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RESEARCH ARTICLE

Listening "At the Bedside": Podcasts as an Emerging Tool for Medical Ethics Education

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Abstract

Medical ethics education is crucial for medical students and trainees, helping to shape attitudes, beliefs, values, and professional identities. Exploration of ethical dilemmas and approaches to resolving them provides a broader understanding of the social and cultural contexts in which medicine is practiced, as well as the ethical implications of medical decisions, fostering critical thinking and self-reflection skills imperative to providing patient-centered care. However, exposure to medical ethics topics and their clinical applications can be limited by curricular constraints and the availability of institutional resources and expertise. Podcasts, among other Free Open Access Medical Education (FOAMed) resources, are a novel educational tool that offers particular advantages for self-directed learning, a process by which learners engage in asynchronous educational opportunities outside of traditional academic or clinical settings. Podcasts can be readily distributed to wide audiences and played at any time, reducing barriers to access and offering a level of flexibility that is not possible with traditional forms of education and is well-suited to busy schedules. Podcasts can also use real voices and storytelling to make the content memorable and eminently human. This paper describes the development, production process, and impact of Core IM's "At the Bedside," a podcast focusing on issues in medical ethics and the medical humanities, intending to supplement standard bioethics curricula in an accessible, relevant, and engaging way. The authors advocate for broad incorporation of podcasts into medical ethics education.

Keywords: bioethics education; free open access medical education (FOAMed); medical education; medical humanities; podcasts

Introduction

Instruction in medical ethics, exposure to the medical humanities, and practical experience with ethical reasoning in clinical settings are crucial components of medical education and training. Encountering and participating in the mediation of ethical dilemmas can provide learners with a broader understanding of the social and cultural contexts in which medicine is practiced, as well as the ethical implications of medical decisions. Moreover, witnessing complexities and tensions among diverse stakeholders fosters the ability to employ moral reasoning, weighing potentially conflicting values in choosing a morally acceptable course of action.[1,2]

A longitudinal focus on medical ethics in educational curricula is also a critical component within the broader goal of promoting professional identity formation: the development of physicians' "professional values, actions, and aspirations."[3] The significance of professionalism in every level of training, and the role ethical principles play in its development, has been recognized by major bodies tasked with setting standards and providing accreditation in United States medical education and practice. Benchmarks for professionalism are included in guidelines and requirements set by the American Medical Association

(AMA), the Accreditation Council for Graduate Medical Education (ACGME), the American Board of Medical Specialties (ABMS), and the Liaison Committee on Medical Education (LCME).[4,5,6,7]

Nonetheless, medical students' and trainees' exposure to the domain of medical ethics and its clinical applications can be limited by curricular inconsistencies and constraints, as well as the variable availability of institutional resources and expertise. This is made ever more complicated against the background of evolving educational structures and changes, with the already underway shifts to digital instruction and asynchronous learning amplified by the impacts of the COVID-19 pandemic.[8] The rapid growth in available data, technology, and resources has yielded increasing emphasis on self-directed learning, or the responsibilities of the individual learner in acquiring clinical knowledge, technical proficiency, and interpersonal skills.[9] Educational innovation has also seen increasing utilization of the "flipped classroom" model, in which learners engage with audio or video educational material before attending class, with class time then reserved for group discussions and active learning exercises.[10]

In this context, adoption of modernized approaches to medical ethics education are increasingly vital. Herein, we briefly review the appearance and evolution of medical ethics curricula, highlighting the gap created by lack of standardization and resource availability. We then describe the emergence of open access digital educational resources, with podcasts chief among them, and the beneficial impacts of these tools in the current medical education landscape. Finally, we describe our experience producing Core IM's "At the Bedside," a podcast focusing on issues in medical ethics and the medical humanities. We suggest our podcast, along with similar innovative resources, offers novel opportunity to disseminate medical ethics educational material that is accessible, relevant, engaging, and can supplement traditional forms of bioethics education.

Medical ethics education: Evolution and gaps

Introduction and evolution of medical ethics education

Instruction on medical ethics first appeared in medical education as a component of elective courses in the mid-1970s. Dedicated medical ethics seminars were gradually incorporated into medical school curricula over the next decade and a half, eventually transitioning from elective to required.[11] While initially primarily taught in preclinical years of traditional four-year medical schools, a 2000 survey found that over 70% of medical schools in the United States and Canada had mandatory ethics courses during clerkship years, more than double the number of schools requiring such courses in 1985.[12] Per the AAMC's Curriculum Directory, all U.S. medical colleges now mandate medical ethics education,[13] with majority of students and school leaders endorsing that it is an important component of medical training.[14]

The goals of medical ethics instruction are generally conceived to include providing learners an understanding of ethical principles relevant to medical practice, the critical thinking skills necessary to apply these principles, and the encouragement of humanistic characteristics essential to a healthcare professional, including empathy, humility, and integrity.[15,16,17] Medical ethics, and the broader discipline of professionalism, are also thought to play a role in offsetting the "hidden curriculum," defined by negative role modeling of unethical or unprofessional behavior by more senior members of the clinical team.[18,19] As the medical field has advanced in its appreciation of the social and cultural factors that impact the lives and decisions of patients and colleagues, medical ethics curricula have evolved to include issues pertaining to access to and inequities in healthcare, social determinants of health, cultural humility, interprofessional relationships, and clinician wellness.[20,21]

Variability in medical ethics education

Although medical ethics is now a largely universal component of U.S. medical school education, there is lack of consensus on and standardization of key curricular elements. In turn, there is great variability among programs and institutions in the content taught, methods of instruction, choice of instructors, and decisions on when these initiatives are implemented along students' educational trajectories.

