PERSPECTIVE

An Opportunity for Change: Principles for Reforming Internal Medicine Inpatient Conferences

James H. Wykowski, MD[1], Molly E. Kelly, MD[1], Hao H. Tong, MD[1], Oyinkansola O. Osobamiro, MD[1], and Tyler J. Albert, MD[1,2]

[1]Department of Medicine, School of Medicine, University of Washington, Seattle, WA, USA; [2]Veterans Affairs Puget Sound Healthcare System, Seattle, WA, USA

ABSTRACT

Inpatient educational conferences are a key part of internal medicine residency training. Many residencies made conferences virtual during the COVID-19 pandemic, and are now returning to in-person sessions. As we navigate this change, we can seize this opportunity to re-evaluate the role that inpatient conferences serve in resident education. In this paper, we briefly review the history of inpatient educational conferences before offering five recommendations for improvement. Our recommendations include grounding conference formats in educational theory, leveraging the expertise of all potential educators, broadening content to include health equity and justice throughout all curricula, and explicitly focusing on cultivating community among participants. Recognizing that each residency program is different, we anticipate that these recommendations may be implemented differently based on program size, available resources, and current institutional practices. We also include examples of prior successful curricular reforms aligned with our principles. We hope these recommendations ensure inpatient conferences continue to be a central part of residency education for future generations of internal medicine residents.

KEY WORDS: internal medicine; residency; didactics; education; COVID-19

J Gen Intern Med 39(3):481–6
DOI: 10.1007/s11606-023-08399-7

INTRODUCTION

Educational conferences are a staple of internal medicine (IM) residency programs, dating back to the beginning of residency training in the USA.[1] Most institutions offer a variety of conference types, including case-based discussions led by chief residents (e.g., "morning report"), didactic lectures about core internal medicine topics, morbidity and mortality conference, and skills workshops.[2–6] The Accreditation Council for Graduate Medical Education (ACGME) mandates that training programs sponsor a broad range of structured didactic activities, but gives little guidance on content or delivery method.[7]

Social distancing requirements during the COVID-19 pandemic caused many programs to pivot from primarily in-person conferences based at each clinical site to virtual conferences. This shift brought both benefits and drawbacks.[8] Rather than coordinating several individual conferences, multi-site training programs can now host a single virtual conference. Conversely, the digital format can limit engagement from participants, hinder community building among attendees, and facilitate distractions by clinical work.[8] As COVID restrictions ease, residency programs are faced with balancing these tradeoffs and yet again deciding how to update their educational conferences.

Our class of chief residents comprised the last class to begin residency prior to the COVID-19 pandemic and shift to virtual conferences. Thus, we began this year ready to reinvigorate our conference curriculum before institutional memory forgot the benefit of in-person gatherings. Although we have enjoyed being in-person again, we continue to struggle with low in-person attendance and a lack of engagement during digital sessions. Anecdotally, many of our colleagues at peer institutions face similar challenges. We've posited many theories to explain these current difficulties: fatigue related to the COVID-19 pandemic, high hospital census, and even the inherent characteristics of Generation Z (e.g., preferring self-directed over structured learning).[9] While many of these factors may be contributing, we also recognize that these concerns about conferences are not new. Studies across multiple eras of resident education have shown that resident attendance at educational conferences varies between only 34 and 63% of residents who are on inpatient rotations.[6, 10, 11] This historical perspective raises the question: should we go back to the way it was?

Rather than just returning to the pre-COVID format, this transition out of COVID is an opportunity to fully re-evaluate the role of inpatient conferences within IM resident education. We should question whether didactic lectures are effective means of teaching residents during a busy workday[12–14]. We should recognize the value of expertise in education as we develop curricula. And we should demand that our conference offerings prepare residents to understand and dismantle the structural racism and inequity embedded in our healthcare system.

Received June 8, 2023
Accepted August 24, 2023
Published online November 21, 2023

Given the variation in residency program size, structure, and resources, it would be unrealistic to expect that a single educational model can universally advance inpatient educational conferences. As we have undertaken reforming our own conference curriculum over the course of this academic year, we have embraced a set of guiding principles. These principles are grounded in a mix of educational theory, institutional memory, and our lived experiences as residents and educators. We have also included a list of previously published curricula that we feel exemplify the principles for which we advocate (Table 1). We share these reflections in the hopes that they guide other programs to effect change in their educational programing.

