

Ready or Not, Here We Come: A Qualitative Study of the Transition From Graduate Medical Education to Independent Practice

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ABSTRACT

Background The transition from graduate medical education (GME) into independent practice is challenging for new attendings despite achieving “readiness for practice,” by Accreditation Council for Graduate Medical Education (ACGME) Milestones. Most medical literature on this transition is specialty-specific and rarely involves assessment of new-to-practice attendings (NTPAs).

Objective Lack of attending readiness results in compromised patient care. To inform GME leaders and managers, we sought to identify areas of struggle for NTPAs across specialties. With this information, we hope to spur national GME curriculum evolution, better support our NTPAs, and ultimately provide better patient care.

Methods Qualitative freelist was used in 2021 to explore how NTPAs, educational program leaders, and managers perceive the transition struggles. Response lists were collected electronically, then cleaned and categorized by the research team using iterative inductive combination of similar concepts. Salience index scores (Smith’s S) were calculated and plotted graphically to identify inflection points for each group, above which domains were deemed salient.

Results One hundred eighty-six participants completed surveys, yielding 518 individual responses and a response rate of 34%. Of the ACGME competencies, systems-based practice domains were most frequently salient, including “workload” and “billing.” “Confidence,” “supervision,” “work-life balance,” “decision-making,” and “time management” were salient struggles in all groups. Each group had domains only achieving salience for them. Professional development domains including “confidence,” “imposter syndrome,” and “culture” achieved salience in different groups.

Conclusions This study identifies domains of struggle for NTPAs, which fall outside ACGME competency frameworks including workload, new environments, and professional development. Domains identified by NTPAs, program leaders, and managers were not identical.

Introduction

New-to-practice attendings (NTPAs) are thrust into diverse job settings and require variable amounts of time to acclimate. Many NTPAs experience a stressful, steep, and sometimes prolonged learning curve plagued by uncertainty and inefficiency.¹ Situational expertise developed during their graduate medical education (GME) training often does not translate directly to their new practice environment. Even more concerning, this adjustment period and on-the-job learning are likely to have safety and quality implications for patients and health systems.^{2,3}

The transition itself has not been well studied, but issues seem to surpass specific content gaps^{4,5} and contribute to distress in the early portion of a physician’s career,⁶ leading to burnout or poor professional development due to excessive effort spent just to manage the

transition.⁷ This struggle is compounded by the pace of change in health care, emerging new technologies, and evolving practice patterns, while increased supervision and work hour restrictions have decreased trainee autonomy. Tailored assessment and targeted learning to address deficiencies remain elusive in the demanding GME work environment, making struggles with transition difficult to predict, despite the robust, developmentally anchored Milestones assessment framework established by the Accreditation Council for Graduate Medical Education (ACGME).^{8,9} The assessment and oversight of practice after graduation are also limited, supplying little guidance for NTPAs to improve performance or feedback to GME programs about trainee outcomes.¹⁰ The small body of literature that exists identifies concerns about specific content and skill gaps in different specialties at the time of transition.¹¹⁻²⁰ Many of the studies query graduating residents about specific clinical expertise, but general themes of being unprepared for new autonomy, lacking confidence in the ability to manage without supervision, and low levels of exposure in certain areas emerge.²¹

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Editor’s Note: The online supplementary data contains the survey used in the study and further data from the study.

Given the implications for the health care system and patient care, the transition to independent practice and the struggles therein cannot be ignored. Our research team sought to identify the struggles of NTPAs, all of whom were deemed “ready for independent practice” by their GME programs using the ACGME competency framework, in their transition from GME to independent practice using freelisting, a qualitative study design (FIGURE 1). Uncovering unknown or underappreciated areas of struggle will enable medical educators to better prepare their graduates for the transition to practice, either encoded in the ACGME-defined competency framework or for novel areas not included in that framework. Furthermore, identifying NTPAs’ common struggles will also help inform managers about areas addressable during the initial practice period. By informing both sides, we can bridge a gap in the medical education and training continuum that has been woefully neglected.

Methods

Overview

To answer our research question, we employed freelisting, a qualitative research approach in which

KEY POINTS

What Is Known

The transition from graduate medical education to independent practice is challenging; current medical literature primarily addresses specialty-specific challenges, rarely focusing on general struggles of new-to-practice attendings (NTPAs).

