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Original Research

Residents' Challenges in Transitioning to Residency and Recommended Strategies for Improvement

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Introduction

The transition from internship to residency can be a particularly stressful time for learners,[1] adversely affecting residents' experience of training.[2-5] One of the key factors contributing to burnout in the workplace has been identified as chronic workplace stress.[6] Physician burnout adversely impacts job satisfaction, medical error rates, and career longevity.[5,7-9] Identification of effective targets for intervention to reduce stress during transitions is of high importance to the wellbeing of the physician workforce. Although residency programs have implemented several interventions recently to alleviate resident stress, there is little guidance on how to support residents during transitions.[10,11] Despite awareness of resident stress during training transitions, there is limited information available regarding how residents perceive these transitions or strategies for improvement.

Several specialties, including anesthesiology, require a separate intern year (advanced) that can be completed at another institution prior to the start of specialty training. For these residents as well as categorical residents, the transition to residency from intern year is comprised of major changes in care team design, support, workflow, and clinical responsibilities. These changes present high stress and potential risk for negative effects on resident wellbeing, especially in anesthesiology, a specialty that has greater than average rates of physician burnout than other specialties.[12]

A recent scoping review of literature on undergraduate medical transitions to clinical training characterized three domains to conceptualize transitions[13]: (1) educational, defined as endeavors to narrow a knowledge gap between stages of training; (2) social, defined as developing a nurturing learning environment and facilitating interpersonal relationship formation; and (3) developmental, defined as empowering learners by facilitating reflection and transferrable learning strategies. We used these three domains as our conceptual framework to explore first-year anesthesia resident accounts of the experience of transitioning from internship to residency in order to better understand their challenges and recommended strategies for interventions.

Methods

For this qualitative study, we completed semistructured interviews with first-year anesthesia residents at the University of California, San Francisco (UCSF), grounded in a constructivist world view with acknowledgement that multiple truths are created by individuals as interaction between people.[14] The UCSF institutional review board determined exempt status for this project.

Setting and Participants

At UCSF, anesthesia residency classes are comprised of 2 cohorts: (1) categorical residents who complete internship at this institution prior to residency with inclusion in a specialized, 3-week "bootcamp" curricula to address gaps in anesthesia-related skills and knowledge and (2) advanced residents who complete internship at other institutions who do not participate in the "bootcamp" curricula. The distribution of the two groups is typically evenly split in our program.

Data Collection

Volunteer participants were recruited by email. Two pilot interviews were completed with senior residents to test out the interview guide to determine interview duration, improve clarity of prompts, and ensure alignment with research objectives.

All interviews were conducted by the researcher (A.R.P.) via online video chat using Zoom software in the fall of 2020. Interviews were conducted following the semistructured interview guide (Appendix A). Audio recordings of the interviews were transcribed verbatim using an online transcription service. Interviews were conducted until thematic sufficiency was reached in review of initial coding.[15]

Data Analysis

Two coders independently assessed transcripts (A.R.P. and C.K.B.). The research team (A.R.P., C.K.B., and M.P.) met via video conference to discuss coding strategy, reach a consensus on coded transcripts, and discuss the prominence of certain ideas to identify larger themes across the data. Thematic analysis of interview transcripts was performed following the template analysis guide[16]: (1) interviews were read in completion to acquire an overall understanding of content related to the research question; (2) interviews were again read in completion, while noting

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the reflections and impressions of the researcher; (3) transcripts were divided into meaning units; (4) condensed meaning units were extracted; (5) condensed meaning units related in meaning and content were labeled with codes by two coders; (6) codes were similarly organized into categories pertaining to one of the a priori domains (educational, social, and developmental); and (7) emerging themes were defined by participants' descriptions of challenges and recommendations pertaining to specific experiences during the transition.

Reflexivity

We used a constructivist approach to align with our goal of coconstructing and informing the experiences of transition from our key stakeholders, residents. We considered reflexivity as our study team also brings unique experiences and perspectives to this study. During the study period, authors took reflexivity notes to account for unique individual perspectives and experiences that each of us bring to contextualize the data analysis and interpretation.

Results

From interviews with 10 residents (5 categorical and 5 advanced), we identified 7 challenges and 7 recommended strategies across educational, social, and developmental perspectives of the transition (Table 1).