Reviews of medical school curricular structures and syllabi have pointed to a considerable variation in educational objectives and topics covered in medical ethics and professionalism modules.[22,23,24,25] This is similarly true of differences in how the material is communicated and taught—for example, small group discussions, case-based approaches, didactics, etc.—and how the efficacy or impact of that education is assessed, with programs additionally diverging in their choice of pedagogical methods.[26,27,28] Availability of qualified educators and instructors able to deliver medical ethics education also varies greatly among institutions. This discrepancy is in large part fueled by substantial limitations of budgets and other dedicated resources, as well as expectations that such instruction will often be undertaken in a voluntary capacity, disincentivizing commitment from otherwise very busy faculty.[29,30,31,32,33,34]

Finally, there is discrepancy regarding when medical ethics instruction is provided along the course of undergraduate, graduate, and postgraduate medical education and training. Dedicated medical ethics teaching is often incorporated more heavily in students' preclinical years, potentially curbing the benefit of practicing its applications in real-world clinical settings. Moreover, lack of curricular coordination across educational stages, exacerbated by time constraints in clinical training, hinders the integration of medical ethics into learners' conceptualization of holistic medical practice.[35,36,37] This is particularly notable in light of the described decline or erosion of empathy and ethical decision-making experienced by students as they proceed through clinical training.[38,39] A discontinuity in longitudinal exposure to medical ethics instruction in these more advanced training stages may contribute to lesser prioritization of ethics-related issues in clinical practice.[40]

FOAMed: A tool to meet current needs in medical education

Emergence of FOAMed

Numerous advancements in the early 2000s prepared the ground for a revolutionary shift in how educational content was distributed. The widespread adoption of high-speed internet enabled educators to more easily distribute content widely and accessibly to larger audiences, without the need for physical media compression. With this, a new generation of social media, bloggers, and "audio bloggers" grew in popularity through the use of simple syndication feeds allowing seamless audio streaming over the internet. Simultaneously, the introduction of new portable audio players, notably Apple's iPod in 2001, facilitated convenient downloading of audio blog files for mobile consumption. In 2004, the term "podcast" emerged as a combination of "iPod" and "broadcast," with the New Oxford American Dictionary acknowledging "podcast" as the Word of the Year the following year.[41] In 2005, Harvard University made its complete medical syllabus available to its students as downloadable MP3 files, prompting medical schools across the nation to follow suit.

Educators in the field of medicine swiftly embraced these emerging technologies to enhance the learning experience of medical students. Instructional videos, often demonstrating technical aspects of medical procedures, appeared on many internet platforms. Educators used personal or institutional accounts on social media platforms like X (formerly known as Twitter) to produce "tweetorials," with lessons broken down into bite-sized comments and links within a series of tweets. This marked the inception of Free Open Access Medical Education (FOAMed),[42] driven by individual medical educators who utilized social media platforms for content distribution, operating outside the confines of traditional medical education channels. FOAMed took shape in the form of several distinct but often interlaced platforms—including social media, videos, blogs, and most prominently podcasting—to produce content available to learning audiences on a global level.

As the FOAMed movement gained momentum, early opinions were divided. For example, a 2007 survey of physicians and medical students showed that 60% felt podcasts had no role in professional development.[43] Its earliest and most widespread adopters were in the field of emergency medicine, who still dominate much of the FOAMed world, boasting twice as many active podcasts as any other medical specialty.[44] A 2014 study of learning habits among emergency medicine residents found that podcasting, used by 35% of residents, was the most popular method for asynchronous learning and believed by residents to be the most beneficial.[45] Another 2015 study found 90% of Canadian emergency medicine

residents used podcasts, and that podcasts were in the "top 3 resources most contributing to a resident's education."[46] The format quickly gained popularity in the minds of medical residency educators and accrediting bodies. In a 2015 U.S.-based emergency medicine resident survey, almost all residents reported that their residency program gave them information regarding FOAMed resources, including blogs, podcasts, and instructional videos.[47] The ACGME now allows emergency medicine residents to use podcasts with question sets for one of every five hours of education.

