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PATIENT OWNERSHIP:
EXPLORING DEFINITIONS, EXPECTATIONS, AND
EXPERIENCES FROM VARIED PERSPECTIVES

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January 14, 2021

MEMORANDUM FOR:

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SUBJECT: Appointment to the Final Doctor of Philosophy Examination Committee for Michelle Kiger

In accordance with the School of Medicine Graduate Program Guidelines, you are formally appointed to the Final Examination Committee of Michelle Kiger, doctoral student in the Health Professions Education graduate program.

This Committee will evaluate the scope and qualities of the student's thesis and certify the document's acceptability.

In addition, the Committee will conduct an Oral Examination of the student's scientific knowledge, as well as the knowledge and understanding of the dissertation research project. This examination constitutes the Private Defense.

The Private Defense for Michelle Kiger will take place on Thursday, February 11, 2021 at 1:00 PM.

Dr. Ronald Cervero is appointed Chair of the Examination Committee. Dr. Cervero will oversee the examination. Passage of the Private Defense will be by majority vote. If corrections to the thesis are needed, the Chair may oversee this process and sign-off after the corrections are made.

The Committee Chair should return the signed Final Examination/Private Defense Form and the Dissertation Approval Form to the Graduate Education Office as soon as each form is completely signed and dated.

Graduate Education Office (GEO) thanks you in advance for your participation in the School of Medicine Graduate Programs process.

Saibal Dey, Ph.D.
Associate Dean for Graduate Education



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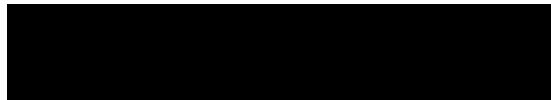


**FINAL EXAMINATION/PRIVATE DEFENSE FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN THE
HEALTH PROFESSIONS EDUCATION GRADUATE PROGRAM**

Name of Student: Michelle Kiger
Date of Examination: February 11, 2021
Time: 1:00 PM
Place: Virtual Meeting

DECISION OF EXAMINATION COMMITTEE MEMBERS:

	PASS	FAIL
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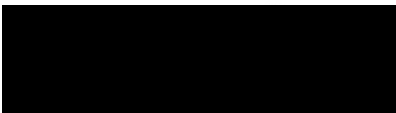
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**APPROVAL OF THE DOCTORAL DISSERTATION IN THE HEALTH PROFESSIONS EDUCATION
GRADUATE PROGRAM**

Title of Thesis: "Patient Ownership: Exploring Definitions, Expectations, and Experiences from Varied Perspectives"

Name of Candidate: Michelle Kiger
Doctor of Philosophy
February 11, 2021

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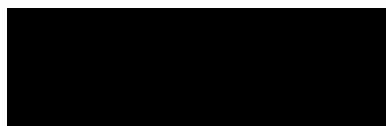
DEDICATION

To Dave, Asher, and James – you all give meaning to all of the work I do each day.

The author hereby certifies that the use of any copyrighted material in the dissertation entitled:

Patient ownership:
Exploring definitions, expectations, and experiences from varied
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ABSTRACT

Patient ownership is a concept that is commonly used, but rarely defined, within health professions education. Faculty often desire to instill a sense of patient ownership in their medical students or residents, but faculty and trainees might have different understandings of what this concept means or what it looks like in practice. Issues such as duty hour restrictions, the optimal balance of trainee oversight versus autonomy, and the increasing prevalence of team-based care within the health care system all complicate traditional notions of patient ownership as an individual responsibility of a physician toward his or her patients. Furthermore, the patient's role and perspective within this concept has not been explicitly addressed. Therefore, this dissertation examines patient ownership from a range of methodologies and theoretical frameworks in order to understand definitions, expectations, and experiences surrounding patient ownership from the perspective of faculty physicians, residents, and patients/families.

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CHAPTER 1

INTRODUCTION

Background and Motivations

This dissertation is a product of my admiration for many of the residents I have had the privilege of teaching and mentoring. As an attending physician for the past seven years at a pediatric residency program, and more recently as its military Program Director, I became interested in the concept of patient ownership through my interactions with residents in their continuity clinics. As is common within many training programs, residents in our program cover different hospitals and clinics that are geographically separated and whose medical record systems are not integrated. Furthermore, residents frequently come to continuity clinic for a day (or even a half-day) at a time and then might not be back in clinic for several weeks. Not surprisingly, this separation has at times led to disappointing encounters in which residents did not properly follow up or hand off patient issues that arose from clinic visits. More often, however, I have been impressed by our many residents who, despite these logistical barriers, far surpassed expectations in terms of their commitment to their clinic patients—e.g., calling personally to follow up laboratory results despite not being in clinic when they result, adding visits onto their templates to accommodate their patients' schedules, or even coming to clinic on their days off to ensure they could see their patients in follow up.

Reflecting on such encounters in our faculty meetings, other attending physicians and I would frequently comment that these residents had excellent *patient ownership*. In these discussions, I assumed we all had some shared understanding of what we meant by this term and that we all agreed it was something important to foster and expect of our residents. Yet I cannot remember a single conversation in which any of us explicitly discussed what this meant or entailed. Personally, I cannot remember when I first heard this term or if anyone ever explained it to me at any point in my training. And, admittedly, I had never had such a conversation with any of my residents, even as other attendings and I were either praising them for their patient ownership or encouraging them to exhibit better ownership of their patients' care. Furthermore, I realized that we discussed this topic as something that residents could *do better* at if they just *tried harder*. In this way, we treated it as an attitude or set of behaviors specific to an individual, rather than considering the myriad of other systemic, logistical, or interpersonal factors that could also influence it.

When I began work on this dissertation, my initial intent was to study ways to improve patient ownership among residents, particularly within continuity clinics, and some of the studies within this dissertation do specifically address this aim. However, it quickly became apparent that more fundamental questions had to be answered first. Foremost, what does patient ownership mean? Before examining ways to improve patient ownership, it is important for faculty and trainees alike to have a shared understanding its definition. Importantly, tied to this question arose new concerns about the term *patient ownership* and the concept itself: Does “ownership” necessarily imply an outdated, paternalistic view of the patient-physician relationship? Should we abandon it in favor of an alternative concept, or is there a way to reconcile it with more modern conceptions of patient agency and autonomy? Additionally, any attempt to improve patient ownership

would have to be informed by a more comprehensive understanding of the factors that facilitate or inhibit it in practice.

Therefore, in my dissertation research, I sought to explore the concept of patient ownership using a variety of frameworks and methodologies to more fully understand definitions of patient ownership and factors that influence it. With this fuller understanding, physicians can be better equipped to clarify expectations surrounding patient ownership for resident physicians and to identify potentially modifiable factors that could be optimized to improve resident training, physician satisfaction, and patient care.

Importance of Patient Ownership

As part of their joint Pediatric Milestones Project, the Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Pediatrics define a key element of professionalism as “a sense of duty and accountability to patients.”¹ The concept of patient ownership is intrinsic to this element of professionalism, and the importance of this element of a physician’s professional responsibility has only grown in recent years with shifts toward increasingly subspecialized² and often fragmented medical care. As patients are required to navigate this complex system, and as physicians are called to provide and coordinate care within teams of ever-increasing numbers of allied and interdisciplinary health care professionals, patients need to understand who is primarily responsible for their medical care. Without clear role delineations or a strong display of patient ownership by physicians, patients and their medical information can be lost across transitions of care³ or across a diffusion of responsibility among multiple care providers.⁴ Perhaps equally concerning, the integrity of the patient-physician relationship may quickly erode if physicians do not feel ownership over their patients’ care and patients do not identify a physician as *their* physician.

In addition to these effects on patient care and the patient-physician relationship, feelings of ownership over patient care and medical decisions have additional layers of importance for physicians. First, literature from management science and psychology has demonstrated that a sense of decision ownership has positive effects on an individual’s commitment, engagement, and cooperation within organizations,⁵ and that those who feel more ownership over their work tend to be more satisfied.⁶ In an era in which rates of physician depression and burnout continue to rise at alarming levels, and in light of evidence that depersonalization is one of the factors most strongly associated with increased rates of burnout,⁷ having a strong sense of patient ownership may protect against physician burnout by providing more meaning and significance to clinical work.⁸ Secondly, particularly for resident physicians in training, patient ownership can promote learning. Residents and program directors have described how feelings of ownership toward patients enhance the educational value that residents experience in carrying out clinical care tasks⁹ and motivate residents to fill educational gaps they identify to provide optimal, evidence-based patient care.¹⁰ Finally, Greenzang et al⁸ identify patient ownership as fundamental to professional identity formation among residents. Feeling

that they are in charge of a patient's care can help residents to view themselves as competent physicians.

Challenges to Patient Ownership

Despite these purported benefits of patient ownership to patients and physicians, fostering and achieving patient ownership can be an elusive goal in practice. The lack of a clear definition of patient ownership and changes in medical care system in recent decades are two key barriers.

Defining patient ownership

The first problem complicating any efforts to improve patient ownership, or even any research into the topic, is that no consensus definition of patient ownership exists in the literature. Without such a clear and shared understanding, it can be difficult for residents to know what is expected of them with respect to displaying patient ownership in practice. Additionally, this ambiguity can make it more challenging for faculty to provide effective feedback to residents on issues related to patient ownership and to make changes in the practice environment to optimize it.

One of the earliest and most frequently cited definitions comes from Van Eaton et al,¹¹ who defined patient ownership as “the philosophy that one knows everything about one's patients and does everything for them.” However, in that same paper, the authors posited that this conception of patient ownership is outdated and imposes unfair expectations on medical trainees in the modern environment of duty hours restrictions. The authors advocated for a “New Professionalism” that acknowledges a more shared responsibility among members of a medical care team, but they did not offer a revised definition of patient ownership despite arguing that it must evolve.¹¹

Since that time, four studies have specifically sought to forward a behavioral definition of patient ownership. McLaren et al¹² surveyed psychiatry faculty and trainees at a single site with open-ended, online questions related to patient ownership and report common seven core themes: advocacy, autonomy, commitment, communication, follow-through, knowledge, and teamwork. Building upon these themes in a subsequent study, authors at the same program sent another anonymous survey to psychiatry and internal medicine faculty and residents asking for definitions and examples of ownership of patient care.¹³ They forwarded themes that indicated ownership in five domains: physician actions (e.g., communication, follow through), physician attitudes (e.g., feeling invested in patient outcomes, feeling that the ‘buck stops here’), physician identity as the primary care provider, physician qualities (i.e., taking initiative), and providing good quality of care. A third study by Wyatt et al¹⁴ focused more on perspectives from third-year medical students using observational data, surveys, and interviews, but this was considered a pilot study and only published as a research abstract. Most recently, Greenzang et al⁸ conducted a thematic analysis of focus group responses from pediatric residents and program directors and identify four key themes that describe ownership of clinical care: personal responsibility, connecting with patients, follow up and follow through, and it being “defined by its absence” (meaning it can be easier to identify when it is missing

than to precisely define what it is or entails). Taken together, these studies suggest that dedication, responsibility, follow-up, and communication are shared among definitions of this concept, but the relative emphasis of each and the inclusion of concepts such as advocacy, identity, and teamwork differ across these descriptions.

This body of research provides a starting point for examining issues surrounding resident patient ownership, but they were all limited in scope in that they only involved participants from one or two specialties,^{8,12-14} and several relied on surveys with no ability to elaborate upon participant responses.¹²⁻¹⁴ No literature reviews have attempted to synthesize these or other forwarded definitions of patient ownership. Additionally, none examined these issues from the perspective of patients, who clearly have an important stake in this issue but whose voice has been absent in any research specifically studying patient ownership to date.

Medical care system changes

One of the most important changes in the medical care system that has prompted numerous commentaries and studies into its effect on patient ownership has been the implementation of duty hours restrictions (DHRs) among residents, particularly the 16-hour limit on intern shifts imposed by the ACGME in 2011. Aligning with the definition forwarded by Van Eaton et al,¹¹ some commentaries lamented that DHRs would lead to the loss of an “older professional virtue”¹⁵ that highlighted the primacy of a physician’s individual responsibility toward patient care.^{4,15,16} These commentaries specifically expressed concern over the adoption of a “shift-worker mentality” in which residents would prioritize compliance with DHRs over their patient care responsibilities,^{15,16} with several also noting the moral dilemma that such DHRs could pose to residents wishing to stay beyond their duty hours to continue patient care.^{11,15,17}

Another key shift in the medical care system that has accompanied DHRs and must be reconciled with patient ownership is the increasing prominence of team-based care. Studies investigating the interplay between team-based care and patient ownership have yielded conflicting results. A cross-over design study of internal medicine residents assigned to traditional 30-hour call schedule versus two 2011 DHR-compliant models found that residents on the newer models reported decreased perceived quality of care, sense of team membership, and continuity of care.¹⁸ Alternatively, a qualitative study using semi-structured interviews of residents, staff physicians, and program directors at a different internal medicine program reported an *increased* sense of patient ownership and teamwork within shifts once switching to a 12-hour night float system.¹⁹ Responses reflected a shift in the concept of optimal patient ownership from an individual to a team-based responsibility.¹⁹

Such conceptions of team-based ownership are more compatible with Van Eaton et al’s¹¹ “New Professionalism,” which advocates for a team-based patient responsibility for patient care and emphasized the need to set clear expectations for residents, provide adequate training and tools to function in this new environment, and provide attending leadership modeling desired behaviors. Properly implemented, some scholars have argued that a team-based ownership model is not only more fair to residents²⁰ but could

actually improve overall ownership of patient care and lead to better patient outcomes.¹⁹ However, these more optimistic outlooks stand in conflict with concerns expressed by others that team-based care would inevitably lead to a diffusion of responsibility in which no one felt ownership over a patient's care.⁴

Patient Ownership and Continuity of Care

While the interplay between DHRs (and their downstream effects) and patient ownership within the inpatient setting has garnered considerable attention in recent years, far less attention has been paid to patient ownership within the outpatient setting. Within primary care residencies (e.g., pediatrics, internal medicine, and family medicine), continuity clinics provide an optimal venue in which to study patient ownership in the outpatient setting. Continuity clinics are ACGME-required clinical experiences in which residents are expected to follow a panel of patients longitudinally as their primary care physician. One could reasonably expect that such continuity of care would foster patient ownership due to this sustained engagement between resident and patient, and several studies have suggested that continuity of care is a key facilitator of patient ownership.²¹⁻²⁵

However, continuity of care is only one of several factors that could influence patient ownership attitudes and behaviors among residents within continuity clinics. Some studies have proposed that logistical issues such as resident clinic scheduling practices²⁶⁻²⁸ or difficulty in balancing inpatient and outpatient obligations^{27,29,30} influence residents' ability and/or willingness to take ownership of patients within a continuity clinic. Similarly, with respect to medical students' sense of patient ownership, the limited literature that exists has focused primarily on the influence of their participation in longitudinal integrated clerkships, which afford them continuity with clinic preceptors across long periods of time.³¹⁻³³ Yet no literature on either medical students or residents has attempted to take a comprehensive view of the multitude of factors—both personal and systemic—that influence their expectations or experiences surrounding patient ownership in the outpatient clinic setting.

Furthermore, it is important to recognize that continuity of care is a complex phenomenon that may have a more nuanced relationship to patient ownership than has been recognized to date. Saultz³⁴ has proposed that continuity of care has three dimensions: longitudinal, informational, and interpersonal. Commonly used numerical measures of continuity such as the continuity for physician (i.e., the percentage of visits in which a physician sees his/her own patients)³⁵ or the usual provider of care (i.e., the percentage of visits in which a patient sees his/her physician)³⁶ focus only on the longitudinal aspect of continuity of care. These measures capture neither *informational* continuity, which refers to the ability of medical professionals to share and obtain patient information across encounters, nor *interpersonal* continuity, which refers to the relational aspect of the physician-patient interaction and involves trust and responsibility.³⁴ Saultz proposes that a key purpose of longitudinal and informational continuity is to foster interpersonal continuity, which is seen as a higher-level goal.³⁴

Patient ownership is closely aligned—although not synonymous—with Saultz’s interpersonal aspect of continuity of care; however, most literature exploring the relationship between continuity of care and patient ownership has focused on numerical measures of longitudinal continuity. Thinking of continuity of care more broadly, therefore, raises important questions about this relationship. For example, is continuity of care necessary for the achievement of good patient ownership within continuity clinics? If so, are all three aspects of continuity required, or are there circumstances in which one could develop good interpersonal continuity or patient ownership in the absence of high degrees of longitudinal continuity? What other interpersonal (on the part of the patient or physician) or logistical factors might mediate the relationship between continuity of care and patient ownership? Instead of assuming that longitudinal continuity of care is a prerequisite for patient ownership within the outpatient setting, or that continuity of care could guarantee patient ownership, more investigation is needed to delineate this relationship.

Military Relevance

Within the military, unique stressors on patient families and physicians alike make these issues surrounding patient ownership particularly important. Deployments and frequent moves among military families are associated with lower rates of continuity of care,³⁷ and this discontinuity is compounded by high turnover rates among military healthcare professionals. Although military families are overall satisfied with their medical care, lower rates of continuity of care have led to dissatisfaction among families with the military health care system.³⁷ Additionally, these stressors lead to higher rates of mental health care needs among military families,³⁸ which can be particularly challenging to address without consistent and strong relationships between patients and physicians. In light of these systemic barriers that are unlikely to change, finding ways to improve the physician-patient relationship—including by optimizing patient ownership—becomes increasingly important, not only for patient and physician satisfaction but also for military resident education and patient care.

Paradigmatic Orientations and Methodological Considerations

In order to explore the concept of patient ownership in a comprehensive way, the studies within this dissertation employ a variety of theoretical frameworks and paradigms. The majority of this dissertation is founded upon a constructivist paradigm.³⁹ As an attitude or set of behaviors that might be influenced heavily by any individual’s prior experience, personal beliefs, and local context,³⁹ patient ownership is well suited to study under a constructivist paradigm. Constructivism views patient ownership as a social construct created and shared between a patient and his or her doctor, and it recognizes that this construct is different for each individual patient and doctor because it is so fundamentally shaped by the individuals and their local context. Constructivism views all knowledge built through study of this topic as contextual and not absolute.³⁹ Therefore, through study under a constructivist paradigm, one can seek to gain a deeper understanding of individual constructs of patient ownership and look for common themes that could be transferred and applied to other local settings.

Chapter 2 of this dissertation is a scoping literature review—a review type that is rooted in the constructivist paradigm.⁴⁰ This literature review ultimately offers a synthesized definition of patient ownership; however, in keeping with constructivism, the definition is broad in describing the phenomenon and allows room for the phenomenon to manifest differently in individual local contexts.

Chapter 3, an interview-based study, explicitly employs a constructivist paradigm in exploring resident, physician, and patient family reflections on the definitions, experiences, and expectations surrounding patient ownership within continuity clinics. Using grounded theory methodology,^{41,42} it generates a theory that describes this complex phenomenon.

Chapter 4 is a methods paper describing thematic analysis—the qualitative data analysis method that underpinned the research conducted in the interview-based study (see **Chapter 3**). In this work, we report how thematic analysis is a flexible method of qualitative data analysis that is suitable for use under a range of theoretical frameworks and that is not bound to a particular epistemology.⁴³ It can be used in a deductive or inductive manner, so it is acceptable to begin the process of thematic analysis with a particular theoretical framework in mind in order to guide the analysis (i.e., a deductive approach) or without any such framework chosen ahead of time and analysis guided only by study data/responses (i.e., an inductive approach).

Finally, **Chapter 5** examines the effect of a switch from half-day to full-day continuity clinics within a pediatric residency program through a post-positivist paradigm. In contrast to constructivism, post-positivism focuses on using a logical and systematic approach to hypothesis testing and assumes a single reality that can be explored and understood—albeit imperfectly—through scientific means.⁴⁴ Therefore, it is more suited for testing of granular questions such as the effect of a change in resident schedules to full-day continuity clinics on rates of continuity of care or resident and attending perceptions of clinic. We conducted this study from a post-positivist orientation because our goal was to make causal inferences about the relationship between scheduling models and these outcomes.

Theories Informing the Research

This research draws upon cognitive load theory and a social cognitive theory for framing. Cognitive load theory posits that working memory, which is used to process new information in the moment, has a finite capacity as compared to long-term memory.⁴⁵ Therefore, it suggests that educators should seek to minimize any extraneous cognitive load in learners that is not pertinent to the task at hand in order to maximize their capacity of working memory for more germane tasks. In **Chapter 5**, a primary intent of the scheduling change we studied was to de-conflict resident schedules so that they could devote more undivided attention to their clinic patients in accordance with cognitive load theory. Under the traditional half-day continuity clinic schedule, we hypothesized that the burden of thinking about and potentially being interrupted by inpatient issues from

the morning would impose an extraneous cognitive load on residents, thereby leaving less working memory available to devote to one's clinic patients. Therefore, we believed that full-day continuity clinics could allow more complete and undivided attention to clinic patients and their care (i.e., increasing the amount of working memory available for clinic tasks by decreasing extraneous cognitive load). In turn, we hypothesized this increased attention devoted to clinic could lead to improved resident feelings of patient ownership, better clinical follow up, and overall improved satisfaction with clinic.

An additional framework for this study was social cognitive theories, which attend to reciprocal interactions between personal, behavioral, and environmental influences on learning.⁴⁶ Specifically, Lave and Wenger's conception of *communities of practice* (CoP) provides a helpful and relevant lens.⁴⁷ With respect to patient ownership, one can conceptualize the continuity clinic as a particular CoP, which residents enter by engaging in *legitimate peripheral participation*. As they gain experience, residents are granted more autonomy and become more central participants within the CoP, and as they do so they increasingly identify with its embodied knowledge, attitudes, and norms,⁴⁸ including those related to patient ownership. Therefore, in **Chapter 5**, we examined how the schedule change affects the level of engagement or centrality residents feel and display within the clinic, specifically with respect to their follow up of clinic patients and laboratory and radiology results, the perceptions of the care they deliver, and their feelings of ownership over their clinic patients' care.

For **Chapters 2 and 4**, no specific learning theories informed these studies due to their design as a literature review and a methods paper, respectively. **Chapter 3** also did not draw upon any other theories, as the goal of this grounded theory study was to create a new theory of patient ownership informed through inductive analysis of our data.

Reflexivity

Especially as several of the studies within this dissertation are grounded in a constructivist paradigm, it is important to acknowledge that the design, conduct, and analysis of this work has been shaped by my own subjective experiences, assumptions, and beliefs. First, as a residency Program Director, I recognize that I approach this topic foremost as an educator with an eye toward how it impacts medical trainees, as opposed to its effect on practicing physicians or patients. While most of these studies have significant implications for patients and for physicians at all levels of training and practice, I am particularly attuned to the potential barriers to patient ownership that are either unique to, or at least more problematic for residents (e.g., splitting time between different clinical rotations or a lack of continuity of care with patients). As a military physician, I see these concerns as especially problematic for residents working in a system with lower baseline continuity of care. I also view residency as a time in which attitudes and habits of practice are more malleable, so I see a greater potential to effect positive change for the future by focusing on how residents experience and develop expectations surrounding patient ownership.

Second, as a pediatrician used to taking care of children who are often too young or otherwise unable to speak for themselves, I believe that physicians have a duty to seek out the perspective of those who do not have a strong voice within systems. As I began to research the literature on patient ownership, it became clear that the voices that had not been heard on this topic were those of patients. While a large volume of literature had incorporated the patient perspectives into work on patient autonomy and the patient-physician relationship, none explicitly investigating patient ownership included patients. Therefore, I designed the interview-based project in **Chapter 3** with the notion that patients *do* have a role in this concept and that their input was needed to understand this concept in a more complete and inclusive way.

Finally, I recognize that I came to this work with the firm belief that patient ownership is a good thing—something to be expected, fostered, and encouraged among physicians. Despite important concerns raised by some about the terminology and whether the concept itself is problematic in being disempowering toward patients,¹⁴ I approached this topic with a determination that patient ownership was not inherently incompatible with a more egalitarian, non-paternalistic view of the patient-physician relationship. The work, therefore, would be to re-conceptualize patient ownership in a way that acknowledged and incorporated more diverse perspectives than had been recognized in the past.

Research Questions

Chapter 2: Scoping literature review

1. Primary question: How is patient ownership defined and described in the literature?
2. Secondary questions:
 - a. What other relevant concepts are tied to patient ownership in the literature?
 - b. What individual, systematic, or other contextual factors have been shown to influence attitudes or behaviors tied to patient ownership?

Chapter 3: Resident continuity clinic interviews

1. Primary question: What are the definitions, expectations, and experiences of patient ownership for the medical care team and the patients and families they care for in a continuity clinic setting?
2. Secondary questions:
 - a. How do patients/families, residents, and attending physicians define patient ownership?
 - b. What expectations does each group have regarding resident behaviors tied to patient ownership in a continuity clinic?
 - c. What are barriers to residents developing a sense of patient ownership toward their continuity clinic patients and displaying behaviors related to patient ownership?
 - d. What factors promote patient ownership attitudes and behaviors among residents in continuity clinics?

Chapter 4: Methods paper on thematic analysis

1. Primary question: What is thematic analysis?
2. Secondary questions:
 - a. How does method relate to other methods of qualitative data analysis?
 - b. What is a robust approach to thematic analysis?
 - c. What are the benefits, drawbacks, and potential pitfalls of using thematic analysis?
 - d. How has it been used in HPE research?

Chapter 5: Full-day continuity clinic study

1. Primary Question: What is the effect of a switch from half-day to full-day continuity clinics on resident and attending perceptions of patient ownership, work balance between inpatient and outpatient obligations, education, continuity of care, and satisfaction with continuity clinic?
2. Secondary question: What is the effect of a switch from half-day to full-day continuity clinics on numerical measures of resident continuity with patients?

Overview of Studies

Chapter 2 begins the dissertation with a scoping review of definitions and influencers of patient ownership following Arksey and O'Malley's five-step framework.⁴⁹ Scoping reviews "collect, evaluate and present findings from existing research"⁵⁰ in order to "map key concepts contained in a research domain—their breadth, limits and features."⁵¹ Specifically, in accordance with Arksey and O'Malley's⁴⁹ reasons for performing scoping reviews, our goals were "to examine the extent, range, and nature of research" and "to summarize and disseminate research findings" related to patient ownership. In this review, we examine both definitions and influencers of patient ownership, which include logistical concerns, personal attributes and attitudes, and socially and organizationally constructed expectations. We conclude by synthesizing the existing definitions in light of the shift toward team-based care within the medical system to propose a new definition of patient ownership that can serve as a foundation for subsequent work within this dissertation and further studies.

Next, **Chapter 3** examines patient ownership in more depth within the setting of resident continuity clinics from the perspective of residents, attendings, and patient families. We interviewed these participant groups within two pediatric continuity clinics in order to explore definitions, experiences, and expectations surrounding patient ownership. From these responses, using constructivist grounded theory^{41,42} we construct four key themes and also highlight areas of convergence and divergence among participant group responses. Additionally, we forward a theory of patient ownership within continuity clinics that explains its relation to the patient-physician relationship, defines the role of the medical care team, and casts a more active role for the patient or patient family within this construct.

Chapter 4 is a methods paper on thematic analysis. While thematic analysis is a method often used in medical education research, it is often vaguely described in the studies and

tentatively understood by the community. Furthermore, it is foundational for many types of qualitative data analysis (such as grounded theory) and therefore should be useful in future studies seeking to understand patient ownership. Therefore, to ensure that the power and limitations of this method were widely recognized in the field—and to solidify my own understanding as I moved forward with the patient ownership interview study—we produced an AMEE Guide. This manuscript focuses on Braun and Clarke's⁴³ six-step method of thematic analysis, with particular attention to its application to health professions education. Specifically, it defines thematic analysis, positions it with respect to other methods of qualitative analysis, and describes when it is appropriate to use under a variety of epistemological frameworks. Then, it describes the six-step process using worked examples derived from the interview study on patient ownership in continuity clinics from **Chapter 3**. It concludes by discussing advantages and disadvantages of the method and potential pitfalls to avoid when using it.