Educational Challenges and Strategies

Challenge 1: Cognitive Load Management

All residents described effectively managing cognitive load as a major challenge during the transitional period, "it's a tsunami of information and you kind of have the wave crash on you every night and you hold onto one thing and then the tide changes and you get crashed on the next day." (c10081900). This resulted in daily exhaustion and limited residents' ability to study effectively as well as learn from providing direct patient care. Exhaustion was exacerbated by presentation of didactic material in lectures and small groups after clinical work hours, "I did feel that I was just so tired from the (operating room) that sometimes it was hard to focus…even though I wanted to review the material." (a101519).

Involvement in complex cases was perceived by residents as overwhelming and particularly cognitively demanding during transition. However, all residents agreed that early involvement in complex cases was beneficial to their development and allowed them to identify targets for improvement of clinical abilities, "You do all these insanely difficult cases with the best trained attendings in the world. So super humbling kind of have to pinch yourself every day being like "I can't believe I'm here." (c100819). Despite the challenges of working on complex cases, these encounters were retrospectively highly valued by residents who noted increasing patient complexity correlated with greater opportunity to perform more procedures. This may pose an interesting dilemma for residency programs to consider how to find the appropriate balance between increasing the complexity of the cases for maximal learning but not to overwhelm the residents with excessive cognitive load, which can increase stress.

Strategy 1: Bootcamp and Early Exposure

All residents advocated for early involvement in complicated cases in a safe and supported environment described as "low-stakes", as one resident described, "I think a lot of the preparation or at least getting into the mindset of how to be an anesthesia resident I learned through intern bootcamp, because I got to be in the operating room… but not be the person that's primarily responsible." (c100817).

Other suggestions for early exposure included providing on-site tours prior to the first on-duty day at the clinical site, review of commonly used equipment and storage spaces, and testing of badge access. Categorical residents endorsed the bootcamp curricula noting the value of observing the resident primarily responsible for the case.

Challenge 2: Lack of Clarity on Performance Expectations and Feedback

Residents reported difficulty in assessing their performance during the transitional period, which they attributed to their limited insight into clinical expectations. Residents perceived the Accreditation Council for Graduate Medical Education anesthesiology milestones as lacking specificity in guiding their development during the transition. Most of residents felt the time needed to review and interpret the milestones would outweigh the potential benefits, a sentiment supported by the few participants who did endorse reviewing the milestones during the transition, "we have these milestones, but I just didn't feel like they were really helpful for me because they're vague… It's just challenging." (a101519).

Residents described three main barriers to actionable feedback during transition: (1) feedback structure and delivery varied greatly by supervisor, (2) feedback provided did not always contain actionable items for improvement, and (3) perceiving the utility of near-peer feedback as more valuable:

"Sometimes attendings... they're so experienced or they do things like so quickly and then you don't really understand how it was done. Whereas someone who's still in residency one or two years ahead, they remember how it was to start out so they can break things down a little more, into pieces that are easier to understand or easier to remember." (a1015900).

Strategy 2: Standardized Feedback Structure

Residents recommended adoption of a standardized feedback structure to counter frequent changes in supervisors and yield discrete suggestions for immediate improvement. They strongly endorsed the need for actionable feedback, as residents were unable to effectively prioritize areas for improvement given unclear understanding of expected competencies. Residents specifically suggested the use of "Stop-Start-Continue" feedback to suggest discrete modifications of future performance, "(One attending) will tell you…There are some things that we should stop doing…and then other things to work on for next time." (a101413).

Residents also advocated for greater continuity with one-on-one supervisors during the transitional period, stating their belief that greater continuity allowed for establishing rapport, leading to trust and increased receptivity to feedback.

Challenge 3: Lack of Standardized Set of Study Resources

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During the transition from internship to residency, residents used diverse independent learning strategies, including reading textbooks and review articles, listening to podcasts, and reviewing materials obtained during medical school anesthesia rotations. To determine which resources to use, residents relied largely on word-of-mouth recommendations from medical school classmates, residents on prior rotations, and personal mentors, "so it wasn't until I asked some of the younger attendings what they did in terms of guiding me in like study resources." (a101413). Unfamiliarity with available resources contributed to additional challenges, requiring residents to investigate which resource would best match their need and develop a plan for utilization.

Strategy 3: Repository of Resource Guides

Residents recommended providing incoming classes with a summary of available resources, recommendations for specific content to be reviewed, and current/prior residents' study strategies and perceived effectiveness of resources. Residents expressed hope that this guide would be updated with the experiences of each new class and passed down through future years.