Podcasts have also increased in popularity in other specialties: A survey of residents from various training programs in 2019 showed that 71% of residents supported the value of podcasts.[48] Surprisingly, high-volume consumers of podcasts include not only the largest specialties like pediatrics and internal medicine, but also those traditionally image-based medical practices such as dermatology and radiology.[49,50] In 2020, radiology alone had 41 unique podcasts.[51]

Medical podcasts have become an educational tool not only made for but also produced by learners themselves, particularly within internal medicine (see: Core IM, The Curbsiders, The Intern at Work podcasts[52,53,54]). For example, at Vanderbilt University, residents produced their own podcasts, garnering an impressive 79% internal listenership over a two-year period. This tracks with social learning theory, which postulates that individuals are more likely to adopt a modeled behavior if it aligns with their values and comes from someone admired or with whom the learner identifies.[55] To that end, medical podcasts allow consumers to find varying role models that fit their training level, personality, worldview, or choice of specialty, tailoring the teacher to the choice of the learner. This organic digital education (a term coined by podcasters Adam Rodman and Shreya Trivedi) empowered medical educators to become virtual mentors for aspiring clinicians, oftentimes interacting with listeners along the same social media platforms used to distribute the podcast or other educational material.

Impact and mediators

Qualitative studies of podcast listeners reveal many motivations among users. In an analysis of "The Rounds Table" Podcast, a weekly internal medicine podcast focusing on recent journal articles, podcasting was recognized as a more time-efficient medium, allowing content consumption on mobile devices while seamlessly integrating entertainment with education, thereby enhancing engagement.[56] Podcasts have established themselves as a popular platform for Continuing Medical Education (CME) among medical professionals as well; for example, the internal medicine podcast "Annals on Call" has thousands of CME credits claimed,[57] showing substantive uptake by licensed physicians and partnership between podcasting and large medical journals.

With regards to knowledge retention and behavioral outcomes among learners—higher levels of the Kirkpatrick Model, a widely accepted method for evaluation of educational and training programs[58]—several studies have shown promising results for podcasting. Four studies that evaluated knowledge retention among residents and fellows all found that podcast users performed as well as or better than participants who learned from other forms of instruction. Self-reported behavior changes across six studies showed that 55–90% of listeners altered their clinical practice based on content received via podcasts, with three studies finding that between 43% to 100% of medical education podcast listeners were motivated to spend additional time learning about medical topics discussed, suggesting expanded curiosity.[59]

Patient outcomes may also stand to benefit from those who consume medical podcasts. One study correlated guideline-concordant care in obstetrics with podcast use and found that physicians who reported using podcasts always or often for continuing education had greater odds of counseling postpartum patients on healthy eating behaviors.[60] Demonstrating any direct changes from medical education interventions to clinical patient outcomes remains difficult given the confounding of self-directed learning behaviors with other mediating behaviors and attitudes, but these early data are encouraging.

Challenges and opportunities

The latest generation of medical education podcasts strives for even more ambitious objectives than its predecessors. These podcasts model clinical reasoning and diagnosis, feature interviews with leaders from various disciplines, explore medical ethics and the law, and provide expert discussions on recent clinical research. With the rapid proliferation of available content, the role of medical educators will require the adoption of new technology platforms, mastery of electronic resources, and the curation of high-quality material tailored to the specific needs of local learners.

Medical educators stand to be rewarded for initiative in this new domain. Forward-thinking institutions such as the Mayo Clinic have already integrated podcasting into academic portfolios for promotion and tenure,[61] paving the way for educators to embrace FOAMed content creation as part of their scholarly output. Thought leaders in medical education believe that this transformative shift will revolutionize not only asynchronous learning but the entire landscape of postgraduate medical education.[62] This could include residency programs incorporating self-directed learning tracks, with dedicated time allocated for vetted FOAMed resources. Peer learning can be fostered through the exchange of summaries, self-created tweetorials, concept maps, and illustrations. Traditional didactic conferences can be repurposed for richly interactive case-based learning, an invaluable element in postgraduate medical education that podcasts cannot replicate.

Still, the evolving field of FOAMed content presents numerous challenges. A principal issue involves the lack of standardized methods to evaluate the clinical quality of podcast information and the absence of universally accepted critical appraisal techniques. Even now, medical podcasts rely heavily on informal recommendations. However, several clinical appraisal tools have been developed for medical blogs, such as Academic Life in Emergency Medicine's approved instructional resources score, as well as the METRIQ and rMETRIQ tools.[63]

Conflicts of interest, including advertising, pose another challenge within the podcasting sphere. Although funding is crucial for sustaining podcasts, it can complicate the podcast's credibility due to potential biases. Additionally, meeting demanding production schedules—often involving weekly episodes—can be an obstacle for podcasters. Inconsistent delivery may limit engagement, which is especially challenging for FOAMed educators who manage podcasting alongside their busy academic and clinical commitments. For listeners, the lack of centralized resources, topics, and feedback on podcasts can hamper their ability to find just-in-time learning materials for clinical issues.