Finally, **Chapter 5** of this dissertation is a study of the effect of a switch from half-day to full-day continuity clinics within a pediatric residency program. It examines the effect of this change on the continuity for physician measure of continuity of care, or the percentage of resident clinic visits in which residents saw a patient assigned to him or her. It also investigated the effect of the change on how often residents saw their clinic patients in follow up and personally followed up clinic laboratory or radiology results, measures we term episodic continuity. Between 5-7 months after the change, a survey was administered to residents and attendings to measure perceptions of the switch on residents' balance between inpatient and outpatient obligations, degree of continuity of care, clinic preparation, patient ownership, and overall clinic satisfaction.

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CHAPTER 2

Whose Patient is This? A Scoping Review of Patient Ownership

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Abstract

Purpose

The scope of a physician's responsibility toward his/her patients is becoming increasingly complicated to delimit as interdisciplinary care delivery and degrees of subspecialization increase. Patients can easily be lost across multiple transitions involved in care. Preparing learners to engage in safe and responsible patient care requires that we be clear about the parameters of patient ownership. This scoping review (1) explores and synthesizes definitions of patient ownership and (2) describes the factors that influence patient ownership.

Method

Searching PubMed, Embase, and PsycINFO, we sought out publications of any format (i.e., original research papers, review articles, commentaries, editorials, and author discussions) that (a) addressed patient ownership directly or a closely related concept that explicitly impacted patient ownership, (b) included medical care providers (attending/faculty physicians, medical residents, and/or medical students), and (c) were published in English. Authors analyzed findings to construct common themes and categorize findings.

Results

Out of 411 papers screened, 82 met our inclusion criteria. Twenty-three papers defined patient ownership in highly variable ways. Common themes across definitions included: responsibility for patient care; personally carrying out patient care tasks; knowledge of patients' medical information; independent decision-making; and putting patients' needs above one's own. Factors influencing patient ownership were: (1) logistical concerns, (2) personal attributes, and (3) socially- or organizationally-constructed expectations.

Conclusions

We propose a new definition of patient ownership that encompasses findings from the review, while also respecting the shift from individual to a team-based patient care and without removing the centrality of an individual provider's commitment to patients.

“*Whose patient is this?*”: this straightforward question is becoming ever more difficult to answer as interdisciplinary care delivery and degrees of subspecialization increase.¹ The scope and limitations of an individual physician’s responsibility toward his/her patients are complicated to delimit. Who is responsible for a patient’s care once the primary care physician refers the patient to a subspecialist? Who is responsible for the patient after handoff to a cross-covering night team? Should responsibility for the patient be assigned to a single provider, or should the responsibility be shared across the care team? How should residents and other medical trainees be appropriately entrusted with patient ownership? Without answers to these questions, patients can easily be lost across the multiple transitions involved in care. If we are to prepare learners to successfully engage in safe and responsible patient care, we need to be clear about the parameters of patient ownership.

The term *patient ownership* often refers to a physician’s responsibility toward patients, but this term implies more than a simple responsibility. Patient ownership implies that the patient *belongs* or *is linked* to a particular physician. However, since physicians do not literally *own* their patients, what does it mean and what is implied when we discuss patient ownership? No single, agreed-upon definition of patient ownership exists in the literature. A few studies have sought to define patient ownership as their primary aim,²⁻⁴ and these serve as a preliminary foundation for what patient ownership means to some students, residents, and attendings. However these studies are limited in that they: (a) included participants from only one or two specialties,²⁻⁴ (b) collected data from participants via surveys with no ability to ask follow-up questions or clarifications,^{2,3} and/or (c) were only published as a research abstract.⁴ No literature reviews have been conducted to synthesize these and more recent explorations of patient ownership.

Defining patient ownership and exploring other concepts that are related to it have important implications for both patient care and medical training. No matter how complicated their medical concerns or how many physicians are involved in their care, patients deserve to know who is responsible for their care and what they can expect from their care team members. Additionally, residents and other medical trainees need to know what is expected of them when they are exhorted to exercise ownership over their patients. From the perspective of clinic, hospital, or residency program leadership, learning what factors influence learners’ acceptance of patient ownership could allow leaders to modify the context to promote ownership among residents and attending physicians alike. Given these considerations, we performed a scoping literature review to (1) explore and synthesize definitions of patient ownership and (2) describe what factors influence patient ownership, either as facilitators or barriers.

Method

In conducting this scoping review, we followed Arksey and O’Malley’s five-step framework for performing scoping reviews. In accordance with this framework, our goals in performing this scoping review were “to examine the extent, range, and nature of research” and “to summarize and disseminate research findings” relating to patient ownership.⁵

Following the first step of this framework, we (i.e., MK, HM, and LV) began by collaboratively defining our research questions:

- 1) How is patient ownership defined and described in the medical literature?
- 2) What other relevant concepts are related to patient ownership in the literature?
- 3) What individual, systematic, or other contextual factors have been shown to influence attitudes or behaviors tied to patient ownership?

We identified relevant studies—step 2 of the framework— by conducting a literature search using PubMed, Embase, and PsycINFO databases. Our research questions and study purpose guided our search strategy and our selection of manuscripts to be included in the study (i.e., step 3). We iteratively refined this strategy based on initial results with the assistance of a medical librarian to comprehensively cover the topic across the peer-reviewed literature. Hand searches of reference lists of captured papers also identified additional articles for review. In these ways, we recursively repeated steps 2 and 3 until we had captured the breadth of relevant manuscripts (i.e., we were unable to locate additional relevant papers) and had constructed appropriate inclusion criteria. To meet criteria for inclusion, papers had to: (a) address patient ownership directly or address a closely related concept that explicitly impacted patient ownership, (b) include medical care providers (attending/faculty physicians, medical residents, and/or medical students), and (c) be published in English. Papers from pharmacy, nursing, or dental literature were excluded since expectations and actions related to patient ownership are not necessarily those embraced by physicians. In order to fully evaluate patient ownership as a concept, all types of peer-reviewed manuscripts were included (i.e., original research papers, review articles, commentaries, editorials, and author discussions). One reviewer screened all titles and abstracts to eliminate papers that were unequivocally irrelevant to the study questions. Two reviewers independently read the full text of each article that passed the first round of screening and applied inclusion criteria to determine eligibility for inclusion. A third author acted as arbiter for resolving disagreements.

Following step 4 of the framework, the research team collaboratively engaged in developing the tool for extracting data from the included manuscripts. The research team pilot tested and iteratively revised the data extraction tool until we were confident that all relevant information was captured. We collated the data from included papers into a shared Excel database (i.e., step 5). Data summarized therein included information on: study demographics, study design, primary results, findings specifically related to patient ownership, definitions of patient ownership (if applicable), closely related concepts to patient ownership, and specific factors described to facilitate or inhibit patient ownership. The data extraction tool is available in Appendix A. Finally, the research team compared and contrasted (a) the definitions and related concepts and (b) the factors influencing an individual's sense of patient ownership. We constructed common themes to categorize findings for reporting purposes.

Results

Our search strategy identified 411 papers, with an additional 18 papers identified through hand searches (Figure 1). After eliminating duplicate records, 345 records were screened by title and abstract, and 224 of these were excluded because they did not: (a) address patient ownership or a closely related topic, (b) explicitly link the concept addressed in the manuscript to patient ownership, or (c) come from the medical literature. Full-text review of the remaining 121 papers led to exclusion of an additional 39 papers that did not explicitly address or link to patient ownership and one that was not medical, leaving 82 for inclusion in our review. See Appendix B for a full list of included studies.

Patient ownership definitions

While twenty-three manuscripts included a definition of patient ownership, there was significant heterogeneity across these definitions. Eleven papers explicitly defined patient ownership (Table 1),^{4,6-15} and 18 indirectly defined the concept via descriptors of what patient ownership includes and/or entails (Table 2).^{2-4,9-12,15-25} Across all these definitions, patient ownership was classified as an attitude or posture (e.g., “a sense of ‘total dedication’”⁴), a set of specific behaviors (e.g., “completing tasks such as responding to patient e-mails”¹⁷), or a combination thereof. Additionally, while several manuscripts forwarded their own definition of patient ownership^{4,6,8,10,14,15,17-19,23-25} and two papers^{13,21} quoted or paraphrased Van Eaton’s definition (i.e., “the philosophy that one knows everything about one’s patient and does everything for them”¹⁴), nine also formulated definitions based on data collected from research participants via interviews or surveys.^{2-4,9,11-13,20,22} Notably, those papers that based their definitions on participant responses, as opposed to solely author-generated definitions, included more detailed, complex descriptors of patient ownership.

Despite this diversity, we identified several commonalities across the definitions. Patient ownership definitions commonly referenced: a responsibility or duty towards patient care (n=19)^{2-4,6-13,15,16,18,19,21,22,24,25}; personally carrying out patient care tasks (n=13)^{2-4,9,11,13-15,17,21,22,24,25}; knowledge of patients’ medical information (n=8)^{2-4,9,13,14,21,24}; putting patients’ needs above one’s own, including working long hours (n=6)^{2,6,12,15,20,23}; and independent decision-making (n=5).^{2,3,8,9,20} Less common elements in these definitions included teamwork or care coordination (n=4)^{2,3,10,24} and patient advocacy (n=3).^{2,3,24}

Among the nine papers that constructed definitions of patient ownership by collecting insights from research participants,^{2-4,9,11-13,20,22} three manuscripts reported differences among faculty, resident, and/or student definitions.²⁻⁴ Faculty tended to emphasize elements of responsibility, continuity of care, and time commitment (“faculty tended to define ownership as having full-time responsibility for one’s patients”³), whereas decision-making and leading were more important to residents (“residents placed greater emphasis on being the decider and leading the clinical decision-making process”³). Residents also saw ownership as more compatible with team-based care models (“residents felt more comfortable sharing patient responsibilities”³). The two papers that defined ownership from a student perspective noted that, for students, “ownership meant ‘knowing everything there is to know about the patient’ and ‘working hard’”⁴ as well as being an active participant during the patient encounter and during follow-up.^{4,11}

Beyond these denotative definitions, descriptions of patient ownership also carried a range of connotations. While most definitions appeared to contain an implicit assumption that patient ownership and the attitudes or behaviors it entails are inherently good, some explicitly attached a negative value judgment to the concept. For instance, Wyatt et al⁴ caution that the word *ownership* implies a hegemonic power differential that disempowers patients and undermines shared decision-making:

Constructing patients as ‘property,’ owned by a physician who alone is capable of and responsible for providing total care, creates a particular discourse around healthcare practice. The language of ownership reflects the legal and administrative accountability to which physicians, as leaders of care, are held. It falls short, however, of characterizing the shared decision making and leadership that must exist among interprofessional team members, patients, and community social networks to provide total care. The word ‘ownership’ also invokes notions of power and hierarchy in ways that potentially undermine the notion of patient empowerment and partnership in a therapeutic alliance. It implies a sense of authority that is embedded in the sociopolitical aspects of physician identity.⁴

These authors question whether students could reasonably be expected to assume ownership for patient care: “‘taking ownership’ and asserting authority for patients could put students at odds with expectations for the professional behavior of someone in the early stages of training. In this light, we might ask whether students can and should take ownership.”⁴ Dubov et al⁸ also acknowledge the implicit power differential, albeit in less negative terms, noting, “the possessive nature of medical decision ownership differentiates it from other similar attitudes such as responsibility or commitment.”⁸

In contrast, Greenzang et al²¹ defend the term *ownership* despite its potential shortcomings:

Though the term ownership may seem paternalistic, many of the values that it represents -- commitment, responsibility, accountability, advocacy, and continuity -- remain central to the mission of medical education and to excellence in patient care.[...]We can also reclaim and re-emphasize the term ownership, not with regard to the paternalistic notion of “owning a patient,” but rather owning the responsibility that comes with being someone’s physician.”²¹

Similarly, Conti offers strong support for the term *ownership*, explaining, “it relates to what I consider the appropriate strategy for teaching and for the management of hospitalized patients with any illness.”⁷

Patient ownership influencers

Seventy-seven manuscripts described factors that influence an individual’s conception and/or experience of patient ownership. We organized these factors into three categories: (i) logistical concerns; (ii) the physician’s personal attributes or attitudes; and (iii) socially- or organizationally-constructed expectations placed on physicians. Depending on how these factors were impacting specific situations, each could be considered as facilitating or obstructing patient ownership.

Logistical Concerns

In both inpatient and outpatient settings, scheduling concerns and other logistical constraints were described as important influencers of patient ownership. These logistical concerns fell into three broad categories: duty-hour restrictions (DHRs), outpatient clinic scheduling (including both continuity clinic scheduling and the balance of inpatient versus outpatient rotations), and the structure of patient handoffs.

Duty Hour Restrictions

The most common scheduling factor discussed in relation to patient ownership was resident DHRs. Nineteen manuscripts^{6-8,13,21,23,26-38} described DHRs as barriers to patient ownership because DHRs: promoted a “shift-worker mentality” in which residents prioritized adhering to shift boundaries over their duty to patients^{6-8,13,23,29,33,37,38}; minimized accountability for decision making because more people became involved in each patient’s care^{8,26-28,34}; and/or decreased continuity of care due to frequent patient handoffs and transfers of responsibility.^{21,30-32,35,36} In contrast, five studies reported that DHRs had no impact on patient ownership,³⁹ were compatible with patient ownership,⁴⁰ or had positive effects.^{13,32,36} Specifically, Park noted that trainees under DHRs felt a strong responsibility toward patients and considered continuity of care as a key element of this responsibility.⁴⁰ Sun, Matthew and Stroud found that a night float system increased residents’ sense of patient ownership by improving the stability of team structures within shifts, eliminating post-call days, and improving interprofessional teamwork.^{13,32,36}

Several commentaries highlighted the moral dilemma that residents face because of the tension between DHR compliance and responsibility to patient care.^{6,14,41} While Antiel suggested that residents should eschew DHR compliance in favor of staying late to care for patients,⁶ others argued that this tension is best resolved by adopting a team-based ownership model in which responsibilities for patient care are shared amongst a several providers.^{14,41} From this perspective, DHRs do not negatively impact patient ownership; rather, DHRs require the medical community to re-conceptualize the definition and expectations of patient ownership.

Outpatient Clinic Scheduling

Time is another significant factor influencing conceptions of patient ownership. Residents’ time is often fragmented, split between inpatient and outpatient rotations and obligations. This fragmentation was seen as a significant barrier to patient ownership.^{17,24,42-45} Block scheduling models that separated inpatient and outpatient responsibilities improved residents’ sense of patient ownership and/or continuity relationships with their patients,^{18,42,46} as well as the rates of residents personally following up on their patients’ laboratory results.⁴⁷ Alternatively, participation in longitudinal integrated clerkships, which embed continuity experiences with consistent preceptors across long periods of time, or similar interventions aimed at improving longitudinal continuity, fostered a greater sense of ownership and responsibility toward patients among medical students.⁴⁸⁻⁵⁰

Within continuity clinics, having low degrees of continuity of care between residents and their patients was cited as a barrier impeding patient ownership.^{51,52} In many systems,

even measuring continuity was a logistical challenge.⁵³ In relation to continuity clinics, resident perceptions of patient ownership were enhanced by: combination scheduling models for continuity clinics,⁵⁴ adding a field in the electronic medical record to list a resident as the “primary resident” for patients,⁵⁵ a curriculum encouraging residents to call patients after continuity clinic visits for follow-up,⁵⁶ and transferring patients into one’s practice after residency.⁵⁷

Patient Handoffs

For both inpatient and outpatient care, having structured handoffs was noted for improving physicians’ patient ownership attitudes and behaviors. Providing structured, detailed, and relevant sign-outs between inpatient teams improved the transfer of personal responsibility and accountability for patient care.^{8,58,59} Similarly, using standardized handoffs to transfer continuity clinic patients from graduating to incoming residents, along with initial telephone visits for high-risk patients around the time of transfer, also increased residents’ feelings of patient ownership and their rates of completing clinical care tasks for their patients within the first three months of the transfer of care.^{43,51,60,61} Without such a structure in place, many residents assumed such care transfers would happen but were unaware of systems to facilitate them or the potential problems inherent in such transfers.⁶²

Personal Attributes or Attitudes

Two key intrinsic personal factors that influenced physicians’ ownership attitudes and behaviors were the personal sense of responsibility toward their patients, and the perceived degree of efficacy in caring for the patients.

Sense of Responsibility

In response to DHRs over the past two decades, several commentaries forwarded concepts of a “nostalgic professionalism” or an “older professional virtue,” in which patient ownership stems from a physician’s personal sense of responsibility toward his/her patients.^{6-8,14,41} From this perspective, patient ownership manifests itself as a dedication to “know everything” about and “do everything” for one’s patients.^{6-8,14,41} Even among those who forwarded a “team-based ownership” model in response to DHRs, a sense of shared responsibility amongst team members was seen as protective against a “not my patient” mentality.⁴¹ The importance of such personal responsibility in fostering ownership was also reflected in several interview- and survey-based studies. In these manuscripts, residents associated patient care responsibilities with their sense of personal commitment to patients,⁴⁰ felt ultimately responsible for patient outcomes even when working in teams,⁶³ noted anxiety about handing off work to colleagues,¹⁵ felt responsibility for what happened to their patients after sign-out,³⁸ and wanted to know what happened to their patients after sign-out.⁶⁴ A personal sense of responsibility also led some physicians to adopt a wider concept of their professional role boundaries,⁶⁵ call clinic patients to follow up more frequently,⁵⁶ and craft more detailed and complete handoffs.⁵⁹

Other personal attributes were described as prerequisites to developing this sense of responsibility and patient ownership, including: empathy,^{16,24} commitment,⁸ and “teachable attitudes of collaboration” between care providers.⁶⁶ Faculty role modeling of

language that conveys a sense of responsibility toward patients (e.g., not saying, “This is not my patient”⁶⁷) was also seen as facilitating patient ownership.⁶⁷ Conversely, burnout among residents,^{24,68} and generational differences—attributed to “millennial” trainees who have “learned inattentiveness” and “reduced persistence”¹⁶—were listed as factors that reduced feelings of responsibility and patient ownership.

Sense of Efficacy

A physician’s sense of efficacy and competence also manifested as a factor influencing patient ownership. “Confidence in knowledge” and having “skills and competence” were listed as key contributors in a survey-based project asking resident and attendings about facilitators of patient ownership.²⁴ Congruent with this premise, graduated pediatric residents were more likely to feel responsible for treating common mental health issues if they rated themselves more competent in diagnosing and treating such disorders.⁶⁹ Furthermore, residents’ feeling of self-efficacy in preventing hospital readmissions and the perceived importance of readmissions were correlated with a longer duration of feeling responsibility for patients after hospital discharge.⁶⁸

Socially- and Organizationally-Constructed Expectations

Expectations placed on residents, stemming from programmatic, faculty, or other systemic influences, were also described as playing a large role in the development of residents’ patient ownership. This factor can be categorized into three domains: autonomy; faculty expectations and role modeling; and team-based care.

Autonomy

Educational and program structures that give trainees graduated patient engagement and responsibility were seen as strong promoters of patient ownership.^{21,70} Interviews and surveys with faculty, residents, and students suggested that such graded autonomy (particularly the ability to have decision-making authority) was motivating and instrumental to learners’ development of responsibility and competence, leading to patient ownership.^{3,9,11,24,37,71-73} Conversely, a lack of autonomy and decision-making authority (whether due to external rules and regulations or concerns over quality improvement and patient safety) was described as a barrier to developing a sense of ownership among residents and medical students.^{21,24,70,72,74,75} Beyond direct patient care, providing residents with more responsibility for clinic functions and quality improvement efforts also promoted a higher degree of patient ownership.⁷⁶ As summarized by Dubov et al, “graded increases in responsibility leads to ownership of patient assessment, clinical judgment, resulting care, and patient outcomes.”⁸

Faculty Expectations and Role Modeling

Other important factors contributing to patient ownership involved faculty conveying to residents clear expectations and role modeling meeting those expectations. Whether the expectations tied to patient ownership were reflective of “nostalgic professionalism” (e.g., “we had primary responsibility for the patients admitted to our ward service. This came from the top (ie, chair of medicine)...”⁷) or of role definitions within a more team-based care model (e.g., “Clear definitions of each team-member’s role may facilitate optimally shared responsibility for patient care within primary care teams”⁷⁷), the importance of making such expectations explicit was emphasized in several manuscripts.^{7,21,24,67,75,77,78} McLaren, et al, offer a framework whereby faculty can hold

residents to these expectations by diagnosing problematic behaviors related to patient ownership and identifying specific targets for improvement.²

Other manuscripts also described how, when inverted, these same considerations inhibited patient ownership among residents. In other words, patient ownership among residents was diminished when: faculty were reluctant to relinquish ownership of their patients to residents,⁵² attendings and senior residents were poor role models of patient ownership attitudes and behaviors,^{24,68} hierarchical tensions existed between trainees and attendings,² and faculty were unwilling to work with and/or give feedback to underperforming trainees.²

Team-Based Care

Several commentaries noted a tension between residents' desires and/or faculty's expectations of residents to appropriately adopt patient ownership in the era of DHRs and higher degrees of interprofessional collaboration.^{14,15,40,41,78} In response, authors suggest the adoption of a new professionalism that views patient ownership as a more collective, team-based responsibility.^{14,15,40,41,78} Expectations related to this new model of professionalism that are suggested to foster patient ownership include: teamwork⁴⁰; harnessing the potential of the primary care medical home⁵²; breaking down territorial barriers between and recognizing the unique contributions of different professional team members^{20,79}; and role clarity.^{10,77,80} Some argue that this shift is necessary to be fair to residents:

“we must educate our faculty, as well as our residents, about the concept of team ownership [...] We have a responsibility to appreciate this new training model and to not criticize resident's work patterns as unprofessional when duty hour restrictions impede individual continuity of care.”⁷⁸

Van Eaton contends that accepting team-based care as consistent with professional responsibility is an expectation that programs must set for faculty as well as for trainees.¹⁴ More optimistically, others suggest that a “team-based shared ownership model is better for achieving patient ownership than the single-physician-24/7 model”¹³ and is, therefore, a shift in expectations to be welcomed.

Several factors were identified that could inhibit the effective adoption of this team-based patient ownership. Specific residency program structures were identified as obstructing team-based patient ownership, including: daytime residents not wanting to be seen as dumping work onto the night team; daytime residents' concerns that items may fall through the cracks due to night coverage being more sparse; and night teams being overburdened.¹⁵ More broadly, poorly established role definitions,⁵⁹ not wanting to offend colleagues by providing additional input following care handoffs,⁵⁷ and poor communication and/or territorial disagreements within interprofessional teams^{20,79,81} or between different physicians caring for the same patient^{66,80,82-84} were described as barriers to effective team-based ownership.

Discussion

Our scoping review highlights that patient ownership is a multifaceted concept that is influenced by a diverse range of factors, including personal ethos, logistical concerns,

and expectations stemming from other people and organizations. An important finding from this synthesis work is that indirect definitions of what patient ownership *entails* far outnumbered direct definitions of what patient ownership *is*. Clearly, patient ownership defies simple, concise definition. And, despite numerous manuscripts arguing for a shift toward a more team-based concept of patient ownership, none of the definitions we discovered robustly reflected this shift. It is important for a definition of ownership to acknowledge that physicians might not be able to personally provide all of the care that a patient requires, but that they still have responsibility to ensure that care is properly coordinated in these circumstances.

Synthesizing the varied descriptions and definitions of patient ownership discovered in this literature review, and acknowledging these shifts in the current medical training and practice environment, we propose the following definition of patient ownership:

Patient ownership is the commitment that a medical provider—both individually and as part of a team of healthcare professionals—feels and displays in relation to the provision and coordination of care for his or her patients.

Each element of this definition incorporates specific goals and/or principles. First, this definition describes patient ownership as a *commitment*, which is an attitude or posture as opposed to a specific behavior. This is exhibited in two ways—as emotions and actions. We use the word *feels* because, even though this commitment can be influenced by other people or external factors, the motivation to care for patients in this way is something intrinsic, deep within a provider’s sense of what is right. This commitment will be evident to others because a medical provider will *display* patient ownership in their patient care activities. Exactly how those feelings and actions will manifest is dependent on the individual physician and on the specific practice context. As such, studies seeking to provide more detailed emotional and behavioral descriptions of ownership, such as those by McLaren et al² and Cowley et al,³ are valuable. Core themes of patient ownership identified in those studies mesh well with our definition:

advocacy for patients, communication and care coordination, decision-making, follow through, knowledge about the patient, leadership, going ‘above and beyond’, an attitude of ‘the buck stops here’, feeling responsible for patient care and outcomes, identifying as the patient’s primary provider, taking initiative, ensuring the best care, and providing comprehensive, longitudinal, and patient-centered care³

This definition also highlights that patient ownership is part of a physician’s mandate regardless of he/she is working independently or as part of a healthcare team. We anticipate that this aspect of our definition might be contentious. It could reasonably be argued that our definition dilutes an individual physician’s responsibility toward his or her patients by suggesting that ownership is shared amongst team members. Dubov et al specifically warn against a “diffusion of responsibility”⁸ when multiple people are involved in the care of a patient, leading each member of a care team to feel less personally responsible for decisions and outcomes.⁸ However, team-based patient care has become a core element of modern healthcare systems. Therefore, finding ways to reconcile the challenges teamwork brings to the concept of patient ownership is not

options, but is instead necessary. The definition we offer emphasizes that the same patient ownership responsibility lies with the medical provider whether he/she is working independently or within a team. We do acknowledge, however, that team-based care can pose a challenge to this concept in practice. But determining *how* to negotiate between individual- and team-level patient ownership responsibilities is a second order problem. First, we need to decide *if* patient ownership should be expected of individual care providers *and* of the care teams to which they belong. As our definition reflects, we contend that patient ownership is a commitment that should be shared by both the individual and the team. Resolving how to achieve that sharing is for future research to address.

Finally, we decided to retain the word *ownership*. We acknowledge the reasonable concerns raised by Wyatt et al⁴ when they object to the term patient ownership. Our definition unambiguously states that what is owned is not the patient him or herself, but rather the commitment to that patient's care. For those who still object, perhaps *patient care ownership* or the term "decision ownership" as forwarded by Dubov et al,⁸ would be less contentious variations of this term. However, both those terms are also problematic. To limit patient ownership to care or decisions could be seen as limiting physicians' commitments to patients to strictly clinical interactions. For instance, would advocating for a disadvantaged patient be excluded from this commitment? Given that every re-naming has its own advantages and limitations, we contend the term patient ownership is acceptable *as long as* the principles it embodies are clearly understood to not usurp patient autonomy and respect.

A key limitation this study is that we only reported what has been published regarding factors that influence patient ownership. We did not analyze the strength of these reported associations or the level of evidence provided to support them. Specifically, 22 papers included in the review that discussed influencing factors were commentaries,^{6-8,10,14,16,21,23,26,33,41,42,44,48,58,66,67,70,77,80,81,84} so several factors were included, at least in part, on the basis of opinion. Since evaluating the evidence offered to support these factors was beyond the scope of this paper, we made no conclusions as to which factors are most influential or most important to target for change.

Nevertheless, factors we identified as influencing patient ownership can provide a framework by which future studies can examine how to optimize patient ownership in specific contexts. Expanding upon the work by Soeprono et al,²⁴ who examined which factors facilitate patient ownership in psychiatry and internal medicine programs, future studies could examine such questions in different specialty contexts. Future investigations could also test interventions at the personal, programmatic, or larger institutional levels to determine their impact on attitudes and behaviors related to patient ownership. Starting with a clear definition of patient ownership, future studies can build more easily upon the findings of others. This promises to help advance our community's discussion of patient ownership from the theoretical to the practical, which holds promise for improving medical education, physician satisfaction, and patient care.

