Speaker 1:	This episode is part of a special collaboration between ACM ByteCast and AMIA For Your Informatics podcast. A joint podcast series for the Association of Computing Machinery, the world's largest educational and scientific computing society, and the American Medical Informatics Association, the world's largest medical informatics community.
Speaker 2:	In this new series, we talk to women leaders, researchers, practitioners, and innovators who are at the intersection of computing research and practice to apply AI to healthcare and life science. They share their experiences in their interdisciplinary career paths, the lessons learned for health equity, and their own visions for the future of computing. Hi. Hello. Welcome to the ACM-AMIA Joint Podcast Series. This is joint podcast series aims to explore the interdisciplinary field of medical informatics, where both the practitioners of AI/ML solution builders and the stakeholders in the healthcare ecosystems take an interest. I am Dr. Sabrina Hsueh with the Association of Computing Machinery ByteCast series, and co-hosting with me today is my co-host, Dr. Sullafa Kadura of For Your Informatics podcast series with the American Medical Informaticist Association. We have the pleasure of speaking with our series guest, Dr. Holly Urban today.
Speaker 3:	Thank you for joining this podcast. Today, our special guest is Dr. Holly Urban. Holly is a pediatrician and clinical informaticist. She received her BA from Stanford, her MD from the University of Colorado, and her MBA from Regis University. After working for several years as a practicing pediatrician, Holly transitioned to working in product management roles for healthcare IT vendors, including product leadership roles at McKesson and Hearst Health. Most recently Holly was CMIO at Oracle Cerner before recently starting a new role as VP of clinical product design at CliniComp. Welcome, Dr. Urban. Thank you for joining us.
Speaker 2:	Hey, Dr. Urban, you had medical informatics efforts at some leading EHR companies previously at Oracle Cerner, and now CliniComp. Our audience here is from both AMIA and ACM. They are scientists, clinicians, health IT practitioners, and students. Can you just share with our audience here a little bit more about yourself and your journey into informatics? Are there some inflection points in your career you want to introduce to them?
Holly Urban:	Sure. Thanks so much, Sabrina, and thanks for the opportunity to chat with you all today. As Sullafa mentioned, my clinical background is in pediatrics. I did mostly primary care, but I also took care of my own patients when they were hospitalized for low-acuity conditions. I also was doing some work in quality management, and this was in the mid-2000s when Joint Commission first released its medication reconciliation as a national patient safety goal. At that time, our hospital had its own IT shop and they went ahead and developed a tool for medication reconciliation. They developed it without any input from anyone from the clinical setting or any clinicians at all. They developed the tool

and then they tossed it over the fence to the quality management department and said, "Okay, Holly, why don't you go roll out MedRec to this hospital?"

I had to train, I had to monitor compliance on the tool. Our usage of the tool was less than 1%. We were actually doing better on paper than we were with this tool. I said, "Why didn't they think about this? Or why didn't they do it this way? Or what about making it this way?" I realized that I had a national bent to be thinking about how to solve the problems of MedRec, which is really important, but in a way that made more sense to a clinician. I thought that if they'd had a lot more clinical input, that tool would've been much easier to use and would've achieved that goal of patient safety related to medication reconciliation. Overall, that experience led me to really help me understand how healthcare IT can improve patient outcomes. I realized what I wanted to do was be on the design side so that I could build software for clinicians. That's how I ended up in product management.

I've always had a little bit of a technical bent, so it was a bit of a natural segue for me so that I could be that ambassador between the clinical needs and the technical. So having that conversation back and forth where I can represent clinical things to technicians and represent technical things to clinicians. The other piece that I should let you know is I'm a third-generation physician. My grandfather was a GP, my dad is an orthopedic surgeon, retired. I still don't think he understands what I do all day, but I love product management and really it's all about making sure everything that I do has at the end an ability to make the EHR better for clinicians so that they can take better care of their patients. That's what gets me up in the morning. That's what really has driven me throughout my entire career.

Speaker 3:   Wow, that's fantastic. Thank you for sharing your story. Continuing to talk about your journey, how did you get to this role as VP of clinical product design at CliniComp? What do you think the most pressing issues are that you face in this position?