From a learning standpoint, active engagement of listeners can be challenging, as podcasts primarily offer a passive learning experience. However, the rise of message boards, social media discussion, and direct communication between listeners and podcasters is gaining popularity. Still, it is crucial to recognize that podcasts can never fully replace in-person learning sessions, which allow for active participation and immediate feedback. Data collected by platforms like Apple and Spotify allow podcasters to track demographics and assess the immediate impact of their work through download numbers and other metrics, such as how much of a downloaded episode was played by an individual listener, suggesting real end-user consumption. However, evaluating the true extent of knowledge acquisition, behavior change, and patient outcomes—the higher-order Kirkpatrick educational outcomes—from such widely distributed interventions presents a more difficult research task.

On the other hand, podcasting offers several prominent strengths. It provides flexible learning opportunities that are not possible with traditional forms of education and are well-suited to the busy schedules of healthcare students and professionals, enabling listeners to choose topics that align with their interests, learning needs, and preferences. Episodes can be downloaded and saved for future listening, allowing learners to easily revisit key concepts and ideas. This ultimately promotes self-directed learning, a fundamental principle of adult education and among medical trainees. Additionally, podcasting bridges the gap in access to expert knowledge through recorded interviews, thus benefiting learners regardless of their location or institutional affiliation, including those in low- and middle-income countries (LMICs). A review of FOAMed blogs revealed that while 73.7% of views originated from high-income countries, there was a steady increase in views from LMICs.[64]

Importantly, qualitative interviews with podcast listeners also highlight the sense of community fostered through podcast engagement.[65] It encourages sharing among peers, learners, and mentors, creating opportunities for mutual interaction and feedback. These organic digital communities can supplement one's institutional learning environment or deepen connections within it through shared listenership and digital interface.

Core IM's "At the Bedside": Addressing gaps in medical ethics education

To provide insight into the production process and impact of a podcast focused on medical ethics, we will describe the development of Core IM's "At the Bedside," a podcast exploring the ethics and emotions of clinical care. We, the authors of this paper, serve as the co-hosts and co-producers of the podcast.

How "At the Bedside" formed

"At the Bedside" (AtB) is a segment of a larger podcast, Core IM. Core IM is an internal medicine podcast that aims to educate medical students, residents, advanced practice providers, and attendings about common topics in clinical care. Formed in 2017, Core IM was developed to address perceived deficiencies in FOAMed resources for internal medicine clinicians, and even in its early years achieved tens of thousands of downloads per episode, highlighting its immediate relevance and utility to medical learners. Until 2019, Core IM largely focused on clinical reasoning, diagnostic modalities, and treatment strategies. Recognizing the need to address the humanistic aspects of healthcare, AtB was formed to provide education on topics in medical ethics and humanities relevant to medical professionals at different stages of their training and careers, particularly those within internal medicine.

There is a small number of other podcasts focused on ethics and the medical humanities. Podcasts such as The Bioethics Podcast,[66] playing god?,[67] and Bioethics for the People,[68] discuss the bioethical implications of emerging technologies and political developments, as well as historically relevant bioethics cases. Others, such as the Nocturnists,[69] illustrate the emotional challenges of clinical care through exploration of personal narratives. While these podcasts offer important and useful resources, AtB distinctly aims to review clinically relevant ethical and emotional challenges, synthesize pertinent medical literature, and provide actionable solutions and practical approaches.

By creating a dedicated platform, we sought to provide students and clinicians with frameworks that could help address ethical conflicts, communication strategies for challenging conversations, and an acknowledgement and open discussion of the wide range of emotions that can arise in clinical care. This resource is available to anyone with an internet connection, which helps address institutional variability in ethics curricula by enabling learners around the world to access a high yield, evidence-based, peer-reviewed educational resource.

Episode development

The process of developing episodes for AtB begins with a collaborative brainstorming discussion. We aim to address concepts that are frequently encountered in clinical care, challenging to manage, and often overlooked or inadequately covered in traditional curricula at the medical school and residency levels. Episodes are frequently inspired by personal clinical experiences; the three of us went through internal medicine residency training together, and our collective current practice includes hospital medicine, oncology, bioethics research, clinical ethics consultation, and medical education. Topics that are likely to become out-of-date quickly, such as legislation and news, are generally deferred, as it takes several months to develop each episode and these topics are adequately covered by lay publications and medical journals. Instead, we focus on topics that are relatively timeless, such as prognosis and code status discussions, in an effort to make the full archive of episodes applicable to listeners and to enable educators to incorporate episodes into ethics curricula regardless of publication date. We also

intentionally cover ethics and humanities material that often receives less focus in formal curricula (e.g., "Hope", "Spirituality", "Physician Impairment").

After the concept is discussed and vetted, we develop an outline, review relevant medical literature, and identify potential expert interviewees. AtB preferentially interviews practicing clinicians with a body of academic work pertinent to the topic, as they are well-situated to bridge the gap between theory and data on one hand, and application and practice on the other. These clinicians are often nationally regarded as experts in their field and represent a wide variety of institutions nationally and internationally; through our podcast, we are able to share their experience and knowledge with learners regardless of where they are located. Nearly all interview invitations we have extended have been graciously accepted, underscoring the willingness of educators to lend their time and expertise for the goal of disseminating high-quality ethics teaching. When an expert agrees to an interview, we craft questions to elicit an overview of the subject, delve into clinically relevant issues, and provide recommendations for practice. After the interview, we highlight excerpts that align with the episode's objectives, and complete an in-depth review of literature to supplement expert input.