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Figure 1: Search Strategy and Manuscript Review Flow Diagram

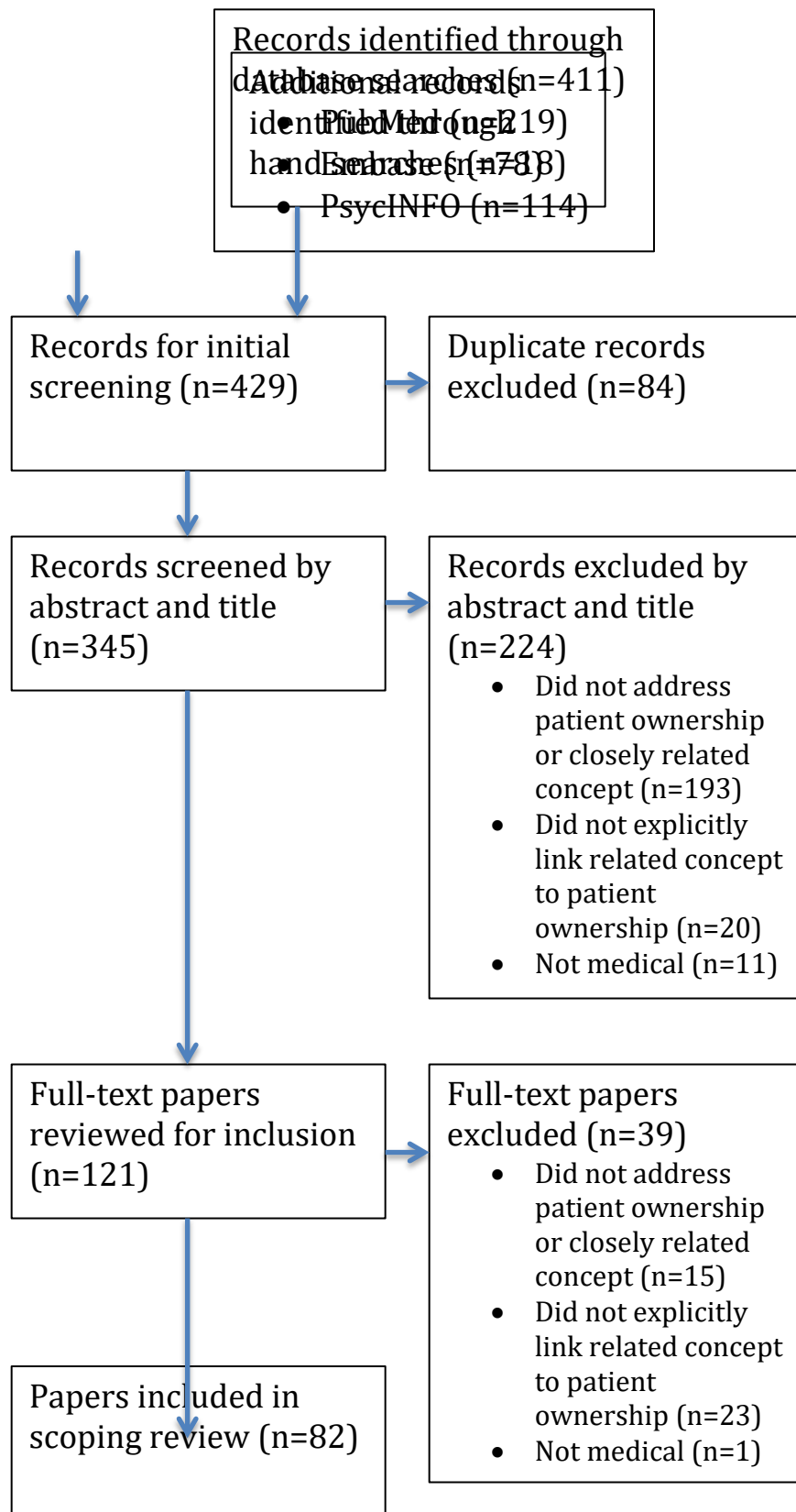


Table 1: Direct Definitions of Patient Ownership (Emphasis Added)

Attitudes	“The authors [referencing Dubov et al, 2016] introduce the mental concept of "ownership," essentially a <i>form of moral praxis</i> in which the individual practitioner (or trainee) has aligned the interests of the patient with his own.” (Antiel)
	“According to Oxford Dictionaries Online, the definition of ownership is ‘ <i>the act, state, or right of possessing something.</i> ’” (Conti)
	“Decision ownership is <i>the cognitive- affective phenomenon in which a medical practitioner develops a sense of responsibility over decisions about care</i> for a particular patient <i>and personal investment</i> in this decision-making process.” (Dubov)
	“ <i>Primary responsibility</i> for management of hospitalized patients” (Hinchey)
	“We define ownership as <i>the overall duty of a physician to help his or her patient</i> achieve, approximate or preserve as illness free a state as possible.” (Kontos)
	“A sense of patient ownership, <i>viewing the patients as theirs</i> , stood out as a frequently mentioned theme.” (Latessa)
	Illustrative quote from responses under the theme “Lack of ownership”: “ . . . <i>attitude that patients belong to a service</i> ” (Mattar)
	“The concept of patient ownership had several meanings for our participants and mapped to two professional attributes: <i>commitment</i> (‘ <i>being obligated or emotionally impelled to act in the best interest of the patient</i> ’)...” (Sun)
	"Patient ownership is <i>the philosophy that one knows everything about one's patients and does everything for them</i> " (Van Eaton)
Behaviors	“‘Ownership’ is <i>what makes a resident try harder, work longer, come up with more creative solutions, and generally exert whatever influence</i> is available in the service of this patient” (Antiel)
	“Patient ownership means that an individual resident <i>assumes primary responsibility</i> for a patient's care” (Coverdill)
	“The concept of patient ownership had several meanings for our participants and mapped to two professional attributes: [...] <i>presence</i> (‘ <i>to be fully present for a patient without distraction and to fully support and accompany the patient throughout care</i> ’) (Sun)
	“For the Director, physicians, and residents, ownership meant <i>to take responsibility of patients</i> , which included an emotional component that developed with the other team members and with the patient [...] From the students’ perspective, ownership meant ‘ <i>knowing everything there is to know about the patient</i> ’ and ‘ <i>working hard</i> ’”(Wyatt)

Table 2: Indirect Definitions of Patient Ownership (Emphasis Added)

Attitudes	"They [referencing Dubov et al] also clearly define <i>responsibility, continuity, and commitment</i> as important components of ownership and values of the medical profession." (Clarke)
	"Residents embrace at least a semblance of patient ownership, especially as they gain experience. 'Especially when you get a little more senior and start to <i>feel real responsibility for patients</i> , you start to <i>see patients as your own</i> . [...] You <i>see those people as your patients and your responsibility</i> .' (ID#9:5) [...] A resident who enacts traditional patient ownership <i>assumes obligations that transcend the duration of a shift</i> ." (Coverdill)
	Authors describe "ownership themes in five core domains," two of which were: (1) Physician attitudes: " <i>valuing doing more than the minimum required (going 'above and beyond'), considering oneself to have the final or ultimate responsibility ('the buck stops here'), and feeling responsible both for patient care and for the patient's clinical outcome and wellbeing (patient outcome)</i> " (2) Physician identity: <i>being the "primary contact or 'go-to' person for questions regarding the patient and his or her care"</i> (Cowley)
	"For housestaff to fulfill AAIM's goal of providing "patient-centered longitudinal care", it is key for housestaff to have the opportunity to "take ownership" of their patients, <i>completing tasks such as responding to patient e-mails and updating patients on their labs and imaging</i> ." (Hom)
	Survey question to residents and faculty asks for degree of agreement with the statement, suggesting ownership and personal responsibility are synonymous: "I have ownership/ <i>personal responsibility</i> for my patients' care" (Jantea)
	Authors list 14 "behavioral descriptors" of patient ownership, once of which was a " <i>sense of vocation or calling</i> " (McLaren)
	Survey question to residents asks for degree of satisfaction with their degree of "ownership/ <i>personal responsibility</i> for patients' care" (Peccoraro)
	"I began to develop an appreciation for what my dad's primary care physician had done when he called to tell me the bad news, and that the care he gave my dad was founded on <i>his strong sense of ownership and responsibility for him as his patient</i> ." (Szuflita)
	"The concept of patient ownership has long been used as a mechanism for invoking a <i>sense of 'total dedication' to learning medicine and caring for patients</i> ." (Wyatt)
Behaviors	"Surgical and intensive care teams established a sense of patient ownership in different ways. Surgeons experienced ownership

	through <i>invested time in the operating room</i> as well as through <i>having a prior relationship</i> with their elective patients and families. For intensivists, patient ownership was acquired by virtue of <i>being on call in the ICU when the patient was admitted</i> . It was also established by <i>developing relationships with family members over time</i> for patients whose ICU stay was prolonged." (Conn)
	"Residents embrace at least a semblance of patient ownership, especially as they gain experience.[...] 'You want <i>to be there if something's going wrong</i> . You want <i>to be the person that's taking care of it</i> .' (ID#9:5) Junior residents also expressed ownership: 'And if you know something is going to happen or has to be done for one of your patients, it's your responsibility to your patient to take care of that' (ID#10:2)" (Coverdill)
	Authors describe "ownership themes in five core domains," three of which were: (1) Physician actions: " <i>advocacy</i> for the patient, <i>communication</i> and care coordination, <i>decision-making</i> regarding the treatment plan, <i>follow through</i> in completing patient care tasks, <i>acquiring knowledge</i> about the patient and his/her condition, and <i>leadership</i> of the patient's care or treatment team" (2) Physician qualities: " <i>taking initiative</i> " (3) Quality of patient care: " <i>providing the best care</i> for patients, and <i>providing comprehensive, longitudinal, and patient-centered care</i> " (Cowley)
	"Experienced clinicians know that <i>assuming responsibility</i> for a patient's care brings meaning to the work of medicine, is valued by patients, and is a critical component of physicians' professional identities. Some refer to this concept of responsibility as ownership, an antiquated term that harkens back to a different era of medicine in which residents truly resided in the hospital and ' <i>knew everything about their patients and did everything for their patients</i> .'" (Greenzang)
	"Primary responsibility for management of hospitalized patients; includes: <i>independent decision making</i> around assessment and plan, <i>responsibility from admission to discharge</i> and/or <i>coordination</i> of related nonmedical issues, <i>weekend cross coverage</i> of manager team patients, <i>self directed learning</i> around patient cases to increase knowledge and decision making" (Hinchey)
	"We propose continued use and study of this measure of <i>intervisit continuity</i> , with particular attention to how accurately it reflects patient 'ownership.'" (Jantea)
	"Ownership involves <i>direct assessment and treatment</i> , <i>attention to "psychosocial" factors</i> that impact the patient's health, and the <i>oversight and coordination</i> of indirectly provided care." (Kontos)

	"A sense of patient ownership, viewing the patient as theirs, stood out as a frequently mentioned theme (24 of 27). Examples included asking student to <i>check in with patients or discuss lab results, visits in hospital after admissions or for outside referrals.</i>" (Latessa)
	"Descriptions of Patient Ownership included investment in the care of the patient and commonsense concepts such as <i>examining patients before procedures</i> and <i>following up on patients postoperatively</i>. Descriptions also included <i>limiting the number of handoffs</i> to those absolutely necessary for the care of the patient." (Lockman)
	Illustrative quote from responses under the theme "Lack of ownership": "There has been a shift of attitude in terms of ownership of patients and <i>a willingness to come in after hours if not officially scheduled to be on call</i>" (Mattar)
	Authors list 14 "behavioral descriptors" of patient ownership, 13 of which were: "<i>advocacy, autonomy, commitment, communication, follow-through, knowledge, teamwork, continuity of care, excellence, extra time, initiative, hierarchical tension, leading</i>" (McLaren)
	"Herein lies perhaps the most troubling deficiency directly attributable to ACGME work-hour guidelines; today's graduating residents accept less ownership of the care of their patients and do so less willingly. This outcome remains a matter of speculation because no data are available to compare the <i>work hours of recent graduates while in practice</i> with their pregraduation work hours." (Pellegrini)
	"'[O]wnership' is a multifaceted concept, and included themes such as <i>advocacy, autonomy, commitment, communication, follow-through, knowledge about the patient, responsibility, and teamwork</i>" (Soeprono)
	"I began to develop an appreciation for what my dad's primary care physician had done when <i>he called to tell me the bad news, and that the care he gave my dad was founded on his strong sense of ownership and responsibility for him as his patient.</i>" (Szuflita)
	"For the Director, physicians, and residents, ownership [...] could be <i>demonstrated by anticipating others' needs, following through with orders, and filling in knowledge gaps</i>. From the students' perspective, ownership [...] was <i>demonstrated by having answers ready when asked specific questions, not looking at notes to report on patients, and collecting detailed social and medical history notes.</i>" (Wyatt)

Appendix A: Data Extraction Form Questions

Authors (List all in order of appearance: First, second, third author, etc.):

Title of article:

Year:

Manuscript type:

1. Please summarize the main purpose of the study or innovation (using your own words, or quoting from the article. If you are quoting, please use quotation marks and indicate the page you are quoting from).
2. Please briefly describe the design of the study or innovation (using your own words, or quoting from the article. If you are quoting, please use quotation marks and indicate the page you are quoting from).
3. The study conducted was (please choose all that apply): Exploratory, Descriptive, Observational, Experimental, Quasi-experimental
4. The approach to data collection was (please check all that apply): Qualitative, Quantitative, Mixed Methods
5. Please summarize what kind of data was collected (e.g., surveys, evaluations, interviews, etc.).
6. The setting of the study was (please check all that apply): Inpatient, Outpatient, Continuity Clinic, Longitudinal Integrated Clerkship
7. Please provide a brief description of the study setting above.
8. The population included in the study was (please check all that apply): Attending physicians, Resident/Trainee Physicians, Medical Students
9. Please provide a brief description of the study population.
10. Describe the approach to data analysis.
11. Were any theories applied to the data analysis? If so, which theories?
12. Please describe the primary findings or conclusions presented in the manuscript as they relate to patient ownership. Please summarize and/or copy & paste statements from the manuscript (use quotation marks and indicate page numbers for source quotes as appropriate).
13. Please describe any other main findings or conclusions of the manuscript. Please summarize and/or copy & paste statements from the manuscript (please use quotation marks and indicate page numbers for source quotes as appropriate).
14. Was patient ownership the primary focus of the article?
15. Did the manuscript define patient ownership? If so, summarize and/or copy & paste statements from the manuscript (please use quotation marks and indicate page numbers for source quotes as appropriate).
16. Did the manuscript discuss a concept/term closely related to patient ownership? If so, summarize and/or copy & paste statements from the manuscript (please use

- quotation marks, and indicate page numbers for source quotes as appropriate).
What was the term? How was it defined? How does it relate to patient ownership?
17. Did the manuscript discuss any facilitators (e.g., attitudes, behaviors, etc) related to patient ownership? If so, summarize and/or copy & paste statements from the manuscript (please use quotation marks and indicate page numbers for source quotes as appropriate).
 18. Did the manuscript discuss any barriers (e.g., attitudes, behaviors, etc) related to patient ownership? If so, summarize and/or copy & paste statements from the manuscript (please use quotation marks, and indicate page numbers for source quotes as appropriate).

Appendix B: Studies Included in Scoping Review

First Author	Main Topic	Study Type	Study Design	Population	Setting	Definition	Influencing Factors
Antiel (2016)	Describing how DHRs affect ownership and can create a moral dilemma for residents who feel drawn to stay longer to care for patients	Commentary	N/a	Resident physicians	Residency programs (in general)	Yes: direct	Yes: DHRs, sense of responsibility
Arora (2012)	Discussing the problems with holding onto older views of professionalism and need to adopt a new professionalism that recognizes resident limitations	Commentary	N/a	Resident physicians	Residency programs (in general)	No	Yes: DHRs, sense of responsibility, team-based care
Bates (2013)	Examining how longitudinal clerkship placements for medical students influence their perceptions of assessment and feedback	Original research paper	Qualitative; interviews	Medical students	Two Canadian medical schools	No	Yes: outpatient clinic scheduling
Bates (2016)	Exploring a scheduling model that separates inpatient and outpatient responsibilities	Educational innovation report	Quantitative; Surveys	Resident physicians	IM residency program	No	Yes: outpatient clinic scheduling
Bernabeo (2011)	Examining the effects of frequent rotation changes (every 2-4 weeks) on residents	Original research paper	Qualitative; focus groups	Attending and resident physicians	Three IM residency programs	No	Yes: outpatient clinic scheduling

Biderman (1996)	Determining whether training and/or practice setting influence role boundaries of family physicians	Original research paper	Quantitative; surveys	Attending and resident physicians	Five Israeli FM departments	No	Yes: sense of responsibility
Bogetz (2014)	Identifying challenges and ways to improve training residents to care for children of medical complexity	Original research paper	Qualitative; surveys and focus groups	Attending and resident physicians	Pediatric Educational Excellence Across the Continuum conference attendees	No	Yes: autonomy, faculty expectations and role modeling
Bowen (2015)	Exploring the connection between continuity of care and education within the Primary Care Medical Home model	Commentary	Thematic literature review	Resident physicians	Residency continuity clinics (in general)	No	Yes: outpatient clinic scheduling
Bowen (2017)	Exploring physicians' motivations to follow up on patients after care transitions	Original research paper	Qualitative; interviews	Attending and resident physicians	IM residency program and affiliated hospital	No	Yes: sense of responsibility
Cantillon (2008)	Determining which factors in a general practice environment motivate effective learning for interns	Original research paper	Qualitative; interviews	Resident physicians	Inpatient surgery and outpatient general practice settings in Ireland	No	Yes: autonomy
Caplan (2008)	Commenting on the impact of DHRs on consultation psychiatry	Commentary	N/a	Resident and attending physicians	Academic hospitals (in general)	No	Yes: DHRs
Carney (2016)	Describing the importance of and challenges in measuring resident continuity of care	Original research paper	Qualitative; literature review, interviews, field notes	Resident and attending physicians	FM residency programs	No	Yes: outpatient clinic scheduling

Chaudhry (2015)	Determining the effects of adding a primary resident field into the electronic medical record in a continuity clinic	Original research paper	Mixed methods; surveys, chart review	Attending and resident physicians	Pediatric residency program	No	Yes: outpatient clinic scheduling
Clarke (2016)	Discussing the role of generational differences in shaping resident views of patient ownership	Commentary	N/a	Resident physicians	N/a	Yes: indirect	Yes: sense of responsibility
Colbert (2012)	Describing a resident-led Continuity Clinic Ownership in Resident Education that addressed clinic practice management and quality improvement	Educational innovation report	Qualitative; focus groups	Resident physicians	IM residency program	No	Yes: autonomy
Conn (2016)	Exploring communication and culture in surgical ICUs	Original research paper	Qualitative; ethnographic measures including observation, review of email and text messages, interviews	Attending and resident physicians	Seven ICUs within a large academic medical center	Yes: indirect	Yes: team-based care
Conti (2015)	Discussing how changes in the work and training environment have impacted patient ownership and patient care	Commentary	N/a	Resident and fellow physicians	N/a	Yes: direct	Yes: DHRs, sense of responsibility, faculty expectations and role modeling
Coverdill (2016)	Examining how often and why surgery residents break DHRs, as well as how they manage care transitions	Original research paper	Mixed methods; surveys, follow-up interviews	Resident physicians	13 surgical residency programs	Yes: direct and indirect	Yes: sense of responsibility, team-based care
Cowley (2017)	Defining patient ownership, identifying behaviors that exemplify	Original research paper	Qualitative; survey	Attending and resident physicians	Two psychiatry and one IM residency program	Yes: indirect	Yes: autonomy

	ownership, and determining whether these differ between residents and faculty and between IM and psychiatry						
Desai (2013)	Examining the effects of 2011 ACGME DHRs on resident sleep, education, continuity, and quality of care delivery	Original research paper	Quantitative; sleep duration, patient outcome measures, continuity of care measures, resident satisfaction surveys	Resident physicians	IM residency program	No	Yes: DHRs
Drolet (2013)	Determining pediatric program director perceptions of 2011 ACGME DHRs	Original research paper	Quantitative; surveys	Attending physicians (residency program directors)	Pediatric residency programs	No	Yes: DHRs
Dubov (2016)	Discussing the impact of DHRs on decision ownership among residents	Commentary	N/a	Resident physicians	N/a	Yes: direct	Yes: DHRs, sense of responsibility, autonomy
Francis (2014)	Assessing resident satisfaction with different continuity clinic models	Original research paper	Quantitative; surveys	Resident physicians	IM residents from 12 programs	No	Yes: outpatient clinic scheduling
Freund (2015)	Describing skills, education, and roles of health professionals in primary care teams	Commentary	N/a	N/a	Primary care teams (in general)	No	Yes: faculty expectations and role modeling and team-based care
Galandiuk (2013)	Commenting on conflict between surgeons and intensivists over care decisions, particularly after bad surgical outcomes	Commentary	N/a	Attending physicians	ICUs (in general)	No	Yes: team-based care
Garment (2013)	Describing and evaluating the effects of a structured clinic transfer of care	Original research paper	Mixed methods; survey and chart review	Resident physicians	Three IM ambulatory clinics	No	Yes: outpatient clinic scheduling, patient handoffs

Greenzang (2015)	Sharing recommendations to foster accountability and responsibility among residents	Commentary	N/a	Resident physicians	N/a	Yes: indirect	Yes: DHRs, autonomy, faculty expectations and role modeling
Griner (2010)	Determining attending surgeon perceptions of resident attitudes and perceptions before and after 80 hour/week DHRs	Original research paper	Quantitative; surveys	Attending physicians	Surgery departments at six academic medical centers	No	Yes: DHRs
Haas (2015)	Describing communication between intensivists and surgeons, including enablers and barriers to communication	Original research paper	Qualitative; interviews	Attending and resident physicians	Four academic hospitals	No	Yes: team-based care
Heist (2014)	Determining the impact of two ambulatory clinic scheduling models (traditional vs a 4+1 week block) on continuity of care	Original research paper	Quantitative; health records review	Resident physicians	IM residency program	No	Yes: outpatient clinic scheduling
Hinchey (2009)	Examining perceptions of a redesign of the 2 nd -year of residency in an IM program	Original research paper	Qualitative; interviews	Resident physicians	IM residency program	Yes: direct and indirect	Yes: autonomy
Hom (2016)	Assessing resident compliance with outpatient clinic follow-up tasks during different rotations	Original research paper	Quantitative; Measuring electronic health record log-ins	Resident physicians	IM residency program	Yes: indirect	Yes: outpatient clinic scheduling
Horwitz (2010)	Investigating training and competence of residents in developmental and behavioral pediatrics, and whether these factors are associated with perceived responsibility for	Original research paper	Quantitative; survey	Resident physicians	All residents completing the American Academy of Pediatrics 2007 Graduating Residents Survey	No	Yes: sense of efficacy

	treating mental health problems						
Hoskote (2014)	Assessing resident perceptions of 2011 ACGME DHRs on patient care	Original research paper	Quantitative; surveys	Resident physicians	IM residency program	No	Yes: DHRs
Jain (2007)	Commenting on the how resident training shapes patient ownership attitudes, particularly for patients followed by a different primary care provider and patients not fluent in English	Commentary	N/a	Attending and resident physicians	N/a	No	Yes: sense of responsibility, faculty expectations and role modeling
Jantea (2017)	Assessing perceptions and outcomes of a 50/50 block schedule that separated inpatient and outpatient responsibilities	Original research paper	Quantitative; surveys, measures of continuity of care and intervisit task completion, log-ins to EMR, and patient clinical outcomes	Resident and attending physicians	IM residency program continuity clinics	Yes: indirect	Yes: outpatient clinic scheduling
Kempenich (2015)	Identifying barriers to resident autonomy as viewed by residents, attendings, hospital administration and the general public	Original research paper	Quantitative; surveys	Attending and resident physicians	Three surgical residency programs	No	Yes: autonomy
Kernan (1997)	Identifying site accommodations and preceptor behaviors that promoted learning among medical students	Original research paper	Quantitative; surveys	Medical students	Outpatient internal medicine clinic within a 3 rd -year medical student clerkship	No	Yes: autonomy

Kolade (2014)	Assessing resident and faculty perceptions of continuity clinic patient handoffs	Original research paper	Quantitative; surveys	Attending and resident physicians	IM, FM, and pediatrics programs at single academic medical center	No	Yes: patient handoffs
Kontos (2008)	Identifying difficulties consultation psychiatrists face related to patient ownership	Commentary	N/a	Attending and resident physicians	N/a	Yes: direct and indirect	Yes: team-based care
Latessa (2016)	Identifying effective teaching practices within longitudinal integrated clerkships	Original research paper	Qualitative; interviews	Medical students	Medical school longitudinal integrated clerkship program	Yes: direct and indirect	Yes: autonomy
Lee (2012)	Assessing resident perceptions of 16-hour shift DHRs	Original research paper	Quantitative; surveys	Resident physicians	All U.S. surgical residency programs	No	Yes: DHRs
Lee A (2017)	Examining resident and preceptor perceptions and experiences of interpersonal continuity	Original research paper	Mixed methods; chart review, interviews	Resident and attending physicians	FM residency program	No	Yes: faculty expectations and role modeling, team-based care
Lee SH (2017)	Examining barriers and solutions for effective sign-out processes among residents	Original research paper	Qualitative; interviews, focus groups, observations	Resident physicians	IM department in Singapore	No	Yes: DHRs, sense of responsibility, patient handoffs
Lin (2006)	Exploring resident perceptions of impacts of DHRs on patient care, education, and job satisfaction	Original research paper	Qualitative; focus groups	Resident physicians	IM residency program	No	Yes: DHRs
Lockman (2017)	Defining professionalism within pediatric anesthesiology	Original research paper	Qualitative; focus groups	Attending physicians	Large academic medical center	Yes: indirect	No
Macauley (2012)	Discussing physician responsibilities surrounding patient handoffs	Commentary	N/a	Attending physicians	N/a	No	Yes: patient handoffs

