

Episode: *Ethics Talk: Whose Job Is Antimicrobial Stewardship?*

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Transcript: Cheryl Green

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[mellow theme music]

[00:00:01] HOFF: Welcome to *Ethics Talk*, the *American Medical Association Journal of Ethics* podcast on ethics in health and health care. I'm your host, Tim Hoff. Last month's issue of the Journal and episode of the podcast explored antimicrobial resistance. Collaborative, multidisciplinary solutions are needed to stem the growth of resistant bacteria, fungi, viruses, and parasites, and to help address growing incidents of these infections with these pathogens that are resistant to treatment. To that end, this month's issue and episode of the podcast focuses on [Antimicrobial Stewardship](#). Like the opioid overuse epidemic, the topic of antimicrobial stewardship invites too-simple solutions, that is, solutions that are too simple. Clinicians are overprescribing antimicrobials, so we just need fewer prescriptions, and the rest will follow, right?

With a narrow view of antimicrobial stewardship as "correctness," the mis- and over-prescription of antimicrobials can at least be partially managed by clinicians who write prescriptions. But good antimicrobial stewardship requires many clinicians doing their part to optimize antimicrobial use, to cultivate moderation as a virtue in their practices, to nourish interprofessional relationships, and to train their students and trainees well to be the next generation of stewards.

Joining me on this episode to discuss key roles of infectious disease pharmacists in antimicrobial stewardship are Dr Lynne Fehrenbacher, a professor in the Department of Pharmacy Practice at Concordia University Wisconsin, and Dr Leah Leonard-Kandarapally, a pharmacy resident at Aurora Health Care. Drs, thank you so much for being on the podcast. [music fades]

DR LYNNE FEHRENBACHER: Thanks for having us, Tim.

DR LEAH LEONARD-KANDARAPALLY: We're happy to be here.

[00:01:55] HOFF: Pharmacists and physicians have key and often complementary roles in antimicrobial stewardship. Physicians are diagnosticians and have experience and expertise in treating patients, and pharmacists review and advise about prescriptions and safety because they are medication experts. These scopes of practice are not always well understood among clinicians who have to work together, however. So, what should we know about how infectious disease and antimicrobial stewardship program pharmacists are trained?

LEONARD-KANDARAPALLY: Yeah. So most pharmacists will have two to four years of undergrad experience. This is followed by four years of pharmacy school. Nowadays,

it's common to have one year of a general residency, followed by typically a year of residency that is solely focused on infectious diseases and antimicrobial stewardship practice. And this is where I am in my training. Some infectious diseases pharmacists may participate in a one-to-two-year infectious diseases fellowship, in addition or in place of that second year of residency. These fellowships are typically focused more on research or academia. Pharmacists can also become board certified in infectious diseases pharmacotherapy by taking a specialty board exam and maintaining certification through continuing education or recertifying via test.

In addition to the specialty training type of pathway, pharmacists might complete certificate programs on antimicrobial stewardship. One well known and respected program is available through the Society of Infectious Diseases Pharmacists, or also known as SIDP. Pharmacists typically complete several core learning experiences and also have a stewardship project as part of the certification process. This type of training is excellent for pharmacists practicing in areas where specialists may not be as readily available. But really, no matter what the path is, the training focuses on stewardship, so really focused on optimizing antimicrobial resources to ensure patient safety and minimize resistance development. Also focused on educating fellow pharmacists and other clinicians to be antimicrobial stewards, and then bridging infectious diseases-related evidence-based medicine to patient care and building collaborative relationships with infectious diseases physicians and other clinicians.

[00:04:07] HOFF: How well integrated is antimicrobial stewardship into pharmacy curricula in general? Is it kind of relegated to those elective courses, or is it something that works its way into all of the content being taught?

FEHRENBACHER: Yeah. As the professor in the room, I can tackle that question. We try to integrate the theories and principles of antimicrobial stewardship into our infectious diseases pharmacotherapy training. So, what I mean by that is essentially we're teaching the students the drugs, the application of the drugs, how to monitor the drugs. But as part of that we're also teaching them, do we need the drugs? Is this the right antibiotic for the patient? Can we narrow the antibiotic? So while it's not necessarily taught as its own course, it's certainly threaded through the curriculum anywhere that they are learning about treating an infectious disease or learning about preventing secondary sequelae of antibiotic misuse.