What Is New

This qualitative study across all specialty NTPAs and supervisors highlights areas of struggle for NTPAs, which include system-based practice challenges like workload and billing, confidence, supervision, work-life balance, decision-making, time management, and imposter syndrome.

Bottom Line

This study identifies critical areas where NTPAs struggle, emphasizing the need for deliberate, targeted anticipation and support in workload management, navigating new environments, and professional development.

respondents are asked to generate lists used to define elements of an experience (in this study, the transition from GME to independent practice), which are analyzed to measure the extent to which members of a group agree on those elements.²²⁻²⁴ Freelisting has been increasingly utilized in health research as an efficient way to collect an inventory of culturally

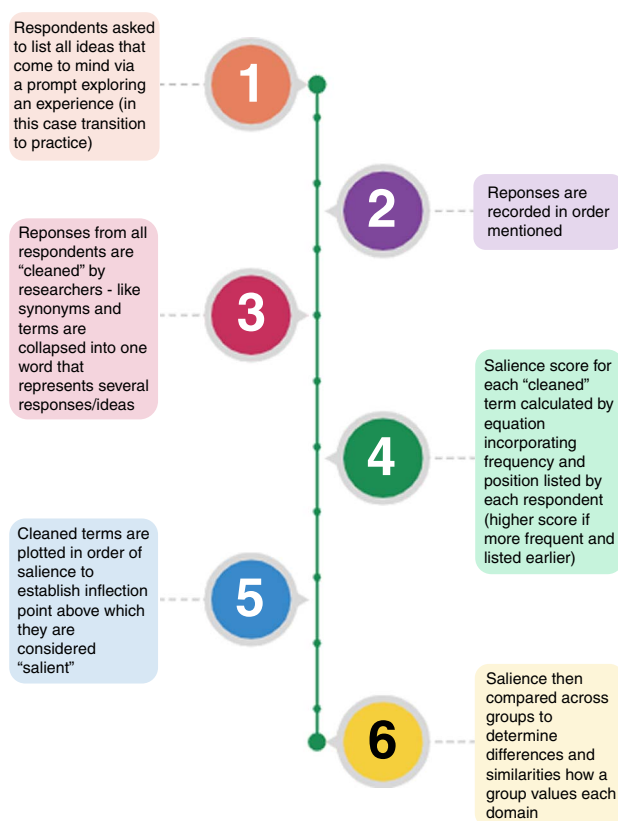


FIGURE 1
Freelisting at a Glance

relevant responses from large groups. Written freelists are an accepted way to collect data from literate populations, so we chose an electronic data collection tool to engage graduates who had left the institution to practice in different settings.²⁵ Like electronic surveys, freelisting can be widely deployed; however, the approaches differ in important ways. Most electronic surveys deploy closed-ended survey questions restricting free thought, and when surveys do include open-ended questions, allowing the respondent some space to share thoughts, the responses rarely provide enough context to allow for rigorous qualitative analysis. Conversely, freelisting questions are designed to generate free thought in the form of lists from multiple participants. The responses on the lists are categorized and ranked as a measure of the cultural salience among all respondents. Freelisting allows for cross-group comparisons, affording the research team the ability to compare what is considered important to one group to that of another.²⁶⁻²⁸ The freelisting technique is considered a methodologically rigorous and efficient way to gather data from large groups and is uniquely suited to early exploration of topics where there might be multiple stakeholder groups with varied perspectives.²⁶ Given the paucity of studies approaching the transition to practice in a more holistic fashion, we felt this qualitative method would provide an important base to begin our understanding of the struggles faced.

Setting and Population

For the NTPA group, we used an existing contact list of graduates of Sidney Kimmel Medical College's (SKMC's) 84 residency and fellowship programs from the prior 2 years. However, many of the graduated residents may have entered fellowship programs rather than independent practice. This was accounted for in the data collection tool—if a current fellow responded, their data collection ended when they described their current role. A list of recent hires to SKMC's faculty physician group provided additional NTPAs. If they had been in practice for more than 2 years since graduating and responded, their data collection ended. We identified potential program leader participants from a list of program directors and associate program directors at SKMC, as well as program directors from 2 other ACGME sponsoring institutions within the Jefferson Health network: Jefferson Abington Hospital and Jefferson Health Northeast. We identified potential manager participants from a list of department chairs and division directors from SKMC clinical departments. The survey instructions stated that, by completing the survey, participants were consenting to participate in the study.