Holly Urban: Thank you. In my most recent position in my career at Oracle Cerner, I was mostly focused on software implementation and deployment, which I loved. It was a great opportunity to work with frontline clinicians, sitting with them, working with physicians, understanding their workflows, and really seeing their pain points with the EHR and where they were struggling, where they needed to have, where they really wanted better tool sets. I love that work, and I love that daily interaction with the providers. I miss the product management side. I really missed designing software. That's why I changed from that position to taking the role at CliniComp because at CliniComp, we're designing a brand EHR, which is really unheard of in our industry today. To be able to get in at the ground floor of designing a brand-new EHR, just for me, I just felt like it was incredibly exciting work to be able to leverage so much of the work that's gone over the past several years and to improving [inaudible 00:06:32], "How can I

actually leverage those lessons learned and then practically apply it as I build a new EHR?"

I think one of the things, Sullafa, you asked me was about pressing issues that I face. I think one challenge is that CliniComp doesn't have a lot of brand recognition in the market. The company's been around for over 40 years. They've had a best-of-breed clinical documentation system. They have very beautiful flow sheets, ICUs, they have perinatal surveillance, and they've done a lot of work with the DoD and VA. As the DoD and VA have moved to a new vendor, CliniComp looked at it as the opportunity to say, "Well, maybe what we need to do now is pivot to a full-fledged EHR." So really what we're doing now is, like I said, starting from the ground up, building new software to incorporate all the aspects of the EHR, and really the thing that we need to do at this point is find an early adopter customer who's going to be willing to partner with us in this journey.

High barrier to entry, I think the EHR market is ripe for disruption. But really, we've got to have somebody who's willing to partner with us on this exciting journey. I'm happy to say that we're going to have something for everybody at the health system. We're going to make sure that we have intuitive UI and intuitive workflows for the clinicians. Our database has been proven it has no downtime, which is really wonderful, something for the technology folks. Then for the financial folks, which you have to think about as in product management is we're doing a fixed pricing model to get away from some of the nickel and diming that you hear about in our industry. It's been really, really exciting. It's brand new, but already, I'm jumping in and designing software to meet the needs of modern clinicians. It's been super, super fun.

Speaker 2:
It does sounds like an exciting journey that you are embarking on to design a new EHR from grounds up. This needs to be some field that really needs people who are highly interdisciplinary to be in the middle as a bridge to be able to talk to both clinical and technical people on the front in order to know how to design it better. We are also wondering what is the important part here that from your observation to make a career successful in this kind of interdisciplinary role between medicine and technology that you are taking in? Have you ever faced any challenges when leading interdisciplinary team here? If so, what's your secrets in overcoming them?

Holly Urban:
One of the things about being a product manager is you really do have to be hand in hand with your technical team, with the software developments, with the clinical architectures, with all of the technical resources. That collaboration is key. One thing that I've learned over my career is that clinicians tend to go straight to a solution. They say, "Okay, guess what? I need this number on this flow sheet or this number on this screen to be red and it needs to flash and it needs to really jump at you."

So it takes some discipline to really have that informatics mindset where you say, "Okay, you just told me the solution, but what problem are you solving here? You want this button to be huge and flashing red because you're worried about missing a data element?" So you have to have that ability to coax and be patient to talk to your client to say, "What problem are you solving? Because what I can tell you is that if I could understand your problem and then I go hand in hand with the data architects, with the software developers, they may be able to come up with the solution that neither one of us could have come up with, right? Because they know how to use the technology in a way that maybe I'm not aware of and could blow both of our minds."

So I think that making sure that you're very disciplined around the problem as opposed to going to solutions is something that's critical in product management and critical in software design. As I mentioned, really the best-case scenario is when the clinicians and the technologists are deeply embedded in each other's work, and sometimes there's a natural push and pull there, right? Things that are obvious to clinicians are not necessarily obvious to your technology partners and vice versa. I'll give you an example in my career. There's a woman, I'm going to name her, and I'll tell her that she's being called out on this podcast, Bernadette Minton. She is one of the most brilliant people I have ever worked with. She's a technologist, technology background, software development background. When she and I would work together, she would come at a problem from pretty much 180 degrees different place than I came out of a problem.