Each episode's script is developed in an iterative process; we write a narrative that weaves together pertinent expert quotes with our commentary and discussion of literature. The draft audio is then sent out for feedback. As there is currently no consensus on what constitutes a proper peer review process for podcasts and other FOAMed resources, we engage in a modified peer review process, generally inviting 4–6 reviewers per episode. These include internal medicine attendings and trainees, whose feedback helps us make our episodes succinct, engaging, and memorable, and assists in our understanding of how to best tailor our learning points to an audience without specific expertise in medical ethics and humanities. We also send the episode to our expert interviewee to ensure that we are accurately representing their views, as well as to individuals with ethics expertise and training to ensure the information conveyed is correct and comprehensive.

We additionally develop show notes to accompany each episode, enabling listeners to refer back to a written outline and transcript if they seek clarification or need to review specific learning points. A typical episode has over 10 references—comparable to many academic publications—and includes links to pertinent online resources that allow listeners to delve into specific subjects in more depth. These notes and references can be used by clinicians and bioethics educators to build their own talks and to distribute to their students. Episodes are posted on the Core IM website and all major podcast platforms, then promoted through social media. We also have an ongoing partnership with the American College of Physicians, allowing learners to earn CME credits for select episodes by listening to the podcast and taking a brief quiz. Table 1 lists topics covered in our episodes, along with expert discussants featured in each episode.

Listener data

Our internal data show that the majority of listeners are trainees and clinicians between the ages of 23–34 (83% per data from Spotify), with specialties including family medicine, emergency medicine, general internal medicine, and numerous sub-specialties such as cardiology and pulmonology. On average, each AtB episode receives between 30,000 to 50,000 unique downloads (range: approximately 28,800 - 57,600), and we publish 2–6 episodes per year. By comparison, a review of access statistics of leading bioethics, general internal medicine, and medical education journals show that articles are generally viewed online fewer than 1,500 times one year post publication.[70,71,72,73]

Impact

The overarching goal of AtB is to improve patient care by providing clinicians with relevant, practice-changing information that they can apply in day-to-day practice. We also aim to help educators by providing a reliable resource that can be incorporated into both formal and informal medical education curricula, and by teaching effective communication techniques, which are role-modeled by our expert

Table 1. At the Bedside episodes published through the end of calendar year 2023

Episode title	Publication date	Expert discussant(s)
"Difficult" patients	June 26, 2019	Darcy Banco, MD, MPH; David Ellenberg, MD; Colleen Farrell, MD; John Hwang, MD; Mathew Kladney, MD; Barbara Porter, MD; Milna Rufin, MD
Against Medical Advice (AMA) discharges	September 4, 2019	David Alfandre, MD, MPH
Gallows humor	October 30, 2019	Stephen Bergman, MD, PhD ("Samuel Shem"); Katherine Watson, JD
Prognosis	January 1, 2020	Alexander Smith, MD, MPH, MS
Capacity, Part 1	March 4, 2020	Andrea Kondracke, MD
Covid reflections: Disconnections and connections	April 29, 2020	Katherine Arthur, MD; Maria D. Garcia-Jimenez, MD, MHS; John Hwang, MD; Steven Liu, MD; Kelsey Luoma, MD; Kimberly Manning, MD; Michael Shen, MD
Capacity, Part 2: Voluntarism & difficult scenarios	July 22, 2020	Cynthia Geppert, MD, PhD, DPS, MA, MPH, MSB, MSJ, HEC-C
Complementary and Alternative Medicine (CAM)	October 15, 2020	Edzard Ernst, MD, PhD; KaKit P. Hui, MD; Aashini K. Master, DO
Treating friends & family	January 13, 2021	Erik Fromme, MD, MCR
Supporting surrogates	March 17, 2021	Judy Friedman; Jennie (last name withheld); Mariah Robertson, MD, MPH; Alison Trainor, MD; Elizabeth Vig, MD, MPH
Physician impairment	June 16, 2021	David McDonough, MD; Gregory Skipper, MD
Code status discussions	September 12, 2021	Avraham Cooper, MD; David Ellenberg, MD; Juliet Jacobsen, MD, DPhil; Jamie Riches, DO
Treatment over objection, Part 1	December 8, 2021	Kenneth Prager, MD
Treatment over objection, Part 2	December 22, 2021	Kenneth Prager, MD
Spirituality	June 15, 2022	Rev. Ariel-Philip Flores, MDiv; Irene Kang, MD; Christina Puchalski, MD, MS
Upstanders: Standing up against microaggression	August 24, 2022	Debbie Fadoju, MD; William "BJ" Hicks II, MD; Sofia Kennedy, MS; Corey Thompson, MD
Hope	November 23, 2022	Robert Arnold, MD
"Futility"	February 1, 2023	Gabriel Bosslet, MD, MA
Managing conflict	December 27, 2023	Autumn Fiester, PhD

interviewees. Although it is difficult to measure effect on patient outcomes, we assess the podcast's impact through download statistics, social media mentions, and direct feedback.