Links to the data collection tool were sent via email in 2021 to those groups, with 2 reminders over 3 weeks to complete data collection. Data collection included demographic information, followed by freelist questions about the struggles of NTPAs in the transition period. The links were not personalized, and all responses were anonymous. As this was a qualitative study, there was no target response rate; rather, we sought enough responses to ensure a representative sample of answers.

Data Collection

We developed the electronic data collection tool, including demographic and freelist questions, to solicit input from 3 groups with different vantage points on the experience of transitioning from GME to independent practice. The data collection tool was designed using freelisting guidelines described by Keddem et al²³ and researchers' personal experience. Freelist questions asked participants to list words or phrases that came to mind in response to the research prompt, which was designed to explore how each group perceived the ways in which NTPAs struggle. The groups were (1) NTPAs (2 years or fewer in practice); (2) educational program leaders (including residency and fellowship program directors and associate program directors); and (3) department/division managers (physicians with roles in hiring, onboarding, and supervising NTPAs).

Freelist questions were tailored to each group (online supplementary data Appendix 1). Before the data collection tool was launched, the questions were piloted by representatives from each group. After pilot testing, we made minor revisions to improve question clarity. While other freelist prompt responses were collected, this article reports only results for the question that asked respondents to "list all the ways NTPA struggle."

The data collection tool was created in Qualtrics software (Qualtrics) and emailed to potential participants. We employed branching logic to avoid respondents completing data collection more than once, given that populations could overlap (for example, a division manager may also hold a role as a program director).

Data Cleaning and Analysis

Following guidelines described by Keddem et al,²³ the study team (G.D., R.J., J.Z., T.K.) cleaned and categorized freelisting responses in Microsoft Excel by inductively combining similar root words, synonyms, and concepts, in multiple iterations prior to the analysis. For example, "building confidence," "lack of confidence," and "gaining confidence" were categorized as "confidence" (see online supplementary data Appendix 2

for the key to data responses). Responses that did not fit clearly within an existing synonym or responses that were unclear in their meaning were left as their own domain as adjudicated by the study team through discussion until agreement was met. For example, the concept of “time management” appeared in multiple responses. Some were clear in their reference to patient care responsibilities and were categorized as “time management–patient care.” Some were explicitly about academic responsibilities, thus categorized as “time management–academic.” Those that did not specify a sphere of responsibility were categorized generally as “time management.” The study team was blinded to any of the demographic data, including the category of respondents.

Cleaned lists were exported into Anthropic Version 4.98 (Analytic Technologies) to calculate salience index scores (Smith’s *S*). Salience is a combined measure of the rank order of an item and the frequency with which it is mentioned by participants. Items mentioned earlier on a list and more often by respondents have higher salience, calculated as $S = ((L - R_j + 1)/L)/N$, where *L* is the length of each list, *R_j* is the rank of item *J* in the list, and *N* is the number of lists analyzed.²⁹ Data cleaning, coding, and analysis were supervised by a qualitative researcher with more than 20 years of experience (R.F.).

After calculating Smith’s *S* scores, domains were sorted from highest to lowest score and plotted, with the x-axis representing each domain and the y-axis representing their salience score. The plots were visually inspected for inflection points, revealing a notable drop in the Smith’s *S* score of the domain within the answers of that group. Domains above that point were deemed salient. This process was repeated for each different category of respondents, generating a separate plot for each, with a cutoff for salience determined by visual inspection of each plot agreed upon by the research group.

This study was approved by the Thomas Jefferson University Institutional Review Board and followed the Consolidated Criteria for Reporting Qualitative Research.³⁰ The research team had biweekly meetings to ensure process and strategy were aligned with the research objectives.