PRIORITIZE ACTIVE LEARNING AND EDUCATIONAL EXPERTISE

Sound curriculum design begins with writing clear objectives.[15] Bloom's Taxonomy is one tool to help understand how educational objectives and outcomes align (Table 2).[16] Lower levels of the taxonomy focus on recalling facts and understanding concepts. These outcomes are well suited to didactic lectures, which in part explains why didactic lectures are often used in pre-clinical medical education. In contrast, residents need to leave conferences ready to use newly acquired knowledge in the clinical environment. Achieving this goal requires components from higher levels of Bloom's Taxonomy, where learners apply, analyze, and evaluate knowledge.

After crafting objectives, educators should align their objectives with appropriate educational strategies.[15] Achieving these higher-level outcomes requires educational strategies that embrace active engagement rather than passive lectures.[1] Moving towards active learning can take on many forms, from low-activation changes like incorporating poll questions to more comprehensive redesigns eliminating slide-based formats and instead focusing on case-based discussions. For example, team-based learning (TBL) is a small-group educational approach that prioritizes active learning by providing learners opportunities to apply conceptual knowledge to authentic problems both individually and within teams with immediate feedback.[17, 18]

Another long-standing tradition of medical education is inviting preeminent experts to teach trainees about their area of focus. However, excellence in research and clinical care may not always translate to excellence in teaching; in fact, many content experts may not have the educational background to feel comfortable facilitating active learning experiences.[19] A prior study demonstrated that residents value learning core knowledge during noon conferences, as

Table 1 Previously Published Curricular Interventions

Paper	Description of innovation	Key principles highlighted
Schynoll et al. 2018[44]	Complete redesign of inpatient core curriculum in TBL format	Prioritize active learning and educational expertise
Sawatsky et al. 2014[45]	Pilot study of more interactive noon conference format. Format developed based on resident and faculty interviews	Prioritize active learning and educational expertise Partner with learners to develop curriculum
James et al. 2023[46]	Structured coaching program to integrate anti-racism and equity content into noon conferences	Partner with learners to develop curriculum Incorporate health equity and structural competency
Ramadurai et al. 2021[47]	Case-based discussions and group reflections on how social determinants of health impact ICU patients	Incorporate health equity and structural competency Focus on community as an outcome
Swigris et al. 2014[48]	Peer-led narrative medicine workshop	Focus on community as an outcome

Table 2 Bloom's Taxonomy Applied to Inpatient Conferences

Taxonomy level	Expected outcome for learners	Example conference objective: "by the end of this teaching session, learners will be able to:"
Create	Generate new materials or content	Develop a personal reference sheet for responding to a rapid response for atrial fibrillation Formulate a plan for responding to patient microaggressions in the clinical learning environment
Evaluate	Interrogate a point of view	Appraise the impact of racist research practices in the USA on vaccine hesitancy Argue the limitations of the current data regarding rate versus rhythm control for atrial fibrillation
Analyze	Relate multiple concepts	Compare and contrast three common approaches to new-onset atrial fibrillation Distinguish race, ethnicity, and genetics
Apply	Use knowledge in a new context	Select an appropriate initial management agent for a patient with atrial fibrillation Demonstrate creating a safe discharge plan for a patient with HFrEF and unstable housing
Understand	Explain concepts	Articulate the mechanism of action for four commonly used medications in atrial fibrillation Describe how implicit bias can lead to discrepancies in provider assessment of patients' pain
Remember	Recall facts and definitions	Define structural racism Recall the definition of atrial fibrillation with rapid ventricular response

opposed to in-depth discussions of cutting-edge topics, in order to aid their clinical practice as well as board exam preparation.[19, 20] Effectively teaching this desired content does not require subspecialty expertise. One approach to maximize the use of institutional resources could be pairing content area experts (i.e., subspecialty faculty) with educational experts (i.e., chief residents, residency program core faculty) as co-facilitators.