Core IM is active on multiple social media platforms, with most activity occurring on X (formerly Twitter). We regularly hear from clinicians who describe how they plan to change their practice based on specific recommendations provided in our episodes. About our episode on prognosis, one physician

wrote, "It is thought provoking, emotional, and inspirational to listen to this episode and learn how to be a better person and provider for patients and their families. I listened and started crying, thinking about what I did well and poorly with these families." Regarding our episode on against medical advice (AMA) discharges, a physician wrote, "It changed the way I view patients who want to leave AMA and definitely the way I speak with them. Things not taught in med school or residency. Thanks for the practice changing advice." About our episode on "futility," a physician wrote, "*Outstanding* Core IM episode today on medically futile care, potentially inappropriate treatments, dying, and the power of listening. One of my favorite episodes on my by far favorite medical podcast." This is a small selection of the many positive comments we receive on a regular basis.

In addition to the impact on individual learners, we have heard from numerous faculty members who have incorporated AtB episodes as teaching tools for trainees. We have similarly been informed that AtB episodes have been incorporated into the curricula of multiple medical schools and residency programs. We have heard from many physicians who use our podcasts as a jumping-off point for discussion of various psychosocial challenges that arise in clinical care. A faculty member advised us that she developed a Grand Rounds presentation based in large part on our "AMA Discharges" episode. One of us (MH) regularly gives talks to residents and faculty members using a flipped classroom method, wherein listeners are advised to listen to an episode before a talk, and the teaching session is a combination of structured presentation and discussion.

Although the discussion of impact above was based on internal data and unsolicited comments, future initiatives could include empirical assessment, including surveying listeners on the strengths and weaknesses of AtB as a modality for medical ethics and humanities education, and surveying faculty members on the ways in which they have incorporate AtB episodes into their teaching. As with other educational interventions, measurements of impact could be improved through studies looking at test scores that reflect knowledge retention and observable changes in behaviors, such as the rate of AMA discharges or code status documentation.

Conclusion

Medical ethics education is a critical element in the acquisition of the knowledge and skills requisite of a clinician, as well as in the professional development of medical students and trainees. The ability to critically reason through, mediate, and resolve ethical issues in practice is imperative in the provision of comprehensive clinical care. Although all U.S. medical students are exposed to instruction in medical ethics, professionalism, and the medical humanities, this exposure occurs with wide variability, dependent on institutional resources and curricular choices. FOAMed resources offer an innovative and effective tool for addressing the needs of present-day medical learners, providing opportunities for flexible self-directed learning with materials that are easily accessible and tailored to the learner, and we advocate for their expanded use in medical ethics education. We believe our podcast, Core IM's "At the Bedside," is an example of how similar FOAMed resources can provide evidence-based, digestible, and engaging content that should be increasingly utilized to improve healthcare students' and professionals' access to knowledge and resources important in navigating complex ethical issues in health and medicine.

Notes

1. Carrese JA, Malek J, Watson K, et al. The essential role of medical ethics education in achieving professionalism. *Academic Medicine.* 2015;**90**(6):744–52. doi:10.1097/ACM.0000000000000715.
2. Miles SH, Lane LW, Bickel J, Walker RM, Cassel CK. Medical ethics education. *Academic Medicine.* 1989;**64**(12):705–14. doi:10.1097/00001888-198912000-00004.
3. Irby DM, Cooke M, O'Brien BC. Calls for reform of medical education by the Carnegie foundation for the advancement of teaching: 1910 and 2010. Academic Medicine. 2010;**85**(2):220–7. doi:10.1097/ACM.0b013e3181c88449.