The other place that we're really trying to start threading it is into the underserved populations aspect and public health. So, many of the students who are dual degree master's in public health students may have a little bit of additional focus on that. And there's also infectious diseases electives in addition to the required therapy, where we can do a deeper dive for students who are more interested in learning at a higher-level detail.

[00:05:32] HOFF: From an outside perspective, it seems like antimicrobial resistance and stewardship have received increased attention over the past decade or two. Have you seen a corresponding push to increase the attention that stewardship receives in

the curriculum, or is it, as you say, kind of been part of pharmacy training all along, and now it's just being explicitly named?

FEHRENBACHER: I've been in practice now over 20 years. It seems a little daunting to say that. But when I learned, I learned from the concept of not all infections need an antibiotic, but I don't think the focus was on the, you know, we like to call it collateral damage or downstream effects of antibiotic misuse as much as it is now, both from a public health and resistance standpoint and just from a general practice scope standpoint. Pharmacists and expertise and specialization really has evolved over the past couple of decades, and the number of people practicing in infectious diseases pharmacy is definitely way more than when I was training. So I think the focus comes in from a couple different aspects. Number one, there's more people out in practice doing the work. So that sort of trickles down to how we train future pharmacists. But also—we'll probably talk about this a little bit more in the podcast—as our regulatory bodies are mandating stewardship as part of accreditation, clearly it's something we need to prepare our pharmacists for, and it's the right thing to do. You know, the fact is that our antibiotic pipeline isn't robust. We've got what we've got with a trickle in of new agents here and there, but we really need for not only us and this generation, but generations to come, we need to do a better job and continue to work towards educating the public and our students, the next generation to do that.

[00:07:30] HOFF: As was noted in the introduction to this podcast and also already in your responses, antimicrobial stewardship requires collaborative approaches between health professionals. So how should infectious disease and antimicrobial stewardship program pharmacists work with the many clinical pharmacists, microbiologists, nurses, physicians, the list goes on, who contribute to antimicrobial stewardship programs' effectiveness and efficiency?

FEHRENBACHER: Well, the question, I think, Tim, really tees it up nicely, including the other, the allied health professions. Stewardship really is a team effort. If it was just the ID physicians, just the pharmacists, just the nurses, we wouldn't be able to progress this science. Everyone really has a role to play, and I think that one of the big steps is building interprofessional relationships. And that's certainly a key component for ID pharmacists and physicians. It's kind of what we like to call a culture, creating that culture of stewardship within an organization, not just a program, but really a thought process and a culture of how people look at antibiotics on a patient's profile.

Years ago, many years ago, when I was first working to build the antimicrobial stewardship program here, one of the very first relationships that I built was with our microbiology lab director, and laboratory clinicians and pharmacists, we're a lot alike. I think we're kindred spirits that oftentimes get banished to the basement as our primary area of practice. And oftentimes, unless you come and seek us out, in some cases, we're not front and center everywhere. So I think that that initial relationship built with the micro lab was key. And I'd argue that anybody that you talk to that's working in stewardship would emphasize that that is a very key collaborative relationship. And one of the catch phrases that we like to use sort of is "bench to bedside." So, essentially what we mean by this is, how do we translate the great work and information that's

captured in the micro lab, and then use that to identify needs and sort of springboard ideas for interventions that work to save the viability of our antimicrobials and optimize patient care? So, we oftentimes, as ID pharmacists, or antimicrobial stewardship pharmacists, act as that data bridge. And we kind of help that collaborative relationship form.

