Into the Unknown: Characterizing Fellow Uncertainty During the Transition to Unsupervised Practice

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ABSTRACT

Background Helping fellows confront and manage uncertainty in the course of diagnosis and treatment of patients has been a growing focus of medical education. How these same fellows confront uncertainty as they make a transition in their professional development is less commonly a focus of training programs. Better understanding of how fellows experience these transitions will allow fellows, training programs, and hiring institutions to navigate transitions more easily.

Objective This study aimed to explore how fellows in the United States experience uncertainty during the transition to unsupervised practice.

Methods Using constructivist grounded theory, we invited participants to engage in semi-structured interviews exploring experiences with uncertainty as they navigate the transition to unsupervised practice. Between September 2020 and March 2021, we interviewed 18 physicians in their final year of fellowship training from 2 large academic institutions. Participants were recruited from adult and pediatric subspecialties. Data analysis was conducted using an inductive coding approach.

Results Experiences with uncertainty during the transition process were individualized and dynamic. Primary sources of uncertainty identified included clinical competence, employment prospects, and career vision. Participants discussed multiple strategies for mitigating uncertainty, including structured graduated autonomy, leveraging professional networks locally and nonlocally, and utilizing established program and institutional supports.

Conclusions Fellows' experiences with uncertainty during their transitions to unsupervised practice are individualized, contextual, and dynamic with several shared overarching themes.

Introduction

Preparing individuals for unsupervised practice is the goal of graduate medical education (GME). Despite thousands of physician trainees in fellowship making this transition in the United States each year, the process remains shrouded in ambiguity. The perspectives of medical students and residents experiencing transitions are well documented.[1-4] However, the perspectives of trainees transitioning out of fellowship remain relatively unexplored, and it is unclear if the needs of fellows are being met during this process.[5,6] Though some similarities exist across undergraduate medical education (UME) and GME in the United States, fellows, particularly those training in academic institutions, experience a unique set of circumstances during the transition to unsupervised practice as they navigate distinctive clinical roles, nonclinical endeavors (especially in research and teaching responsibilities), and associated challenges and opportunities during the search for postgraduate employment. Given the time spent in preparation for a major transition and during orientation into a new practice, it is worthwhile to explore the experiences with the fellows as they undergo them.

Transitions within medicine are complex, multidimensional processes filled with uncertainty. The clinical preparedness of residents and fellows as they move through levels of training and practice has received considerable focus.[7-10] Trainees and programs have also tried to address other aspects of the transition to unsupervised practice, including job searches, financial literacy, and preparation for nonclinical aspects of practice such as research and education.[11-15] More recently, educators have given consideration to the personal and professional identity changes that occur during transitions in practice.[16,17] However, the current level of uncertainty pervasive throughout career transitions likely prevents trainees from receiving optimal support.

DOI: http://dx.doi.org/10.4300/JGME-D-22-00221.1

Editor's Note: The online version of this article contains the interview guide used in the study.

Medical education has embraced the importance of helping learners understand and address clinical uncertainty, but little is known about how to help learners prepare for uncertainty during transitions of practice.[18,19] Though incompletely described, uncertainty and ambiguity intolerance are linked with negative outcomes such as stress, anxiety, and burnout in health care professionals.[20-22] These findings have spurred attempts to further understand how individuals experience and manage uncertainty in the complex realm of health care.[23-25] Characterizing the uncertainty experienced during the transition to unsupervised practice may provide a framework for training programs and hiring institutions to more adeptly support fellows during this process.

This study aimed to explore how fellows experience uncertainty during the transition to unsupervised practice. Additionally, we were interested in understanding how fellows, in conjunction with their training programs and hiring institutions, mitigate uncertainty during this transition process. Without better characterization of the experiences of fellows transitioning into unsupervised practice, we believe we may be overlooking opportunities to specifically support fellows given their unique circumstances. Furthermore, we believe that the findings of this study will allow both training programs and hiring institutions to create targeted interventions that aid fellows during the transition process.

