Editor's Note: The following are the Top Research in Residency Education abstracts selected by the Journal of Graduate Medical Education *and the Royal College of Physicians and Surgeons of Canada for the 2024 International Conference on Residency Education (ICRE).*

Winning Research Abstract 2024

From the Stork's Eye View: A Narrative Review of the Trainee Experience From Pregnancy to Postpartum and Beyond

Background: The birth of a child is a pivotal moment in an individual's life. For medical trainees, who work long hours in demanding environments, the road to parenthood often involves additional challenges. With pregnancy during training becoming more common as the number of women in medicine increase, it is imperative to understand the experience of trainees in pregnancy and beyond to inform future research related to this changing workforce.

Objective: The aim of this narrative review is to synthesize and assess the available literature describing the experience of pregnant and postpartum trainees in graduate medical education.

Methods: The literature on PubMed and Google Scholar was reviewed for the following key words: pregnancy, maternity leave, postpartum, resident, medical training, and breastfeeding. We analyzed 42 articles written from 1990 to 2023 and included studies from all specialties, synthesizing data related to trainees.

Results: Our review revealed 5 salient findings: (1) Trainees are at disproportionate risk of pregnancy complications including pregnancy loss, intrauterine growth restriction, and hypertensive disorders of pregnancy; these increased with frequency of night shifts and consecutive hours worked; (2) Maternity leave duration varies among specialties, with a mean length around 6 weeks; (3) A large academic institution found that trainees with leave duration >8 weeks had decreased postpartum depression rates and increased breastfeeding rates; (4) Reported breastfeeding barriers include time constraints and lack of lactation policies and onsite lactation facilities; and (5) Proposed challenges to implementation of extended leave policies and work accommodations include concerns regarding trainee competency, training requirements, the impact on colleagues' workload, and funding leave policies.

Conclusions: Our review underlines that pregnancy in training is associated with increased complications and that longer maternity leaves provide benefits for both mother and child. Future research should aim to identify if antepartum work restrictions mitigate adverse pregnancy outcomes and if breastfeeding policies improve breastfeeding rates among trainees.

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Conceptualizing the Clinical Learning Environment: A Qualitative Study of Organizational Practices Related to Serious Safety Events

Background: To improve clinical learning environments (CLEs), we require better conceptualizations of their dynamics. In this study, we argue that negotiation of policies, practices, and accountabilities when a learner has been involved in a serious safety event reveal organizational dynamics of CLEs. The aim of our study was to explore these dynamics. By elaborating this organizational studies perspective, our study complements and extends existing CLE conceptual frameworks.

DOI: http://dx.doi.org/10.4300/JGME-D-24-00931.1

Methods: We conducted a qualitative study of situations when a learner has been involved in a serious patient safety event. Our study was shaped by social science concepts of (1) "negotiated orders" and (2) repair practices. We used 2 types of data collection: document analysis and semistructured interviews. All data were analyzed using the tools of situational analysis.

Results: The study was conducted in an urban university and fully affiliated health science center in Ontario. We analyzed legislative documents as well as organization-specific policies, procedures, and training materials. From 2022 to 2023, we conducted 17 interviews with staff physicians (n=6), medical residents (n=2), and safety leaders and/or university administrators (n=9). Analysis revealed legislative frameworks, operational goals, and accountabilities of medical schools and health service organizations create countervailing forces. These dynamics must be constantly interpreted, negotiated, and renegotiated by participants delivering on the aspirations of the CLE. Analysis revealed potentially conflicting discourses about the nature of learning in the CLE, animating long-standing tensions about the role of CLE in developing clinical expertise and professional identity.

Conclusions: Our study reveals organizational dynamics shaping the CLE, including countervailing forces, interacting policies, and potential disagreements about the learning priorities of the CLE. Our study complements and extends existing frameworks of the CLE, offering additional insights to inform CLE interventions. Future CLE research should attend to the pressures acting on health service organizations and the possible implications for educational mandates.

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What Is in It for Me? Results From a Qualitative Study of Internal Medicine Residents' Perception of the Service and Education Value of Clinical Activities

Background: Residency training is based on a model where competence is acquired through engagement in clinical activities. However, residents' perceptions of what makes a clinical activity "service" or "education" varies widely. Most papers focus on the differences in perceptions, and few address why the perceptions vary.

Methods: We conducted a qualitative study to explore why internal medicine residents perceive certain clinical activities as "education" and others as "service." We performed 18 semistructured interviews with medical residents at one institution. We analyzed the data in an iterative process using a combined inductive and deductive approach. As service to patients is central to the medical profession, and residency training is a period of socialization where residents acquire professional values, we used professional identity formation as a sensitizing framework.