[00:10:04] And sort of, as you've alluded to also in that question, most hospitals, institutions, or health systems, on whatever level you're talking about, some do it on the institution level, some do it on a system-based level but have now formalized antimicrobial stewardship programs. And these are essentially multidisciplinary groups that leverage the unique experience and perspective of each profession at the table. And pharmacists as a whole, we tend to be pretty type A and people oriented. It's kind of a blessing and a curse, right, Leah? [chuckles] But as a result, you'll oftentimes find an antimicrobial stewardship pharmacist in an organization leadership role within that committee or within that program, usually alongside an infectious diseases physician.

And then other people at the table that are very important, I already alluded to the microbiology department. Infection preventionists are essential because obviously, stewardship's very important, but preventing infection is optimal. And you'll oftentimes, depending on what topic is being discussed, see various other specialists engaged. So you might see surgeons at the table if it has something to do with surgical prophylaxis or something that we want to do with antibiotics in the surgical setting. You might see urologists at the table if it has something to do with looking at urinary tract infections and tracking and optimizing antibiotic use in those patient populations. Or urgent care and emergency department physicians at the table if it's something that is related to prescribing in the outpatient urgent care setting. So it's really important, though, I think, that we don't keep what happens in stewardship in the committee only. That's not going to be effective at implementing change.

[00:12:01] So, our clinical pharmacists within our stewardship program and then obviously our bedside nurses are the front lines of stewardship. So I think that collaboration and think tank that comes out of stewardship then gets translated to our frontline practitioners. So our floor pharmacists, our clinical pharmacists do antibiotic timeouts and kind of take a look at that antibiotic and say, hey, is it still needed? Is it still indicated? Is it still the right drug? The bedside nurse is an important part of the process. I think that is a step that ensuring that nurses understand that if we're asking them, for example, to infuse an antibiotic over three hours instead of a nice quick IV push that might be more convenient, really helping them understand why that's the best way to administer this antibiotic to a patient and getting that buy-in. They also are oftentimes the first people who know if the patient's eating or tolerating other orals, and they can then bridge with the physician or pharmacist to come up with an oral conversion so that the patient doesn't necessarily need IV antibiotics. They can also bridge discussions with family members as well.

[00:13:21] And the one thing, too, that we talk about the health care team, but I think one thing in stewardship that we are really, we really need to do better at, I think, is engage the patient at the patient level. And some of the public health initiatives that we

might talk about later will probably highlight this further. But patients can be pretty insistent. When they go to their physician's office, and they have a sore throat, and they're concerned that they need to get that antibiotic, and the physician is completing their assessment and determined that it's a viral infection and they don't need an antibiotic. And so I think really starting to focus on patient and public education of knowing when antibiotics are in fact appropriate and understanding that many times they aren't, that's really the ground up: starting at the patient level and then working all the way up through the levels of stewardship from ambulatory care to acute care. So, it really is a spectrum, and I think that hopefully with continued awareness, like on your podcast today, but continued awareness not only within the medical community but within the public community through campaigns like the CDC's Antibiotic Awareness Week, which happens every November, there's really moving forward opportunity to make everybody part of the antimicrobial stewardship process.

[00:14:50] HOFF: Hmm, yeah. Thank you for describing the sort of general structure of these organizations. And despite the variation in the ways that health care organizations structure their own antimicrobial stewardship programs, there are best practice guidelines to help organizations and clinicians implement and administer them. So, can you talk a bit about who makes these antimicrobial stewardship program guidelines and please describe a couple of them?

LEONARD-KANDARAPALLY: Yeah. So as some of the listeners may know, and something we've already kind of alluded to in this discussion, both CMS and as well, health care accreditation bodies like the Joint Commission or the DNV, do have infection prevention and antimicrobial stewardship requirements and standards. So guidelines typically provide actionable suggestions to help organizations meet requirements of these accreditation bodies.