Objectives
This study aimed to explore how fellows experience uncertainty during the transition to unsupervised practice.

Findings
Fellows' experiences with uncertainty during the transition to unsupervised practice were individualized and were mitigated using a variety of strategies.

Limitations
The limitations of this study that may impact transferability include geographical restriction, timing of the study (during COVID-19 pandemic), and academic setting, among others.

Bottom Line
Both fellowship training programs and hiring institutions play an important role in supporting fellows as they navigate the transition to unsupervised practice.

Methods

Setting and Participants

Participants in this study worked at Children's Hospital of Philadelphia (CHOP) or the University of Pennsylvania (UPenn) between September 2020 and March 2021. Both hospitals are quaternary care academic centers located in the urban setting of Philadelphia. Similar to most US academic institutions, fellowship programs at each of these institutions are 1- to 3-year programs that offer additional clinical training in a clinical subspecialty as well as opportunities for fellows to pursue nonclinical endeavors in research, education, and quality improvement, among others. Approximately 145 fellows graduate from CHOP each academic year, while approximately 230 fellows graduate from UPenn each academic year.

Study Design and Conceptual Framework

This was an exploratory qualitative study in which participants engaged in semi-structured interviews (interview guide provided as supplementary data) exploring sources of uncertainty and strategies for mitigating uncertainty experienced during the transition to unsupervised practice. We used a constructivist grounded theory approach in which knowledge was co-constructed by the investigators and participants.[26] This approach allows investigators to build theory inductively from data involving complex and nuanced cognitive and social processes.[27] Findings were synthesized and reported using the consolidated criteria for reporting qualitative studies (COREQ) checklist.[28]

Sampling and Data Collection

Between September 2020 and March 2021, we interviewed trainees in fellowship programs at our 2 institutions. Notably, all interviews occurred during the COVID-19 pandemic. We used convenience sampling to identify eligible fellows. All participants were required to be in the final year of their training program. We excluded fellows who were continuing their training following the completion of their current training program. We emailed invitations to all eligible participants within our institutions via third parties, including program directors' and fellows' associations. There were no incentives for participation. Verbal consent was obtained prior to each interview. All interviews took place via telephone and were audio recorded. There was a total of 18 interviews with participants that lasted between 20 and 53 minutes. Interviews were conducted and recorded by D.H., a senior fellow in a pediatric subspecialty, in order to mitigate potential power dynamics. Interviews were subsequently transcribed professionally and were anonymized prior to data analysis. Field notes were generated by D.H. after each interview and were subsequently used to provide additional context to the transcribed data. Data were managed using NVivo 12 (QSR International).

Data Analysis

Thematic analysis of interviews occurred iteratively and began immediately after the first interview. Transcript analysis was conducted by D.H., M.E.C., and J.H. using an inductive coding strategy. The constant comparative method was employed during analysis. The 3 authors initially reviewed the same 3 transcripts in order to develop the codebook. Disagreements were addressed through open discussion and negotiation toward consensus. Once there was agreement on coding, the remaining transcripts were analyzed by D.H. We moved on to axial coding, during which we identified central codes and relationships between codes. Finally, the full research team discussed the coding scheme and relationships among codes that led to identification of key themes and relationships among them. After 18 interviews, we reached information sufficiency.[29]

Researcher Characteristics and Reflexivity

D.H. was a fellow undergoing the transition to unsupervised practice during the course of this study. J.H. and D.B. hold roles as fellowship program directors. All of the authors brought unique clinical and educational experiences that proved valuable for this work. We embedded rigor within the study through several measures, including investigator triangulation, member checking with participants at regular intervals, and reflexivity in memos. Additionally, we met with peer educators from our institution to present our work as a way to ensure trustworthiness.

This study was determined to be exempt by the Children's Hospital of Philadelphia and University of Pennsylvania institutional review boards as it was conducted in established, accepted educational settings.