Results

Respondent Characteristics

Seventy-six NTPAs completed data collection, responding to the freelisting prompts, out of 326 invitations sent, for a response rate of 23% (note the true denominator may be lower, but is not able to be calculated as some invited graduates were in fellowship and some

invited new hires had been in practice for more than 2 years). Of the 76 NTPAs, 49 were medical-based specialties, 14 were surgical-based specialties, and 13 were hospital-based specialties. Sixty-four program leaders out of 140 invited (46%) and 46 managers out of 79 invited (58%) completed the data collection tool. These respondents represent 38 specialties or subspecialties. Characteristics of the respondents are described in the TABLE. Manager gender distribution skewed heavily toward male (85%), unlike NTPA (46% male) and program leaders (55% male). There were 518 individual freelisting responses across all groups with a range of 1 to 6, mean of 3.6, median of 4, and mode of 5 per individual respondent.

Responses

The 17 domains above the salience cut point for combined responses are displayed in FIGURE 2. Multiple domains related to the concept of “newness” were salient, including “new responsibility,” “new information systems and technology (IS&T),” and “new site.” Many salient domains related to the personal experience of the transition, including the emotional (“confidence,” “imposter syndrome,” “supervision,” and “independence”) and the practical (“decision-making,” “workload,” “time management,” and “time management [patient care]”). Several health system science terms were also salient for the combined responses, including “billing,” “new IS&T,” “administrative tasks,” and “business of medicine.” Domains outside of the work environment were also salient, including “personal finance” and “work-life balance.” “Mentorship” was a salient domain in the combined responses.

Responses by Respondent Role

The salient terms for each respondent role (NTPAs, program leaders, and managers) are also shown in FIGURE 2. “Billing,” “workload,” and “confidence” were salient for each group, as were “supervision,” “work-life balance,” “decision-making,” and “time management.” FIGURE 3 shows how the salient domains from each group intersect.

The following NTPA salient responses were not found to be salient for either managers or program leaders: “new site,” “new system,” “scheduling,” “time management (academic),” “working with APPs,” “COVID,” “contract negotiation,” and “building a practice.” Only program leaders found “work hours,” “administrative tasks,” “business of medicine,” “time management (patient care),” “burden of responsibility,” “change in supervision,” “alone,” “outpatient care,” and “teaching” to be salient.

TABLE

Characteristics of Respondents in Each Professional Role

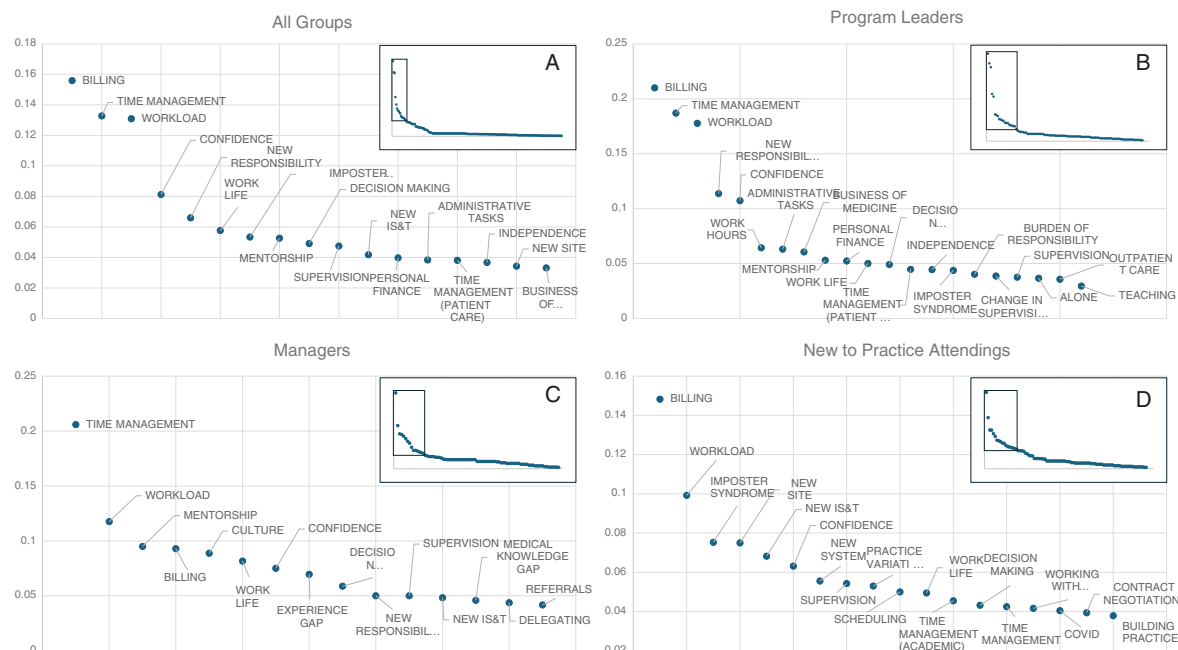
Characteristic	New-to-Practice Attendings (N=76), n (%)	Program Leaders (N=64), n (%)	Managers (N=46), n (%)
Gender			
Female	41 (54)	329 (45)	6 (13)
Male	35 (46)	35 (55)	39 (85)
Other/nonbinary	0 (0)	0 (0)	1 (2)
Age			
25-29	5 (7)	0 (0)	0 (0)
30-34	51 (67)	2 (3)	1 (2)
35-39	19 (25)	13 (20)	1 (2)
40-44	1 (1)	11 (17)	4 (9)
45-49	0 (0)	12 (19)	8 (17)
50-59	0 (0)	15 (23)	13 (28)
60-69	0 (0)	11 (17)	16 (35)
>70	0 (0)	0 (0)	3 (7)
No. of specialties represented	27	28	23
Practice type ^a			
Academic	45 (59)	57 (89)	39 (85)
Academic-affiliated community	18 (24)	9 (14)	7 (15)
Community	9 (12)	2 (3)	2 (4)
Large group (>25)	15 (20)	9 (14)	5 (11)
Intermediate (5-25)	8 (11)	6 (9)	4 (9)
Small (2-5)	7 (9)	0 (0)	1 (2)
Solo	3 (4)	0 (0)	0 (0)
Publicly funded health center	1 (1)	0 (0)	1 (2)
Concierge practice	1 (1)	0 (0)	0 (0)
Other	1 (1)	0 (0)	0 (0)
Geographic region			
Northeast	62 (82)	64 (100)	46 (100)
Southeast	5 (7)	0 (0)	0 (0)
South Central	2 (3)	0 (0)	0 (0)
North Central	4 (5)	0 (0)	0 (0)
West	3 (4)	0 (0)	0 (0)
Practicing in same institution where final training program completed			
Yes	19 (25)	N/A	N/A
No	57 (75)	N/A	N/A