Mattar (2013)	Querying surgical program directors about resident preparedness for entering fellowship	Original research paper	Mixed methods; qualitative and quantitative survey	Resident physicians	General surgery subspecialty fellowship programs (in general)	Yes: direct and indirect	No
Matthew (2016)	Assessing resident perceptions of a reduced duty hour schedule with night float system	Original research paper	Qualitative; focus groups	Resident physicians	IM residency program	No	Yes: DHRs
McLaren (2013)	Provide a behavioral definition of patient ownership	Original research paper	Qualitative; surveys	Attending and resident physicians	Psychiatry residency programs (in general)	Yes: indirect	Yes: faculty expectations and role modeling
Olive (1985)	Examining physician and nurse attitudes toward patient education	Original research paper	Quantitative; surveys	Attending physicians	Academic women's hospital	No	Yes: team-based care
Park (2007)	Exploring surgical resident and attending perceptions of responsibility	Original research paper	Qualitative; interviews	Attending and resident physicians	Surgery departments at two academic medical centers	No	Yes: DHRs, sense of responsibility, team-based care
Peccorale (2012)	Assessing resident's satisfaction with continuity clinic and its relation to career choice	Original research paper	Quantitative; surveys	Resident physicians	Three IM residency programs	Yes: indirect	No
Pellegrini (2017)	Discussing the impact of DHRs on orthopedic residency training	Commentary	N/a	Resident physicians	Orthopedic residency programs (in general)	Yes: indirect	Yes: DHRs
Phillips (2017)	Assessing end-of-year clinic handoffs in IM residency programs	Original research paper	Quantitative; surveys	Attending physicians	IM residency programs	No	Yes: patient handoffs
Pincavage (2012)	Assessing resident perspectives and patient outcomes after a year-end clinic handoff	Original research paper	Quantitative; surveys, chart reviews	Resident physicians	IM residency program	No	Yes: patient handoffs
Pincavage (2013)	Evaluating results of an enhanced clinic handoff of patient safety, continuity,	Original research paper	Quantitative; surveys, chart reviews	Resident physicians	IM residency program	No	Yes: outpatient clinic scheduling, patient handoffs

	education, and ownership						
Pinzur (2011)	Discussing implications of levels of attending supervision and graduated responsibility within residency training	Commentary	N/a	Attending and resident physicians	Orthopedic residency programs (in general)	No	Yes: autonomy
Politi (2011)	Discussing challenges to interprofessional decision support and possible solutions	Commentary	N/a	N/a	N/a	No	Yes: team-based care
Rabjohn (2008)	Commenting on the effects of DHRs on psychiatry training	Commentary	N/a	Resident physicians	Psychiatry residency programs (in general)	No	Yes: DHRs
Ratanawongsa (2006)	Exploring resident perspectives on professionalism, including the impact of DHRs	Original research paper	Mixed methods; qualitative and quantitative survey	Resident physicians	IM, neurology, and FM departments at three medical centers	No	Yes: DHRs
Rose (2011)	Discussing determinants of interprofessional collaboration in the ICU and interventions to promote teamwork	Commentary	N/a	N/a	Intensive care units (in general)	No	Yes: team-based care
Saba (2014)	Exploring perceptions and impact of a telephone follow-up curriculum for medical students	Original research paper	Mixed methods; surveys, focus groups, clinical performance examination	Medical students	Third-year medical students in longitudinal clerkships	No	Yes: outpatient clinic scheduling, sense of responsibility
Sanfey (2011)	Comparing surgical resident and program director perceptions on service and education in residency	Original research paper	Quantitative; surveys	Resident and attending physicians	All U.S. general surgery residency programs	No	Yes: faculty expectations and role modeling, team-based care

Schuh (2011)	Determining feasibility of 2008 IOM recommended DHRs	Original research paper	Quantitative; surveys, activity logs	Resident physicians	Three neurology residency programs	No	Yes: DHRs
Schulman (1989)	Exploring transfer of patient care at the end of psychiatry residency	Original research paper	Qualitative; surveys	Resident and attending physicians	Psychiatry residency program	No	Yes: outpatient clinic scheduling
Schumacher (2012)	Addressing the quality, in addition to the quantity, of duty hours in residency	Commentary	N/a	Resident physicians	Residency programs (in general)	No	Yes: outpatient clinic scheduling
Soeprono (2017)	Soliciting perspectives on practical methods to enhance patient ownership among residents	Original research paper	Qualitative; surveys	Attending and resident physicians	Psychiatry residency program	Yes: indirect	Yes: outpatient clinic scheduling, sense of responsibility, sense of efficacy, autonomy, faculty expectations and role modeling
Soones (2015)	Identifying factors impacting team-based care and the effect of care teams resident education	Original research paper	Qualitative; interviews, focus groups	Resident physicians	Three IM continuity clinics	No	Yes: sense of responsibility
Stack (2016)	Commenting on a paper examining resident perceptions of responsibility after patient discharge (Young 2016)	Commentary on original research paper	N/a	Resident physicians	IM residency program	No	Yes: sense of responsibility, team-based care
Stevens (2014)	Commenting on the effects of adding longitudinal continuity experiences in medical school	Commentary (in addition to describing their own outcomes in implementing a longitudinal continuity clerkship experience)	N/a for commentary; brief quantitative description of their students' exam scores and perceptions	Medical students	Longitudinal clerkship settings in medical school (in general)	No	Yes: outpatient clinic scheduling

Stroud (2012)	Determining attending, resident, and student perceptions of a new call structure	Original research paper	Qualitative; focus groups	Attending physicians, resident physicians, and medical students	Two IM residency programs	No	Yes: DHRs
Sun (2016)	Exploring perceptions of 16-hour shift DHRs with night float system	Original research paper	Qualitative; interviews	Attending and resident physicians	IM residency program	Yes: direct	Yes: DHRs
Szuflita (2015)	Personal reflection on patient ownership demonstrated by physicians caring for the author's father	Commentary	N/a	N/a	N/a	Yes: indirect	No
Teman (2014)	Determining factors that affect entrustment decisions and barriers to autonomy in surgical residency programs	Original research paper	Mixed methods: qualitative and quantitative survey questions	Attending physicians	Seven general surgical residency programs	No	Yes: DHRs, autonomy
Van Eaton (2005)	Discussing how to reconcile professionalism with DHRs	Commentary	N/a	Resident physicians	Residency programs (in general)	Yes: direct	Yes: DHRs, sense of responsibility, team-based care
Walters (2012)	Describing literature on outcomes for longitudinal integrated clerkships	Literature review	N/a	Medical students	Longitudinal integrated clerkships in medical school (in general)	No	Yes: outpatient continuity clinic scheduling
Wamsley (2009)	Describing longitudinal outpatient continuity for medical students and its effect on learning	Original research paper	Qualitative; surveys, interviews	Medical students	Medical school 3 rd -year clerkships	No	Yes: autonomy
Wieland (2013)	Describing resident perspectives on factors that affect continuity within continuity clinics	Original research paper	Qualitative; facilitative small group discussions	Resident physicians	IM residency program	No	Yes: team-based care

Wyatt (2016)	Discussing student, resident, and attending physician concepts of patient ownership and suggesting a new way to conceptualize it	Commentary on original research abstract	Qualitative; interviews, focus groups, observations	Attending physicians, resident physicians, and medical students	IM clerkship	Yes: direct and indirect	No
Yedida (1993)	Examining resident perceptions of responsibility for patient care, quality of care, and education following new DHRs	Original research paper	Qualitative; interviews	Resident physicians	IM residency program	No	Yes: DHRs, sense of responsibility
Young (2016)	Examining resident perceptions of responsibility after patient discharge	Original research paper	Quantitative; surveys	Resident physicians	Nine IM residency programs	No	Yes: sense of responsibility, sense of efficacy, faculty expectations and role modeling

Abbreviations: ACGME = Accreditation Council for Graduate Medical Education; DHRs = duty-hour restrictions; FM = family medicine; ICU = intensive care unit; IM = internal medicine; IOM = Institute of Medicine

CHAPTER 3

“It is you, me on the team together, and my child”: Attending, resident, and patient family perspectives on patient ownership

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Perspectives on Medical Education. 2020;Dec 2. Online ahead of print

Abstract

Introduction

Patient ownership is an important element of physicians' professional responsibility, but important gaps remain in our understanding of this concept. We sought to develop a theory of patient ownership by studying it in continuity clinics from the perspective of residents, attendings, and patients.

Methods

Using constructivist grounded theory, we conducted 27 semi-structured interviews of attending physicians, residents, and patient families within two pediatric continuity clinics to examine definitions, expectations, and experiences of patient ownership from March-August 2019. We constructed themes using constant comparative analysis and developed a theory describing patient ownership that takes into account a diversity of perspectives.

Results

Patient ownership was described as a bi-directional, relational commitment between patient/family and physician that includes affective and behavioral components. The experience of patient ownership was promoted by continuity of care and constrained by logistical and other systems-based factors. The physician was seen as part of a medical care team that included clinic staff and patient families. Physicians adjusted expectations surrounding patient ownership for residents based on scheduling limitations.

Discussion

Our theory of patient ownership portrays the patient/family as an active participant in the patient-physician relationship, rather than a passive recipient of care. While specific expectations and tasks will vary based on the practice setting, our findings reframe the way in which patient ownership can be viewed and studied in the future by attending to a diversity of perspectives.

Patient ownership is an important element of a physician's professional responsibility [1]. However, despite considerable research, this concept is incompletely understood, particularly as it relates to responsibilities and expectations for resident physicians in post-graduate training. While numerous articles have articulated the importance of fostering patient ownership among medical trainees [1-5], supervising attending physicians, residents, and medical students can have different expectations of *how* residents should take ownership of their patients' care and what it *means* to take ownership of a patient's care [6]. Prior literature has described factors that promote or inhibit patient ownership, including personal attitudes or attributes of the physician, socially-constructed expectations, and environmental factors [6-11]. However, the relative influence of these factors, in addition to specific expectations surrounding patient ownership, is context-dependent. Accordingly, understanding specific definitions of and influences surrounding patient ownership in particular practice settings is important for residency programs striving to build clinical experiences that ensure learners understand the concept of patient ownership and display it in practice.

A specific setting in which patient ownership merits further study is continuity clinics, which are outpatient clinics within U.S. primary care residency programs (pediatrics, family medicine, internal medicine) in which residents longitudinally follow a panel of patients as their primary care physician. Several publications have offered behavioral definitions of patient ownership, proposed what it entails (including concepts such as responsibility, knowing patients well, advocacy, autonomy, and communication) [1-6,12-15] and described how these concepts could be operationalized through a scale of attitudes and behaviors related to ownership of patient care [16]; however, none have been specific to continuity clinics [16]. Furthermore, the unique influencers of patient ownership within continuity clinics have not been fully explored. Several studies have suggested continuity of care facilitates patient ownership [17-21]. However, some characteristics of continuity clinics could poorly position residents to take ownership of their patients' care, including, for example, competing clinical demands, time constraints, and scheduling limitations [7-11,22]. Investigating the interplay between these and other factors that might be specific to continuity clinics could inform efforts to optimize clinic operations and structures in ways to promote patient ownership.

Furthermore, other gaps remain in our current theoretical understanding of patient ownership that could be informed by examining this concept within continuity clinics in greater depth. First, because continuity clinics entail sustained engagement with patients over time, they provide an optimal venue in which to incorporate the patient's voice into our understanding of this concept. Patients have not been included in any research to date specifically examining patient ownership. Much literature has highlighted the active role of the patient and the importance of patient autonomy in relationship building and medical decision making within the patient-physician relationship [23-26], as well as the importance of continuity of care in fostering this relationship [27-28]; however, although patient ownership is closely linked to these concepts, some scholars have warned that the very construct of patient ownership entails a hegemonic power differential that is disempowering to patients [29]. We believe it is important to explicitly attend to patient's role within the concept of patient ownership and critically examine how this

relates to previously described conceptions of patient activation, patient autonomy, and the patient-physician relationship as a whole.

A second theoretical gap is how to reconcile the traditional concept of patient ownership as an individual responsibility with the increasing prominence of team-based care. Most research examining how concepts of patient ownership have changed in light of team-based care has focused on inpatient care and duty-hour restrictions [1,6,30-33], with far less attention paid to how such shifts have affected patient ownership in the outpatient setting. The modern focus on team-based care within the outpatient setting must also inform our ongoing investigations into and theoretical understandings of patient ownership.

To address these gaps, we first aimed to provide an in-depth and practical description of patient ownership within continuity clinics. Specifically, our research questions were: (1) What are the definitions, expectations, and experiences of patient ownership from the perspectives of residents, attending physicians, and patients? and (2) What factors promote or inhibit attitudes and behaviors related to patient ownership among residents in continuity clinics? Attending to these questions from a diversity of perspectives should allow for a more representative and robust understanding of patient ownership within continuity clinics. This knowledge can then help clarify expectations for residents and identify specific facilitators or barriers that could be optimized to improve resident education and patient care. Our second aim was to use these findings to build a theory of the concept of patient ownership within continuity clinics.

Methods

Setting and participants

This study was conducted within Wright State University/Wright-Patterson Medical Center Pediatric Residency Program. In this integrated program, military residents have continuity clinic at Wright-Patterson Medical Center, and civilian residents have continuity clinic at the Dayton Children's Pediatrics Clinic. Residents and attending physicians were recruited via email from both clinical sites. Given that this research was in a pediatric setting, families of patients seen at each clinic were recruited for participation using informational flyers.

Data collection and analysis

We employed constructivist grounded theory because this methodology supports the study of complex social phenomena—like patient ownership—that have yet to be theoretically described in detail [34]. While prior literature has provided descriptions and definitions of patient ownership [1-6,12-15], such work has not been expanded to the level of theory generation and not focused explicitly on this phenomenon within continuity clinics. We approached this topic from a constructivist paradigm [35] because we view patient ownership as a social construct created and agreed upon by an individual patient and physician, and which will be influenced by each individual's prior experiences, personal beliefs, and local context.

From March-August 2019, data collection and analysis happened concurrently across three cycles of semi-structured interviews, with each cycle consisting of interviews with three residents, three attendings, and three patient families (one family interview included two parents; Table 1), for a total of 27 interviews. The interviewer (MK) asked participants about their definitions, expectations, and experiences of patient ownership and factors that they believed influenced patient ownership (see Appendix 1 for the interview guide). Interviews were audio recorded and professionally transcribed, with participant identifiers removed.

Three investigators (MK, HM, LV) engaged in constant comparative analysis, using NVivo Version 12.5.0 software to assist with data coding and analysis. Researchers first independently coded interview transcripts from cycle one, identifying recurring initial codes. The team then met to refine codes and generate preliminary themes. After cycle one, the investigators modified the interview guide to explore the initial themes and probe for gaps. After cycle two, we further refined the theme structure and modified the interview guide to vet and explore the boundaries of the developing themes. We determined that no significant new ideas or themes were emerging after the third round of interviews. After all transcripts were analyzed and final themes were defined and explored, we inductively examined the interconnections between our themes, analyzed memos written throughout the data analysis process, and created visual diagrams to begin constructing a theory describing patient ownership. In refining this theory, we attended to which features of our findings seemed most specific to continuity clinic settings and which we believed to be more overarching principles of patient ownership in general, and we refined our premises and diagram to reflect both the definitions and key influencers identified by our participants.

Reflexivity

We acknowledge that our educational backgrounds and personal experiences affected our conduct of this study and the meanings we generated. MK is a general pediatrician, attending physician at one of the continuity clinics in our study, and Associate Program Director of the residency program. Her position within the clinic and residency program could have influenced participant responses; however, we emphasized to participants that our questions had no right or wrong answers, and we did not include value-laden questions such as participants' assessments of how well certain physicians take ownership of patients or families' impressions of the care they receive at their clinic. Additionally, MK's professional experience working within a continuity clinic setting could have influenced her analysis of participant responses. LV and HM are educational researchers with expertise in qualitative research and have no direct involvement in the residency program or continuity clinics. All three authors have previously researched this topic as part of a scoping literature review. Although our methods for this study were inductive, we recognize that insights derived from prior research could have informed our understandings.

This study was approved by the Institutional Review Boards of Dayton Children's Hospital and Wright-Patterson Medical Center.

Results

We identified four principal themes, each with points of convergence and divergence between the three participant populations. Themes highlighted that participants viewed patient ownership as a relational phenomenon that entails an active role for both the physician and the patient/family, with a supportive role for other members of the medical care team. Continuity of care was generally seen as a facilitator of patient ownership, but other factors mediated this relationship. All participants acknowledged and accepted systems-based barriers to patient ownership within continuity clinics.

1) Patient ownership is a relational commitment between patient and physician that includes both affective and task-based components.

Participants universally described task-oriented activities that represented patient ownership, including, for example, the physician following up on laboratory or radiology results and making important medical decisions. All participant groups also emphasized that patient ownership involves more than such tasks; it also entails a fundamental desire to connect on a relational level. For the residents and attendings, this connection was expressed as a desire to be seen as the primary physician for patients and to know their patients in a meaningful way:

“My definition of patient ownership is that my patients know who their primary care doctor is. In residency, that's challenging. So, I try to make sure that they know that I am the doctor and they can come to me for anything – even if it's just questions through the nurse line.” Resident3

Similarly, patient families communicated a desire to be known and to be heard by their physician.

“I've appreciated the fact that my provider actually knows my kid, she remembers my kids... I came in for an appointment for my son. ...the provider knew my son's name because he was the patient, but then she started talking to my daughter by her name, too, without me even saying my daughter's name...she remembered or she took the time to look it up.” Family2

The relative weight placed on the affective versus task-oriented components of patient ownership varied by participant, but patient families were more likely than physicians to emphasize relational and emotional expectations. For example, physicians often highlighted the benefits to patient care and workflow.

“[Knowing patients well] just makes the clinic day better and makes your practice easier. It's a million times easier to follow up a lab that you ordered and you understand why you did it and what your next steps were. The notes go quicker, the notes can be shorter. It just – I feel like it makes all of clinic better when you have, like, your [patients] that you own.” Resident6

Alternatively, patient families more commonly expressed how such relationships improved their patient experience:

“We've had exceptional providers here that are so incredibly patient with [my child] and being able to meet his needs and adjust accordingly based on knowing

that he's going to often react quite negatively to the simplest things. I could definitely see where, you know, with his age and size how somebody could easily interpret his actions as just being a rebellious teenager versus if they didn't know his past medical history.” Family5

This difference in emphasis (i.e., physicians focusing on tasks, families focusing on affective experiences) illustrates how each group interpreted the relational commitment of patient ownership differently. Patient families believed that kindness, compassion, and good communication skills were important elements of patient ownership, whereas no attendings or residents described similar perceptions. Attendings and residents instead stressed responsibility for task completion such as care coordination amongst specialists, patient handoffs, and complete documentation in their conceptions of patient ownership. However, all participant groups identified this relational commitment as foundational to the concept of patient ownership, even if its display in action looks different for patients versus physicians.

2) Continuity of care exerts a powerful influence on patient ownership, but it cannot guarantee patient ownership.

Importance of continuity of care

All groups cited continuity of care as the most important facilitator of patient ownership. Continuity of care was articulated as a key driver of the patient-physician relationship, and it was credited with improving patient care, physician satisfaction, and workflow:

“I think [continuity of care] helps a lot with patient ownership. ... If you see a baby from two weeks all the way up, then you know them so well. ... So, I think the more you know your patients, the easier it is to take ownership of their care.” Resident3

Residents and attendings also noted the educational benefit of following a patient longitudinally to see the progression of the patient’s disease process and the result of treatments. Residents reported seeking out continuity, and attendings encouraged residents to strive for continuity with patients in order to maximize their learning.

“[I]t’s one thing to go in, gather a history, think through a differential, say, ‘Let’s order YXX,’ or, ‘Let’s refer to so-and-so.’ And then if you never hear what happens to that patient, you have no idea if your initial working diagnosis was correct.... Learning about how that patient plays out, what that disease process plays out....I think that’s where a lot of the learning ends up happening.” Attending6

However, while continuity of care was identified as a facilitator of patient ownership, it was neither necessary nor sufficient to achieve patient ownership. Instead, several factors mediated the relationship between continuity of care and patient ownership.

Mediating factors

First, residents recognized that their personal feelings toward patients were key mediators of their sense of patient ownership. Even though residents acknowledged the need to

provide good care and follow up to all patients regardless of their personal feelings, having a positive personal connection with families made it more likely they would strive to take ownership of the patient's care:

"There's a couple of families that I've taken ownership on, and part of it is, I think – I just like them so much. They're such nice people. Not that I don't take ownership of the patient families that aren't nice, but the ones that I like, truly felt, 'Oh, I want you to come see me and only me' are the ones that you really click on a personal level with." Resident1

Conversely, in the case of having difficult interactions with families, continuity of care could make it more challenging for them to feel ownership since each encounter was difficult:

"I think if it's a good relationship, then [continuity of care] is a good factor [supporting patient ownership]. But I think there are times when you've seen that patient who's complex, or the family just has something that you don't agree with. Then it makes it [taking ownership of the patient] harder and harder. " Resident4

Second, the complexity of a patient's medical history and presenting complaint also affected the interplay between continuity of care and patient ownership. Patient families and physicians deemed continuity of care less critical for less medically complex patients and presenting issues:

"You know, if it is strep throat, it doesn't matter. I can see someone. They can do what they need to do and move on. If it is something that you know ahead of time that this is going to be something or that it's starting to become recurrent... then continuity is really important." Family4

Finally, several physicians reported working in a clinic with a *low* degree of resident continuity of care made them *more* likely to take ownership of clinic patients they saw. They felt a responsibility to ensure patient care was not compromised in a system in which they could not assume a patient's assigned primary care manager would be meaningfully involved in their care:

"You never really have that kind of feeling of consistent continuity, and so I think it gets ingrained that we have to treat everyone kind of like we'll never see them again, because oftentimes we never will ... you can't just brush it off until the next time you see the kid." Resident4

However, personal attributes of the residents also influenced their proactive stance towards patient ownership, including the resident's own intrinsic sense of responsibility toward patients, their comfort with having the medical knowledge needed to take ownership of a patient's care in the case of more complex patients, and their career goals (i.e., whether or not they intended to pursue a career in primary care):

"Some residents just seem to have a different expectation of themselves within the clinic. And I think that stems more from their own kind of confidence and comfort ... There's kind of the transcendental maturity – above the like, 'What am I expected to do?'" Attending6

3) Patient families and physicians harbor idealized conceptions of patient ownership but acknowledge the constraints imposed by logistical and systems-based factors.

Residents, attendings, and patient families commonly articulated an ideal of patient ownership in which patients would see their primary care physician for every visit and physicians would personally manage all of their patients' medical needs. However, all groups accepted that the reality of modern medicine is unlikely to enable the realization of this ideal. Participants identified time constraints, competing responsibilities, and the tension between prioritizing access versus continuity in scheduling practices as barriers to achieving this ideal version of patient ownership:

“When I'm just so busy for months in the inpatient side ... I would like to be able to take care of [my clinic] patients and feel like they think that I'm their doctor and not just somebody they see every fifth time they come in.... But I do understand that something will have to give during this timeframe in order to just complete residency.” Resident9

While physicians wished they could have more time to connect with patients and be more involved in all aspects of their care, almost all saw these systems-based barriers as an inevitable aspect of residency:

“So there is a schedule conflict with the overall residents' schedules. But again, that is from an over perspective of the entire residency. It's not their fault, it's not my fault, it's just the way it is that's going right now.” Attending4

Similarly, patient families displayed understanding of and empathy for physicians working under this system and did not fault them for not living up to the ideal:

“I think that it's nice when you can see the same provider, especially for well [child] visits, because they kind of know the history of the background, but I also understand that they can't be here 24/7. So, that's why we have a team that, you know, that reviews the chart, kind of looks through things.” Family3

In recognition of these constraints, multiple physicians elaborated on systems in place to ensure that patients still received proper care. Patient handoffs, both formal and informal, and relying on other members of the care team, such as nurses, to monitor laboratory and radiology results were key mechanisms to mitigate these barriers. These team-based systems were seen not only as a part of the local context but also as a necessary task related to patient ownership.

A few residents discussed challenges to having patient ownership when personal or systems-based limitations were not acknowledged or accepted. One noted that identifying too much with patients' concerns or feeling too much responsibility for their care could lead to exhaustion or even burnout:

“I think you can go too far [with having patient ownership] in medicine. ... I've had attendings tell me I need to be careful with empathy versus compassion because you can only empathize so much.... One attending said it really well. He

said: ‘there was a lot of suffering in that room, and you took too much of it.’”

Resident7

Another resident described feeling guilt after coming off of a clinic block and signing out follow-up tasks, even though such handoffs were expected.

“When I’m here for a month I try very hard to make sure I’m the only person following on labs that I order. And I always feel really guilty when I have to send them to somebody else because I’m done.” Resident 9

These more extreme expectations of ownership were identified by residents, not attendings. All physicians expected residents to take full ownership of their patients’ care while in clinic, but most did not expect residents to be attending to clinic-related items while on other rotations and expected residents to hand off follow-up tasks more frequently.

4) Patient families and physicians hold an expansive view of team-based ownership that includes physicians, support staff, and patient families.

Participants described patient ownership as a hybrid of individual- and team-based responsibility. Most saw the physician as personally responsible to patients as the leader of a care team, and no physician thought that the presence of multiple team members diminished this responsibility. Some referred to the physician as the “quarterback” of the team (Attending9) or even the “commander in chief” (Attending4). Yet nearly all articulated a team-based concept of patient ownership, with the team including not only other physicians within the clinic, but also nurses, case managers, social workers, front desk staff, and technicians:

“First and foremost, [responsibility] goes to the individual [physician], but then the team is there kind of as a backup. So, especially with our teams and our nurses, they do a great job of helping coordinate to get some of that information, get the ED records, get the labs, get everything like that. But then, that decision-making usually comes on the individual.” Attending2

Additionally, multiple patient families and some physicians identified patients and patient families as integral members of this team. They viewed patient ownership as a shared responsibility between physicians and patient families. Patient families were seen as responsible for advocating for their children, navigating the medical system to ensure proper care and follow up for their child, and negotiating and adhering to medical recommendations made by the physician.

“It’s definitely team-based. You can give me a plan of care, but it’s on me, the parent, to carry out that plan.... So, it is you, me on the team together, and my child.” Family 8

As a member of this care team, patient families partnered with the physician in their child’s care. For patients and physicians who espoused this joint concept of patient ownership, they described the patient-physician-relationship as a partnership, each with distinct roles and responsibilities.

“Patients that I have kind of taken ownership of work to be in my clinic. They seek me out, they book all their well visits with me, they will try to book acute visits with me, they’ll adjust their schedules to try to be with me.” Resident6

“Patient ownership I think definitely revolves around for me the word relationship. I think patient ownership, I think about health. I think that ownership has to be 50-50. Ownership of health has to be patient and physician.” Resident7

This central position for the patient/family within the medical care team aligned with the bi-directional relationship articulated by participants in defining patient ownership. Both sets of descriptions cast active and empowered roles for patients/families within the construct of patient ownership, which became a foundational premise of our theory of patient ownership within continuity clinics.

Discussion

Our findings provide new insights into the concept of patient ownership within continuity clinics by incorporating the perspectives of attending physicians, residents, and patient families. We developed a theory of patient ownership within continuity clinics that rests on several premises, illustrated in Figure 1. The first premise of our theory is: *Patient ownership within continuity clinics is a relational commitment that involves a bi-directional exchange between patient and physician.* This relationship exists within the context of medical care provision, which is the foundational task upon which this relationship is built. For both parties, patient ownership entails distinct affective and behavioral elements. Table 2 provides examples of such elements within our continuity clinic setting. The attitudes and behaviors articulated for physicians align well with prior descriptions of patient ownership that emphasize feelings of responsibility, personally carrying out patient care tasks, autonomy, and knowing patients well [5,8,12,13,15,29,36-37]. Within our continuity clinics, coordination of care within a team-based environment was emphasized as a particularly important task, including involvement of medical support staff and patient handoffs to other physicians.

The second premise of our theory is: *The physician and patient engage in patient ownership within the constraints and affordances of their local context.* We view the systems-based and logistical constraints articulated by our participants (Box 1) as examples of barriers within our local context. Conversely, continuity of care, scheduling practices favoring continuity over access, and resident autonomy were facilitators in most circumstances (Box 1). While many of these factors also align with prior literature describing influencers of patient ownership [7-11,17-22], findings specific to the continuity clinic setting that have not been well described previously included protocols for calling back patients regarding laboratory or radiology results, the resident patient load during clinic, and the medical complexity of resident patient empanelments. The practice setting and medical care team can also be seen as integral parts of the local context; however, none of these contextual factors can guarantee or disallow patient ownership. The ownership exhibited and felt by both physicians and patients is influenced by, but not dependent on, the context in which they are operating.

The final premise of our theory is: *A patient ownership relationship is built between physician and patient. Therefore, although a physician is part of a care team, this team membership does not diminish a physician's personal commitment toward his/her patients.* Prior literature has expressed concern over a dilution of responsibility among residents in light of team-based care [2-4], but no participants within our study felt that team-based care lessened personal feelings of patient ownership. Instead, care teams played an important role in facilitating provision of care, attending to follow-up issues, and coordinating additional care.