4. American Medical Association Council on Ethical and Judicial Affairs. Code of Medical Ethics; available at https://code-medical-ethics.ama-assn.org/ (accessed 22 July 2023).
5. Accreditation Council for Graduate Medical Education. Common Program Requirements; available at https://www.acgme.org/programs-and-institutions/programs/common-program-requirements/ (accessed 22 July 2023).
6. American Board of Medical Specialties. Standards for Initial Certification; available at https://www.abms.org/board-certification/board-certification-standards/standards-for-initial-certification/#p (accessed 22 July 2023).
7. Liaison Committee on Medical Education. *Functions and Structure of a Medical School: Standards for Accreditation of Medical Education Programs Leading to the MD Degree*; 2023; available at https://lcme.org/publications/ (accessed 22 July 2023).
8. Rose S. Medical student education in the time of COVID-19. *JAMA* 2020;**323**(21):2131. doi:10.1001/jama.2020.5227.
9. Ricotta DN, Richards JB, Atkins KM, et al. Self-directed learning in medical education: Training for a lifetime of discovery. *Teaching and Learning in Medicine* 2022;**34**(5):530–40. doi:10.1080/10401334.2021.1938074.
10. Hew KF, Lo CK. Flipped classroom improves student learning in health professions education: A meta-analysis. *BMC Medical Education.* 2018;**18**(1):38. doi:10.1186/s12909-018-1144-z.
11. See note 2, Miles et al. 1989.
12. Soleymani Lehmann L, Kasoff WS, Koch P, Federman DD. A survey of medical ethics education at U.S. and canadian medical schools. *Academic Medicine* 2004;**79**(7):682–9. doi:10.1097/00001888-200407000-00015.
13. DuBois JM, Burkemper J. Ethics education in U.S. medical schools. *Academic Medicine* 2002;**77**(5):432–7. doi:10.1097/00001888-200205000-00019.
14. Liu Y, Erath A, Salwi S, Sherry A, Mitchell MB. Alignment of ethics curricula in medical education: A student perspective. *Teaching and Learning in Medicine* 2020;**32**(3):345–51. doi:10.1080/10401334.2020.1717959.
15. See note 13, DuBois, Burkemper 2002.
16. Doukas DJ, Ozar DT, Darragh M, de Groot JM, Carter BS, Stout N. Virtue and care ethics & humanism in medical education: A scoping review. *BMC Medical Education* 2022;**22**(1):131. doi:10.1186/s12909-021-03051-6.
17. Giubilini A, Milnes S, Savulescu J. The medical ethics curriculum in medical schools: Present and future. *Journal of Clinical Ethics* 2016;**27**(2):129–45. doi:10.1086/JCE2016272129.
18. See note 17, Giubilini et al. 2016.
19. Lakhan SE, Hamlat E, McNamee T, Laird C. Time for a unified approach to medical ethics. *Philosophy, Ethics, and Humanities in Medicine* 2009;**4**(1):13. doi:10.1186/1747-5341-4-13.
20. See note 1, Carrese et al. 2015.
21. See note 13, DuBois, Burkemper 2002.
22. See note 1, Carrese et al. 2015.
23. See note 12, Soleymani Lehmann et al. 2004.
24. See note 13, DuBois, Burkemper 2002.
25. Eckles RE, Meslin EM, Gaffney M, Helft PR. Medical ethics education: Where are we? Where should we be going? A review. *Academic Medicine* 2005;**80**(12):1143–52. doi:10.1097/00001888-200512000-00020.
26. See note 1, Carrese et al. 2015.
27. See note 12, Soleymani Lehmann et al. 2004.
28. Schwartzstein RM. Getting the Right Medical Students — Nature versus Nurture. *New England Journal of Medicine.* 2015;**372**(17):1586–7. doi:10.1056/NEJMp1501440.
29. See note 1, Carrese et al. 2015.
30. See note 12, Soleymani Lehmann et al. 2004.
31. See note 14, Liu et al. 2020.
32. See note 19, Lakhan et al. 2009.

33. See note 28, Schwartzstein 2015.
34. Souza AD, Vaswani V. Diversity in approach to teaching and assessing ethics education for medical undergraduates: A scoping review. *Annals of Medicine and Surgery* 2020;**56**:178–85. doi:10.1016/j.amsu.2020.06.028.
35. See note 1, Carrese et al. 2015.
36. See note 12, Soleymani Lehmann et al. 2004.
37. See note 25, Eckles et al. 2005.
38. Terndrup C. A student's perspective on medical ethics education. *Journal of Religion and Health* 2013;**52**(4):1073–8. doi:10.1007/s10943-013-9747-5.
39. Chen DCR, Kirshenbaum DS, Yan J, Kirshenbaum E, Aseltine RH. Characterizing changes in student empathy throughout medical school. *Medical Teacher* 2012;**34**(4):305–11. doi:10.3109/0142159X.2012.644600.
40. See note 19, Lakhan et al. 2009.
41. Rodman A, Trivedi S. Podcasting: A roadmap to the future of medical education. *Seminars in Nephrology* 2020;**40**(3):279–83. doi:10.1016/j.semnephrol.2020.04.006.
42. Carroll CL, Bruno K, vonTschudi M. Social media and free open access medical education: The future of medical and nursing education? *American Journal of Critical Care* 2016;**25**(1):93–6. doi:10.4037/ajcc2016622.
43. Sandars J, Schroter S. Web 2.0 technologies for undergraduate and postgraduate medical education: An online survey. *Postgraduate Medical Journal* 2007;**83**(986):759–762. doi:10.1136/pgmj.2007.063123.
44. Little A, Hampton Z, Gronowski T, Meyer C, Kalnow A. Podcasting in medicine: A review of the current content by specialty. *Cureus*. Published online January 21, 2020. doi:10.7759/cureus.6726.
45. Mallin M, Schlein S, Doctor S, Stroud S, Dawson M, Fix M. A survey of the current utilization of asynchronous education among emergency medicine residents in the united states. *Academic Medicine*. 2014;**89**(4):598–601. doi:10.1097/ACM.0000000000000170.
46. Purdy E, Thoma B, Bednarczyk J, Migneault D, Sherbino J. The use of free online educational resources by Canadian emergency medicine residents and program directors. *CJEM* 2015;**17**(2):101–6. doi:10.1017/cem.2014.73.
47. Estes M, Gopal P, Siegelman J, Bailitz J, Gottlieb M. Individualized interactive instruction: A guide to best practices from the council of emergency medicine residency directors. *Western Journal of Emergency Medicine* 2019;**20**(2):363–8. doi:10.5811/westjem.2018.12.40059.
48. Block J, Lerwick P. 1064: Educational preferences among residents in the ICU. *Critical Care Medicine* 2019;**47**:509. doi:10.1097/01.ccm.0000551809.99859.12.
49. Clarke CGD, Nnajiuba U, Howie J, Khan M, Pinto dos Santos D, Ranschaert E. Giving radiologists a voice: A review of podcasts in radiology. *Insights Imaging* 2020;**11**(1):33. doi:10.1186/s13244-020-0842-3.
50. Henley J, Amir M, Sampson B, Tamai JM, Dellavalle RP. Dermatology podcasting: An untapped resource for continuing education. *Journal of the American Academy of Dermatology* 2013;**68**(3):513–5. doi:10.1016/j.jaad.2012.10.032.
51. See note 39, Clarke et al. 2020.
52. Core IM Podcast. https://www.coreimpodcast.com/ (accessed 23 July 2023).
53. The Curbsiders Podcast. https://thecurbsiders.com/curbsiders (accessed 23 July 2023).
54. The Intern at Work. https://www.theinternatwork.com/ (accessed 23 July 2023).
55. Bandura A, Walters RH. *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall; 1977.
56. Malecki SL, Quinn KL, Zilbert N, Razak F, Ginsburg S, Verma AA, Melvin L. Understanding the use and perceived impact of a medical podcast: Qualitative study. *JMIR Medical Education* 2019;**5**(2):e12901. doi:10.2196/12901.
57. Berk J, Trivedi SP, Watto M, Williams P, Centor R. Medical education podcasts: Where we are and questions unanswered. *Journal of General Internal Medicine* 2020;**35**(7):2176–8. doi:10.1007/s11606-019-05606-2.