^a More than one might apply.

New salient domains emerged for subsets of NTPAs when broken down by general type of specialty (medical/surgical/hospital-based), as shown in FIGURE 4. For medical specialties, “practice variation” and “contract negotiation” were salient responses. For hospital-based specialties, “COVID,” “independent decision-making,” and “near-peer supervision” were salient domains that were not salient in other groups. The surgical subgroup’s salient terms did not add any additional domains to those listed.

Discussion

The transition to independent practice is a formidable challenge. This study is the first to describe the domains of struggle from NTPAs, their managers, and their program leaders. There is not complete alignment between groups regarding domains of struggle, and our current GME assessment framework does not address all the domains of struggle identified. Previous work to try to define a framework

**FIGURE 2****All Group Composite and Respondent Group Salient Domains**

Note: The 4 panels depict the Smith's S (salience) scores for all respondents together (A) and each group of respondents separately (B-D). The inset shows where the study group determined the inflection point for that plot to be. Items displayed on the panels include all terms that were above the inflection point. For a complete list of all responses and domains, please see online supplementary data Appendix 2.

to understand this transition described disruptive novel elements, perception and coping, and personal development understood through changes in tasks, roles, and contexts for the NTPA.³¹ Our study expands the

understanding of this formative time by explicitly naming the domains of struggle and providing different lenses through which to view the transition. Our freelisting results highlight the different experiences and perceptions of the struggle, according to role and specialty, and suggest specific actionable domains to improve the transition to practice on both the GME side and the practice side. This study provides a starting point for educators and managers to drill down on areas within their locus of control and improve trainees' readiness for practice.

Alignment With ACGME Competency Framework

Most salient domains of struggle identified (such as "imposter syndrome," "supervision," or "decision-making") do not fit neatly into one of the ACGME's 6 core competencies. They overlap more than one competency or do not fit at all. The systems-based practice competency, however, is an exception. Multiple salient domains, such as "billing," "business of medicine," "administrative tasks," "new system," "new site," and "new IS&T" can be classified as systems-based practice. Tasks in this area were not the trainee's responsibility previously; however, they have become central to independent practice. Billing curricula exist in some GME programs,^{32,33} but the time horizon may be too distant for the content to

**FIGURE 3****Venn Diagram of Overlapping Domains**

Abbreviations: PD, program director; APD, associate program director; IS&T, information systems and technology.