Results

A total of 13 fellows from CHOP and 5 from UPenn participated, representing 13 unique subspecialties. While all participants were in their final year of training, the number of years following completion of residency ranged from 1 to 5. Most participants (83%, 15 of 18) reported plans to pursue careers in academic medicine. Participants' experiences with uncertainty during the transition process were individualized, dynamic, and contextual with several shared overarching themes.

Participants identified considerations unique to their own experiences during the transition process amid broader shared experiences. Participants described the dynamic and contextual nature of their experiences with uncertainty as they reflected on events leading up to the present time and discussed shifting priorities and considerations related to the transition. This was epitomized by participants' discussions around the uncertainty during the job search, which seemed to represent an inflection point during the transition process: "I'd say any fears I have about being an attending are now definitely overshadowed by fears of just not having a job" (participant [P]5). Collectively, participants expressed several sources of uncertainty as well as mitigation approaches to address the uncertainty they experienced.

Sources of Uncertainty

Although participants discussed a broad array of sources of uncertainty, 3 key themes were nearly universal: clinical competence, job search process, and career vision and trajectory. The first source of uncertainty was situated within *clinical competence*. Participants were insightful about the additional responsibilities they would be taking on after completion of training and were often concerned about inadequate preparation for their new roles: "I still feel like there is so much I need to learn and so much more I could do to prepare to actually be the attending...it's really nerve-racking to take up that much responsibility" (P1). Another participant noted: "My concerns are not being able to provide the best medical care to patients" (P3).

Second, the uncertainty experienced by participants with respect to clinical preparation, while germane, was frequently obscured by the uncertainty experienced during the *job search process*: "There's always apprehension about interviewing, apprehension about what truly is the opportunities available. I'm a little anxious about the contract negotiation part. I don't think we'll ever feel prepared for that because we don't get enough training" (P4). These discussions were highly nuanced and specific to the circumstances of each participant. Topical sources of uncertainty ranged from "finding a job" (P1) to "what will my job look like" (P10) to "where am I going to be living" (P2). Participants specifically described an opaqueness surrounding the timeline and process logistics of the job search process: "I would say it was probably more opaque than transparent...I was pretty uncertain about what to do, especially when you start getting offers—how much time do you have before you get back to them...what should I ask for in negotiations... I was totally in the dark" (P17).

The third and final noteworthy theme of uncertainty inherent in the transitions discussed by participants centered around *career vision and trajectory*. While

occasionally intertwined with uncertainty involving the job search, discussion around career vision represented a distinct area of focus as participants reflected on what their careers might look like on a broader scale. Participants discussed potential career trajectory in the context of changing professional goals, the needs of their families, and nonprofessional aspirations that could not be anticipated. This uncertainty was summarized best by one participant who stated, "I think that I'm more limited and have to wait until at least a couple years and then re-evaluate whether I'm happy or not with what I'm doing" (P13). Participants specifically mentioned "becoming established and developing roots" (P10), "success being dependent on research productivity and grant funding" (P11), "knowing what my time [breakdown] will look like over the years" (P1), and "balancing work versus nonwork stuff" (P17) as major sources of uncertainty as they contemplated their transitions during the years following completion of training.

Mitigation Strategies

Participants were able to identify the uncertainty surrounding their upcoming transition and engaged in active problem-solving, outlining mitigation strategies to minimize transitional uncertainty. Strong *clinical preparation* and well-designed *graduated autonomy* were seen as valuable tools for coping with uncertainty relating to clinical competency. Several participants explicitly mentioned the merit of having "pretending" service time in which they were able to function essentially in the attending role. Though all participants discussed graduated autonomy as an integral part of their clinical training, the opportunities for graduated autonomy varied among programs. Importantly, a few participants reported having training experiences lacking in graduated autonomy, which exacerbated the uncertainty they perceived heading into the transition. "I wish we had a mechanism for seeing more subspecialty patients in clinic on our own but the attendings often don't want to give these patients up. . .So I think a lot of us [fellows] don't feel ready to see these different types of patients" (P2).