Challenge 4: Preoperative Planning and Case Discussion

Residents described the preoperative planning and case discussion with attendings as one of the most novel experiences of the transitions, "Pre-oping a patient is very different than anything I've done on medicine or an ICU." (a101417). Residents' challenges in completing this task included (1) novelty of preoperative planning, (2) opaque and variable expectations set by each supervisor, (3) nonstandard format for discussion, and (4) lack of procedure regarding contacting supervisors after hours. Residents were frustrated with the variance of expectations by supervisors, perceiving them as idiosyncratic. Attempts to contact attendings after hours frequently failed with delays of unpredictable length ranging from minutes to multiple hours. Residents felt this lack of clear expectations affected their personal lives and ability to attend to familial responsibilities.

Strategy 4: Standardized Structure for Preoperative Case Planning

Residents' recommended that program-wide standards for after-hours contact be implemented and a standardized format for preoperative case discussion be adopted both to expedite the reviewing of the care plan and to provide a structured approach to completing these new tasks. In the event delays occurred, residents highly valued timely updates and rescheduling of the conversation to minimize opportunity cost of waiting for a return phone call.

Social Challenges and Strategies

Challenge 5: Forming Relationships with Peers

Residents struggled to find opportunities to form peer relationships in clinical settings, "You spend a lot of time with your co-interns (during internship). It's not like that again. You almost never worked with any of your co-residents. If you see them, it's like a fleeting moment in the hallway where you only have enough time to really say hi." (a101213). Residents also described hesitancy around sharing their feelings of inadequacy with others given the lack of opportunity to observe peer performance, leading them to doubt these feelings as common and a shared experience among the peer group.

Strategy 5: Normalization of Discussing Errors

Residents cited a senior resident's recommendation to normalize open discussion of struggles and adverse events amongst first-year residents as crucial to the development of a culture that promoted learning and well-being, "You should sort of normalize the culture of talking about your mistakes with your co-residents, because nobody's perfect and we're all making these mistakes frequently. That does a lot to build support and build trust in your co-residents in your class." (c100817). They viewed these discussions as opportunities to build solidarity and alleviate the stress of living up to performance expectations. Residents unanimously endorsed group text conversations as the most efficient method of communication and valued the ability to reach all their peers simultaneously.

Challenge 6: Forming Relationships with Faculty Mentors

Residents described their ideal mentor as sharing similar clinical interests, similar personal experiences and traits, ease of accessibility, and willingness of mentor(s) to check in and initiate discussions. Most residents had not yet identified a faculty mentor or mentors and felt uncertain of their own clinical interests, which limited their ability to identify possible career mentors. They also felt that it was challenging to find mentors given limited and noncontinuous clinical contact with attendings, "I think, the tough part is that you're constantly working with new people so sometimes it's hard to build relationships where you can feel like you can ask different attendings questions." (a101413).

Strategy 6: Increase Networking Opportunity

All residents recommended providing protected time for networking events to establish relationships with mentors. Some residents recommended pursuing mentor relationships with multiple faculty with common areas of interest (clinical interests, personal experiences, and individual traits) as well as seeking mentors with differing clinical interests to provide a wider perspective when considering career options, "I'm the first doctor in my family. I don't really have anybody to kind of, ask for help moving forward... so I think it would be really great to have somebody to ask their opinions about like different fellowships, like job opportunities, kind of those things like beyond residency."(c101213). All residents emphasized that maintaining regular contact with faculty was critical.

Developmental Challenges

Challenge and Strategy 7: Professional Identity Formation

Despite the transition's difficulty, residents felt reaffirmed in their desire to be in the profession. As one resident shared, "It's a steep learning curve. Just knowing that … you're doing this because this is what you love, I think is very important." (a101519). When faced with challenges of transition, residents saw these as part of their overall professional development journey to becoming an anesthesiologist and reiterated their desire to be part of the profession. Residents recognized the importance of humility and belief in the developmental

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process during the transition, "I think you just have to be okay with not knowing everything...I feel like you just have to trust the process that eventually things will get better." (a101519). Residents viewed their challenges as part of the socialization process and assimilation into the new communities of practice, "I'll work as hard. I think the attendings also (worked) really hard, as well....if you don't get your lunch in a certain time, they are also not eating as well." (c101713). Faculty scaffolding the residents through challenging cases were endorsed as a way to invite into communities of practice, "I feel like having that support system and attendings who understood what we were going through and who kind of like helped me focus on what's important to work on when. I feel like that was helpful."(a10151900).

Discussion

In this qualitative study, we found that anesthesia residents transitioning from internship to residency face multiple challenges in the educational, social, and developmental domains. Residents' focus on narrowing knowledge and skill gaps informed their perception of the potential benefits of specific curricular interventions. They shared recommendations and strategies to mitigate these challenges and improve the experience and effectiveness of the transition.