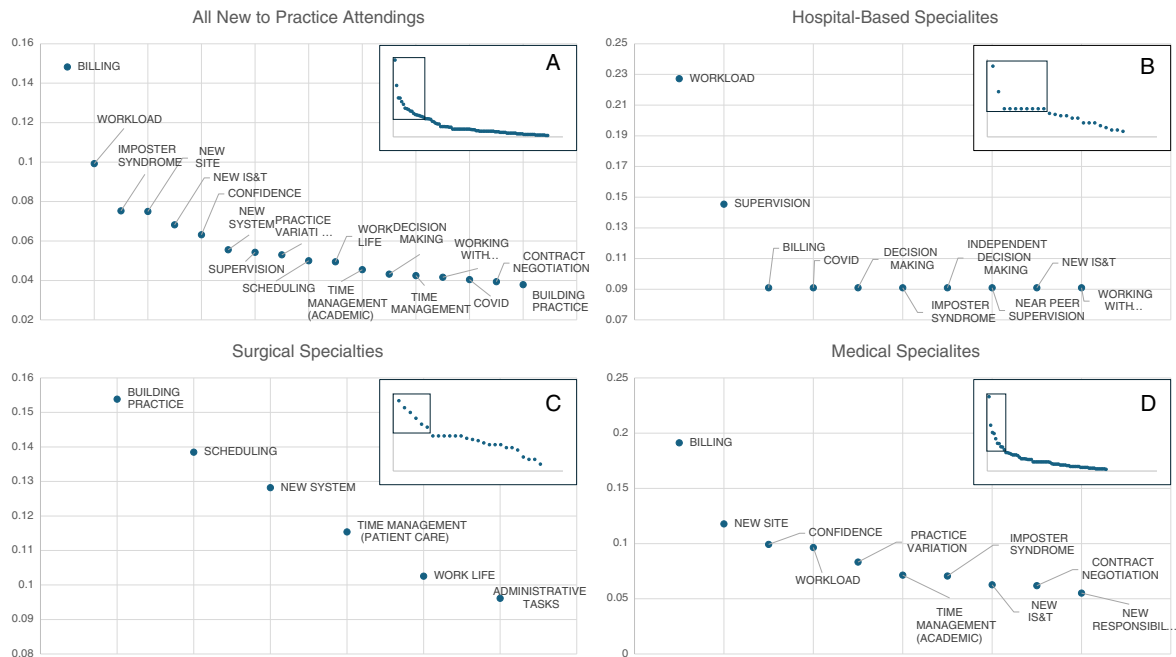


FIGURE 4
New-to-Practice Attending Composite and Specialty-Based Salient Domains

Note: The 4 panels depict the Smith's S (salience) scores for all new-to-practice attendings together (A) and each group of respondents by specialty category separately (B-D). The inset shows where the study group determined the inflection point for that plot to be. Items displayed on the panels include all domains that were above the inflection point. Hospital-based specialties include anesthesiology, emergency medicine, pathology, radiology and its subspecialties, and urgent care. Surgical specialties include general surgery and its subspecialties, obstetrics and gynecology, ophthalmology, oral maxillofacial surgery, orthopedics, and otolaryngology. Medical specialties include family medicine, internal medicine and its subspecialties, neurology and its subspecialties, pediatrics, physical medicine and rehabilitation, psychiatry, and radiation oncology.

feel relevant, limiting the interest and skill retention of trainees. Foundational components of systems-based practice could be embedded into practice for trainees, preparing them for the learning of new tasks. Alternately, the relevance of billing and coding dramatically increases in independent practice. Thus, foundational knowledge and skills could be taught thoroughly on the employment side at onboarding and reinforced frequently for the new attending.