PARTNER WITH LEARNERS TO DEVELOP CURRICULUM

It is easy to overlook residents' expertise and perspective on their own learning experiences. Yet, today's residents have had a significantly different experience than many in leadership; any changes to conference curricula should include, at minimum, an effort to understand residents' experiences of inpatient conferences. Consider a residency program contemplating integrating TBL into their conferences. For residency leaders, this could be their first time interacting with the format. But, as many medical schools have embraced TBL as a component of pre-clinical education, most residents would bring their own experiences and attitudes to the sessions. Residents may bring experience that helps design effective sessions and avoid common pitfalls. Conversely, prior negative experiences make residents reluctant to join any session labeled "TBL."

Beyond simply surveying current residents or reviewing prior evaluation data, programs should embrace a model of "co-production" between residents and residency leadership. Co-production recognizes that all services involve participation from both consumers and creators.[21] In the context of medical education, this means that residents and students always play a role in creating their education, regardless of whether teachers recognize it.[22] During the early phases of the COVID-19 pandemic, one medical school successfully embraced a co-production model to increase partnerships amidst rapidly changing distancing requirements. Medical students participated in key decisions around curricular adjustments alongside administrators, and this resulted in a flexible curriculum adapted to learners' and teachers' evolving needs.[23, 24] Co-production between residents and faculty was also key to successfully implementing new Canadian competency–based medical education standards.[25] Programs should ensure that residents receive credit for their contributions to curriculum design. This credit could include aligning projects with residents' career goals, allowing curriculum design projects to fulfill scholarship requirements, and designating mentorship to help residents transform their work into scholarship (conference abstracts and/or publications). Breaking down barriers between leadership and residents can ultimately improve the conference quality and process of improving conferences.

INCORPORATE HEALTH EQUITY AND STRUCTURAL COMPETENCY

The ACGME states that part of an internist's role is to: "promote health and health equity," but gives little guidance as to how programs should train their residents to do so.[7] Learners have long advocated for increased attention to health equity in medical school in residency curricula. These demands were finally met with urgency over the past few years, as police violence against communities of color gained national attention and the COVID pandemic highlighted existing health disparities.[26, 27] Still, a recent survey of IM residencies found that only 39.6% had dedicated equity curricula, and that the presence of an equity curriculum did not increase residents' perception that they received quality education on health disparities.[28] Across GME, residency programs have strived to implement equity curricula with limited outcomes data thus far.[29]

Prior effective interventions in this area have included longitudinal, leadership-centered approaches, and problem-based learning.[30–32] We see inpatient conferences as another opportunity to embed equity content into residency curricula. Rather than limiting these topics to isolated lectures throughout the year, we strive to include content related to health equity in every teaching session. For example, while there may be rotations and talks specifically focused on people experiencing homelessness, a session on heart failure could also include a brief activity to navigate barriers to taking guideline-directed medical therapy for a patient with heart failure. Recognizing and responding to implicit bias is another key topic that, while worthy of individualized sessions, should also be threaded throughout other sessions.[33] This thread of equity within all teaching should be complemented by dedicated sessions to unpack more complex equity topics including responding to microaggressions in the clinical learning environment, high-value care delivery in resource-limited settings, and the racist legacy of research practices in the USA.

Adding this content will require additional expertise. This could be another opportunity for content experts to partner with experts on health equity, or to provide educators with equity-based continuing education opportunities. Speakers should also be given basic standards of structural competency prior to teaching, with the opportunity for peer review. For example, cases should appropriately distinguish between sex and gender, use diverse patient images, and avoid stereotypical language. Implementing durable, comprehensive equity curricula requires significant institutional investment and commitment by residency leadership.

FOCUS ON ATTENDANCE AS AN OUTCOME, NOT A GOAL

Because conferences are only one part of residents' entire educational experience, discerning the impact of conferences on residents' knowledge or even clinical outcomes

is challenging. Attendance is the primary outcome of most prior inpatient conference assessments, likely because it is easy to measure and compare year to year.[6, 10, 34, 35] Though an imperfect measure of efficacy, we suggest continuing to focus on attendance as the primary outcome of conference, but with a shift in perspective.