Although a variety of tools were used in navigating uncertainty associated with the job search process, *professional networks* represented the most dependable resource. Participants discussed the important roles of mentors and sponsors in making connections with potential employers and boosting credibility: "I probably lean on some of the more recent fellow to faculty transition folks for some of the nuts and bolts. . .but I think the senior folks are more assertive and directive at times in how they might navigate a given issue or question" (P15). *Peer mentorship* was also seen as a valuable tool, both in discussing shared experiences and in providing emotional support to one another: "I think the 4 of us [fellows] were just texting each other. . .[about] all the little things that we have no idea about [the job search]" (P11). *Colleagues* also represented a prominent tool for mitigating uncertainty associated with career vision aspects of the transition, particularly through the familiarity of "having the benefit of knowing the culture already and knowing the ins and outs and who I should contact and how things go" (P17) and through sustained professional networks: "the networking has been huge—tons of conversations with folks far and wide have been really important forming my vision for what my job looks like" (P15). Another participant spoke about the flexibility that may be required during the transition in adjusting career vision: "I think the most important thing is to really have hard conversations with yourself to determine what you actually want. . .also realizing that you're going to have to be a little bit flexible and that no [career] path is perfect" (P1).

Across the 3 themes, participants discussed the importance of program and institutional offerings geared toward successfully navigating the transition to unsupervised practice. Participants specifically mentioned activities such as mock interviews, negotiation training, and education in financial literacy as key supports either present or desired in their training programs. "One thing I wish that they would do that they haven't done yet is how to practice and prepare for these virtual interviews and how we should be selling ourselves in these interviews. . .How do we negotiate a contract, and salary, and clinical time? I honestly have no idea how to do any of that. I think we need a little bit more of prep and training for that" (P11).

Discussion

This study on the experiences of fellows undergoing transitions to unsupervised practice provides new insights into the uncertainty fellows experience and the strategies they use to mitigate this uncertainty. We identified 3 key themes of uncertainty: clinical competence, job search process, and career vision and trajectory as well as the role of strong clinical preparation, graduated autonomy, professional networking, and peer mentoring in mitigating these concerns.

Our study paints this transition as a complex nuanced process fraught with uncertainty—one that is often accompanied by new demands that require abundant adaptation, placing a cognitive and emotional burden on the individuals making the transition.[30] We believe that capturing the experiences of

fellows going through this process is critical, particularly given the high rates of burnout in early career physicians and during career transitions.[31-34]

Our study also lends additional insights into the juxtaposition between the learning environment of fellows with the demands of the new work environment, which prior studies have shown can be misaligned.[35,36] Although most participants reported they felt well-prepared clinically, there was still lingering uncertainty about high acuity and less frequently encountered problems that these soon-to-be attending physicians would be responsible for managing without perceiving sufficient experience. Additionally, many fellows reported unease about the uncertainty related to the nonclinical expectations of their new positions, including roles as teachers and managers.[37,38] These findings are also prevalent within literature examining the transition from residency to unsupervised practice.[39-41]

These results shed new light on existing gaps in the off-boarding and on-boarding processes conducted by training programs and hiring institutions in optimizing fellows' transitions to unsupervised practice. Based on our findings, we suggest multiple different mechanisms for addressing these concerns. First, prioritizing adequate graduated autonomy, particularly during fellows' final year of training, is critical for mitigating uncertainty related to clinical competence; this finding aligns with the Accreditation Council for Graduate Medical Education expectations for appropriate levels of supervision and progressive granting of responsibility. Several participants also noted the benefits of dedicated educational activities geared toward the transition that addressed topics such as interviewing, financial literacy, and health administration among others. Developing transition programs that emphasize these issues through curricula, either at the local program level or shared across institutional GME programs, would add a layer of support to individuals transitioning to a new professional environment and role.[42]

Participants' focus on the importance of networks also highlights the potential benefits of concerted efforts to develop and maintain various communities of practice comprised of peers, mentors, and colleagues from one's training institution and new institution that transitioning fellows can join, in addition to the role that expanded communities of practice may play in supporting an individual's academic interests.[43] These communities of practice may support knowledge sharing, problem-solving, and development of professional skills in fellows during the transition and further into their professional development.[44,45] The impact of these communities of practice also plays a key role in professional identity formation in newly graduated unsupervised physicians.[46]