Residents' primary objective for the transitional period was to focus their attention and time toward development of clinical knowledge, skills, and professional identity. The majority of participants did not view the Accreditation Council for Graduate Medical Education Anesthesiology Milestones as providing specific learning goals during this phase of training, citing the significant time needed to interpret the milestones as not only burdensome but also not directly actionable. During the transition from internship to the first year of clinical anesthesiology residency, residents' primary focus was on attaining the clinical competency needed to provide basic anesthetic care for patients, which may make the graduation milestones somewhat distal from their day-to-day learning and not prescriptive enough to make the feedback actionable. One possible consideration is to integrate entrustable professional activities, which are observable and measurable work-based activities, as a potential framework to assist faculty in providing more specific and actionable feedback and to provide trainees with greater clarity of expectations.[17-19] Feedback within the context of entrustable professional activities, such as complete the task of airway management and mask ventilation, allows for more specificity, because the feedback conversation is focused on the completion of a specific clinical task rather than on general competencies or milestones.

Interestingly, residents recommended the more demanding task of early involvement in complex cases as challenging but acknowledged it as a learning opportunity. As indicated by cognitive load theory,[20,21] one of the major challenges for faculty is to provide the appropriate level of complexity to adequately stimulate and motivate the learners without putting excess cognitive load to the point of overwhelming the learner. The mismatch between the task's complexity and learner level is sometimes described as "destructive friction" and can lead to potential cognitive overload and unproductive learning. To maximize learning opportunities, faculty can stop to gauge the learners' level of experience and adequately prepare and scaffold the learner through their progression.

Residents also struggled with working in isolation from their peers in contrast to their frequent experiences during internship working on a team with other residents. This challenged their ability to form relationships and calibrate their performance with that of their peers. This is an important finding given that previous studies have shown[22,23] that isolation (loneliness) contributes to physician trainee burnout. Peer support as resources to reduce burnout through normalizing and contextualizing the experience in the context of personal and professional growth has been gaining more attention and may provide additional strategies to mitigate challenges of stress associated with transition.[24] Additionally, providing all residents, not only advanced residents, with the opportunity to shadow senior residents as part of onboarding may facilitate building networks as well as near-peer support.

Limitations of this study include investigation of a single residency class at a single institution as well as inclusion of residents volunteering to be part of the study, although inclusion of both categorical and noncategorical residents may diversify the prior experiences and perspectives of participants included. This class transitioned to residency during the early months of the coronavirus disease 2019 pandemic, which may limit generalizability of their experiences; however, discussion of the pandemic primarily concerned limitations on social gatherings. Lastly, recommendation strategies advocated by residents may lack efficacy data and must be investigated further to support implementation.

Conclusion

Residents perceived multiple challenges during transition, including shifts in their clinical responsibilities, navigating a new learning environment, limited feedback, and limited opportunity for peer interaction and social networking. Strategies outlined by residents included scaffolded learning opportunities with increasing difficulty, standardized structures for communications around expectations and feedback, enhanced orientation through bootcamp, and integration of social networking opportunities to increase peer and faculty interaction. This study provides several concrete next steps for curricular and program-specific strategies to mitigate stress related to transition for successful initiation into the profession.

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Abstract

Background: The transition from internship to residency can be a particularly stressful time for learners, adversely affecting residents' experience of training. Despite awareness of residents' stress during transitions, there is limited information available regarding how residents perceive these transitions or how they could be improved. We explored residents' accounts of the experience of transitioning from internship to residency to develop a better understanding of their challenges and recommended strategies for interventions.

Methods: We conducted semistructured interviews with first-year anesthesia residents at the University of California, San Francisco. We conducted a thematic analysis through a general inductive approach on transcribed interviews.

Results: Ten residents, evenly split among categorical and noncategorical residents, participated in the interviews. We identified seven challenges faced by residents during the transition, including cognitive load management, self-assessment and eliciting effective feedback, learning resource utilization, preoperative care planning and discussion, forming relationships with peers and faculty, and professional identity formation. Residents also recommended strategies to address these challenges, including early low-stake exposure to complex cases, standardized feedback structure, resource utilization guides, normalization of discussing errors with peers, and protected time for networking events.

Conclusion: Residents face multiple challenges at the personal, social, and structural levels during the transition. Their recommended strategies are actionable, including scaffolded learning opportunities with increasing difficulty, more standardized and structured communications around expectations and effective feedback, enhanced orientation through bootcamp, and integration of more formal and informal social networking opportunities to increase peer and faculty interaction.