Prior interventions to improve conference attendance—focused on food, timing, and offloading other resident responsibilities—have not resulted in meaningful changes.[6, 34, 36] Despite being a mainstay of some institutions' noon conference (sometimes called lunch conference as a result), offering meals has been shown to have a variable impact on attendance.[6, 34] Timing adjustments, making conferences mandatory, and setting consequences for poor attendance have all failed to increase attendance.[6, 36] These well-intentioned interventions fail to address the major underlying barrier to conference attendance.

When considering conference attendance, residents are weighing the relative benefit of attending a teaching session against the time lost completing other tasks, and potentially extending an already stretched workday. The best incentive for conference attendance is not pizza, or coffee, or threats of professionalism violations. Our experience as chief residents has shown us that residents will make time in their day for high-impact conferences that can immediately improve their clinical practice, regardless of their ultimate career goals. Conversely, they resent being required to attend sessions they perceive as being a poor use of their time. And though this embrace of resident autonomy may be a shift away from the historically hierarchical nature of resident education, self-directed learning is a key component of residents' development.[37]

RE-FRAME COMMUNITY AS AN OUTCOME

Burnout among trainees has been a rising issue for the past decade, exacerbated by the COVID-19 pandemic[38, 39]. However, the impact of the pandemic on our community extends beyond trainees; medical educators and residency program directors have also reported higher levels of burnout amidst the pandemic.[40–42] Although burnout is a complex phenomenon with multiple drivers, one key component is a lack of connection and community.[43]

Social interaction has long been part of conference attendance. Breakout rooms, lively chat box discussions, and groups meeting to watch virtual conferences together have all been attempted to curtail the impact of virtual conferences on socializing, but these efforts pale in comparison to in-person interaction.[8] We aspire to make community building a core objective rather than simply a byproduct of conferences. Teachers should start conferences by setting aside time for introductions and brief icebreakers. The use of interactive cases creates time for participants to interact not only with the cases and facilitators, but with each other as well. We envision an ideal noon conference as a "town square" for residents where all participants have a sense of belonging. Overcoming burnout will take more than returning to in-person conferences. But, cultivating opportunities for community and connection is a vital piece of the complex puzzle, both for learners and educators.

CONCLUSION

Resident education comes in many forms, including real-time teaching on the wards, asynchronous learning, and just-in-time training. We believe inpatient conferences should continue to represent an important part of residents' education. However, residents' educational needs have changed significantly over the past century, and the format of most inpatient conferences has remained stagnant. It's likely the next century will bring new technology, program requirements, and possibly even new pandemics that will continue to affect the educational environment. We hope these principles can serve as a guide for a continuous evolution of noon conferences so that our educational offerings are best suited to train future generations of residents.

Corresponding Author: *James H. Wykowski, MD; Department of Medicine, School of Medicine, University of Washington, Seattle, WA, USA (e-mail: james.wykowski@cuanschutz.edu).*

Declarations

Conflict of Interest *The authors report no conflicts of interest.*

REFERENCES

1. **Fordtran JS, Armstrong WM, Emmett M, Kitchens LW, Merrick BA.** The History of Internal Medicine at Baylor University Medical Center, Part 1. Bayl Univ Med Cent Proc. 2004;17(1):9-22. doi:https://doi.org/10.1080/08998280.2004.11927953
2. **Smith L, O'Sullivan P, Lo B, Chen H.** An educational intervention to improve resident comfort with communication at the end of life. J Palliat Med. 2013;16(1):54-59. doi:https://doi.org/10.1089/jpm.2012.0173
3. **Gonzalo JD, Bump GM, Huang GC, Herzig SJ.** Implementation and Evaluation of a Multidisciplinary Systems-Focused Internal Medicine Morbidity and Mortality Conference. J Grad Med Educ. 2014;6(1):139-146. doi:https://doi.org/10.4300/JGME-D-13-00162.1
4. **Orlander JD, Fincke BG.** Morbidity and Mortality Conference. J Gen Intern Med. 2003;18(8):656-658. doi:https://doi.org/10.1046/j.1525-1497.2003.20824.x
5. **Heppe DB, Beard AS, Cornia PB, et al.** A Multicenter VA Study of the Format and Content of Internal Medicine Morning Report. J Gen Intern Med. 2020;35(12):3591-3596. doi:https://doi.org/10.1007/s11606-020-06069-6
6. **FitzGerald JD, Wenger NS.** Didactic teaching conferences for IM residents: who attends, and is attendance related to medical certifying examination scores? Acad Med J Assoc Am Med Coll. 2003;78(1):84-89. doi:https://doi.org/10.1097/00001888-200301000-00015
7. ACGME Program Requirements for Graduate Medical Education in Internal Medicine. Published online July 1, 2022. Accessed 1 February 2023. https://www.acgme.org/globalassets/pfassets/programrequirements/140_internalmedicine_2022v4.pdf
8. **Albert TJ, Bradley J, Starks H, et al.** Internal Medicine Residents' Perceptions of Virtual Morning Report: a Multicenter Survey. J Gen