Graduating fellows are uniquely affected by the dynamic contexts specific to their transition. No 2 fellows will have identical uncertainties, and the uncertainties experienced by a single fellow are constantly shifting. Our study adds to existing literature by highlighting common themes in experienced uncertainty with identification of possible mitigation strategies. In order to address these challenges, we support the practice of viewing the transition from fellowship to unsupervised practice as a critically intensive learning period that should be supported by both training programs and hiring institutions, rather than just a moment in time.[47,48] By acknowledging the difficulties experienced by transitioning fellows as they work to mitigate uncertainty and focusing on the creation of supportive learning environments, training programs and hiring institutions may be able to more readily acclimate transitioning fellows to evolving contexts and job demands, setting them up for success in their junior faculty years.[49] This shift could ease the burden placed on fellows during the transition through changes in policy that promote enhanced physician performance regulation in the new environment and focus on educational strategies that promote supported learning.

There were a number of limitations that affected this study. Only fellows from 2 large academic institutions in the Northeast United States were sampled as part of this study, which may limit transferability. Additionally, postgraduate trainees in non-US health care systems may experience different uncertainties as a result of government-controlled decisions affecting post-training job placement. Most participants reported plans to stay in academic medicine which may limit transferability to those fellows entering private or community practice. Although providing interesting context to the discussion, fellows completed interviews at different points in the academic year over the 6-month data collection period. This may have limited full exploration of participant experiences with uncertainty in specific realms, particularly in the case of hindsight bias impacting discussions regarding the job search process for those who had already procured a position.

A unique consideration of this study was the time period during which it was conducted. The COVID-19 pandemic has had marked impacts on the world of health care in multiple ways that directly influenced many of the participants. Although difficult to fully characterize, many participants felt impacted by the financial ramifications during the job search process as many institutions were placed on hiring freezes or had major budgetary limitations as a result of the pandemic.[50] Similarly, the pandemic forced major

changes in trainee education with the rise of virtual learning, altering the number and type of learning experiences available to trainees of all levels.[51] While it may never be fully characterized, these changes and potential missed learning opportunities were extensively discussed by participants as contributors to uncertainty. Perhaps most importantly, the pandemic has serious implications for the mental health and well-being of health care professionals.[52] Fellow experiences with uncertainty were intertwined with emotion, and it is probable that the pandemic fundamentally altered the fellows' emotional experiences with uncertainty. Ultimately, while we recognize that the pandemic likely contributed to the overall uncertainty experienced by fellows during transitions in this period, we believe that most of the discussions remain applicable to time periods outside of the pandemic.

It will be critical to continue to build on this work to better support fellows during their transitions to unsupervised practice. As previously mentioned, training programs and hiring institutions play an important role in ensuring a successful transition and are likely missing opportunities to help fellows mitigate uncertainty experienced during the transition. Examining the dynamics of this learner handover and exploring the perspectives of other key stakeholders may identify additional opportunities for transition improvement.[53] Furthermore, examining fellow experiences with uncertainty in other contexts may give insights into differences of experience between domains of training, geographical regions, location of practice, and other key demographics. Given the emotional impact of uncertainty on mental health in other realms, it also worth exploring the role of leveraging mental health resources to support fellows during their transition. Finally, we believe it is likely that uncertainty during transitions is experienced inequitably among fellows, a phenomenon that could contribute to subsequent inequities during and following completion of training. Exploring these inequities may reveal opportunities for leveraging support systems where they are most needed.

Conclusions

Fellows' experiences with uncertainty during their transitions to unsupervised practice are individualized, contextual, and dynamic, with several key themes of uncertainty and mitigation strategies identified in this study.

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Funding: The authors report no external funding source for this study.

Conflict of interest: The authors declare they have no competing interests.

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Received March 8, 2022; revisions received September 22, 2022, and December 12, 2022; accepted December 14, 2022.