Results: Residents perceived activities as "education" when they were novel, complex, or useful to their future practice or when they had meaningful interactions with teachers, peers, other health professionals, and/or patients. Residents also perceived activities as "education" when there was a conscious effort on their own part to learn. Residents perceived activities as "service" when they were inefficient, outside of their scope of practice, associated with negative emotions, and when doing the clinical activities came at a personal cost. Residents also felt that activities were "service" when others such as the institution, the supervising staff, or the patient were the primary beneficiary.

Conclusions: Our study introduces the themes of personal cost, and of others as the primary beneficiary as reasons why residents perceive certain activities as service. Our study suggests that clinical activities that reinforce the socialization process in professional identity formation are generally perceived as educational and could be targets for intervention. The emergence of a "what's in it for me" stance may signal a shift in our long-held models of medical professionalism.

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Winning Resident Research Abstract 2024

Tensions and Tightropes: Exploring the Influence of Gender and Generational Identity on Conflicting Professionalism Values During Training

Background: Professionalism is an integral component of medical education. However, current professionalism definitions lack nuance around diversity in physician cultural, racial/ethnic, generational, and gender identity raising the possibility of variability in application. We aimed to identify gaps in current definitions and aspects of professionalism that may conflict with residents' beliefs or identities as individuals and physicians.

Methods: Using a constructivist grounded theory approach, we conducted and analyzed 4 focus groups with 12 residents in internal medicine at the University of Toronto. Using constant comparison we identified themes describing residents' experiences with professionalism. We used intersectionality theory to understand how residents' experiences were influenced by their diverse personal identities.

Results: Five participants identified as men and 7 as women. The participants were from diverse ethnic backgrounds. The main identities that affected their experiences were gender and generational related, and participants appeared to have difficulty discussing other aspects of their identity as it relates to professionalism. Participants did not identify any gaps in the definition of professionalism; however, there were conflicts between elements of professionalism, especially "commitment to profession," "commitment to patient," and "commitment to self." Work-life balance highlighted these conflicts and were prominently affected by generational and gender identity. Participants experienced challenges when trying to resolve these conflicts as there was a fear of professionalism repercussion due to power dynamics between learner and preceptor if the "wrong" element was prioritized.

Conclusions: Tensions exist within the definition of professionalism outlined by regulatory bodies. These tensions are highlighted through generational and gender differences, with an additional layer of complexity due to the power imbalance between learner and preceptor in an educational setting. Further work is required to understand the influence of other personal identity elements such as ethnicity and race on professionalism, and how this may be used to change policies.

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Embarking on Residency: Unveiling Insights Into the Transition to Residency by Contrasting Undergraduate and Transition-to-Discipline Entrustable Professional Activities

Background: Medical learners continue to transition into postgraduate training feeling underprepared and needing more clarity of their roles. Competency-based medical education (CBME) aims to address this complex and critical transition, aiming to create a seamless educational continuum, prioritizing sequenced progression via entrustable professional activities (EPAs). This research seeks a shared mental model of the transition to residency, examining the alignment of core undergraduate EPAs with transition-to-discipline (TTD) EPAs in Canadian direct-entry residency programs.

Methods: Employing direct content analysis, this qualitative study assessed the overlap of Association of Faculties of Medicine of Canada (AFMC) Core Undergraduate (UG) EPAs and TTD EPAs collected from Royal College EPA guides for 26 direct-entry residency disciplines. Our analytical process involved categorizing TTD EPAs by the extent of overlap with AFMC Core EPAs, followed by thematic analysis of TTD EPAs. This comprehensive analysis allowed for cross-discipline and EPA-type comparisons to discern patterns and variations among TTD EPAs.

Results: AFMC Core EPAs 1 (history and physical) and 6 (oral and written reports) exhibited the highest frequency of overlap, while EPA 12 (patient education) had the least overlap with TTD EPAs across disciplines. Notably, TTD EPAs within medical and surgical disciplines showed significantly greater overlap with core UG EPAs when compared to those in diagnostic and laboratory specialties. Similarly, generalist discipline TTD EPAs were more aligned with core UG EPAs than their specialist counterparts.

Conclusions: Our results demonstrate significant variation in alignment between AFMC Core UG EPAs and TTD EPAs for direct-entry Royal College disciplines, depending on discipline knowledge (generalist vs specialist) and practice (medical vs surgical vs diagnostic/laboratory). There is a need for collaborative EPA development between undergraduate and postgraduate leaders to create a robust CBME structure to support learners across the transition to residency.

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Exploring Perceptions of Service and Education in Internal Medicine: A Constructivist Grounded Theory Study of Residents' Experiences

Background: The "ratio" between service and education in medicine is the subject of frequent debate. While following the apprenticeship model, residency programs are expected to balance the 2, yet definitions for service and education remain elusive, and resident perspectives on this matter within internal medicine (IM) are not well understood. This study explores how trainees at one Canadian IM program conceptualize service and education.