Intern Med. 2022;37(6):1422-1428. doi:https://doi.org/10.1007/s11606-021-06963-7

9. **DiMattio MJK, Hudacek SS.** Educating generation Z: Psychosocial dimensions of the clinical learning environment that predict student satisfaction. Nurse Educ Pract. 2020;49:102901. doi:https://doi.org/10.1016/j.nepr.2020.102901
10. **Vucicevic D, Mookadam F, Webb BJ, Labonte HR, Cha SS, Blair JE.** The impact of 2011 ACGME duty hour restrictions on internal medicine resident workload and education. Adv Health Sci Educ Theory Pract. 2015;20(1):193-203. doi:https://doi.org/10.1007/s10459-014-9525-5
11. **Theobald CN, Stover DG, Choma NN, et al.** The effect of reducing maximum shift lengths to 16 hours on internal medicine interns' educational opportunities. Acad Med J Assoc Am Med Coll. 2013;88(4):512-518. doi:https://doi.org/10.1097/ACM.0b013e318285800f
12. **Antiel RM, Thompson SM, Hafferty FW, et al.** Duty Hour Recommendations and Implications for Meeting the ACGME Core Competencies: Views of Residency Directors. Mayo Clin Proc. 2011;86(3):185-191. doi:https://doi.org/10.4065/mcp.2010.0635
13. **Lessing JN, McGarry K, Schiffman F, et al.** The State of Morning Report in the Current Healthcare Landscape: a National Survey of Internal Medicine Program Directors. J Gen Intern Med. 2022;37(7):1665-1672. doi:https://doi.org/10.1007/s11606-021-07010-1
14. **Chaiyachati KH, Shea JA, Asch DA, et al.** Assessment of Inpatient Time Allocation Among First-Year Internal Medicine Residents Using Time-Motion Observations. JAMA Intern Med. 2019;179(6):760-767. doi:https://doi.org/10.1001/jamainternmed.2019.0095
15. **Chen BY, Hughes MT, Kern DE, Thomas PA.** Curriculum Development for Medical Education: A Six-Step Approach. Johns Hopkins University Press; 2016. doi:https://doi.org/10.1353/book.44600
16. **Dzara K, Gooding H.** A Guide to Educational Pyramids Commonly Used in Medical Education Programs. Acad Med J Assoc Am Med Coll. 2022;97(2):313. doi:https://doi.org/10.1097/ACM.0000000000003816
17. **Burgess A, van Diggele C, Roberts C, Mellis C.** Team-based learning: design, facilitation and participation. BMC Med Educ. 2020;20(Suppl 2):461. doi:https://doi.org/10.1186/s12909-020-02287-y
18 **Parmelee D, Michaelsen LK, Cook S, Hudes PD.** Team-based learning: a practical guide: AMEE guide no. 65. Med Teach. 2012;34(5):e275-287. doi:https://doi.org/10.3109/0142159X.2012.651179
19. **Sawatsky AP, Zickmund SL, Berlacher K, Lesky D, Granieri R.** Understanding the challenges to facilitating active learning in the resident conferences: a qualitative study of internal medicine faculty and resident perspectives. Med Educ Online. 2015;20:27289. doi:https://doi.org/10.3402/meo.v20.27289
20. **Sawatsky AP, Zickmund SL, Berlacher K, Lesky D, Granieri R.** Understanding resident learning preferences within an internal medicine noon conference lecture series: a qualitative study. J Grad Med Educ. 2014;6(1):32-38. doi:https://doi.org/10.4300/JGME-06-01-37.1
21. **Batalden M, Batalden P, Margolis P, et al.** Coproduction of healthcare service. BMJ Qual Saf. 2016;25(7):509-517. doi:https://doi.org/10.1136/bmjqs-2015-004315