We contend that an important contribution offered by our theory is to articulate the active role cast for the patient/family within the construct of patient ownership. In our theory, the patient is not the passive recipient of a physician's care. Instead, the patient has agency to actively partner with the physician in negotiating and carrying out medical care plans, and the feelings the patient has toward his/her physician matter. Of course, the physician can still execute his/her responsibilities within this relationship even if, for example, the patient/family does not adhere to treatment plans. But can a physician really be seen to have good ownership of a patient's care if the patient/family does not feel heard or listened to, or if they do not see that particular physician as *their* physician?

Within the larger body of literature on the patient-physician relationship, patient autonomy and activation are increasingly recognized as central concerns [23,26,38-39]. Emanuel and Emanuel [40] described four prototypical models of this relationship: paternalistic (strong control exerted by physician), informative (physician only provides information, patients have full control of decisions), interpretive (physician helps patient elucidate and articulate their values), and deliberative (physician partners with patient to decide treatment plan based on patient values), with the conception of patient autonomy as one of the prime distinguishing features of each. Some have contended that the term *patient ownership* is inherently paternalistic [29] and suggested alternative phrasings such *patient care ownership* or *decision ownership* [2,8,36], and we respect those who chose to embrace different terminology. However, this model reframes patient ownership in a more inclusive sense by shifting the locus of control from the physician alone to a shared position between both parties – with the physician still having information and expertise, and with the patient/family empowered to negotiate and carry out treatment plans and to shape the nature of the relationship through their feelings toward the physician. We suggest that our theory of patient ownership is compatible with a more interpretive or deliberative model of the patient-physician relationship, which some have argued to be the most ethical models of interaction [38] and the most likely to foster trust [39,41], and it brings this concept in line with more modern views of patient autonomy.

We acknowledge our study has limitations. In accordance with constructivist epistemology, our findings are specific to our particular context and shaped by our subjective perspectives. Further study is needed to determine the transferability of our theory to clinical settings other than continuity clinics. We suspect that the longitudinal, sustained relationships built within continuity clinics—the interpersonal facet of continuity of care [42]—could exert a strong influence on expectations surrounding the patient/family role within the patient ownership relationship. How the patient/family role

is articulated and experienced in inpatient or other acute care settings, for example, merits investigation. Furthermore, the patient families who agreed to participate in the study were predominantly military (70%). While we did not notice significant differences in responses between groups, we recognize that factors such as frequent moves within this population could affect participant expectations regarding patient ownership and continuity of care. We also acknowledge the strong female predominance among resident and attending physician participants, which mirrors the gender distribution of the program's residents and clinic attendings.

We hope future studies can build upon these findings by vetting this theory in other settings. Using contextual factors identified in this study, future work could also examine how to reshape clinical policies or practices designed to optimize patient ownership between residents and patients in continuity clinics, particularly in light of the unique time and systems-based barriers they face in training. In all future studies of patient ownership, we hope this theory can reframe the concept in a more inclusive light that continues moving these important conversations forward in a way that respects the diversity of perspectives involved.

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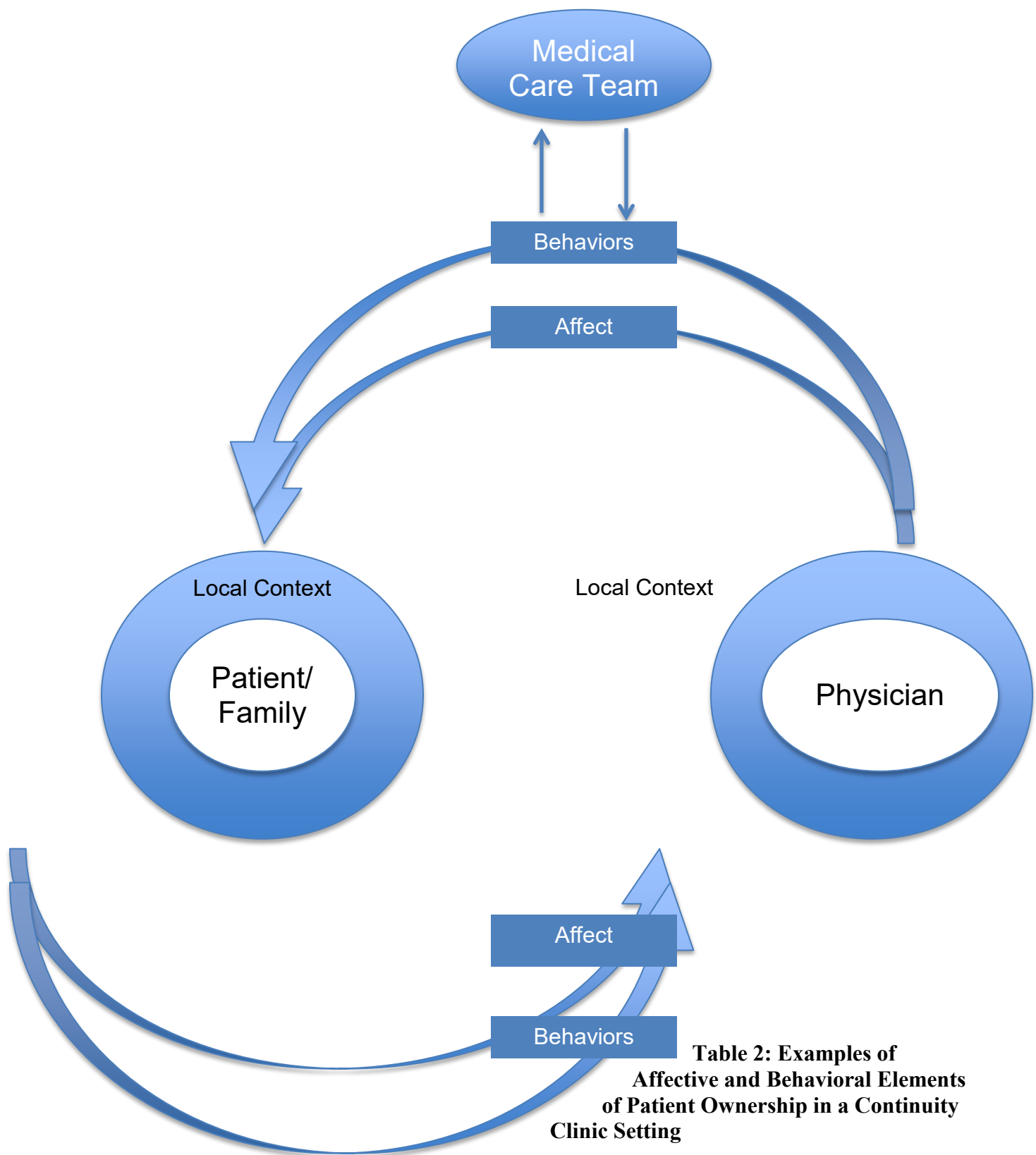
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Table 1. Participant Characteristics

Participant Group	Total	Military	Female
Residents	9	5 (55%)	7 (78%)
First-year	3	2 (67%)	2 (67%)
Second-year	3	1 (33%)	3 (100%)
Third-year	3	2 (67%)	2 (67%)
Attendings	9	5 (55%)	7 (78%)
Patient Family Members	10	7 (70%)	6 (60%)

Figure 1: Representation of Theory of Patient Ownership within Continuity Clinics



	Affect	Behaviors
Physician	○ Feels responsibility for patient's care ○ Feels like primary care provider for patient ○ Sees the patient's concerns as their own	○ Provides medical care ○ Follows up clinical care, radiology, laboratory studies, and consults ○ Coordinates care between medical care team and subspecialists ○ Listens to patient ○ Knows the patient well, both medically and personally ○ Makes important care decisions ○ Seeks continuity with patients
Patient/Patient Family	○ Identifies physician as primary care provider ○ Feels known by physician ○ Feels heard by physician ○ Trusts physician	○ Advocates for self/patient ○ Carries out home treatment plans ○ Actively seeks out appointments/continuity with physician

Box 1: Contextual Factors Affecting Patient Ownership in Continuity Clinic Setting

- Degree of continuity of care
- Clinic scheduling practices (e.g., prioritizing access versus continuity)
- Resident rotation scheduling practices (e.g., full-day versus half-day continuity clinics, division of inpatient/outpatient rotations)
- Composition of medical care team
- Protocols for calling patients back regarding laboratory or radiology results
- Degree of resident autonomy
- Faculty role modeling
- Resident patient load during clinic
- Medical complexity of patient empanelment
- Handoff protocols/practices

CHAPTER 4

Thematic Analysis of Qualitative Data: AMEE Guide No. 131

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Abstract

Thematic analysis is a widely used, yet often misunderstood, method of qualitative data analysis. It is a useful and accessible tool for qualitative researchers, but confusion regarding the method's philosophical underpinnings and imprecision in how it has been described have complicated its use and acceptance among researchers. In this Guide, we outline what thematic analysis is, positioning it in relation to other methods of qualitative analysis, and describe when it is appropriate to use the method under a variety of epistemological frameworks. We also provide a detailed definition of a *theme*, as this term is often misapplied. Next, we describe the most commonly used six-step framework for conducting thematic analysis, illustrating each step using examples from our own research. Finally, we discuss advantages and disadvantages of this method and alert researchers to pitfalls to avoid when using thematic analysis. We aim to highlight thematic analysis as a powerful and flexible method of qualitative analysis and to empower researchers at all levels of experience to conduct thematic analysis in rigorous and thoughtful way.

Practice Points

- Thematic analysis is a powerful yet flexible method for analyzing qualitative data that can be used within a variety of paradigmatic or epistemological orientations.
- Thematic analysis is an appropriate method of analysis for seeking to understand experiences, thoughts, or behaviors across a data set.
- Themes are actively constructed patterns (or meanings) derived from a data set that answer a research question, as opposed to mere summaries or categorizations of codes. Themes can be generated inductively or deductively.
- The most widely-accepted framework for conducting thematic analysis involves a six-step process: familiarizing yourself with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report.
- Given the flexibility of thematic analysis, researchers using this method must clearly outline their paradigmatic orientations and assumptions to ensure the trustworthiness of their findings and interpretations.

Introduction

Data analysis has been described as “the most complex and mysterious of all of the phases of a qualitative project, and the one that receives the least thoughtful discussion in the literature” (Thorne 2000). Many qualitative research papers lack explicit description of the methods informing data analysis, or, when included, the terms used to describe data analytic methods are often used imprecisely or are mislabeled entirely (Sandelowski and Barroso 2003; Sandelowski 2010). Further complicating matters, certain terms describing qualitative data analysis have either carried a wide range of definitions or lacked clear definitions. This imprecision leads to a lack of transparency, making it difficult for readers to understand how data analysis was performed and, consequently, how to interpret findings (Nowell 2017). It also contributes to perceptions that qualitative research is less rigorous than quantitative research (Clarke and Braun 2013).

Unfortunately, this lack of clear terminology plagues a qualitative data analysis method that is among those most frequently used in health professions education (HPE) research: *thematic analysis*. *Thematic analysis* is a term that has been variably defined (Merton 1975; Aronson 1995; Boyatzis 1998; Attride-Stirling 2001; Braun and Clarke 2006; Joffe 2011), and that has even been discounted as unsophisticated or inferior to other qualitative methods (Braun and Clarke 2006, 2014). Many researchers who use thematic analysis fail to provide sufficient descriptions of the analysis process followed and of the theories or epistemological assumptions undergirding the analyses (Attride-Stirling 2001, Braun and Clarke 2006). Additionally, many studies that have employed thematic analysis have not explicitly labeled it as such in their manuscripts; instead, these reports simply state that “qualitative data were examined for recurring themes,” without offering further explanation (Braun and Clarke 2006). Clearly there is considerable confusion amongst researchers about what thematic analysis means, when to use it, and how to use it.

Thematic analysis is a practical data analysis approach for qualitative researchers; clarifying how to use it appropriately and effectively can help HPE researchers recognize its utility, versatility, and power. In this Guide, we aim to support the achievement of these goals. First, we define thematic analysis, focusing on the flexibility that it offers researchers. We explore how it can be applied across a range of theoretical and epistemological frameworks. We also suggest when thematic analysis can be harnessed in qualitative data analysis. Next, we focus on some key concepts underpinning thematic analysis. Specifically, we discuss the definition of a theme, including different types of themes (i.e., semantic versus latent), and how inductive or deductive processes can be employed to develop themes. We then describe a stepwise approach for conducting thematic analysis, following the six-step framework of Braun and Clarke (2006) and providing a worked example from our own research data to illustrate each step. We conclude with a discussion of the advantages and disadvantages of using thematic analysis, and a description of pitfalls to avoid.

What is Thematic Analysis?

Thematic analysis is a method for analyzing qualitative data that entails searching across a data set to identify, analyze, and report repeated patterns (Braun and Clarke 2006). It is a method for describing data, but it also involves interpretation in the processes of selecting codes and constructing themes. A distinguishing feature of thematic analysis is its flexibility to be used within a wide range of theoretical and epistemological frameworks, and to be applied to a wide range of study questions, designs, and sample sizes. While some scholars have described thematic analysis as falling within the realm of ethnography (1995) or as particularly suited to phenomenology (Joffe 2011), Braun and Clarke (2006) argue that thematic analysis can stand alone as an analytic method *and* be seen as foundational for other qualitative research methods. Indeed, the principles of thematic analysis of how to code data, to search for and refine themes, and to report findings are applicable to several other qualitative methods such as grounded theory (Watling and Lingard 2012) and discourse analysis (Taylor 2012). Because of this flexibility, Braun and Clarke (2006) refer to thematic analysis as a method, as opposed to a more tightly prescribed methodology.

Thematic analysis is not bound to a particular paradigmatic orientation; instead, it can be used within post-positivist, constructivist, or critical realist research approaches (Braun and Clarke 2006). Using thematic analysis in different research paradigms entails harnessing this method to distinct purposes and outputs. Post-positivists can use thematic analysis to focus on individuals' meanings and experiences to gain insights into the external reality, thereby supporting the development of conjectural knowledge about reality. In many interpretivist orientations (e.g., constructivism), thematic analysis can emphasize the social, cultural, and structural contexts that influence individual experiences, enabling the development of knowledge that is constructed through interactions between the researcher and the research participants, revealing the meanings that are socially constructed (Braun and Clarke 2006). Joffe (2011) suggests that thematic analysis is particularly suited to constructivism because, through the process of analyzing a wide range of data, it can illustrate how a certain social construct develops. In these ways, constructivist thematic analyses will search for more latent, deeper themes within the data. Finally, critical realism acknowledges experiences and perceptions grounded in a material reality but seeks to investigate social meanings and implications behind the topic of interest (Joffe 2011, Clarke and Braun 2017). Within a critical realist framework, thematic analysis can allow researchers to study the power relations informing reality and to engage in emancipatory investigations that value the voices of oppressed populations.

Among those who have described thematic analysis as a post-positivist method (Aronson 1995; Boyatzis 1998), Boyatzis (1998) forwards thematic analysis as a method that can bridge the chasm between the post-positivist pursuit of understanding a reliable, objective, fact-based reality, and the more interpretive aims of many social science researchers. Boyatzis posits that "thematic analysis allows the interpretive social scientist's social construction of meaning to be articulated or packaged in such a way, with reliability as consistency of judgment, that description of social 'facts' or observations seems to emerge" (p. xiii). He suggests that the interplay between post-

positivist and interpretivist paradigms within thematic analysis can produce a symbiosis in which interpretive findings can generate new hypotheses to be tested using post-positivist methods, and post-positivist hypothesis testing can in turn suggest new themes for exploration from an interpretive lens.

When to Use Thematic Analysis

Thanks in large part to those who have clearly laid out its analytical processes (Braun and Clarke, 2006, 2012, 2017), researchers have suggested that thematic analysis is a good first analytic method for novice qualitative researchers to master (Braun and Clarke 2006, 2012, 2017; Nowell 2017). However, as with any research or analytic method, we would argue that the choice to use thematic analysis should be based on the goals of the research itself, more than a desire to select an easy-to-follow method of analysis. Thematic analysis is an appropriate and powerful method to use when seeking to understand a set of experiences, thoughts, or behaviors across a data set (Braun and Clarke 2012). Since it is designed to search for common or shared meanings, it is less suited for examining unique meanings or experiences from a single person or data item. Finally, because of its relevance to other methods of qualitative research, the steps of thematic analysis echo those of grounded theory, ethnography, and other qualitative methodologies that also rely on coding and searching data sets for themes as part of their processes.

Situating thematic analysis in relationship to other qualitative analysis methods can help us understand the method's scope and purpose. The framework offered by Sandelowski and Barroso (2003) is a useful lens through which to compare and contrast such methods. Sandelowski and Barroso (2003) contend that qualitative analysis methods fall along a continuum defined by the degree to which data is transformed during analysis. This continuum is grounded at one pole with purely descriptive analyses in which the data is not significantly transformed. Analysis methods at this far end include, for example, *topical surveys* which Sandelowski and Barroso (2003) argue should not be classified as true qualitative research because they focus on reporting lists or inventories of topics raised by interview or focus group participants, often as frequencies or percentages, but make little or no effort to purposefully sample participants or interpret findings. At the other end of the continuum are highly interpretive analyses in which there is considerable transformation of the data. Located at this pole are methods, such as phenomenology, which involve transformation and deep interpretation of data. Interpretative phenomenological analysis looks in detail at how individual experiences and the meanings that people attach to them can inform a question of interest (Smith and Osborn 2003).

We suggest that, while thematic analysis can be used across the continuum, it most naturally lands near the center between the two poles. Through thematic analysis, the research constructs themes to reframe, reinterpret, and/or connect elements of the data. Thus, themes are not merely organizational tools used to classify and label data. While processes of thematic analysis will have the researcher developing organizational and classification labels to describe the data, thematic analysis goes further into the interpretation and data transformation processes. But if thematic analysis does not belong

at the purely descriptive pole of the analysis continuum, it also does not belong at the highly interpretive pole. Thematic analysis is generally not used to engage in data interpretation and transformation to the point of developing theory, the central goal of grounded theory (Glaser and Strauss 1967). Instead, thematic analysis lands most naturally between the poles--engaging in more than description and categorization, but not extending so far as to develop theory.

What is a Theme?

Before delving into the specific steps of thematic analysis, it is important to define what the term *theme* means in this analysis method. A theme is a “patterned response or meaning” (Braun and Clarke 2006, p. 82) derived from the data that informs the research question. Viewed in apposition to a category--which provides description and organization to the “manifest content” of a data set--a theme is a more abstract entity that involves a greater degree of interpretation and integration of data (Nowell 2017). When engaging in thematic analysis, researchers can identify themes irrespective of the number of times a particular idea or item related to that theme appears in a data set. Furthermore, the importance or centrality of a theme is not necessarily reflective of the frequency of its appearance within the data (Braun and Clarke 2006; Nowell 2017). Themes can be classified as either *semantic* (also often labeled as *manifest*), which address more explicit or surface meanings of data items, or *latent*, which reflect deeper, more underlying meanings, assumptions, or ideologies (Boyatzis 1998, Clarke and Braun 2006). The researcher has great flexibility in which themes to identify, but he or she should strive to identify themes that provide important insights that address the research question (Braun and Clarke 2006).

Researchers can employ an *inductive* or *deductive* approach to theme identification (Braun and Clarke 2006, 2012). An *inductive* approach, as used in grounded theory, derives themes from the researcher’s data (Varpio et al, 2019). Since these themes are data driven, they might not mirror the exact questions asked of participants (e.g., if participants veered off topic), and they are not necessarily reflective of the researcher’s own interests or beliefs on the subject (Braun and Clarke 2006). Conversely, *deductive* approaches use a pre-existing theory, framework, or other researcher-driven focus to identify themes of interest (Braun and Clarke 2012; Varpio et al, 2019). Therefore, an inductive approach tends to provide a broader, more expansive analysis of the entire body of data, whereas a deductive approach is useful for honing in on a particular aspect of the data or a specific finding that could be best illuminated or understood in the context of a pre-existing theory or frame (Braun and Clarke 2006). While either method is acceptable, specifying the approach used is important to allow readers to properly interpret and contextualize findings.

How to Engage in Thematic Analysis

Several researchers have published descriptions and guides of how to conduct different versions of thematic analysis (Aronson 1995; Boyatzis 1998; Attride-Stirling 2001; Joffe 2011). In this guide, we will focus on the method as outlined by Braun and Clarke

(2006) as it has become the most widely adopted method of thematic analysis within the qualitative literature (Clarke and Braun 2017). Their method of analysis consists of six steps. It is important to note that Clarke and Braun's thematic analysis is designed to be a recursive, rather than linear, process in which subsequent steps may prompt the researcher to circle back to earlier steps in light of new data or newly emerging themes that merit further investigation.

To illustrate these steps, we offer an example using original data from a study we performed examining the experience of patient ownership in continuity clinics within a pediatric residency program (see Box 1 for illustrations of each step's transformation of the data). Based on a scoping literature review, we (MK, LV, and others) have proposed a definition of patient ownership as "the commitment that a medical provider—both individually and as part of a team of healthcare professionals—feels and displays in relation to the provision and coordination of care for his or her patients" (Kiger 2019). However, recognizing that personal experiences of patient ownership will inevitably be shaped by subjective experiences and context, we conducted individual interviews of residents, attending physicians, and patient families to understand definitions, experiences, and expectations of patient ownership from these different perspectives. In this example, we employ an *inductive* approach to thematic analysis, and work within a *constructivist* epistemology.

Step 1: Familiarizing yourself with the data

The first step in thematic analysis's process is becoming familiar with the entire data set, which entails *repeated* and *active* reading through of the data (Braun and Clarke 2006). Depending on the study, the data set might include interviews, focus groups, recorded observations, field notes, journal entries, or other media such as photographs or videos (Thorne 2000; Nowell 2017). While it can be tempting to begin coding data and searching for themes immediately, familiarizing oneself with the entirety of the data set first will provide a valuable orientation to the raw data and is foundational for all subsequent steps. For audio data that need to be transcribed, the process of transcription can be time-consuming but also serves as an excellent way to become familiar with the data. If researchers use voice-recognition software or hire transcription services to facilitate this step, checking the transcripts against original audio recordings for accuracy may be similarly useful.

Step 2: Generating initial codes

As the first truly analytic step in the process, coding helps to organize data at a granular, specific level. After step 1's familiarization work, researchers can begin to take notes on potential data items of interest, questions, connections between data items, and other preliminary ideas. This is the beginning of step 2's coding process. This phase of work generates codes, not themes. Boyatzis (1998) defined a code as "[t]he most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon" (p. 63). A code should be sufficiently well-defined and demarcated such that it does not overlap with other codes and should fit logically within a larger *coding framework* or *coding template* (sometimes also called *coding manuals*) that guides the coding process by outlining and defining the codes to be applied (Crabtree and

Miller 1999; Attride-Stirling 2001; King 2004; Nowell 2017). Similar to distinctions among themes, codes can be tied to more *semantic* or *latent* meanings (Braun and Clarke 2012), and the coding framework can be *inductive*, reflective of pertinent issues raised by the data alone, or *deductive*, guided by specific theories or theoretical frameworks (Attride-Stirling 2001; Braun and Clarke 2006). By recording how codes developed from observations and ideas, the researcher can begin the process of creating an audit trail to support the trustworthiness of a researcher's interpretations and analysis (Lincoln and Guba 1985; Nowell 2017).

Once the coding framework or template is defined, researchers then apply the same codes to the entire data set by labeling data extracts with relevant codes, making note of any potential patterns or connections between items that might inform subsequent theme development (Braun and Clarke 2006). Coding can be done manually or with the assistance of a computer program. Coded data extracts should include a large enough section of text to provide context for the extract. Also, a single extract can be labeled with multiple codes if relevant (Braun and Clarke 2006). Once the researcher has coded the entire data set, he or she can collate the data by code in preparation for step 3: the search for themes.

Step 3: Searching for themes

The third step involves examination of the coded and collated data extracts to look for potential themes of broader significance (Braun and Clarke 2006). Braun and Clarke (2012) offer an analogy that, if your entire analysis is seen as a house, the individual codes are the bricks and tile, and themes are the walls and the roof. The process of theme identification - how those walls and roof are built - is fundamentally an active and interpretive process. Themes do not simply emerge from the data (Varpio 2017); instead, themes are constructed by the researcher through analyzing, combining, comparing, and even graphically mapping how codes relate to one another. In inductive analysis, researchers derive themes expressly from the coded data, so the themes identified will be more closely linked to the original data and reflective of the entire data set (Braun and Clarke 2006). Conversely, in deductive analysis, predefined theories and/or theoretical frameworks will inform theme development, so these themes often focus more on a particular aspect of the data set or a specific question of interest (Braun and Clarke 2006).

When creating and organizing themes, thematic maps are useful for visually demonstrating cross-connections between concepts and among main themes and sub-themes (Braun and Clarke 2006). Figures 1 and 2 illustrate examples of thematic maps from our study. Themes should be independently meaningful but also “work together to form a coherent whole--an analytic story” (Clarke and Braun 2014). Both Braun and Clarke (2006) and King (2004) recommended being inclusive at this stage of analysis. The researcher should make note of any and all themes of potential significance, whether or not they seem directly related to the study question, and regardless of the volume or quantity of data that falls under them. No defined threshold exists for the amount of data that constitutes a theme. Researchers can even create a “miscellaneous” theme to incorporate orphan codes that do not fit well within one's existing thematic scheme (Braun and Clarke 2006). Important themes will provide significant links between data

items and answer key aspects of research questions, but until reviewing the themes in step 4, the researcher cannot be certain of which themes will be kept, discarded, or otherwise modified in the final analysis.

Step 4: Reviewing themes

Braun and Clarke (2006) described step 4 as a two-level analytical process. In the first level of analysis, the researcher looks at coded data placed within each theme to ensure proper fit. He or she reviews all relevant codes and data extracts under each theme and asks: Does each theme have adequate supporting data? Are the data included coherent in supporting that theme? Are some themes too large or diverse? Data within each theme should have adequate commonality and coherence, and data between themes should be distinct enough to merit separation (Attride-Stirling 2001; Braun and Clarke 2006). At this point, data extracts can be re-sorted and themes modified to better reflect and capture coded data. Themes can be added, combined, divided, or even discarded. This first level of analysis is complete when the researcher is confident that the revised thematic map adequately covers all of the coded data to be included in the final analysis (Braun and Clarke 2006). Throughout this process, researchers should keep detailed notes, or memos, regarding their thought processes and decisions made regarding how themes were developed, modified, and/or removed. Such memos can help researchers make connections between themes and also create an audit trail that bolsters the trustworthiness of their findings (Nowell et al 2017).

Level two applies a similar set of questions to the themes in relation to the entire data set. The researcher here decides if individual themes fit meaningfully within the data set and whether the thematic map accurately and adequately represents the entire body of data (Braun and Clarke 2006). The thematic map should clearly demonstrate how themes interrelate and how they represent the question or construct of interest. To accomplish this task, the researcher re-reads the entire data set to reexamine themes and to re-code for additional data that falls under the themes that have been newly created or modified in this phase, then revises the thematic map accordingly (Braun and Clarke 2006).

Step 4 provides a clear example of the recursive nature of the entire process of thematic analysis. Re-reading and revising codes and themes are expected parts of the analytic process. While this iterative process could theoretically continue indefinitely, King (2004) and Braun and Clarke (2006) recommended that the revisions could cease once all data items that appear relevant to the study question have been incorporated into the coding scheme, themes are coherent, and additional refinements are not yielding substantial changes.

Step 5: Defining and naming themes

Once the thematic map has been refined, step 5 finds the researcher creating a definition and narrative description of each theme, including why it is important to the broader study question (Braun and Clarke 2006). The names of themes to be included in the final report are reviewed to ensure they are brief and adequately descriptive (Braun and Clarke 2006). The researcher then hones in on the most important aspect of each theme and which aspects of the data set it covers, creating a coherent narrative of how and why the

coded data within each theme provide unique insights, contribute to the overall understanding of larger questions, and interact with other themes (Braun and Clarke 2006). While addressing these questions, the researcher looks for areas of overlap between themes, identifies emergent sub-themes (which can be used both to provide more detailed accounts of themes and to describe hierarchies within the data), and clearly delimits the scope of what each theme entails or includes (Braun and Clarke 2006). This is a good time to select data extracts to be presented in the final report that illustrate key features of themes and to create narratives surrounding them that provide context to explain their importance to the broader story each theme tells (Braun and Clarke 2012).

