsibilities to the faculty? - [Describes anecdote]: Tell me more about that
<p>How has your role changed over the past month?</p>	<ul style="list-style-type: none"> - What was expected? - What surprised you? - How do you expect that role to change over this year?
<p>What aspects of this transition have been <u>manageable</u></p>	<ul style="list-style-type: none"> - What made them/it manageable? - What made them/it difficult? - Has this become easier/more difficult over time? - [Describes anecdote]: Tell me more about that
<p>Conversely, what aspects of this transition have been difficult?</p>	
<p>Since starting residency, do you believe that your medical school adequately prepares students for the responsibilities of residency?</p>	<ul style="list-style-type: none"> - [If yes]: In what ways have you felt that you were prepared? - [If no]: In what ways have you felt that you are not prepared? - [Describes anecdote]: Tell me more about that
<p>Based on your experience this past month, would you change any aspects of the last year of medical school?</p>	<ul style="list-style-type: none"> - Why? - [Describes anecdote]: Tell me more about that
<p>How would you describe the experience of placing orders as a resident, for the very first time?</p>	<ul style="list-style-type: none"> - [Describes anecdote]: Tell me more about that - How has this changed? - Has anyone helped in this skill develop?
<p>Tell me about the experience of placing orders as a resident, now.</p>	
<p>Tell me about managing the floor during the first week of residency.</p>	<ul style="list-style-type: none"> - [Describes anecdote]: Tell me more about that - How has this changed? - Has anyone helped this skill develop?
<p>How would you describe your ability to manage the floor, now?</p>	
<p>Who are you most comfortable asking, when you have a question?</p>	<ul style="list-style-type: none"> - Why? - Comfort? - Hesitancy?
<p>In terms of managing patients, how many do you care for?</p>	<ul style="list-style-type: none"> - What are your responsibilities in care? - [Describes anecdote]: Tell me more about that
<p>Tell me about your experience of caring for more patients than previously in medical school?</p>	
<p>After one month, tell me about how your ability reflects your role as a resident and physician? 1</p>	<ul style="list-style-type: none"> - Has this built over time? - [If comfortable]: When did you begin to feel comfortable?

When compared to medical school, tell me about your learning now as a resident.

- Is it weaker/stronger? Why?
- Is it slower/faster? Why?

[Space Left for Open Interviewing based on interesting findings in participant observation]

**This concludes our interview. Is there anything else you would like to share?
Thank you for meeting with me today.**