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Beyond the Exam Room: Teaching Intervisit Care to Internal Medicine Residents

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Abstract

Introduction: Intervisit care, asynchronous care provided between patient visits, represents an essential part of patient care. Despite the importance of intervisit care, residency programs have not traditionally taught residents how to effectively manage intervisit care within the formal curriculum. We aimed to improve resident preparedness in providing intervisit care with an intervisit workshop. **Methods:** We developed a 2-hour, small-group, interactive workshop on intervisit care for categorical internal medicine interns at the University of Utah in Fall of 2023. The workshop consisted of a didactic session introducing a novel framework for intervisit care medical decision-making, case-based application, and practical site-specific applications using the electronic health record. We evaluated the workshop with an electronic survey following the session. **Results:** Thirty-two internal medicine residents (100% participation rate) participated in the workshop and 26/32 (81%) completed the survey. Residents felt intervisit care education was extremely important (median = 5, interquartile range [IQR] = 1). Residents felt more prepared to provide intervisit care after the workshop (median = 2, IQR = 2, vs. median = 4, IQR = 0; $p < .001$). Residents felt the framework for medical decision-making was helpful (median = 4, IQR = 1). **Discussion:** By employing a framework to guide medical decision-making and guided application, our intervisit care workshop improved residents' perceived preparedness in providing intervisit care for their patients. This workshop addresses a major gap in medical education and can be adapted by other institutions and specialties. Further work is needed to reinforce content and develop metrics of intervisit care.

Keywords

Intervisit Care, Indirect Patient Care, Internal Medicine, Medical Decision-Making, Asynchronous Care, Case-Based Learning, Clinical/Procedural Skills Training

Educational Objectives

By the end of this activity, learners will be able to:

1. Distinguish intervisit care as a unique and important clinical skillset.
2. Describe a medical decision-making framework to facilitate triaging intervisit care.
3. Apply the intervisit care medical decision-making framework to different clinical scenarios.
4. Incorporate site-specific processes for intervisit care using the electronic health record.

Introduction

Intervisit care, also labeled inbox management or indirect patient care activities, refers to the asynchronous care provided between patient visits. Intervisit care encompasses a wide breadth of clinical scenarios including review of test results, medication refill requests, patient messages, and interprofessional communication. It is an essential part of patient care, particularly ambulatory care. Recently, physicians and health systems have focused more on intervisit care because of large increases in intervisit care workload.[1-3] While all specialties have intervisit care responsibilities, primary care-based specialties spend the most time on intervisit care, with one study revealing that primary care physicians spend nearly 1.5 hours per day on inbox messaging.[3,4] Despite the critical importance of intervisit care to patient care, residency programs have not traditionally taught residents how to effectively manage intervisit care within the formal curriculum.[5]

Intervisit care is a crucial component of medical education and is incorporated into ACGME milestones for internal medicine (IM).[6]

Despite this, there are no guidelines, standards, or published curricula (including in *MedEdPORTAL*) demonstrating how to train or monitor resident physicians on providing intervisit care, and publications on the topic are sparse.[7] Most of the available literature centers on electronic health record (EHR) skills rather than clinical decision-making, although intervisit care is a distinct clinical skillset to review with residents.[8,9] Concerningly, current intervisit education appears to be inadequate, as only 56% of IM program directors (PDs) were satisfied with their program's EHR-focused training, and 20% of PDs surveyed reported known safety events related to inbox management, highlighting the need for focused education.[7]

During a focus group composed of IM categorical residents in 2021 aimed at improving continuity clinic experience, residents across the program identified knowledge gaps as the primary barrier to completing intervisit tasks. To fill this identified gap, we piloted an intervisit curriculum in existing educational conferences for IM residents to provide distinct intervisit education. Our intervisit pilot utilized small-group workshops as well as larger didactic sessions. The educational material was disseminated in a large internal medicine residency with approximately 30 categorical residents per year across three different health systems: Intermountain Health, University of Utah Health, and Veterans Affairs Health Care. Each site utilizes a different EHR: Cerner (Kansas City, Missouri), Epic Systems (Verona, Wisconsin), and Computerized Patient Record System (Department of Veteran Affairs), respectively. Through this pilot, we found that residents' baseline confidence in providing intervisit care was low, and we were able to improve confidence through short educational sessions.[10] However, given scheduling and didactic limitations within our residency program, we were not able to consistently reach all residents. Based on these observations, the intervisit curriculum was modified to a single comprehensive workshop focused on medical decision-making and incorporated site-specific processes with the use of breakout groups. The goal of the workshop was to improve resident preparedness in providing intervisit care.