Step 6: Producing the report / manuscript

This final step involves writing up the final analysis and description of findings (Braun and Clarke 2006). Elements of the writing process have already begun through the processes of note taking, describing of themes, and selection of representative data extracts in prior steps. In fact, King (2004) described the final step of presenting findings as a “continuation” of the analysis and interpretation that has already happened as opposed to a “separate stage” (p267). The final report should move beyond mere description of codes and themes (King 2004). The report should weave a narrative that provides a clear, concise, and logical account not only *how* a researcher interprets the data, but also *why* his or her selection of themes and interpretation of the data are important and accurate (Braun and Clarke 2006, 2012). Using both narrative descriptions and representative data extracts (e.g., direct quotations from participants), the analysis should describe the data *and* provide an argument for why the researcher’s explanation richly and fully answers the research question (Braun and Clarke 2006). Any direct data extracts should contain adequate context to understand their meaning and be supported by interwoven textual description that explains their importance (Braun and Clarke 2012).

The discussion section can broaden the analysis by relating themes to larger questions, discussing implications of findings, and questioning the assumptions or preconditions that gave rise to the themes (Braun and Clarke 2006). Referencing related literature can also add to the strength of the analysis by building support for why particular themes were selected (Aronson 1995) and situating findings within the extant body of literature (Tuckett 2005). Given the flexibility that thematic analysis allows researchers regarding how to conduct data analysis, it is particularly important to identify choices (such as using inductive or deductive analysis in coding and identifying themes) and assumptions (including paradigmatic orientation) that underlie the analysis throughout the manuscript (Braun and Clarke 2006).

The Advantages of Thematic Analysis

As compared to many other qualitative methods, thematic analysis is relatively simple to learn and apply. Because it does not require the use of theory to inform analysis (i.e., it can be purely inductive) and because there are published descriptions and examples of the use of this analysis method, thematic analysis is quite accessible to less experienced researchers (King 2004; Braun and Clarke 2006; Nowell 2017). At the same time, it is a powerful method for analyzing data that allows researchers to summarize, highlight key

features of, and interpret a wide range of data sets. Furthermore, its methods are foundational to numerous other forms of qualitative analysis; in fact, Braun and Clarke (2006) argued that it should be the first method of qualitative analysis that researchers learn. Finally, and perhaps most importantly, thematic analysis offers researchers great flexibility with respect to: (a) the type of research questions it can address, from personal accounts of people's experiences and understandings to broader constructs in various social contexts; (b) the type of data and documents examined; (c) the volume of data analyzed; (d) the choice of theoretical and/or epistemological framework applied; and (e) the ability to analyze data with an inductive, data-driven approach or a deductive, theory-driven approach (Clarke and Braun 2013).

The Disadvantages of Thematic Analysis

The flexibility that thematic analysis offers can also be seen as a drawback in that it contributes to a perception among some that it is not a rigorous method (Clarke and Braun 2013). If manuscripts don't clearly state the paradigmatic orientation of the work and the role of theory in the analysis, thematic analysis risks being seen as a method that is applied broadly and never consistently. Additionally, given the flexible nature of this analysis method, it can be challenging for some researchers to determine which aspects of data to focus on and/or which theoretical or epistemological frameworks to use for their analysis (Braun and Clarke 2006). As with any analytic method, thematic analysis can be conducted poorly (see Pitfalls section below). However, a particular disadvantage with thematic analysis is that it has been more prone to inconsistent or improper use of terminology as compared to other methods with more well-defined and less flexible frameworks. These vagueries complicate appraisals of manuscripts that use, or claim to use, thematic analysis (Braun and Clarke 2006).

Pitfalls to Avoid

Braun and Clarke (2006) highlight several potential pitfalls to avoid when conducting thematic analysis, which broadly fall into three categories. First is a failure to adequately describe the assumptions that underlie the analysis. Thematic analysis will proceed in different ways if the method is used for inductive versus deductive analysis. It will also aim to achieve different goals if it is harnessed for a post-positivist investigation versus a constructivist investigation. These foundational aspects of the study should be explicitly stated, and then the researcher's analysis must align itself to those foundations (Braun and Clarke 2006). Second is a lack of adequate analysis (Braun and Clarke 2006). Mere description of findings or a listing of data extracts or paraphrased responses does not constitute a thematic analysis; thematic analysis requires the researcher to engage in more interpretive work. For example, interview questions should not be used as themes, as this indicates a lack of analysis across the data set (Braun and Clarke 2006). Third is a weak analysis, in which the claims made in the report of findings are unconvincing or unfounded (Braun and Clarke 2006). This can occur when themes are overlapping, nonsensical, and/or lack internal consistency. Additionally, an analysis will be incomplete and unsupported if it lacks exemplary data extracts, fails to encompass all (or at least all of the most relevant parts) of the data set, elevates anecdotes or isolated events

to the level of themes, or is contradicted by its data (Braun and Clarke 2006). Carefully following each of the six steps in the framework, which contain some built-in mechanisms for checking one's work for internal consistency and completeness can help researchers using thematic analysis to steer clear of these pitfalls.

Conclusion

Thematic analysis is clearly a powerful analytical method for qualitative research. We hope that this Guide not only makes clear what thematic analysis is and how it can be used in different research traditions, but also lays bare the steps of the process (as described by Braun and Clarke) so that HPE researchers can use this method in their own work. Thematic analysis is a versatile qualitative data analysis method. We hope this description can help change our community's perception of thematic analysis. It is not a simple or unsophisticated data analysis; instead, it is a flexible and robust analysis method that can usefully help develop insights complex phenomena.

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Box 1: Worked Example of Thematic Analysis from Patient Ownership Project

Step 1: Familiarizing Yourself with the Data	Below is an excerpt from a resident transcript that we will use to illustrate the steps of thematic analysis. “So, I think there's a couple of families that I've taken ownership on, and part of it is, I think – like, I just like them so much. They're such nice people. Not that like, I don't take ownership of the patient families that aren't nice, but the ones that I like, truly felt like, ‘Oh, I want you to come see me and only me’ are the ones that you really like, click on a personal level with. And whether it's like, not even just like, ‘Oh, the mom and I could be friends outside of here or the dad and I could be friends outside of here’ but there's just something about the family dynamic and the kid that you watch, and you get to watch grow. And I think, also, like, the younger they are, the more of that that there is, 'cause you get to like, see all of that, and you're like, ‘Oh, come back in two months and see me so I can see what you're doing then.’” Resident 1
Step 2: Generating Initial Codes	<i>Codes identified in excerpt:</i> Physician feelings toward patients: “So, I think there's a couple of families that I've taken ownership on, and part of it is, I think – like, I just like them so much. They're such nice people. Not that like, I don't take ownership of the patient families that aren't nice, but the ones that I like, truly felt like, ‘Oh, I want you to come see me and only me’ are the ones that you really like, click on a personal level with. And whether it's like, not even just like, ‘Oh, the mom and I could be friends outside of here or the dad and I could be friends outside of here” but there's just something about the family dynamic and the kid that you watch, and you get to watch grow.” Intrinsic sense of responsibility: “Not that like, I don't take ownership of the patient families that aren't nice, but the ones that I like, truly felt like, ‘Oh, I want you to come see me and only me’ are the ones that you really like, click on a personal level with.” Continuity of care: “And I think, also, like, the younger they are, the more of that that there is, 'cause you get to like, see all of that, and you're like, ‘Oh, come back in two months and see me so I can see what you're doing then.’” <i>Coding manual examples:</i> Physician feelings toward patients: the feelings, either positive or negative, that a physician has toward his or her patients

	Intrinsic sense of responsibility: the sense of responsibility that a physician feels toward his/her patient, as opposed to the requirements imposed upon them by attending physicians, systems, or clinic-wide expectations or policies Continuity of care: from the physician's perspective, seeing the same patient longitudinally; from the patient's perspective, seeing the same physician longitudinally
Step 3: Searching for Themes	Noticing that continuity of care was frequently mentioned as an important facilitator of patient ownership, we developed one theme to address the connection between these two concepts. Continuity of care facilitated relationship building, but participants also provided examples of how having continuity of care did not always translate to better ownership, and, conversely, of how some physicians had excellent patient ownership without having continuity of care. Therefore, it appeared that continuity of care was valuable but was neither necessary nor sufficient to guarantee patient ownership. The theme was designed to make connections between these concepts and meaningfully interpret the data. Notice that the theme was <i>not</i> a mere summary or categorization of codes, such as "Effects of continuity of care" or "Participant perspectives on continuity of care." Our initial theme: "Continuity of care supports patient ownership but is not synonymous with patient ownership" The main theme was divided into two sub-themes: "Importance of continuity of care" and "Factors that mediate the relationship between continuity of care and patient ownership." Our codes from above, "Physician feelings toward patients" and "Intrinsic sense of responsibility," were both considered mediating factors that affect the interplay between patient ownership and continuity of care and added to this sub-theme.

Step 4: Reviewing Themes	In this step, additional codes from different portions of the transcripts were incorporated into the theme and its sub-themes. “Educational value,” “Benefits to patient,” and “Benefits to patient” (which were not captured in the excerpt above but were taken from other transcripts) were added to “Importance of continuity of care.” Beyond the patient-physician relationship, these three factors were seen as additional reasons why respondents valued continuity of care. “Patient-level factors affecting ownership” (e.g., the complexity of a patient’s medical history or presenting complaint), “Resident career goals,” and “Lack of knowledge or training” were added as mediating factors. Physicians and patients saw continuity of care as less important for more straightforward medical problems or for patients who had less complex medical histories. Residents were seen as more likely to want to take ownership of patients, especially those they did not see regularly, if they wanted to pursue a career in primary care, whereas they were less likely to do so when they felt they lacked specific medical knowledge or training (particularly for more complex patients).
Step 5: Defining and Naming Themes	In this step, we finalized our themes and reworded our final definition to clarify the relationship we were proposing between continuity of care and patient ownership. We realized the main argument this theme was conveying was not simply that patient ownership and continuity of care are not synonymous, but rather that continuity of care is important but not sufficient to ensure patient ownership. Therefore, the final naming was: “Continuity of care exerts a powerful influence on patient ownership, but it cannot guarantee patient ownership.” We then again examined this theme in relation to the other four themes we had constructed: 5) Patient ownership involves a relational commitment between patient and physician that includes both affective and task-based components. 6) Patient families and physicians harbor idealized conceptions of patient ownership but acknowledge the constraints imposed by logistical and systems-based factors.

	7) Patient families and physicians hold an expansive view of team-based ownership that includes physicians, support staff, and patient families. 8) Physicians recognized the importance of placing limits on the degree of ownership expected of residents. We determined that the theme and its sub-themes did not have significant overlap with the other themes. It was distinct from them because it was focusing on a particular influencer of patient ownership, whereas the other themes were defining patient ownership (Theme #1 above), describing what it entails (#3), and delineating its limitations (#2 and 4).
Step 6: Producing the Report/Manuscript	Below is an excerpt from the manuscript in which this selection of the transcript was incorporated. Note: this excerpt is only a portion of the section describing this theme. “However, while continuity of care was identified as a facilitator for patient ownership, it was neither necessary nor sufficient to achieve patient ownership. Instead, several factors mediated the relationship between continuity of care and patient ownership. “First, residents recognized that their personal feelings toward patients were key mediators of their sense of patient ownership. Even though residents acknowledged the need to provide good care and follow up to all patients regardless of their personal feelings, having a positive personal connection with families over time made it more likely they would actively work to take ownership of their care. So, I think there's a couple of families that I've taken ownership on, and part of it is, I think – like, I just like them so much. They're such nice people. Not that like, I don't take ownership of the patient families that aren't nice, but the ones that I like, truly felt like, ‘Oh, I want you to come see me and only me’ are the ones that you really like, click on a personal level with. -Resident 1”

Figure 1: Macro-level Thematic Map for Patient Ownership Project

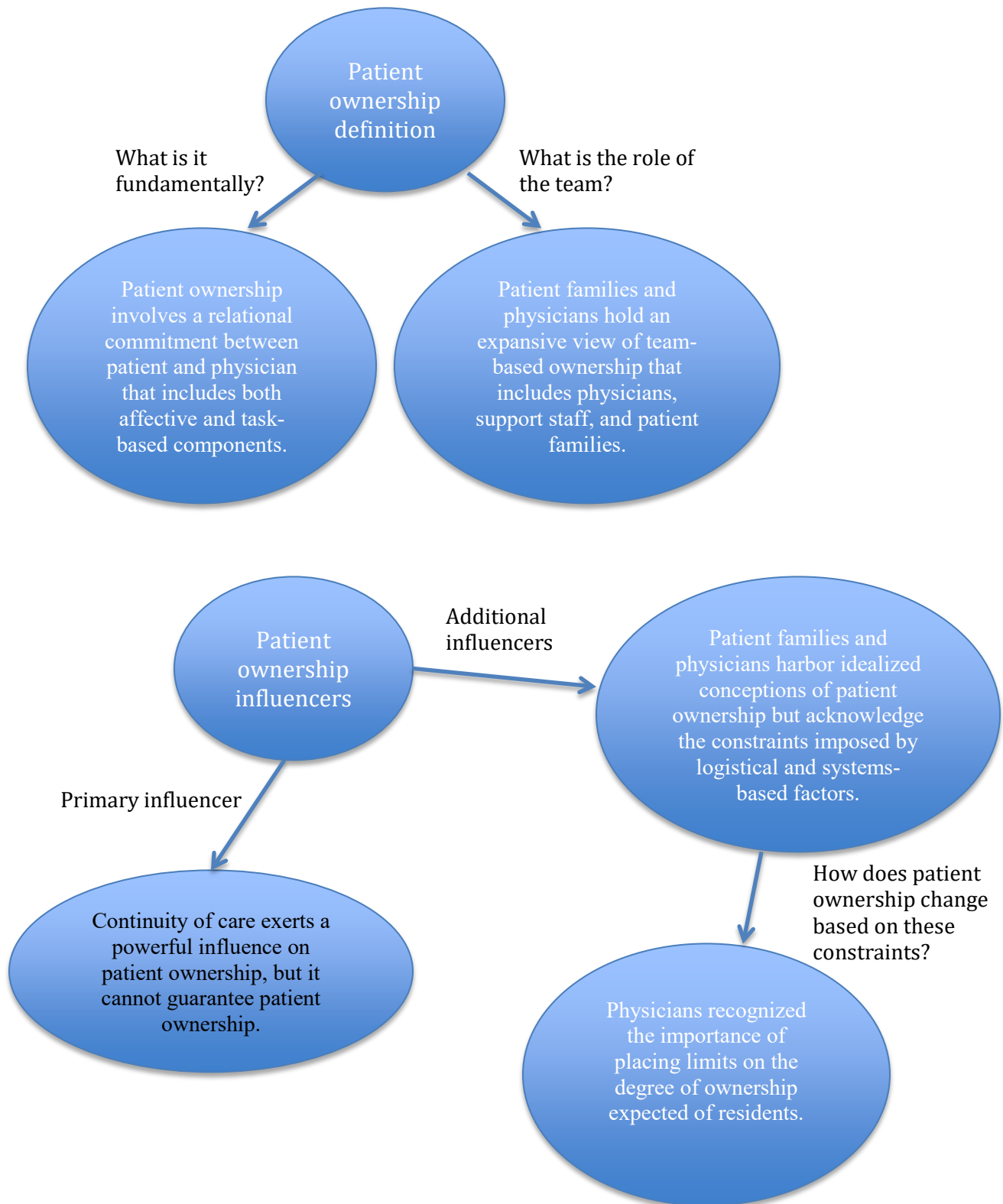
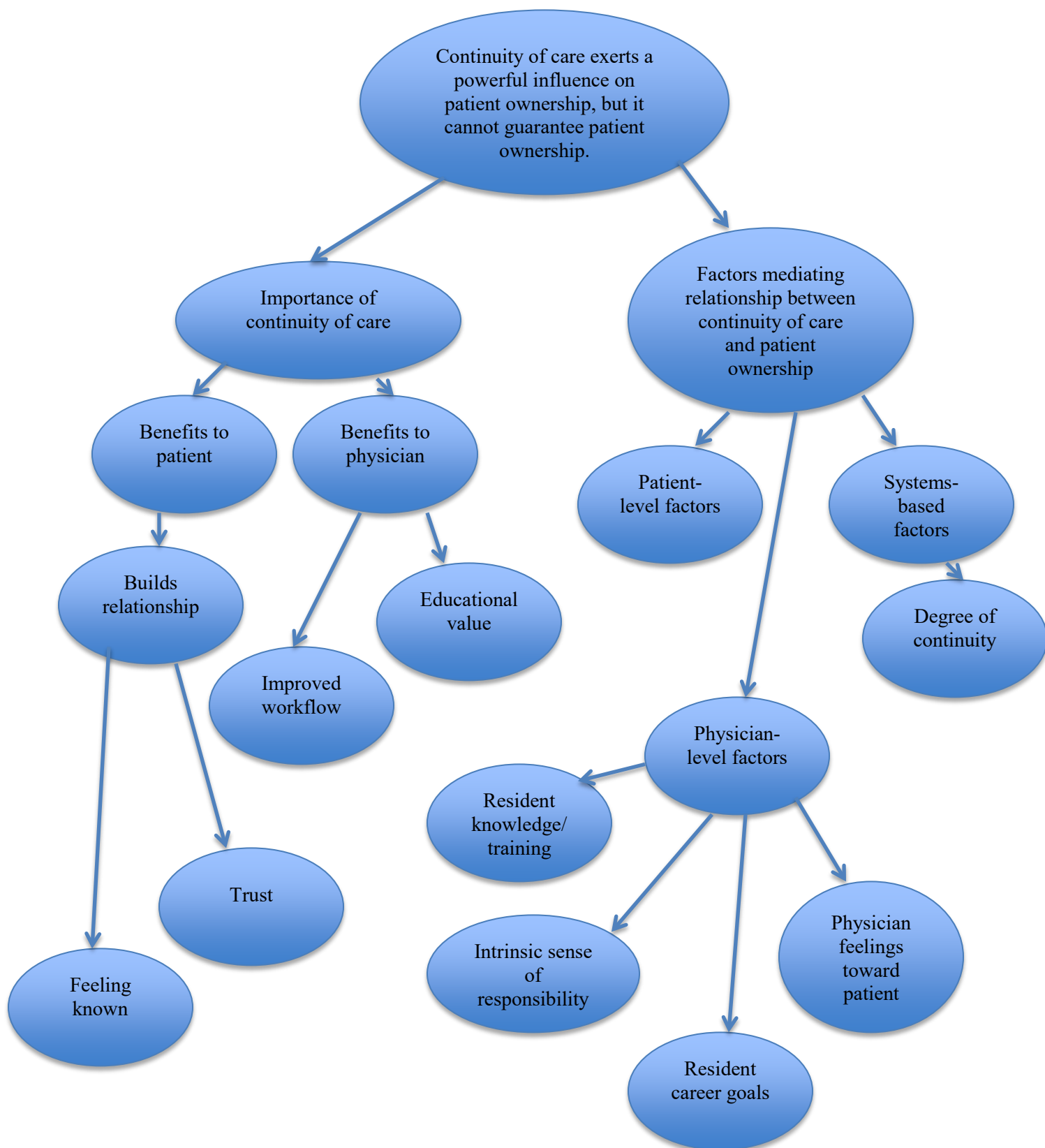


Figure 2: Micro-level Thematic Map Focusing on Highlighted Theme



CHAPTER 5

Defragmenting the Day: The Effect of Full-Day Continuity Clinics on Continuity of Care and Perceptions of Clinic

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Abstract

Problem

Traditional half-day continuity clinics within primary care residency programs require residents to split time between their assigned clinical rotation and continuity clinic, which can have detrimental effects on resident experiences and patient care within continuity clinics. Most previous efforts to separate inpatient and outpatient obligations have employed block scheduling models, which entail significant rearrangements to clinical rotations, team structures, and didactic education and have yielded mixed effects on continuity of care. A full-day continuity clinic schedule within a traditional, non-block rotation framework holds potential to de-conflict resident schedules without the logistical rearrangements required to adopt block scheduling models, but no literature has described the effect of such full-day continuity clinics on continuity of care or resident experiences within continuity clinic.

Intervention

A pediatric residency program implemented full-day continuity clinics within a traditional rotation framework. We examined the change in continuity for physician (PHY) measure in the six months prior to versus the six months following the switch, as well as changes in how often residents saw clinic patients in follow-up and personally followed up clinic laboratory and radiology results, which we term episodic follow-up. Resident and attending perceptions of full-day continuity clinics were measured using a survey administered 5-7 months after the switch.

Context

The switch to full-day continuity clinics occurred in January 2018 within the Wright State University/Wright-Patterson Medical Center Pediatric Residency Program. The program has 46 residents who are assigned to one of two continuity clinic sites, each of which implemented the full-day continuity clinics simultaneously.

Impact

The PHY for residents at one clinic decreased from 18.0% to 13.6% ($p < .001$) with full-day continuity clinics but was unchanged at another clinic [60.6% vs 59.5%, $p = .86$]. Measures of episodic follow-up were unchanged. Residents (32/46=77% responding) and attendings (6/8=75% responding) indicated full-day continuity clinics improved residents' balance of inpatient and outpatient obligations, preparation for clinic, continuity relationships with patients, and clinic satisfaction.

Lessons Learned

Full-day continuity clinics within a traditional rotation framework had mixed effects on continuity of care but improved residents' experiences within clinic. This model offers a viable alternative to block scheduling models for primary care residency programs wishing to defragment resident schedules.

Introduction

Achieving continuity of care between residents and their patients is an important goal for primary care residency programs--albeit an elusive one. Research suggests that continuity can improve outpatient clinical quality measures (including diabetic control and screening mammography),^{1,2} lower rates of hospitalizations and emergency department visits,³ and increase patient satisfaction.³ Additionally, increased resident satisfaction with continuity of care and patient relationships has been shown to increase their likelihood of entering a career in primary care.⁴ However, traditional half-day continuity clinics present several barriers to continuity of care, including competing clinical demands,⁵ scheduling practices that prioritize access over continuity,^{6,7} time constraints,⁷ and inadequate communication about shared patients between faculty and residents.⁶ Furthermore, the traditional half-day-per-week continuity clinic model requires residents to fragment their workdays and attention between inpatient and outpatient obligations,^{5,8} which can negatively impact resident and patient experiences in clinic^{5,9} and potentially pose a risk to patient safety.

To mitigate these obstacles, some residency programs have tested block or “X+Y” schedules (also known as “4+1,” “3+1,” “8+2,” or variations thereof), in which concentrated outpatient or elective blocks with continuity clinics (i.e., Y) are interspersed between dedicated inpatient blocks without continuity clinics (i.e., X).¹⁰⁻¹⁷ While these models de-conflict inpatient and outpatient responsibilities and have led to subjective improvements in residents’ sense of continuity and patient ownership,¹¹⁻¹⁷ they yielded mixed results on continuity of care.^{10,13-16,18} A recent review of continuity of care within resident clinics also found that block scheduling models might have disparate effects on continuity depending on whether it is measured from the perspective of the physician or patient.¹⁹ Furthermore, given the logistical challenges of adopting block scheduling models (e.g., rearranging clinical rotations, team structures, and didactic education), exploring alternatives to these models is important.

One scheduling model that warrants attention is the full-day continuity clinic within a traditional (non-block) rotation framework. A single manuscript examined full day continuity clinics within a “50/50 block model” and found improved balance of inpatient and outpatient responsibilities but a small decrease in continuity of care.¹⁴ No prior literature has described full-day continuity clinics within traditional scheduling models, but they could potentially provide the benefits of block scheduling models (e.g., decreasing conflict between inpatient and outpatient obligations and improving residents’ experiences in clinic), while simultaneously maintaining a traditional scheduling model that is easier for some programs to implement. Therefore, we investigated the impact of a move from half-day to full-day continuity clinics within a pediatric residency program using a traditional rotation framework. Our research questions were: (1) What is the impact of a change from half-day to full-day continuity clinics on residents’ continuity of care?, and (2) What are resident and faculty perceptions of the impact of this change on

continuity of care, clinic preparation, patient ownership, satisfaction with the clinic, and balancing inpatient and outpatient obligations?

Methods

We performed a retrospective chart review and a survey of resident and attending perceptions of a change from half-day to full-day continuity clinics.

Context

Residents and attending physicians from Wright-Patterson Medical Center and Wright State University Pediatric Residency Program participated in this study during the 2017-2018 academic year. Within this integrated military-civilian program of 46 residents, Air Force residents (n=25) have continuity clinic at the Wright Patterson Pediatric Clinic (WP), while civilian residents (n=21) have continuity clinic at the Dayton Children's Pediatrics Clinic (DCP). In both clinics, residents have patients empaneled to them and are expected to act as the primary care physician for those patients. Baseline resident continuity of care was known to be higher at DCP than WP due to scheduling practices that emphasize continuity (DCP) versus access to care (WP), a higher percentage of acute visits seen at WP, and the higher turnover of patients and staff at WP due to it being a military treatment facility. All other aspects of resident rotations and curriculum are identical for military and civilian residents.

In January 2018, the program transitioned from traditional half-day continuity clinics to full-day continuity clinics. Prior to the switch, residents participated, on average, in four half-day continuity clinics per month on outpatient/elective rotations and two per month on inpatient rotations. After the change, residents averaged two to three full-day continuity clinics per month on outpatient/elective rotations and one per month on inpatient rotations. The total amount of time spent in continuity clinic throughout the academic year stayed constant.

Nurses are enlisted to support follow up of laboratory or imaging results at both clinics. At WP, residents send nurses messages within the electronic medical record (EMR) with the result to monitor for and a tentative plan based on the results. The nurses then transfer back resulted labs or imaging to the resident (if in clinic) or a co-resident on their team for follow up. At DCP, the EMR is set up such that nurses automatically track resident inboxes for new results. Nurses then call back normal results or transfer abnormal results back to a resident (if in clinic) or co-resident on the team for patient contact for abnormal results.

Chart review

We performed a retrospective chart review of all resident continuity clinic visits at both sites during the six months prior to (July-December 2017) and the six months following (January-June 2018) the change. We designed the study to cover these time periods to provide a large sample of patient visits, allow time for clinical follow up, and correspond to the academic year. Two commonly employed and accessible metrics for measuring continuity of care are the continuity for physician (PHY) (i.e., the percentage of visits in

which a physician sees his/her own patients),²⁰ and the usual provider of care (UPC) index (i.e., the percentage of visits in which a patient was seen by his/her physician).²¹ Because the focus of our investigation was on the effect of changing the model of continuity clinics on resident education and experiences, not the effect on patients or clinic access, we used PHY to measure continuity of care.

The continuity rates at WP have historically been low, largely due to frequent moves among military families. Given this patient population, many residents work to achieve continuity with patients they see in clinic but who are not empaneled to them. We refer to this type of continuity as *episodic follow-up* and, although we have not seen this concept explicitly discussed in prior continuity literature, we believe it is an important additional measure of continuity, particularly within a clinic with a low continuity baseline rate. Therefore, we also measured: (1) the percentage of resident visits requiring follow-up (e.g., a weight recheck, follow up after adjusting a medication dose) in which the same resident conducted the follow up visit, whether or not the patient was empaneled to that resident, (2) the percentage of laboratory tests ordered by a resident that were followed up by the same resident, and (3) the percentage of radiology studies ordered by a resident that were followed by the same resident.