58. Kirkpatrick DL. Techniques for evaluation training programs. *Journal of the American Society of Training Directors*. 1959;(13):21–6.
59. Kelly JM, Perseghin A, Dow AW, Trivedi SP, Rodman A, Berk J. Learning through listening: A scoping review of podcast use in medical education. *Academic Medicine* 2022;**97**(7):1079–85. doi:10.1097/ACM.0000000000004565.
60. Boothe-LaRoche A, Belay B, Sharma AJ. Pregnancy and postpartum related weight ounseling practices of U.S. Obstetrician- Gynecologists: Results from the doc styles survey, 2010. *Journal of Women's Health Care* 2014;**03**(06). doi:10.4172/2167-0420.1000208.
61. Cabrera D, Vartabedian BS, Spinner RJ, Jordan BL, Aase LA, Timimi FK. More than likes and tweets: Creating social media portfolios for academic promotion and tenure. *Journal of Graduate Medical Education* 2017;**9**(4):421–5. doi:10.4300/JGME-D-17-00171.1.
62. See note 41, Rodman, Trivedi 2020.
63. Chan TM, Bhalerao A, Thoma B, Trueger NS, Grock A. Thinking critically about appraising FOAM. *AEM Education and Training* 2019;**3**(4):398–402. doi:10.1002/aet2.10352.
64. Burkholder T, Bellows J, King R. Free open access medical education (FOAM) in emergency medicine: The global distribution of users in 2016. Western Journal of Emergency Medicine. 2018;**19**(3):600–5. doi:10.5811/westjem.2018.3.36825.
65. Riddell J, Robins L, Brown A, Sherbino J, Lin M, Ilgen JS. Independent and interwoven: A qualitative exploration of residents' experiences with educational podcasts. *Academic Medicine* 2020;**95**(1):89–96. doi:10.1097/ACM.0000000000002984.
66. The Bioethics Podcast. http://bioethicspodcast.com/ (accessed 16 Apr 2023).
67. playing god? https://bioethics.jhu.edu/research-and-outreach/the-dracopoulos-bloomberg-bioethics-ideas-lab/projects/playing-god/ (accessed 16 April 2023).
68. Bioethics for the People. https://www.bioethicsforthepeople.com/ (accessed 16 Apr 2023).
69. The Nocturnists. https://thenocturnists.com/ (accessed 16 Apr 2023).
70. *Journal of General Internal Medicine*. 2022;37(9); available at https://link.springer.com/journal/11606/volumes-and-issues/37–9 (accessed 22 July 2023).
71. *Journal of Graduate Medical Education* 2022;14(3); available at https://meridian.allenpress.com/jgme/issue/14/3 (accessed 22 July 2023).
72. *Academic Medicine* 2022;97(7); available at https://journals.lww.com/academicmedicine/toc/2022/07000 (accessed 22 July 2023).
73. *The American Journal of Bioethics* 2022;22(7); available at https://www.tandfonline.com/toc/uajb20/22/7?nav=tocList (accessed 22 July 2023).

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