Keywords: Resident curriculum, transition

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Table

Table 1. *Summary of Major Themes Characterizing the Challenges and Strategies Identified by the Residents during Transition*

Domains and Themes	Representative Quote
Educational	
Challenges	
Cognitive load management	…all my patients were crazy complex. It wasn't just figuring out what the patient's history was and their imaging labs, et cetera, but doing your best to come up with a plan.
Lack of clarity on performance expectations and feedback	You don't really have a great sense of where you are in relation to your other co-residents, um, because you're solo the whole time.
Lack of standardized set of study resources	It wasn't until I asked some of the younger attendings, um, what they did that was helpful in terms of guiding me in like in terms of study resources.
Perioperative planning and case discussion	Pre-oping a patient is very different than anything I've done on medicine or in ICU.
Strategies	
Bootcamp and early exposure	I think the bootcamp month is really nice for us. And I think in some way, the bootcamp month kind of set the stage, giving us not only, like, didactic information. We were exposed to basic topics through problem-based learning groups. We were also exposed to, two days a week of OR time. So I think those kind of help to set the stage.
Standardized feedback structure	(One attending) will tell you…there are some things that we should stop doing…and then other things to work on for next time.
Repository of resource guides	I think would be helpful if, they said these are the resources that are provided and what people in the past have used them for.
Standardized structure for perioperative case planning	We have other shared folders where some people put some resources, there's like some peri-op templates and things like that.
Social	
Challenges	
Forming relationships with peers	You spend a lot of time with your co-interns (during internship). It's not like that again. You almost never worked with any of your co-residents. If you see them, it's like a fleeting moment in the hallway.
Strategies	
Normalization of discussing errors	You should sort of normalize the culture of talking about your mistakes with your co-residents, because nobody's perfect and we're all making these mistakes frequently.....That does a lot to build support and build trust in your co residents in your class.
Increase networking opportunity	I think it would be really great to have somebody to ask their opinions about like different fellowships, like job opportunities, kind of those things like beyond residency.
Developmental	
Challenges and Strategies	
Professional identify formation	So one attending gave me advice to just like minimize those overloads even in the OR. I just took his advice on like the little things that I need to be paying attention in the OR so that when stuff happens, I could still function basically.

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Appendices

Appendix A: Semistructured Interview Guide

Questions

1. Did you complete your intern year at UCSF?
    a. (if yes) Did you take part in the intern bootcamp?
    b. (if yes) Tell me about your experience at the bootcamp? What did you take away from the experience?
2. Tell me all about your transition to CA1 year.
    a. Did you encounter any surprises or something you were not prepared for?
3. How did you prepare yourself for CA1 year?
    a. What resources did you use while preparing? How did you come across?
4. What skills, training, and knowledge are needed to successfully transition to CA1 year?
5. How did you judge your progress throughout the first month of training?
6. How have you been supported throughout the transition? Do you feel you were supported well enough?
7. What are some ways you are getting connected to people in the program?
    a. Did you have a mentor?
    b. Are there any barriers you encountered?
    c. What recommendations would you give to next year's CA1 residents to build strong relationships in the program?
8. What impact have COVID-19 and UCSF's pandemic response had on your training?
9. What more would you like to discuss about training during the first month of CA1 year?

Miscellaneous Probes

- Do you have further examples of this?
- Can you recall more details of a specific incident?
- Tell me more about that.
- What do you mean by that?

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Appendices *continued*

Appendix B: Glossary of Terms

Words	Definition and Reference
Scaffold(ing)	In an educational context, scaffolding refers to a variety of instructional techniques used to move students progressively toward stronger understanding and, ultimately, greater independence in the learning process.
Constructivist	The assumptions guiding the constructivist approaches are that knowledge is socially constructed by people active in the research process and that researchers should attempt to understand the complex world of lived experience from the point of view of those who live it. Schwandt TA. Three epistemological stances for qualitative inquiry: interpretivism, hermeneutics, and social constructionism. In: Denzin NK, Lincoln YS, eds. *Handbook of Qualitative Research*, 2nd ed. Thousand Oaks, CA: SAGE Publishing; 2000:189-213.
Reflexivity	Reflexivity is the process of attending systematically to the context of knowledge construction, especially to the effect of the researcher, at every step of the research process. Malterud K. Qualitative research: standards, challenges and guidelines. *Lancet*. 2001;358(9280):483-8.
Meaning unit	A meaning unit is a text fragment containing some information about the research question.