To investigate whether these measures of episodic follow-up differed in half-day versus full-day continuity clinic models, four investigators (MK, EB, TB, CH) reviewed a random sample of resident encounters in the six months prior to and following the switch to full-day continuity clinics. For any chart in which a follow-up visit was recommended or laboratory test or radiology study was ordered, we recorded whether or not the same resident conducted the follow-up visit or personally followed up on the laboratory or radiology result. We only included visits in which the follow-up occurred (i.e., we excluded encounters in which follow-up was recommended but family did not return). We reviewed enough charts to identify 200 encounters requiring clinical follow-up (follow-up visits, laboratory tests, or radiology studies) before and 200 after the continuity clinic model change to achieve 80% power to detect a 10% difference in rates of episodic continuity using an alpha of 0.05. At each site, approximately one-third of charts reviewed required follow-up.

Survey design and administration

We designed a retrospective pre-post survey²² to gauge resident and attending perceptions of the effect of change to full-day continuity clinics. Specifically, the survey asked respondents to identify how the change affected residents' ability to balance inpatient and outpatient responsibilities, prepare for continuity clinics, achieve continuity with their patients, interact within the clinic healthcare team, and feel ownership over their patients' care. Survey questions were informed by prior studies that have investigated resident perceptions of continuity clinics^{4,13,18} and our own perceptions of common issues that residents encounter with continuity clinics. We refined our survey questions using cognitive interviews and content validation forms completed by two residents and two attending physicians. The resident version of the final survey consisted of 20 paired rating scale questions, and the attending version consisted of 18 paired rating

scale questions (Appendices A and B). Both surveys also included two free-response questions asking for additional benefits and drawbacks of the full-day model.

Surveys were administered 5-7 months after the switch to full-day continuity clinics (June-August 2018) so that residents and attendings would have had several months to experience the new clinic model. The surveys were anonymous and completed using paper forms during protected academic half-days.

Statistical analysis

Measures of continuity of care for half-day versus full-day continuity clinics were compared using contingency table analysis. For follow up of radiology studies, some data points were <5 so we used a Fisher's exact test instead of Chi-squared tests for these comparisons. Paired question responses from the survey were compared using two-tailed, paired t-tests. To protect against Type 1 error, we selected a p-value threshold of 0.01 for statistical significance for survey questions due to multiple comparisons being run on the same data set.

The Institutional Review Boards of Wright-Patterson Medical Center and Dayton Children's Hospital deemed the study exempt, IRB #FWP20180008 and 2018-087, respectively.

Results

Continuity of care

From July to December 2017, the PHY for residents at WP on their half-day continuity clinics was 18.0%, whereas after the switch to full-day continuity clinics, from January to June 2018, the PHY decreased to 13.6% ($p < .001$, see Table 1). At DCP, the PHY for residents from July to December 2017 on half-day continuity clinics was 60.6%, and from January to June 2018 on full-day continuity clinics it was not significantly different at 59.5% ($p = .86$).

With respect to measures of episodic follow-up, we found no significant differences at either clinic in rates of residents performing follow up visits on patients they had seen who required clinical follow up (irrespective of whether the patient was empaneled to them) or following up laboratory or radiology results during half-day versus full-day continuity clinics (Table 2). This finding was consistent when all three measures of follow-up (follow-up visits, laboratory results, and radiology results) were combined to create a composite measure of any type of episodic follow-up ($p = .53$).

Survey results

Thirty-two out of 46 residents (70% response rate; American Association for Public Opinion Research response rate 22) and six out of eight clinic faculty (75% response rate; AAPOR 2) completed the survey. Twelve resident respondents were interns (38%), 12 were second-year residents (38%), and eight were third-year residents (25%). Eighteen resident respondents (56%) and three faculty respondents (50%) were civilians.

Resident responses (Table 3) indicated that the full-day continuity clinics reduced difficulties balancing inpatient and outpatient obligations (mean 4.1 vs 1.4, $p<.001$), increased residents' ability to schedule follow up visits (2.5 vs 3.3, $p=.001$), and improved residents' ability to prepare for clinic (2.3 vs 4.3, $p<.001$). Additionally, residents were more likely to feel ownership over their patients' care (3.1 vs 3.9, $p<.001$) and to feel that they were the primary care physician for their patients (2.7 vs 3.6, $p<.001$) under the full-day continuity clinic model. Their overall clinic satisfaction with continuity clinic also increased (2.6 vs 4.1, $p<.001$). These findings remained consistent when examining resident responses from each clinic site.

Attendings (Table 4) also noted decreased difficulty among residents in balancing inpatient and outpatient obligations (3.5 vs 1.8, $p=.01$), huddling with care teams (2.4 vs 4.0, $p=.004$), and preparing for lecture (1.8 vs 3.8, $p=.008$). However, attendings did not note a significant difference in half-day versus full-day clinics in resident follow up of telephone communications or laboratory/radiology studies, residents acting as the primary caretaker for their patients, or apparent resident overall satisfaction with clinic.

Twenty-seven residents and two attendings generated free-text responses (Table 5). Responses highlighted the benefits of feeling more focused during clinic days, feeling more prepared for clinic, having fewer inpatient handoffs, and increased clinic enjoyment, as well as the drawbacks of having fewer people on inpatient coverage on continuity days and fewer days in clinic.

Discussion

Within one pediatric residency program, transitioning from half-day to full-day continuity clinics had no effect on continuity of care for residents at one clinic (DCP), whereas it decreased continuity at another clinic (WP). We found no effects of the change on measures of episodic follow-up among residents, including seeing patients in follow up for issues they covered during clinic visits (regardless of whether the patient was empaneled to them) and personally following up laboratory and radiology studies they ordered. However, despite these effects on numerical measures of continuity, residents strongly preferred the full-day continuity clinic model with respect to balancing inpatient and outpatient obligations, following up on patient care issues, being able to adequately prepare for clinic, having good continuity relationships with patients and ownership over their patients' care, and their overall satisfaction with clinic. Attending physicians also noted an improved balance of inpatient and outpatient obligations and improved resident preparation for clinic.

Our findings build upon previous research that has invoked cognitive load theory to explain the difficulties residents face in juggling competing clinical demands within continuity clinics.¹⁴ Cognitive load theory suggests that people have a limited capacity of working memory, which is used to attend to and process new information.²³ When some of that capacity is occupied by attending to matters extraneous to the task at hand, such as thinking about inpatients from the morning or being interrupted by inpatient tasks⁵ while at an afternoon continuity clinic, less working memory is available to devote to one's

current work, such as caring for continuity clinic patients. Residents in our study reported feeling less distracted by inpatient tasks, more able to focus on clinic patients, and better able to balance their inpatient and outpatient obligations, all of which would serve to decrease the demands on working memory during continuity clinic. This decreased extraneous cognitive load allowed more undivided attention to clinic patients and led residents to feel they were able provide higher quality of care to their patients with the full-day clinic schedule. Jantea et al¹⁴ found similar improvements in resident experiences with a full-day continuity clinic that they attributed to improved focus and decreased cognitive load, although their clinic schedule was implemented within the framework of a 50-50 inpatient/outpatient block model. Therefore, it is notable that the implementation of full-day continuity clinics alone within our program yielded many of the same benefits but involved far less rearrangement of the residency scheduling model as a whole. These findings are also in accordance with studies demonstrating residents are more frequently interrupted during continuity clinic⁵ and are less likely to complete inter-visit follow-up tasks⁸ while assigned to inpatient rotations, and continuity clinic patients are less satisfied with clinic visits when residents are juggling a higher workload.⁹ Therefore, regardless of the overall scheduling model used within a program, allowing residents to devote more undivided attention to clinic patients can benefit both the residents and the patients they treat. Although beyond the scope of this current study, future research drawing on cognitive load theory could examine if full-day continuity clinics or other scheduling models separating inpatient and outpatient obligations reduce diagnostic or other cognitive errors among residents.

However, we are left with a paradox in other aspects of our findings – namely, that residents *perceived* they were more likely to achieve good continuity relationships with their patients, schedule follow up visits with patients, follow up on laboratory and radiology results, and have improved patient ownership under the full-day continuity clinic schedule, even when numerical measures of continuity stayed constant or decreased. The concept of legitimate peripheral participation (LPP) might help to explain these results.²⁴ LPP suggests that learners (e.g., residents) new to a particular community of practice (e.g., a continuity clinic) begin by engaging in tasks that are simpler and less central to the core mission of the practice. Then, over time, as they gain acceptance into the community and acquire more mastery of requisite knowledge and skills, learners become more engaged and central to its functioning. We posit that, when residents attend continuity clinic for one half-day per week, it is difficult for them to feel like fully engaged participants in the continuity clinic community. Full-day continuity clinics might accelerate residents' progression toward a central role in the clinic by helping them feel more engaged because they are present in the clinic for an entire day and less distracted by other obligations. As they begin to see themselves as more central participants in the clinic, residents might be more eager to personally follow up on patients they see, feel like the primary physician for their patients, and have an increased sense of patient ownership. Further qualitative studies would be helpful to explore these potential explanations.

Our study is not without limitations. Despite a good response rate, the study was conducted within a single program and a single specialty. The number of attending

surveys reduced our power to detect statistically significant differences in their perceptions of changes. Additionally, the survey was given retrospectively, several months after the switch. This may have affected respondent recollections of their perceptions of half-day continuity clinics and subjected them to a recall bias. Resident perceptions of the second half of the academic year might also have been improved simply because they became more comfortable in continuity clinic over time. Due to the retrospective pre-post format, it is also possible that responses to individual questions were a proxy for overall satisfaction with the change. Finally, our study was not designed to determine why the rates of continuity were so different between our two clinic sites or why the change to full-day continuity clinics decreased continuity at one site but not the other. We suspect that the difference is secondary to the scheduling practices already in place prior to the switch at DCP, which strongly prioritized continuity with resident patients. However, the differences between clinic sites highlight the need for further investigation to identify other factors that might mediate the effect of a full-day continuity clinic schedule on continuity of care, such as scheduling protocols and faculty time in clinic.²⁵

In 2003, Saultz²⁶ proposed that continuity of care has three dimensions: informational (i.e., the ability of medical professionals to share and obtain patient information across encounters), longitudinal, and interpersonal. Numerical measures of continuity focus on the longitudinal dimension of continuity, but the continuity clinic models that provide more protected time in clinic all seem to increase interpersonal dimensions of continuity, such as promoting stronger relationships with patients and residents' sense of patient ownership. Therefore, despite mixed effects on longitudinal continuity, we contend that full-day continuity clinic models merit further study in a range of primary care residency settings and specialties because of the interpersonal continuity advantages they offer. No single scheduling model will be ideal for every residency program, but we forward full-day continuity clinics as an option for programs that wish to improve resident experiences in continuity clinic while maintaining a more traditional, non-block schedule.

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Table 1. Resident Continuity of Care with Half- versus Full-Day Continuity Clinics

Clinic Location	Half Day		Full Day		X ²	p-value
	Total Resident Visits	Visits with Continuity Patients	Total Resident Visits	Visits with Continuity Patients		
WP	1834	330 (18.0%)	2090	285 (13.6%)	14.0	<.001
DCP	1121	671 (60.6%)	1262	751 (59.5%)	.03	.86

DCP: Dayton Children's Pediatrics; WP: Wright-Patterson Pediatric Clinic

Table 2. Episodic Follow-Up for Resident Encounters in Half- versus Full-Day Continuity Clinics

Encounter Type	Clinic Location	Half Day		Full Day		X ² (or Fisher's exact for radiology)	p-value
		Total Encounters Requiring Follow-Up	Encounters with Same Resident Follow-Up	Total Encounters Requiring Follow-Up	Encounters with Same Resident Follow-Up		
Clinic Follow-up Visits	WP	55	20 (36.3%)	54	16 (29.6%)	.56	.45
	DCP	46	31 (67.4%)	44	27 (61.4%)	.36	.55
	Combined	101	51 (50.4%)	98	43 (43.9%)	.87	.35
Laboratory Result Follow-up	WP	44	21 (47.4%)	44	30 (68.1%)	3.14	.07
	DCP	50	29 (58.0%)	47	18 (38.3%)	3.77	.052
	Combined	94	50 (53.2%)	91	48 (52.7%)	.004	.95
Radiology Study Follow-up	WP	12	10 (83.3%)	11	9 (81.9%)	1	NS
	DCP	6	5 (83.3%)	12	9 (75.0%)	1	NS
	Combined	18	15 (83.3%)	23	18 (78.3%)	1	NS
Composite Measure of Any Follow-up	WP	111	51 (46%)	109	55 (50%)	.45	.50
	DCP	102	65 (64%)	103	54 (52%)	2.68	.10
	Combined	213	116 (54%)	212	109 (51%)	.40	.53

DCP: Dayton Children's Pediatrics; WP: Wright-Patterson Pediatric Clinic

Table 3. Resident Perceptions of Half- versus Full-Day Continuity Clinics

Question (Answer choices: 1-almost never, 2-once in a while, 3-sometimes, 4-often, 5-almost always)	Half Day [mean (SD)]	Full Day [mean (SD)]	p-value	Effect size (Cohen's <i>d</i>)
1) How often did/do you have difficulty balancing inpatient and outpatient obligations?	4.1	1.4	<.001	3.57
2) How often did/does going to continuity clinic interfere with your ability to fulfill your inpatient obligations?	3.8	1.1	<.001	4.86
3) How often did/do your inpatient obligations interfere with your ability to fulfill obligations related to your continuity clinic?	3.5	1.1	<.001	3.16
4) How often was/is the quality of care you provided negatively affected by needing to balance inpatient and outpatient obligations?	3.3	1.2	<.001	2.84
5) How often were/are you able to provide high quality care to your continuity clinic patients?	3.8	4.4	<.001	1.07
6) How often were/are you able to respond to Telephone Communications (TCOns) during your continuity clinic?	3.0	4.3	<.001	1.28
7) How often were/are you able to personally follow up on your patients' laboratory results?	2.6	3.5	<.001	.94
8) How often were/are you able to personally follow up on your patients' radiology results?	2.8	3.6	<.001	.77
9) How often were/are you able to personally follow up on results of consults you placed for your patients?	2.4	3.4	<.001	.92
10) How often were/are you able to arrive on time for your continuity clinic?	2.5	4.9	<.001	3.45
11) How often were/are you able to huddle with your care team (nurse/technician) prior to starting your continuity clinic?	2.4	4.7	<.001	2.47
12) How often were/are you able to prepare for the continuity lecture prior to your continuity clinic?	2.8	4.2	<.001	1.55
13) How often were/are you able to pre-read on your patients prior to your continuity clinic?	2.3	4.3	<.001	2.1
14) How often were you/are able to schedule patients to follow up with you when you want(ed) to personally follow up with a patient?	2.5	3.3	<.001	.87
15) How often were you/are concerned about not being able to personally manage your	3.8	1.6	<.001	2.55

inpatients while you were/are in continuity clinic?				
16) How often did/do you feel as if you were/are the primary caretaker for continuity clinic patients who were/are empaneled to you?	2.7	3.6	<.001	.81
17) How often did/do you feel that you had ownership of your clinic patients' care?	3.1	3.9	<.001	.90
18) How often did/do you feel that you had/have good continuity relationships with your continuity clinic patients?	3.2	4.0	<.001	.80
19) How often did/do you feel that you saw/see an adequate number of patients in your continuity clinic?	3.9	4.5	.001	.77
20) How often did/do you feel satisfied overall with your continuity clinic experience?	2.6	4.1	<.001	1.80

Table 4. Attending Perceptions of Half- versus Full-Day Continuity Clinics

Question (Answer choices: 1-almost never, 2-once in a while, 3-sometimes, 4-often, 5-almost always)	Half Day [mean (SD)]	Full Day [mean (SD)]	p-value	Effect size (Cohen's <i>d</i>)
1) How often did/do residents have difficulty balancing inpatient and outpatient obligations?	3.5	1.8	.01	2.53
2) How often did/does going to continuity clinic interfere with residents' ability to fulfill obligations related to continuity clinic?	3.0	1.5	.02	2.54
3) How often did/do the quality of care residents provided become negatively affected by the need to balance inpatient and outpatient obligations?	2.2	1.3	.14	.93
4) How often were/are residents able to provide high quality care to their continuity clinic patients?	4.3	4.3	1.0	0
5) How often were/are residents able to respond to Telephone Communications (TCONs) during their continuity clinic?	4.0	3.8	.36	.14
6) How often were/are residents able to personally follow up on their patients' laboratory results?	3.2	3.5	.36	.30
7) How often were/are residents able to personally follow up on their patients' radiology results?	3.3	3.3	1.0	0
8) How often were/are you able to personally follow up on results of consults you placed for your patients?	3.0	2.6	.18	.37
9) How often were/are residents able to arrive on time for their continuity clinic?	3.7	4.7	.08	1.46
10) How often were/are residents able to huddle with their care team (nurse/technician) prior to starting their continuity clinic?	2.4	4.0	.005	1.43
11) How often were/are residents able to prepare for the continuity lecture prior to their continuity clinic?	1.8	3.8	.008	2.66
12) How often were/are residents able to pre-read on their patients prior to their continuity clinic?	2.0	3.6	.03	1.99
13) How often were you/are residents able to schedule follow up with their patients when desired?	3.2	3.0	.75	.26
14) How often did/do you feel as if residents were/are the primary caretakers for continuity	3.2	3.0	.41	.26

clinic patients who were/are empaneled to them?				
15) How often did/do you feel that residents were/are primarily responsible for their continuity clinic patients' care?	3.4	3.2	.37	.40
16) How often did/do you feel that residents had/have good continuity relationships with their continuity clinic patients?	3.4	3.2	.62	.28
17) How often did/do you feel that residents saw/see an adequate number of patients in their continuity clinic?	4.2	4.2	1.0	0
18) How often did/do residents seem satisfied overall with their continuity clinic experience?	3.2	3.6	.18	.56

Table 5. Resident and Attending Free-text Survey Responses

	Residents (n=27)	Attendings (n=2)
Benefits	• Feeling more focused during clinic days, leading to better patient care in clinic (n=12) • Feeling more prepared for clinic, leading to lower stress (n=11) • Fewer inpatient handoffs (n=2) • Increased overall enjoyment of clinic (n=2)	• Improved preparation for clinic (n=2) • Increased ability for residents to accept walk-in patients (n=1)
Drawbacks	• Fewer people covering inpatient teams in the morning on clinic days (n=9) • More difficulty scheduling follow up with patients due to fewer days in clinic (n=5)	• Fewer overall days in clinic, with longer periods between clinic days (n=2)

CHAPTER 6

DISCUSSION

Summary of Findings

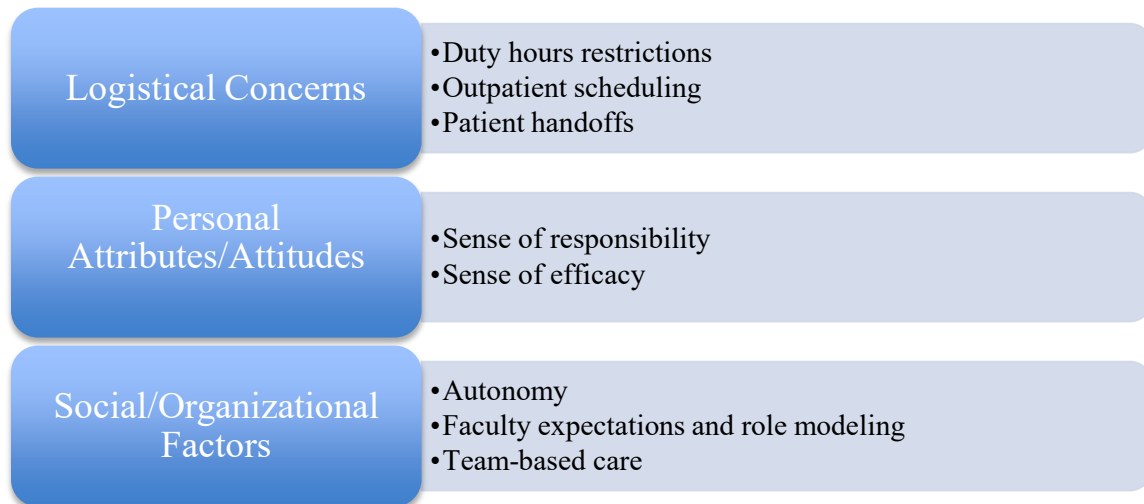
Chapter 2: Scoping literature review

The scoping literature review in **Chapter 2** examined definitions and factors influencing patient ownership. In this review, we identified 82 papers that met our inclusion criteria, yet only 23 of these offered a definition of patient ownership. Importantly, the majority of these definitions came from the study authors themselves, with only nine derived from participant responses collected via surveys or interviews¹⁻⁹. Commonalities in the definitions offered in these 23 manuscripts included: seeing patient ownership as a responsibility or duty toward patients,^{1-3,4-7,9-20} personally performing patient care tasks,^{1-5,7,9,14,18-22} knowing patients well,^{1-4,7,18,19,21} prioritizing patients' needs,^{1,6,8,10,14,23} and autonomy in decision making.^{1,2,4,8,12} Also included in a minority of definitions were teamwork, care coordination, and advocacy.^{1,2,6,19} Among studies that based definitions on participant responses (as opposed to author-derived definitions), attending physicians more often emphasized responsibility, continuity of care, and time commitment.¹⁻³ In contrast, residents prioritized independent decision making and team-based care, while medical students highlighted knowing patients well, participating in clinical follow up tasks, and working hard.^{1-3,5} There was also a notable divergence in connotations of patient ownership across definition, with most manuscripts lauding it as positive and desirable but a minority of papers expressing concern that the term undermines patient empowerment and autonomy.³

Regarding influencers of patient ownership, the scoping review identified three categories of influential factors: logistical concerns, physician attributes/attitudes, and socially- or organizationally-constructed expectations (Figure 1). The most commonly discussed logistical concern was duty hours restrictions (DHRs), which were most often—but not always—seen as a barrier to patient ownership because it promoted a shift-worker mentality, reduced individual accountability due to more people caring for each patient, and/or diminished continuity of care.^{7,10-12,18,23,24-26} However, a few studies did note unchanged or even increased feelings of ownership under DHRs due to improved teamwork and more stable team structures.^{7,27-30} Other key logistical factors were outpatient clinic scheduling practices, including resident scheduling models^{16,19,22,31-34} and continuity of care,^{35,36} and patient handoffs.^{12,35,37-41} With respect to personal physician attributes or attitudes, having a sense of personal responsibility toward one's patients^{10-12,21,42-44} and having a sense of efficacy that one is capable and competent to care for patients' concerns^{19,45,46} facilitated patient ownership. Finally, socially or organizationally constructed expectations placed on physicians were also influential. Specifically, resident and medical student autonomy in medical decision making^{2,4,5,19,47,48-50} and faculty setting clear expectations^{11,18,19,51-54} and exhibiting positive role modeling^{19,45} promoted patient ownership. Team-based care was seen as a more complicated phenomenon shaping patient ownership, with many manuscripts noting

a tension between the shift toward team-based care and traditional notions of patient ownership as an individual responsibility^{10,14,21,30,42,54}. However, several papers advocated for a new conception of patient ownership that acknowledges and embraces the reality of team-based care^{14,21,30,42,54}.

Figure 1: Patient Ownership Influencers



Chapter 3: Resident continuity clinic interviews

Chapter 3 examined definitions, expectations, and experiences of patient ownership within continuity clinics from the perspective of attending physicians, residents, and patient families. Using constructivist grounded theory methodology, we constructed four principal themes from participant responses and developed a theory of patient ownership within continuity clinics. First, patient ownership was seen as “*a relational commitment between patient and physician that includes both affective and task-based components.*” While participants identified tasks that demonstrated patient ownership, all participant groups also acknowledged that patient ownership entailed a relational, affective connection between the patient and physician that involved active roles for both the patient/family and the physician. Second, “*continuity of care exerts a powerful influence on patient ownership, but it cannot guarantee patient ownership.*” Continuity of care was seen as a key facilitator of patient ownership by promoting relationships, improving patient care, increasing physician satisfaction, and streamlining clinic workflow. However, residents’ personal feelings toward patients and the medical complexity of the patient mediated the relationship between continuity of care and patient ownership. Third, “*patient families and physicians harbor idealized conceptions of patient ownership but acknowledge the constraints imposed by logistical and system-based factors.*” Patient families and physicians recognized and accepted that time constraints and scheduling barriers were an inevitable part of modern practice, so they did not fault physicians for having to hand off aspects of patient care or practicing team-based care. In fact, some residents recognized that failing to acknowledge these limitations within themselves could lead to feelings of guilt or burnout. Finally, “*patient families and physicians hold an expansive view of team-based ownership that includes physicians, support staff, and patient families.*” All groups saw the physician as individually accountable to his/her

patients despite being part of a care team. However, the care team was recognized as playing a vital role in medical care provision. Many participants—particularly patient families but also several physicians—viewed the families as key members of this care team and saw patient ownership as a joint responsibility between physician and patient family.

Building upon these findings, we developed a theory of patient ownership within continuity clinics that conceptualizes patient ownership as “*a relational commitment that involves a bi-directional exchange between patient and physician.*” Both physician and patient/family have particular affective and behavioral roles within this commitment that will vary depending on the local context. Within our continuity clinic setting, continuity of care, scheduling practices, autonomy, protocols for follow-up of laboratory and other ancillary testing results, resident patient load, and patient medical complexity were key contextual influencers. Other members of the medical care team facilitated patient care delivery and coordination but did not usurp or dilute the personal commitment felt by the physician toward the patient/family. The active role of the patient/family is central to this theory and helps to bring patient ownership more in line with modern conceptions of the patient-physician relationship that value patient autonomy and empowerment.

Chapter 4: Methods paper on thematic analysis

Chapter 4 is an AMEE Guide on thematic analysis, a method of qualitative data analysis that is frequently used but often misapplied or misunderstood in medical education. For me, this paper was instrumental in clarifying the difference between thematic analysis and related methods such as grounded theory, and it provided an integral foundation for elements of the data analytic process in the interview study (Chapter 3) and for planning future qualitative studies on patient ownership beyond this dissertation. Thematic analysis is a versatile yet powerful method of analysis that seeks to identify repeated patterns or meanings, also known as *themes*, across a data set. Situated among other methods of qualitative data analysis, it involves more interpretation and transformation of the data than strictly descriptive qualitative data analysis approaches such as topical surveys, but less interpretation or theoretical extension than phenomenology or grounded theory. It can also be seen as foundational for other methods of qualitative data analysis such as the initial analytic steps of grounded theory. While various methods of thematic analysis have been proposed, the most commonly used is the six-step method forwarded by Braun and Clarke⁵⁵: 1) familiarizing yourself with the data, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes, and 6) producing the report/manuscript. We used data from our continuity clinic interview study in **Chapter 3** to illustrate these steps, including worked examples of coding and theme development and two thematic maps of our data. Advantages of thematic analysis include its accessibility, power, and flexibility, whereas disadvantages include perceptions by some that it lacks rigor, the need for researchers to be explicit about their theoretical or epistemological frameworks, and the fact that it has been misused and/or mislabeled by some researchers in the past. Most of these disadvantages can be overcome by explicitly describing paradigmatic orientations, assumptions, and theoretical foundations, and by thoughtfully following the six steps outlined in this framework.