So one of the primary resources that I think of for guidelines is the CDC Core Elements of Antimicrobial Stewardship Programs. Some of the key elements include having a dedicated leader that is responsible for program management, with emphasis placed on physician or pharmacist leaders or co-leaders, as again, we've already discussed. Other key components are the use of strategies such as pre-authorization or prospective audit and feedback. This includes stewardship team review of prescribed antimicrobials for appropriateness, usually about 24 to 72 hours following prescription, and tracking prescribing practices over time, along with outcomes like C. diff infections and resistance. So, an example of this might be if through these tracking of prescribing practices, we find that fluoroquinolones are being overused, the stewardship team might start to track or look at the fluoroquinolone prescriptions after they've been prescribed for about 24 hours and look for opportunities to de-escalate to less broad agents or agents that are less vulnerable to resistance development. There's also now more emphasis placed on submitting this data through organizations like the NHSN in order to benchmark the use compared to similar facilities. We also provide data and education to frontline prescribers, nurses, and pharmacists, which is another emphasis, another piece that is emphasized by the CDC Core Elements.

[00:17:01] So, these best practices are specific to hospital programs, but the CDC does also publish best practices for health departments and nursing homes. They also have specific considerations for smaller critical access hospitals as well. Additional resources to take a peek at might include things like the IDSA or SHEA guidelines for stewardship program implementation, and then the Agency for Healthcare Research and Quality Antimicrobial Stewardship Toolkits. Your local public health departments might also have additional resources that can be useful.

[00:17:34] HOFF: I want to circle back on something that was brought up in the first response that antimicrobial stewardship programs are focusing more on equity, or rather, inequity in antimicrobial resistance. And to that end, the CDC has been responding to ways in which resistance inequitably undermines health in both domestic and international communities of color. So what do you see as some of the key equity points we should take from programs such as Project Firstline, or, as you mentioned, the National Healthcare Safety Network, or other programs.

FEHRENBACHER: So, first of all, I think it's important, and I thank you for the question, just to emphasize that there is work being done in this space on several levels, from globally to locally. While we've really tracked resistance to antimicrobials for a long time, evaluating the components related to equity is a relatively new science, so within the past five years or so. So it's great to see that that's filtering in and becoming an active part of surveillance. You asked about key takeaways. And I think the key takeaway in my opinion is that with many other health issues, stewardship and antimicrobial access and use and resistance, it's tied to social determinants of health. There's a great infographic from the CDC titled *Health Equity and Antimicrobial Resistance*, and it's part of the CDC core initiative. And it's a really great, at-a-glance summary of key threat pathogens and some of the publications that've demonstrated health disparities. So, for people learning who want to just learn some of the intro level or basic principles, that's a great resource to head to and see how the CDC is tracking.

[00:19:17] I think another key takeaway is that efforts are being made to raise awareness of equity principles as they relate to antibiotic use within Antibiotic Awareness Week itself. Antibiotic Awareness Week in the US occurs every year in November, so if you don't have it on your calendar for 2024, look it up and put it in your calendar. But the 2023 theme was actually called Improve Antibiotic Use, Improve Health Equity. So when you see a theme like that, it's obviously a front and center topic that CDC is really working hard to foster more interest, more research, more energy behind equity as it relates to antimicrobial stewardship. And there, if you want to become more involved in Antibiotic Awareness Week in your practice, the CDC does have toolkits available, ideas for partnering with your community partners, even outside of the health care arena. There's some really great work, I think, that can be done by partnering with local trusted businesses really to get the word out there into underserved communities that may not have great access to large health centers.

In addition to awareness, CDC's also providing funding to every state health department for an antimicrobial stewardship expert just to ensure that every region has access to that expertise. So if you're not aware who that is in your state, I'd encourage you to visit

your state's Department of Health Services or equivalent at their website and see if you can find the person in charge of stewardship for your state. And that person is an accessible resource to any practicing professional within the state or even the public.

[00:21:06] And finally, this is obviously, as we've already alluded to, an interprofessional effort. You asked about Project Firstline, and that is an organization that helps serve our infection preventionist colleagues, and there's multilingual educational resources there for them. The Society of Infectious Diseases Pharmacists has also started a new international task force to mobilize the global community and combat antimicrobial resistance. And just putting in a plug for that task force, SIDP welcomes non-pharmacists to join this work. So if anyone listening wants to learn more, please reach out via the SIDP website, and that's something that I'm sure they would love to have more people involved in the efforts of.