22. **Englander R, Holmboe E, Batalden P, et al.** Coproducing Health Professions Education: A Prerequisite to Coproducing Health Care Services? Acad Med J Assoc Am Med Coll. 2020;95(7):1006-1013. doi:https://doi.org/10.1097/ACM.0000000000003137
23 **Gregoire B, Trager L, Blum J.** Coproduction in medical education during the COVID-19 pandemic: critical components of successful curricular reform. Int J Qual Health Care. 2021;33(Supplement_2):ii65-ii70. doi:https://doi.org/10.1093/intqhc/mzab126
24. **Long N, Wolpaw DR, Boothe D, et al.** Contributions of Health Professions Students to Health System Needs During the COVID-19 Pandemic: Potential Strategies and Process for U.S. Medical Schools. Acad Med J Assoc Am Med Coll. 2020;95(11):1679-1686. doi:https://doi.org/10.1097/ACM.0000000000003611
25. **Buttemer S, Hall J, Berger L, Weersink K, Dagnone JD.** Ten ways to get a grip on resident co-production within medical education change. Can Med Educ J. 2020;11(1):e124-e129. doi:https://doi.org/10.36834/cmej.67919
26. **Mackey K, Ayers CK, Kondo KK, et al.** Racial and Ethnic Disparities in COVID-19–Related Infections, Hospitalizations, and Deaths. Ann Intern Med. Published online December 1, 2020:M20–6306. doi:https://doi.org/10.7326/M20-6306
27. **Willems SJ, Castells MC, Baptist AP.** The Magnification of Health Disparities During the COVID-19 Pandemic. J Allergy Clin Immunol Pract. 2022;10(4):903-908. doi:https://doi.org/10.1016/j.jaip.2022.01.032
28. **Dupras DM, Wieland ML, Halvorsen AJ, Maldonado M, Willett LL, Harris L.** Assessment of Training in Health Disparities in US Internal Medicine Residency Programs. JAMA Netw Open. 2020;3(8):e2012757. doi:https://doi.org/10.1001/jamanetworkopen.2020.12757
29. **Chung AS, Cardell A, Desai S, et al.** Educational Outcomes of Diversity Curricula in Graduate Medical Education. J Grad Med Educ. 2023;15(2):152-170. doi:https://doi.org/10.4300/JGME-D-22-00497.1
30. **Hernandez RG, Thompson DA, Cowden JD.** Responding to a call to action for health equity curriculum development in pediatric graduate medical education: Design, implementation and early results of Leaders in Health Equity (LHE). Front Pediatr. 2022;10:951353. doi:https://doi.org/10.3389/fped.2022.951353
31. **Williamson FA, Sharp SN, Hills GD, Dilly CK, Nabhan ZM.** Leveraging Resident-As-Teacher Training for Health Equity Education: A Transformative Approach. Teach Learn Med. Published online November 21, 2022:1–8. doi:https://doi.org/10.1080/10401334.2022.2147529
32. **Benson BL, Ha M, Stansfield RB, Markova T.** Health Disparities Educational Initiative for Residents. Ochsner J. 2018;18(2):151-158. doi:https://doi.org/10.31486/toj.17.0082
33. **Sukhera J, Watling C.** A Framework for Integrating Implicit Bias Recognition Into Health Professions Education. Acad Med J Assoc Am Med Coll. 2018;93(1):35-40. doi:https://doi.org/10.1097/ACM.0000000000001819
34. **Cosimini MJ, Mackintosh L, Chang TP.** Number needed to eat: pizza and resident conference attendance. Med Educ. 2016;50(12):1204-1207. doi:https://doi.org/10.1111/medu.13080