Methods

The 2-hour interactive intervisit workshop was delivered at the University of Utah to IM interns from September through October of 2023 and was designed by ambulatory IM faculty. The workshop was delivered early in the academic year to allow for introduction and application of intervisit skills. Prior to this workshop, residents completed limited EHR ambulatory-focused training and 3 weeks of continuity clinic experience but had no formal intervisit education. The content was delivered

in a small-group setting to leverage the team-based learning environment, which has been proven to be an effective means of curricular delivery for problem-solving skills.[11] The workshop was implemented during protected educational time in the interns' ambulatory weeks in groups of seven to eight interns per workshop over 5 consecutive weeks to reach all interns. The workshop was targeted for categorical interns; while several preliminary interns attended the workshop, these participants were excluded from analysis. As a multisite residency program, it was essential to have faculty from each location to incorporate site-specific processes. Thus, our workshop was delivered by four primary care faculty who serve as attendings at the different resident continuity clinic sites. The University of Utah Institutional Review Board deemed further review of this project not necessary.

The workshop centered on medical decision-making in intervisit care. The decision to focus on medical decision-making was based on residents' recognition of intervisit care knowledge gaps during prior focus groups, in combination with our experiences in supervising provision of intervisit care by residents. In structuring the content of the workshop, we determined that the provision of intervisit care must be rooted first in medical decision-making before applying systemic and operational logistics. To support the application of medical decision-making in our workshop, we developed a novel framework, S_2IC Patient (severity, symptoms, interval change, comorbidities and patient factors), for residents to comprehensively triage intervisit information and assist in medical decision-making. S_2IC Patient was created through an iterative process to find a memorable framework. Through this framework, we aimed to leverage the constructivist learning theory wherein learners use new information to build a conceptual framework and then apply this framework to future problems.[12] The framework accounts for both objective medical decision-making and patient-specific factors such as treatment continuity, patient preferences, and other biopsychosocial factors.

The workshop consisted of three main sections, and the accompanying facilitator guide (Appendix A) provides guidance for facilitators to prepare and deliver each portion of the workshop. First, the didactic session delivered via PowerPoint defined intervisit care, highlighted its importance in patient care, and distinguished intervisit care as a unique skillset from direct patient care (Appendix B). During this portion, we presented the S_2IC-Patient framework as a tool for clinical decision-making in intervisit care. Second, we applied the S_2IC-Patient framework to case-based examples. We employed modified just-in-time teaching techniques through real-time interactive polling on

clinical cases to target our learners' educational needs.[13] Cases focused on three key aspects of intervisit care: responding to results, addressing patient messages, and medication refills. The third portion of the workshop focused on practical EHR applications and other system-based factors required to put intervisit care skills into action; a list of topics that could be covered in this section is included in Appendix A. This section was divided into site-specific breakout groups tailored to the processes and EHRs for each continuity clinic site.

Residents were asked to evaluate the workshop through an electronic retrospective pre/post survey (Appendix C). We utilized a single retrospective survey because it has been shown to be an effective tool for evaluating self-assessment ratings, and we hypothesized that it would improve response rates through fewer surveys.[14] The survey focused on residents' perception of the importance of intervisit care and their perceived preparedness in providing intervisit care before and after the workshop. Questions were asked based on 5-point Likert scales (1 = extremely prepared/unlikely/unhelpful or not at all important, 5 = extremely prepared/likely/helpful/important, respectively). Data were reported as medians and interquartile ranges (IQRs). We performed Wilcoxon signed rank statistical tests with respect to perceptions prior to and following the workshop. Statistical analysis was conducted using Stata version 18 (StataCorp), and statistical significance was defined as $p < .05$.

Results

Thirty-two categorical IM interns (100% participation rate) participated in the workshop and 26/32 (81%) completed the survey. Residents felt that intervisit care was important in overall patient care (median = 4, IQR = 1) and learning about intervisit care was extremely important (median = 5, IQR = 1). Residents reported low preparedness to provide intervisit care prior to the workshop and felt more prepared after the workshop (median = 2, IQR = 2, vs. median = 4, IQR = 0; $p < .001$; Figure). Resident preparedness significantly increased for all queried aspects of intervisit care, including responding to patent results, patient messages, managing medication refills, working with care teams, and using the EHR. Residents felt it was helpful to have a framework for medical decision-making (median = 4, IQR = 1) and were likely to use the framework in providing intervisit care (median = 4, IQR = 1).

Qualitative strengths of the workshop included "It's pertinent and not something we were taught in medical school," "engaging," "helpful to delineate what labs worry us inpatient vs. outpatient," and "provides framework... to appropriately address and triage patients." When asked about opportunities for improvement, six residents suggested that the lecture should be given earlier in the year, with one respondent stating, "I really didn't know how to manage my inbox before this lecture." One resident requested additional EHR training, another requested a reference guide that could be utilized later, and another requested the contact information of attendings.