We just had this push and pull where we would with each other, influence how we saw that problem. When we would get to that middle place, I'll tell you that middle place would be a really, really good place. That partnership, that ability to have that back and forth, to understand each other's point of view, which oftentimes are 180 degrees different, that gets you to a good place, and that partnership and collaboration is really, really key.

Speaker 3: You talked about a common pain point for physicians, jumping to the solution, are there other common pain points for physicians when it comes to using electronic health records and how do you address those in product design?

Holly Urban: So much of it is around intuitive interfaces. Part of the problem is that if you have a design that doesn't natively understand the clinicians' workflow, it doesn't translate well to how the clinicians use it. Let me give a concrete example. I was looking at some mockups where for a hospitalist, there was a list of patients and then this task list. The task list for each patient was completely opposite, it wasn't tied natively to each patient. I said, "Hold the phone, we're not doing it this way because I'm not going to run through a list of tasks. What I'm going to do is in the hospital setting is I'm going to round, and I'm going to look at each patient and then address all the tasks needed for that patient." So to have a task list completely separate from my patient list wasn't useful to me as a clinician because of this notion of rounding.

	This is something, again, as a technologist, you don't understand what necessarily rounding in the hospital means. You understand that the clinician has tasks they need to get done and you understand that they have a list of patients, but making sure that those two things are embedded together is that's the thing that is really critical when you're talking about software design. Does that answer your question, Sullafa?
Speaker 3:	Yes, it does. Thank you. That was a good example.
Speaker 2:	Also, very excited to hear about that 180-degree partnership example you gave earlier. Is that how you collaborate with technologies in the design? Are there other examples that you have? What kind of contributions computer scientists, software engineer play in the design and development of EHRs [inaudible 00:13:37]?
Holly Urban:	I would say that kind of discussion is happening on a daily basis because, again, so at CliniComp, we have very, very talented architects and software developers who understand the database. CliniComp has something unique. They have an object-ordered database as opposed to a translation database, which gives them a lot of flexibility. Now I don't understand that, but they do. They can lead me how to show how having that flexibility in their database can allow them to do things in a different way so that I'm not specifying how they do it because I don't understand the database. I just understand what the workflow needs to be for the clinician. But we have that pull and push, right? Because they're going to push back and say, "How do I make sure that it makes sense from a technology standpoint, from the way they have the database set up, as opposed to how it's going to make sense for me as a clinician using the software?" So we are having those push-and-pull discussions basically every day.
Speaker 3:	Are there discussions about physician wellness and the design at CliniComp and how CliniComp's product can support physician wellness compared to other EHRs?
Holly Urban:	Yeah, it's such an important issue in our industry. It's not just the EHR, COVID-19, staffing issues. I mean, all of those things I think contribute to clinician burnout, but I don't think you can really minimize the impact of the EHR. Again, if you can provide more intuitive user interfaces that reflect the clinician workflow, I think that could really help in terms of the burnout, but in some cases, some legacy cases that requires a whole new user interface, which we're fortunately in the position of being able to do that and all really making sure that we're focusing on the key work that clinicians need to do, that they need to get the right clinical decision support to help make the right decisions for their patient so that they can efficiently document and so that they can efficiently communicate their patient care decisions, and not focus as much on billing or administrative or regulatory that tends to add to a lot of the challenges that clinicians have with EHRs.

One of the things that we're doing is leveraging some of the lessons learned done by the AMIA has a 25x5 initiative to reduce EHR-related documentation to 25% of the current states. They're doing great work talking about what's really important in the note. So we're able to leverage those lessons learned as we look to build out our own notes. Very similar EHRA and the HMIS physician committee have done a lot of work on the "ideal note."

Again, looking at some of the things that they're recognizing like, you don't need to repeat information that's already captured in the record elsewhere and repeat it in the notes. That kind of thing. Pretty basic, but something that is a little bit unique. The final thing is we're also looking at the safer guides that address EHR safety to make sure that from the get-go we're addressing any of those patient safety-related issues that are contained with an EHR. Like I said, there's been great work done out there, and to be able to leverage some of that great work and getting in on that ground floor of building a new EHR is just blows my mind. It's really exciting. It's such a unique opportunity to disrupt the industry.