35. **Desai SV, Feldman L, Brown L, et al.** Effect of the 2011 vs 2003 duty hour regulation-compliant models on sleep duration, trainee education, and continuity of patient care among internal medicine house staff: a randomized trial. JAMA Intern Med. 2013;173(8):649-655. doi:https://doi.org/10.1001/jamainternmed.2013.2973
36. **Campbell S, Campbell M, Shah C, Djuricich AM.** Educational Conference Scheduling, Patient Discharge Time, and Resident Satisfaction. J Grad Med Educ. 2014;6(3):574-576. doi:https://doi.org/10.4300/JGME-D-13-00400.1
37. **Schumacher DJ, Englander R, Carraccio C.** Developing the Master Learner: Applying Learning Theory to the Learner, the Teacher, and the Learning Environment. Acad Med. 2013;88(11):1635. doi:https://doi.org/10.1097/ACM.0b013e3182a6e8f8
38. **Cravero AL, Kim NJ, Feld LD, et al.** Impact of exposure to patients with COVID-19 on residents and fellows: an international survey of 1420 trainees. Postgrad Med J. 2021;97(1153):706-715. doi:https://doi.org/10.1136/postgradmedj-2020-138789
39. **Natsuhara KH, Borno HT.** The Distance Between Us: the COVID-19 Pandemic's Effects on Burnout Among Resident Physicians. Med Sci Educ. 2021;31(6):2065-2069. doi:https://doi.org/10.1007/s40670-021-01431-7
40. **Guillermo MRJ, Susana PPM, Albaro MLlF, Enaidy RN.** Burnout and anxiety levels in human medicine teachers, COVID-19 context. Published online 2022. doi:https://doi.org/10.12688/f1000research.110498.1
41. **O'Connor AB, Catalanotti JS, Desai SV, et al.** Internal Medicine Residency Program Director Support and Burnout During the COVID-19 Pandemic: Results of a National Survey. J Grad Med Educ. 2022;14(2):218-223. doi:https://doi.org/10.4300/JGME-D-21-00804.1
42. **Trinidad JE.** Teacher satisfaction and burnout during COVID-19: what organizational factors help? Int J Leadersh Educ. 2021;0(0):1-19. doi:https://doi.org/10.1080/13603124.2021.2006795
43. **West CP, Dyrbye LN, Shanafelt TD.** Physician burnout: contributors, consequences and solutions. J Intern Med. 2018;283(6):516-529. doi:https://doi.org/10.1111/joim.12752
44. **Schynoll G, Irish E, Wayne J, Smith R.** Feasibility of a Comprehensive Medical Knowledge Curriculum in Internal Medicine Using Team-Based Learning. J Grad Med Educ. 2018;10(1):78-83. doi:https://doi.org/10.4300/JGME-D-17-00465.1

45. **Sawatsky AP, Berlacher K, Granieri R.** Using an ACTIVE teaching format versus a standard lecture format for increasing resident interaction and knowledge achievement during noon conference: a prospective, controlled study. BMC Med Educ. 2014;14:129. doi:https://doi.org/10.1186/1472-6920-14-129
46. **James AK, Matthiesen MI, Jasrasaria R, et al.** An Anti-Racism and Equity Initiative Improves Residency Educational Conferences. J Grad Med Educ. 2023;15(3):322-327. doi:https://doi.org/10.4300/JGME-D-22-00443.1
47. **Ramadurai D, Sarcone EE, Kearns MT, Neumeier A.** A Case-Based Critical Care Curriculum for Internal Medicine Residents Addressing Social Determinants of Health. MedEdPORTAL. 17:11128. doi:https://doi.org/10.15766/mep_2374-8265.11128
48. **Swigris R, Combs B.** Heart of Medicine and Do No Harm Narratives for Internal Medicine Residents: A Novel Approach to Peer Teaching in the Ambulatory Setting. MedEdPORTAL. 10:9699. doi:https://doi.org/10.15766/mep_2374-8265.9699