Discussion

This novel intervisit workshop significantly improved IM interns' perceived preparedness in providing intervisit care and was overall well received with strong commentary. It addresses a major educational gap in many residency training programs that do not have formal intervisit care training. The combination of low
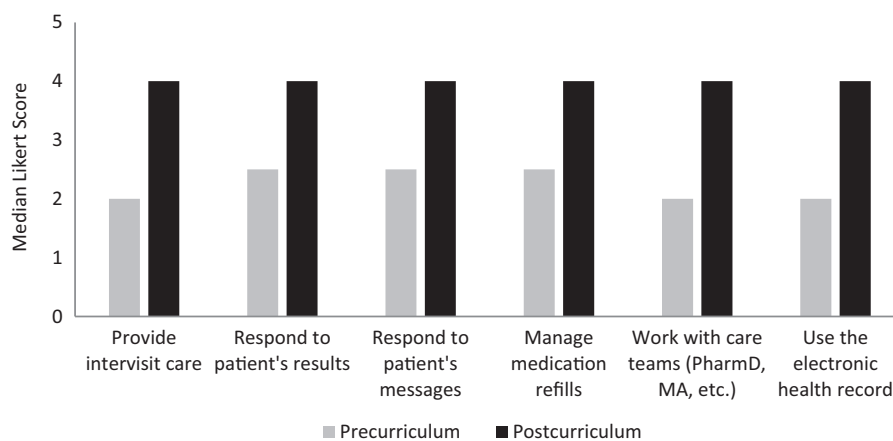

Figure. Intern's preparedness to provide intervisit care pre- and postcurriculum, as rated based on a 5-point Likert scale (1 = *extremely unprepared*, 5 = *extremely prepared*). For all pre/post comparisons, $p < .001$.

reported initial preparedness with high importance of education reaffirms the need for intentional intervisit education.[8,9] Given the limited availability of an intervisit curriculum, we are disseminating the current workshop.

The emphasis on medical decision-making using our novel framework, S_2IC Patient, was well received by residents, as they found the framework helpful to approach intervisit decision-making and were likely to apply it in their own practice. The framework allowed the residents to triage intervisit care intentionally and comprehensively, pausing to identify and reflect on aspects of care requiring more deliberate attention. Furthermore, the emphasis on medical decision-making allowed the learner to recognize the practice of intervisit care as a distinct clinical skillset that requires nuanced application of knowledge specific to asynchronous care. Our focus on medical decision-making is consistent with medical education theory in which the focus on decision-making is fundamental to medical education.[6,15]

There are several limitations to the results of this workshop. First, it was delivered as a single workshop early in the intern year; the sustainability and durability of the innovation results are unknown. Second, we measured self-assessed preparedness rather than a metric of effectiveness at intervisit care. While self-assessed preparedness is a commonly used metric in medical education literature, we do not know how this workshop will impact outcomes such as safety, clinical skills, or burnout.[16,17] The lack of well-established measurable metrics for intervisit care limits the ability to further assess the impact of our workshop. Thirdly, we acknowledge that faculty time may be a limitation of this workshop. Our workshop required significant faculty time to repeat the workshop to reach all interns, and as a multisite residency program, multiple faculty were needed at each session to have all clinical sites represented. However, this workshop could be adapted to different educational settings, such as a larger group, which could limit the constraints on faculty time.

In order to achieve success in this workshop, we needed to overcome the barrier that intervisit care responses are frequently nuanced without a clear answer—there may be several reasonable and correct solutions to each scenario. To address this barrier, we focused on having residents triage intervisit care scenarios and then think through the strengths and weakness of different logistical plans. We found that interactive polling helped to identify variation in resident medical decision-making, which we then explored with small-group discussions. While anecdotally we found the discussions richer in small-group settings, this process could be adapted to a larger group setting.

More work is needed to determine the appropriate interval of repetition for this topic, as periodic reinforcement is needed and educational content will need to meet residents in their knowledge and experiential progression. Further work is also needed to develop metrics for intervisit care, as there are currently limited well-defined or easily measurable metrics to evaluate intervisit care. Ideally, metrics for monitoring both clinical decision-making and efficiency within the EHR inbox would identify opportunities for improvement in residents' intervisit care skills and guide future versions of this workshop. Since our intervisit workshop was created for academic IM residents, cases could be adapted as needed for other specialties and residency settings.

In conclusion, by describing a framework to guide medical decision-making and intentional application in the intervisit setting, this intervisit care workshop improved residents' preparedness in providing asynchronous care for their patients. This workshop addresses a major gap in medical education and could be adapted for other ambulatory-focused residency programs. However, more work is needed to reinforce curricular content and develop metrics for intervisit care.

Appendices

    A. Facilitator Guide.docx

    B. Intervisit Care.pptx

    C. Session Evaluation.docx

All appendices are peer reviewed as integral parts of the Original Publication.

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