Our findings reveal that some salient struggles for NTPAs, such as billing, are not among the salient struggles identified by their managers. While this study did not investigate causes of differences, we hypothesize that managers may be satisfied with the outputs of the billing process by NTPAs, but do not recognize how NTPAs struggle to perform this skill. Conversely, for struggles that are salient to managers but not to NTPAs (such as “culture” or “delegation”), the NTPAs may not be aware of gaps in their performance recognized by more seasoned physicians.²⁶

New Environments Add to the Challenge

The challenge of “newness” (new site, system, or IS&T) is difficult to overcome during training. By

necessity, many trainees will not continue working where they trained, and their situational expertise around navigating the system, workflows, and administrative tasks may not be as applicable in the novel setting. In our study, 75% of NTPAs were not in practice where they trained (TABLE). On the training side, educators should consider how to encourage the development of adaptive expertise^{27,28} in these domains, extending the evolution of systems-based practice skills beyond the navigation of the immediate system of learners' training sites. On the employment side, onboarding new physicians should deliberately address domains unique to local practices and take into account the cognitive load that “newness” puts on NTPAs. Many prior studies and the current assessment framework are focused on readiness for practice of current trainees instead of assessing those in their early years of practice; our identification of the struggle with “newness” highlights the limitations of exploring this transition from only the training side of the chasm. Medical practice will continue to evolve, and this concept of “newness” and managing change will be a constant in future work on understanding this transition.

Personal and Professional Development Domain Is Relevant

There are multiple salient domains that can be classified into the Personal and Professional Development competency recognized by the Association of American Medical Colleges, such as “confidence,” “mentorship,” “imposter syndrome,” or “work-life balance.”³⁴ The ACGME does not recognize this as a separate competency. However, Personal and Professional Development is a frequently identified domain of unpreparedness for independent practice in the literature.¹⁹ Program leaders should consider how to develop a trainee’s confidence within the parameters of supervision outlined by the ACGME. As a resident progresses in training, deliberate incorporation of true graduated autonomy is necessary to develop that confidence.^{35,36} On the training side, programs should incorporate tenets of adaptive expertise and creative problem-solving to ensure that their graduates have a variety of techniques and solutions to call upon when facing an unknown clinical or administrative situation. Nurturing tolerance of uncertainty, fostering a growth mindset, and emphasizing self-reflection can help combat feelings of being an unqualified imposter at the time of transition. On the employment side, managers should work to create a psychologically safe environment where NTPAs feel comfortable asking for help in their new role and make that assistance easily available. NTPAs seek support for their career development early in their practice.^{37,38} Managers should be deliberate in providing guidance and coaching for this domain of struggle.

Workload Is a Struggle

“Workload” was salient for all respondent groups. During training, constraints are placed on workloads to optimize learning and prioritize patient safety. From the moment of graduation, workload is tailored to what is safe for an experienced physician. These “workload operations” skills are not frequently addressed on the training side of the transition and may be invisible to trainees.³⁹ Higher volumes, shorter visits, added responsibilities, and tasks increase the workload while the NTPA is learning a new system and adjusting to the absence of supervision. Learning time is not integrated into the workflows despite its need.

Limitations

This study has several limitations. The program leaders and managers surveyed are all from a single health system in a single geographic area. Additionally, 85% of the managers identified as male, which introduces

bias in those answers. The NTPAs skewed to the Northeast region, medical specialties, and academic practices. Several subgroups had a relatively small number of responses to analyze, raising a concern that perspectives may be missing from the sample. Some respondents may hold more than one role relevant to this study, which could influence their answers. Response bias could exist if there are NTPAs who were not struggling with the transition and chose not to respond. We arbitrarily defined “new-to-practice” as within the first 2 years of finishing training based on anecdotal observations of when NTPAs seem to struggle the most. There was no comparison group of experienced practicing attendings, so struggle areas may not be specific to NTPAs. They could potentially exist for all physicians at any stage transitioning to a new job. Additionally, this is a cross-sectional study describing an assessment of transitional struggle at a single point in time and could become a less accurate representation of NTPA struggle over time (for example “COVID” as a salient domain) given the rapidity at which the practice of medicine is changing.

Conclusions

This study identifies and defines domains of struggle that are experienced by NTPAs, predicted by their program leaders, and observed by their managers. Many of these domains fall outside the current ACGME competency framework, including workload, new environments, and professional development. NTPAs, program leaders, and managers also each identified salient domains of struggle, different from the other 2 groups.

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