Methods: Residents across postgraduate years (PGYs) were purposively sampled to obtain diverse viewpoints within the IM program at the University of Toronto. One-on-one interviews with 15 trainees (PGY-1 to PGY-3) were conducted and analyzed using constant comparison and constructivist grounded theory.

Results: Service and education were often conceptualized to exist along a continuum. Although "service" was universally acknowledged to carry negative connotations, most trainees recognized its considerable overlap with education and struggled to provide examples of "pure service." Nonetheless, some residents reported less educational value in "service-heavy" experiences, which they frequently conflated with high clinical volumes and administrative burdens. In contrast, the perception of meaningfully contributing to patient care and the availability of feedback from attending staff were felt to promote educationally rich experiences. The concept of graduated autonomy elicited conflicting opinions: for some, supervision from a distance connoted service, while for others, increasing responsibility and independence reinforced education. Attitudes toward service appeared to evolve over time, with senior residents reporting more appreciation for self-directed learning and indirect patient care activities that were progressively seen as part of professional identity formation.

Conclusions: Despite the use of "service" as a pejorative, many IM residents find the service in patient care to be inherently educational, particularly if commensurate with graded responsibility and individualized feedback. Further research on trainees' experiences along the service-education continuum will help residency programs better support trainees in their dual role as learners and patient care providers.

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Improving Timeliness of General Surgery Residency EPAs: A Quality Improvement Intervention

Background: The evaluation of entrustable professional activities (EPAs) is a key component of resident assessment in Competence by Design (CBD). Literature suggests that the optimal time frame for evaluation is within 72 hours of a clinical encounter, and that evaluations completed after 14 days should be excluded from assessment data. A pre-implementation audit of 175 EPAs created within the general surgery department of our center revealed that only 32% were completed within 3 days and only 57% within 14 days.

Methods: A quality improvement (QI) initiative to improve the timeliness of general surgery EPA completion was undertaken. Stakeholder analysis revealed that residents and staff alike found EPAs to be time-consuming and agreed that timeliness of feedback is necessary for the feedback to be specific and constructive. Multiple interventions were undertaken including educational sessions, facilitation of evaluation technology, email and poster reminders, and personalized feedback report cards for all stakeholders.

Results: A substantial improvement in EPA timeliness was achieved with our QI initiative. Post-implementation, 135 EPAs were reviewed identifying a 93% completion rate within 14 days. The rate of same-day completion improved from 15% to 62% and the median number of days to completion improved from 6.8 to 0.8 days.

Conclusions: Timely completion of EPAs is a key component of high-quality feedback for residents in CBD. This QI initiative was successful in improving timeliness of feedback at our institution and has the potential to improve the provision of feedback across all CBD residency programs.

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Mapping Interprofessional Education in Postgraduate Medical Education: Trainee Perspectives on Navigating Interprofessional Competencies During Residency

Background: There is a lack of clarity about the landscape of postgraduate interprofessional education (IPE), limiting understanding of how interprofessional competencies are achieved within CanMEDS-oriented residency curriculums. We conducted a 3-phase study to triangulate postgraduate IPE at the framework, curricular, and learner levels. Findings from previous phases suggest that postgraduate interprofessional learning occurs informally, with underrepresentation of collaborative leadership and conflict resolution competencies. In this final phase, we aimed to explore residents' perspectives on postgraduate IPE. We also aimed to identify gaps and opportunities and integrate trainee perspectives with previous findings at the framework and curricular levels.

Methods: We took a qualitative approach using semistructured interviews sensitized by the CanMEDS framework and the Canadian Interprofessional Health Collaborative interprofessional competency framework. Participants were recruited from Canadian Royal College-accredited residency programs. Fifteen residents from diverse year levels, institutions, and specialties were interviewed. Transcripts were analyzed using directed content analysis methodology. Emerging themes were explored using mind-mapping transitional coding.

Results: Three themes were identified: (1) learning through trial and error; (2) filtering interprofessional learning through a uniprofessional lens; and (3) privileging informal learning. Trainees described learning

through trial and error with minimal guidance, with interprofessional competencies often shaped by negative outcomes. Interprofessional learning was filtered through a physician-centric lens, threatening collaborative leadership competencies. While many trainees described rich workplace interprofessional learning, a lack of formalizing structures hindered meaningful interprofessional learning. Trainees felt informal learning was insufficient for developing conflict resolution competencies.

Conclusions: Trainees perceive postgraduate IPE as lacking structure and intentionality, which can be traced back to gaps in competency representation at the framework level. Moving IPE from hidden to overt may protect interprofessional competencies from being sidelined by uniprofessional priorities. While rich experiential learning opportunities exist, these may require formalizing structures based on interprofessional competency frameworks to ensure recognition within CanMEDS-oriented curriculums.

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