Chapter 5: Full-day continuity clinic study

Chapter 5 examined the effect of switching from half-day to full-day continuity clinics on continuity of care and on residents' and attending physicians' perceptions of continuity clinic within a pediatric residency program that involved two different clinical settings. After the switch, the continuity for physician (PHY) measure of continuity of care was unchanged at the Dayton Children's Pediatric Clinic but decreased slightly at Wright-Patterson Pediatric Clinic. The switch had no effect on how often residents were able to personally see patients in follow up for issues addressed at a particular visit (regardless of whether the patient was empaneled to them) and their rates of personally following up laboratory results or radiology studies. Residents and faculty physicians reported that full-day continuity clinics reduced difficulty balancing inpatient and outpatient obligations and improved resident preparation for clinic. Residents also noted improved feelings of ownership over their patients' care, a greater sense that they were the primary care provider for their clinic patients, and increased overall satisfaction with clinic. Therefore, this paper is important in that it described a relatively simple scheduling change that yielded many of the same reported benefits of block scheduling models, including de-conflicting inpatient and outpatient obligations and improving perceptions of interpersonal continuity and patient ownership. This was achieved without demanding the significant scheduling, educational, and logistical changes entailed with block scheduling models. Additionally, it highlights that scheduling changes hold the potential to improve resident experiences in clinic (including their perceptions of continuity of care), even when numerical measures of longitudinal continuity stayed constant or decreased.

What's in a Name?

A question I did not intend to address when I began this dissertation—but soon became clear would warrant attention—was whether *patient ownership* is still a term worthy of being used or even a concept worthy of being encouraged in medical learners and practicing physicians. Wyatt et al (2016) were among the first to explicitly question use of the word *ownership* over concerns that it implies an entrenched power differential between patient and physician. These authors warn that the term *patient ownership* could be interpreted as ignoring the concepts of shared decision making, patient empowerment, and the patient's role in partnering with the physician and other care team members within a therapeutic alliance. In recent years, others have shifted toward using the phrases *patient care ownership* or *ownership of patient care*^{1,18,19,56} or have focused instead on *decision ownership*¹² within medical care in response to such concerns. We did not elect to change our terminology throughout the course of the studies within this dissertation, although we addressed these concerns in other ways. Despite retaining the phrase *patient ownership*, our definition forwarded in the scoping review in **Chapter 2**—“*Patient ownership is the commitment that a medical provider—both individually and as part of a team of health care professionals—feels and displays in relation to the provision and coordination of care for his or her patients*”—makes clear that the commitment to a patient's care, not the patient him or herself, is the object of ownership.

Before weighing in on the merits of one phrasing over another, it is worth stepping back and asking whether the term *ownership* itself adds value or valence over and above related terms such as duty or responsibility. Dubov et al posit that “[t]he possessive nature of medical decision ownership differentiates it from other similar attitudes such as responsibility or commitment”^{12(p3)} and argue that *ownership* of medical decisions implies a deeper sense of connection, care, attention, and investment toward patient care. Greenzang and Kesselheim¹⁸ similarly see value in embracing this term and promoting it among trainees, despite the paternalistic overtones that have been imbued within it historically. They note: “Though the term ownership may seem paternalistic, many of the values that it represents—commitment, responsibility, accountability, advocacy, and continuity—remain central to the mission of medical education and to excellence in patient care.”^{12(p987)} Therefore, instead of abandoning the term, Greenzang and Kesselheim advocate that “[w]e can also reclaim and reemphasize the term ownership, not with regard to the paternalistic notion of ‘owning a patient,’ but rather owning the responsibility that comes with being someone’s physician.”^{12p(987)}

Within our research, the arguments in favor of retaining the term resonate with participant responses from our interview study in **Chapter 3**, which defined patient ownership as more than a simple responsibility. Residents and attendings could often recall the first time they had heard the term and how it helped them to think of the patients they care for as *their* patients—both in terms of the responsibilities and the relationships they felt this description entailed. Furthermore, some even defined ownership based on their patients’ sense of this relationship: “My definition of patient ownership is that my patients know who their primary care doctor is.” (Resident 3). These conceptions of ownership align well with a recent commentary by Laskowski⁵⁷ on the power and significance of the word *my* within the patient-physician relationship, specifically of patients being able to identify a physician as *my doctor*:

The expectations are the patient’s own, and any physician’s explanation [of a medical problem] needs to be grounded in the individuality of a particular patient that can only be discerned in the context of relationship. It is this relationship that is succinctly and powerfully summarized in the diminutive pronoun ‘my.’ The possessive pronoun ‘my’ embodies relationship.^{57(p1235)}

Although not making an argument for or against the word *ownership*, this framing of the importance of *my* implies a similar possessiveness that is central to this relationship. Furthermore, the focus on the patient’s feelings of possession dovetails with our conclusion in **Chapter 3** that *ownership* is not a unidirectional phenomenon of physician toward patient as historically conceptualized. Instead, it is a relationship that involves active engagement from both the physician and the patient.

Therefore, I conclude work on this dissertation in a similar, yet more nuanced and hopefully more thoughtful, position as where I began—believing that ownership is a concept central to good medical practice and that is worthy of being taught and fostered among trainees. Based on a thorough review of the literature (**Chapter 2**) and participant responses from our interview study in **Chapter 3**, I believe the relational implications of *ownership* have unique value that cannot be substituted by related terms such as duty or

responsibility. However, through this work, I have also become more sensitive to concerns about hegemonic power dynamics that the term *patient ownership* implies to some. In **Chapter 2**, we argue that patient ownership is an acceptable term as long as those using it have a clear understanding that it implies ownership of a commitment toward patients and their patient care, not authority over a patient him or herself. Our theory of patient ownership within continuity clinics (**Chapter 3**) expands this discussion to envision patient ownership as a bidirectional exchange between patient and physician, placing even more autonomy and agency with the patient within this concept. *With this understanding* of what I mean by this term, I prefer *patient ownership* over *ownership of patient care* or *patient care ownership* because it seems more personal and relational—speaking more directly to a relationship with and commitment toward a person, not just his or her medical care. However, this is my opinion alone, I fully respect and appreciate dissenting views that prefer these alternative phrasings.

Additionally, I recognize that as a white physician, I approach this topic from a vantage and position of privilege. Although no studies to date have specifically examined this question from a cultural, racial/ethnic, or gendered lens (an important topic for future study), I could imagine that people coming from more historically disadvantaged or underrepresented backgrounds might find the term *patient ownership* even more problematic. Regardless of which term is embraced by individual physicians or whether there is a shift in the future toward different phrasings, I hope that the work in this dissertation can help to conceptualize ownership in a more inclusive sense and encourage researchers to examine it from a more diverse set of perspectives moving forward.

Continuity of Care and Patient Ownership Revisited

Studies within this dissertation suggest that the relationship between continuity of care and patient ownership is more complex than has been previously described. Prior literature had reported that continuity of care—specifically longitudinal continuity⁵⁸—facilitates patient ownership.^{35,36} In accordance with these findings, attending, resident, and patient family participants in our interview study (**Chapter 3**) affirmed that, within resident continuity clinics, continuity of care generally promotes patient ownership by strengthening the patient-physician relationship and improving physicians’ knowledge of their patients. However, residents and attendings were able to identify additional factors that mediated this relationship, including residents’ personal feelings toward their patients and the complexity of a patient’s medical needs. In the case of difficult interactions with families, having continuity of care within a strained relationship was seen as a barrier toward patient ownership. Furthermore, continuity of care was seen as less important for patients with less complicated medical histories and/or presenting complaints. Additionally, having a *low* degree of baseline continuity within a clinic was seen as a motivating factor for some residents to take *better* ownership of their patients’ care because they were afraid that patient care would suffer if they did not. In essence, in a clinic with low degrees of continuity of care, it was easier for them to conceive of every patient they saw as *their* patient, regardless of whether or not the patient was empaneled to them, since no one assumed the assigned primary care physician had good continuity with the patient.

The study of the effect of a change to full-day continuity clinics in **Chapter 5** also points to a less straightforward relationship between continuity of care and patient ownership. In one of the two clinics studied, switching from half-day to full-day continuity clinics decreased longitudinal continuity of care from the perspective of the physician. However, despite this decrease in continuity, residents still reported that the switch improved their sense of patient ownership, their feeling as the primary care physician for their clinic patients, and the perceived strength of their continuity relationships with their patients. Interestingly, residents also reported feeling they were more often able to respond to telephone communications from patients and to personally follow up on laboratory or radiology results under the full-day continuity clinic model, yet these measures of episodic continuity at both clinics were unchanged. In other words, perceptions of patient ownership and interpersonal continuity⁵⁸ increased despite a decrease and/or no change in measures of longitudinal continuity.

These apparent contradictions can potentially be explained by the concept of communities of practice, specifically with respect to its description of legitimate peripheral participation.⁵⁹ According to this theory, as residents become more central participants within the community of practice that is their continuity clinic, they will assume more responsibility for patient care and internalize the expectations and attitudes of the clinic's innermost members, such as faculty. Narrative and survey responses from residents indicated that some of the largest reported benefits of the switch to full-day continuity clinics was increased feelings of engagement, focus, preparation, and teamwork with the clinic, which we see as indicators that they viewed themselves as more central participants within the clinic. As such, it could logically follow that residents felt more ownership over patient care and that they had better continuity relationships with their patients given how they viewed *themselves* and their roles differently. More study is needed to verify if this explanation holds true, but the findings are in alignment with studies outlined in the scoping review (Chapter 2) that identified fragmentation between inpatient and outpatient obligations as a barrier to ownership.^{19,22,31,32,37,60}

Taken together, these studies demonstrate that although continuity of care in the outpatient setting can promote patient ownership, the relationship is not necessarily linear or deterministic.

Additional Implications for Educators

Other authors have previously forwarded recommendations for promoting patient ownership among trainees. Greenzang and Kesselheim¹⁸ propose six recommendations for leaders in graduate medical education: (1) emphasize the importance of ownership among trainees and “stop making excuses” (such as duty hours restrictions) for a lack thereof, (2) clearly define trainees’ roles and responsibilities within interprofessional teams, (3) enhance continuity of care, including setting clear expectations regarding trainees’ role in clinical follow up, (4) encourage personal responsibility for education, using such tools as individualized learning plans, case logs, portfolios, and self-

assessments, (5) provide faculty development for how to model and foster responsibility, including how to give appropriate graduated autonomy, and (6) use existing milestone-based assessments and program evaluation systems to assess ownership. Soeprono et al¹⁹ outline four levels at which they suggest to intervene to improve ownership: (1) attending (through role modeling, setting expectations, promoting autonomy, and accountability), (2) resident (through improving knowledge/skills/competence in patient care, providing supervision that is engaging and empathetic, discussing what makes a “good doctor,” and attending to resident mental health), (3) educational program (through feedback, didactic education, and setting a culture that values ownership), and (4) environment (providing motivational support to prevent burnout, minimizing schedule fragmentation, limiting workload, and outlining clear team roles). Similarly, Cowley et al² recommend setting clear expectations, providing autonomy with appropriate supervision and feedback, and having explicit discussions between team members about what ownership means. McLaren et al¹ also propose a two-step framework for diagnosing and remediating deficits in professionalism: (1) identifying the target behavior (using the behavioral definition they forward, including advocacy, autonomy, commitment, communication, follow through, knowledge, and teamwork) and (2) defining the deficit as an issue with knowledge, skills, or attitude to target interventions appropriately.

All of these recommendations are reasonable, even if some might be easier to accomplish than others. Furthermore, all of these recommendations are supported by the findings reported within this dissertation. Many align closely not only with the logistical, personal, and social/organizational factors identified in the scoping review in **Chapter 2** (which would be expected since they were all included within the scoping review) but also with the identified influencing factors from the continuity clinic interview study in **Chapter 3** (including continuity of care, scheduling practices, resident autonomy, and faculty role modeling) and the concept of de-conflicting and defragmenting time between inpatient and outpatient obligations in the full-day continuity clinic study in **Chapter 5**. Therefore, I will focus below on ways in which the studies from this dissertation extend and expand upon our understanding of patient ownership and these prior recommendations.

First, any discussion with trainees regarding expectations surrounding patient ownership must explicitly attend to the role of the patient or patient family within this concept. No matter what language or phrasing is used to discuss patient ownership, we as educators are not promoting patient empowerment and autonomy if we do not include their role in this important discussion. Clearly linking patient ownership to the patient-physician relationship as it was conceptualized in the interview study in **Chapter 3** might be a helpful framework to help guide these conversations. For example, although the physician can only directly control his or her attitudes and tasks within this exchange, it can be emphasized that a goal of this relationship is for the *patient or patient family* to view the physician as *their* physician, to feel heard and known, and to actively seek out continuity with the physician. In other words, one way to encourage patient ownership might be to ask the trainee to consider these exchanges from the patient’s perspective. Additionally, since this view of patient ownership recognizes the patient/family exerting control over their own care, these discussions can encourage trainees to empower patients

by ensuring that patients understand and agree with treatment plans, know about additional resources available to them, and can schedule follow up with that same physician. Although these recommendations align with generally accepted best practices for patient-centered care,⁶¹ such concepts have not been linked previously to patient ownership. Therefore, conversations surrounding ownership can offer additional opportunities to reinforce that these practices are also expectations for exercising good patient ownership.

Second, this dissertation lends further support to the notion that team-based care is fully compatible with individual commitment to patient ownership, and it highlights how care teams can actually be leveraged to encourage patient ownership in the outpatient setting. In one of the few prior studies of resident experiences with interpersonal continuity in continuity clinics, Lee et al³⁶ report that family medicine residents cited a lack of individual ownership as a barrier to interpersonal continuity. The authors argue that reframing ownership of patient care as a collective responsibility shared amongst team members could help to overcome this perceived barrier and would align the Primary Care Medical Home model of health care delivery.³⁶ However, I believe the findings from my research suggest that this framing actually poses a false dichotomy—that ownership is either an individual or team-based responsibility. In accordance with our definition forwarded in the scoping review (**Chapter 2**), it must be seen as both. Residents and attendings in our interview study (**Chapter 3**) all saw individual physicians as having ownership of patient care but within the context of team-based care delivery. The physician was the “quarterback” or “commander in chief” of the team and therefore held ultimate responsibility, but handoffs to other physicians were expected. Additionally, physicians heavily relied on other care team members such as nurses, technicians, and case managers, to help provide comprehensive, patient-centered care. Therefore, team-based care does not diminish individual responsibility for ownership, but rather *enables* physicians to exercise good ownership in light of inevitable systems-based barriers such as scheduling constraints or competing physician responsibilities. Specifically within the outpatient setting, hopefully future studies can move past asking *whether* individual patient ownership can exist within a team-based care model and instead focus on questions such as how to configure care teams, systems for laboratory or radiology follow-up, or resident scheduling models to optimize feelings of ownership, particularly among trainees.

Third, as a corollary to this coexistence of individual and team-based ownership, discussions of patient ownership within the outpatient setting should also explicitly attend to limits of individual ownership, particularly among trainees. Several authors^{10,14,42} have noted the tension between individual expectations of ownership and duty hours restrictions within the inpatient setting, leading some to advocate for a “new professionalism”^{14,42} that views ownership as a shared responsibility in order to both advance care and be fair to residents. However, several residents in the continuity clinic interview study (**Chapter 3**) noted feeling overwhelmed when they assumed too much personal responsibility for patients’ care or feeling guilt when they had to hand off patient care tasks to colleagues. Therefore, we must explicitly acknowledge the systems-based and other logistical barriers to patient ownership that residents face in clinic, as well.

This is done not to provide excuses for a lack of individual ownership, but rather to make clear that they can still be seen as taking excellent individual ownership of patient care when working within a care team, even when that means partnering with colleagues and other staff members to assist with patient care provision, coordination, and follow-up.

Fourth, as residency programs continue to trial a variety of continuity clinic scheduling models, such as variations of block scheduling models, examining the effect of such changes on longitudinal continuity of care is insufficient. As demonstrated in the full-day continuity clinic study in **Chapter 5**, changes in longitudinal continuity might not translate to changes in interpersonal continuity of care or patient ownership in the direction expected. This disconnect could be because other factors, such as difficulties in balancing inpatient and outpatient obligations, outweighed the effect of changes in longitudinal continuity. Or, alternatively, as proposed by some residents in the interview study in **Chapter 2**, residents could see low baseline continuity as a motivating factor to take better ownership of each patient they see because they feel a greater commitment to ensure patients are not lost in the system. Therefore, while we should not ignore the effects of scheduling changes on longitudinal continuity, we cannot assume longitudinal continuity is a proxy for patient ownership, interpersonal continuity/resident relationships with clinic patients, or educational experiences within clinic. Additional studies using qualitative methods such as thematic analysis (**Chapter 4**) might also prove helpful in clarifying the complex relationships between these interrelated concepts.

Finally, educators should strongly consider implementing resident scheduling models that separate inpatient and outpatient obligations on continuity clinic days in order to optimize patient ownership and overall resident experiences within clinic. The full-day continuity clinic study in **Chapter 5** adds to a growing body of literature that has highlighted difficulties with residents being forced to juggle inpatient and outpatient obligations^{17,19,62,63} and reported benefits with separating these responsibilities.^{16,33,64} However, most research on alternative scheduling models to overcome this fragmentation has investigated block scheduling models in which inpatient blocks are completely separated from more concentrated outpatient blocks.^{16,33,34,64-67} While it is beyond the scope of this dissertation to make recommendations about the overall merits of block versus traditional scheduling models, it is important to note that many residency programs might be hesitant to implement block models despite their reported benefits due to the significant logistical challenges such a shift entails, including restructuring academic time, changing inpatient team structures, and the implications of cohorting residents in inpatient versus outpatient blocks throughout the year. Yet the full-day continuity clinic model is an option that can still harness at least some of the reported benefits of block scheduling with respect to de-conflicting inpatient and outpatient obligations, improving patient ownership, and increasing resident satisfaction with clinic with minimal disruption to other residency program schedules and logistics. In other words, even programs wishing to continue a traditional, non-block, scheduling model can separate inpatient and outpatient duties on continuity clinic days.

Military Relevance

Several of the lessons from this dissertation hold special relevance for the military. Foremost, I see the findings regarding continuity of care and patient ownership as optimistic because the interview study (**Chapter 3**) and full-day continuity clinic study (**Chapter 5**) demonstrate that this relationship is not deterministic. Continuity of care is important, and it is worthwhile for military health clinics to continue investigating ways to optimize continuity, particularly among residency training clinics that might struggle with lower baseline rates of continuity. However, the reality of frequent military moves, deployments, and staff turnover is unlikely to change and will continue to pose barriers to longitudinal continuity of care. Despite these barriers, much can be done to improve patient ownership and measures of interpersonal continuity within military medicine. As a centralized health care system with a defined command structure, the military health system is well positioned to effect changes across clinics that will promote ownership. For example, the Uniformed Services University of the Health Sciences runs a well-established program of faculty development for military faculty across the Department of Defense. Some of this program's current course offerings (such as setting an effective learning climate, giving feedback, and precepting) could be adapted to more specifically address how to foster ownership. Future courses developed could also focus on other topics that would support ownership such as promoting resident autonomy, setting clear expectations, and working in interprofessional teams. Additionally, residency Program Directors within specialties across all three military branches often informally collaborate with one another, and the military could encourage more frequent and formal meetings among Program Directors to share best practices or lessons learned that encourage patient ownership (among other topics), such as full-day continuity clinics. Finally, particularly within facilities with residency programs, military leadership could consider tracking metrics related to patient ownership and interpersonal continuity of care from the perspective of patients and physicians, share this information with residency programs, and work collaboratively with programs to adjust scheduling practices or team structures in order to track the effect of such changes.

Strengths and Limitations

Strengths of this dissertation include that it used a wide range of methodologies to examine patient ownership from different perspectives. Beginning with a scoping review (**Chapter 2**) allowed us to examine the full breadth of the literature that had previously been published on this topic and provided a strong foundation for future study direction. From this point, the interview study (**Chapter 3**) and full-day continuity clinic study (**Chapter 5**) provided new insights to expand upon this knowledge using qualitative and quantitative methods. Second, the inclusion of the patient voice in the interview study (**Chapter 3**) is an important contribution that allowed us to rethink patient ownership from the perspective of the patient/family and create a far more expansive conception of patient ownership than has been previously described. This study also adds significantly to our understanding of the interconnections between continuity of care and patient ownership in the outpatient setting. Third, the thematic analysis methods paper (**Chapter 4**) not only provides a detailed description of this method of data analysis and recommendations for best practices regarding its use, but it also highlights worked examples of each step of the process, including the creation of thematic maps, based off

of the interview study data. We hope this AMEE Guide will be a useful tool for many qualitative researchers in analyzing and presenting their data. Finally, the full day continuity paper (**Chapter 5**) presents a novel yet simple intervention (full day continuity clinics in a non-block rotation framework) that, in our program, significantly improved resident experiences in clinic with minimal impact to overall program scheduling.

Limitations of this dissertation reflect many of the aspects of patient ownership that we were not able to address with these studies. First, we acknowledge that the state of the evidence found in the scoping review (**Chapter 2**) is such that very few interventions have been tried or critically evaluated for their effects on patient ownership. Most factors reported to influence patient ownership were based on limited interview data, single survey questions, or even author opinion. We did not examine the level of evidence of studies within our scoping review (which is in keeping with the methodology's traditions). We note that the current state of the literature on this topic is not sufficiently developed to the point that a systematic review would be feasible at this time. Hopefully the development of rating scales of ownership^{68,69} and more in-depth qualitative studies explicitly examining experiences surrounding patient ownership can provide more meaningful data for future analysis. Second, our data from the interview study (**Chapter 3**) and full-day continuity clinic study (**Clinic 5**) only involved pediatrics, which could limit the transferability (**Chapter 3**) or generalizability (**Chapter 5**) of our findings. Third, we have no longitudinal data from any of our studies to show a cause and effect relationship with respect to interventions and their effects on patient ownership or to show how attitudes or behaviors surrounding patient ownership evolve over time. Specifically, the resident and attending perception data from full-day continuity clinic study (**Chapter 5**) relied on a retrospective pre-post study, which is more prone to bias than had we given separate surveys prior to and after the switch to full-day continuity clinics. Recognizing these limitations of our current work, I outline below potential future study directions that could continue to advance our knowledge.

Future Study Directions

The work in this dissertation raises several questions and highlights some persistent gaps in our understanding of patient ownership that merit further study. First, it is important to acknowledge that the interview study (**Chapter 3**) and full-day continuity clinic study (**Chapter 5**) were focused on a pediatric residency program and pediatric clinics. While we believe our findings from these studies are likely transferrable to other specialties, especially within primary care, more study is needed to confirm which elements of our findings hold true in different specialties and patient populations. While issues such as the importance of continuity of care or the benefits of defragmenting resident time between inpatient and outpatient obligations seem unlikely to be different in adult medicine, the active role of the patient family in the pediatric patient ownership relationship is a key area that merits further study in other settings. Not only is there less literature exploring patient ownership from this patient/family perspective, but our study, by necessity, only focused on patient families instead of patients themselves due to it being a pediatric population.

Furthermore, most studies to date that have attempted to provide behavioral definitions of patient ownership have focused on internal medicine,^{2,3} psychiatry,^{1,2} or pediatrics⁵⁶ (plus Chapter 3 of this dissertation). Surgical specialties have been represented in several commentaries and/or studies regarding the relationship between patient ownership and duty hours restrictions,^{10,14,15,21,30,70} but none of these authors have provided detailed descriptions of what patient ownership entails for a surgeon. As issues related to patient ownership such as continuity of care, resident autonomy, team structures, and faculty expectations in surgery might differ significantly from medical specialties, more clarity surrounding definitions and expectations of patient ownership for surgeons in the modern environment of duty hours restrictions and increased team-based care would be helpful.

Another area that warrants more research is how a sense of patient ownership develops and can be fostered, particularly among medical students. In the scoping review (**Chapter 2**), only a minority of studies examined patient ownership from the perspective of medical students,^{3,5,71-73} and most of these focused on their participation with longitudinal integrated clerkships.^{5,71-73} Since submission of the review, at least two more studies exploring patient ownership in medical students have been published. Wyatt⁷⁴ interviewed and recorded observations of third- and fourth-year medical students, residents, and attendings on an internal medicine rotation and found that third-year students understood “taking ownership of a patient” to mean knowing patients well and having good communication with patients and their care team, and fourth-year students included management of patient care in their understanding. Conversely, attendings and residents described taking ownership to mean a more deep and “emotional investment in patients.” Wyatt et al⁷⁵ also surveyed third-year medical students completing core clerkships and interviewed clerkship directors to identify factors—including setting clear and consistent expectations surrounding how to take ownership and providing faculty development on how to encourage ownership among medical students—that could improve student perceptions of their ability to take ownership of patients. These studies are important in showing a progression of understandings of patient ownership among medical students and suggestions for how to support this progression. However, questions such as where and how these attitudes and behaviors are first learned, what experiences are most influential in their evolution, and more clear guidance on how to support them deserve further study. We believe such questions would best be answered by following students longitudinally across their clinical years of training and are in the process of launching such a study.

Given the reported association between autonomy and patient ownership among residents, an additional topic of interest for future research is the effect of the increasing presence of nocturnists (i.e., attending physicians on inpatient teams who remain in house overnight) on patient ownership.⁷⁶⁻⁷⁸ While there is only limited literature to date on this topic, current findings suggest that the presence of nocturnists has positive effects on resident didactic educational opportunities⁷⁹⁻⁸⁰ and adequacy of supervision overnight⁷⁷ but has yielded conflicting results on resident autonomy in decision making.^{76,78} Therefore, it is worth exploring in more detail the effect of nocturnist coverage on resident perceptions and experiences of patient ownership overnight and examining ways to optimize ownership within this coverage structure.

Finally, more work is needed on how to measure patient ownership among trainees, both in order to study the effect of interventions on patient ownership attitudes and behaviors and to better provide feedback to trainees. Recently, two studies^{68,69} have reported patient ownership scales derived from a prior scale of ownership published within the psychological literature⁸¹ that encompassed 5 dimensions: self-efficacy, accountability, sense of belongingness, self-identity, and territoriality. Djulbegovic et al⁶⁹ adapted the scale based on findings from the work by McLaren et al¹ and Cowley et al² to arrive at a 16-item questionnaire that covers nine constructs: advocacy, responsibility, accountability, follow-through, knowledge, communication, initiative, continuity of care, autonomy, and perceived ownership. Alternatively, Wood et al⁶⁸ adapted the psychological ownership scale to a clinical setting but maintain Avey et al's⁸¹ original five-dimension structure. Both of these scales provide important starting points for future study, but future confirmatory studies are needed to build evidence for validity in varied clinical settings. Specifically, the scale created by Djulbegovic et al⁶⁹ has some questions specific to the inpatient setting, so it would need to be adapted for outpatient practice. Furthermore, both are self-report scales to be completed by the trainee, not questionnaires designed to guide faculty observations or assessments of ownership behaviors among trainees. Future studies could usefully seek to create scales derived from these current questionnaires or modified from existing assessment frameworks such as the ACGME Milestones that faculty can use to measure ownership attitudes and behaviors among trainees.

Conclusion

If we are to effectively promote the development of patient ownership among medical trainees, we as educators must first understand and explain what this concept means and entails. When I began this dissertation, I had conceptualized patient ownership as something tacitly understood—that I would “know it when I see it,” or (perhaps even more problematically) that I would know it when I *don't* see it among one of my residents. I also assumed that my trainees and colleagues shared my understanding. But my work on this topic quickly demonstrated that such assumptions, while common, are not helpful to medical trainees or the patients they treat. In accordance with the primarily constructivist orientation of this dissertation, patient ownership will look different in practice depending on the individual patients and physicians involved and elements of the local practice context. The work in this dissertation provides an important starting point for determining what patient ownership looks like in various settings by providing both a synthesized definition of patient ownership that accounts for the shift to team-based care models and a theory of patient ownership within continuity clinics that incorporates the patient's role in this relationship. Other key contributions of this dissertation are elucidating the complex relationship between patient ownership and continuity of care, particularly in the outpatient setting, and demonstrating the benefit of full-day continuity clinics on residents' sense of patient ownership, educational experiences, and overall satisfaction with continuity clinic. With this foundation, future work can examine the effect of additional interventions at the personal, programmatic, and medical care system levels on patient ownership attitudes and behaviors.

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