[00:21:54] HOFF: For listeners who are unfamiliar with the way that social determinants of health affect antimicrobial resistance or vulnerability to antimicrobial resistance, can you please expand a little bit on the connections there?

LEONARD-KANDARAPALLY: Yeah. So I think one key piece about why we think of social determinants of health along with antimicrobial stewardship is because, as Lynne had mentioned, the access to health care is a big piece of both of these pictures. So, people who are in underserved communities might be more likely to seek out health care at things like free clinics or walk-in clinics or emergency departments. I think this is really integral to thinking about antimicrobial stewardship, because we do know that these are health access sites that do maybe lack a little bit more in antimicrobial stewardship practices. And we're trying harder and harder to reach these clinics and the emergency departments, but this is kind of where a lot of those one-time or unnecessary antimicrobial prescribing is happening and part of why antimicrobial resistance and inefficient prescribing practices is maybe reaching these underserved communities a little bit more.

[00:23:09] HOFF: We'll wrap up in a way we often do and ask, what should health professions students know about their roles in working interprofessionally to promote good antimicrobial stewardship?

FEHRENBACHER: So, interprofessional education or IPE, right, as we like to call it, in my opinion, from when I trained, is one of the best advances in how health students, health professional students, train. I trained in essentially silos where we worked within our professional program and had very little crossover with other health professional students until we were out on our clinical rotations, which was usually the last year or two years of our training. We were peripherally sort of aware of what everyone was doing, but we didn't really get to know people and learn together with them. So I think that interprofessional education really promotes the opportunities for the health professions to learn and engage early, and not only gain strengths from each other's knowledge and learn how they're learning, but also, just meet people with backgrounds different than yourself, so in terms of diversity and personal background, and sort of engage and learn that approach for the common good of a patient. Rather than making

it more of a competitive feeling, making it a true collaboration even in the classroom and the learning process. So if there's anyone out there as part of their professional programs that want to learn specifically, since we're ID pharmacists, specifically what we do, again, the Society of Infectious Diseases Pharmacists has a great little video on their website that really explains what we do. So if there's any learners or any IPE folks out there that want to integrate that, it's a nice little summary of the role of an infectious disease pharmacist.

[00:24:55] And I think that the other thing that's really important for students to know, and probably even us as lifelong learners, right—all of us are students—really, within antimicrobial stewardship, some of the responsibilities are specific to our profession or degree, but many, many times they overlap. So, for example, everybody can take that antibiotic timeout and assess whether an antibiotic in an inpatient is still indicated, if it's appropriately dosed, if it's still the best choice for that patient based off of new information that may be available. Everyone can educate patients that antibiotics aren't benign drugs, and that if we use them inappropriately, there are potential consequences that not only impact that patient, but potentially the health of future generations by losing viability of that antibiotic. Everyone can work together to address vaccine hesitancy. Again, the best way to treat an infection is to prevent it from happening. And then I think promoting US Antibiotic Awareness Week and public health outreach and education is something we can all do.

And like I alluded to, we can all keep learning, measuring, and sharing, right? So, while institutions do antimicrobial stewardship initiatives within their walls, there's a lot of great work being done collaboratively amongst institutions, across the country, within professional organizations, because there's always much to be done in this space. So, keeping that creative and collaborative approach is really, I think, what I would ask students to learn as they're developing an appreciation for antimicrobial stewardship. [theme music returns]

[00:26:37] HOFF: Dr Fehrenbacher, Dr Leonard-Kandarapally, thank you so much for your time on the podcast today.

FEHRENBACHER: Thank you, Tim. It was great to be here.

LEONARD-KANDARAPALLY: Thank you.

HOFF: That's all for this episode. Thanks to Drs Fehrenbacher and Leonard-Kandarapally for joining us. Music was by the Blue Dot Sessions. To read the full issue on *Antimicrobial Stewardship* and last month's issue on *Antimicrobial Resistance* for free, visit our site, [journalofethics.org](http://journalofethics.org). For all of our latest news and updates, you can find us on X [@journalofethics](https://twitter.com/journalofethics). And we'll be back next month with an episode on *Street Medicine and Harm Reduction*. Talk to you then.