Speaker 2:   ACM ByteCast and AMIA FYI podcasts are available on Apple Podcasts, Google Podcasts, Spotify, Stitcher, and other services.

Speaker 1:   If you're enjoying this episode, please subscribe and leave us a review on your favorite platform.

Speaker 2:   That's exciting. But beyond the current company, the current way you are doing, did you see there are any common challenges across the board for the EHR system today and are there trends behind the scene you want to call out for the audience here to know more? Are there specific ways that you see that can address those challenges that you also want to call out?

Holly Urban: One thing I think we can think about is all the data that's generated by HER. There's a huge amount of data out there, how do you best challenge and analyze that data? I think a lot about data literacy. I mean, first, you have to have access to the data, of course. Second is you have to have a place to store it, dump it, so you can analyze it. Third, you have to make sure you can normalize the data to make sure like for like similar clinical concepts are representing similar clinical concepts. That's where you get to your data literacy, how do you analyze the data, how do you interpret it, how do you present it. Even more importantly is how do you have that data visualization so that others can easily interpret an action based on the data that you've analyzed.

I think the core of data-driven decisions is having access to high-quality data that presents in a way that's actionable. That's what I mean by data literacy. I think that's something that's common broadly across the industry, all EHRs have that ability to generate data, but having the data literacy, especially, if you're using disparate systems, which many systems are, how do you make sure that it's all together in a way that's actionable? It's really important to have clinical

input in that way so that you can help interpret that data and recognize what's the signal and the noise because it's not always obvious to a technician or to a technologist what data is or isn't relevant, and you really need clinicians to help guide. I'll just give an example from a company I worked at, and I had an engineer approach me with a data visualization about a new way to visualize growth chart data.

I'm a pediatrician, so it's a good person to talk to, right? In his mind, it was just data. Head circumference, height, weight plotted against the patient age. So we thought, "Oh, I'll just do a new innovative way to display this data." This engineer had no way to know that the CDC growth chart is a clinically validated tool that every pediatrician in America is trained on. That as a pediatrician, I recognize potential disease states based on [inaudible 00:20:02] growth chart patterns from the growth chart. This was one instance where we didn't need a better mousetrap to visualize the data, but you can see how having the clinicians involved to do that to help represent where the data visualization is going to make a difference is really important. Did that answer your question?

Speaker 2: Definitely answer my question. But I'm also wondering, with all these high-quality data collected right now, we have a chance to use differently for the secondary use purposes. There has been a lot of potential that has been hypothesized that AI/ML can play a role here. I'm wondering what's your take here? Is it really such a potential here or it's all say what a hype?

Holly Urban: I think the potential is huge. One of the things that I think a lot about is how you evaluate medical interventions, broadly, medications, procedures, et cetera. Anything that we as providers and physicians try to do to improve patient care, how do you evaluate the effectiveness of the interventions we do and tie that to a clinical outcome? How do I know concretely that the medication that I give or the procedure that I do is really going to make a difference from outcomes in a standardized way? Because if you think about things like quality measures, for years, it's been focused on process measures, right? So it's around did you prescribe VTE prophylaxis as opposed to measuring an outcome like did a VTE happen, right? Did a thrombotic event happen?

I know there's a lot of pushback on the outcome measures because of challenges. Oh, there's things happening outside the provider's control, is there the right attribution to the correct provider? But when I think about how AI or machine learning could work here, if you apply it to vast data sets, it's that notion of real-world evidence. So you can as understand tying to an outcome really were the factors and what risk adjustments need to be due, protects related to social determinants of health or other factors that are going to impact these outcomes that we're looking for in ways that we're not understanding to currently when we're just using our randomized clinical trials as the goal standard, they just isolate one clinical variable. How can we use real-world evidence where it's real practitioners providing care and then tying what they're doing and seeing if that really does get the outcome? AI/ML, I think could really

help us do that in ways that we don't even understand today. I think we're only scratching the surface.

As an example, there was studies done that show, this is my favorite example, lumbar spinal stenosis. After two years, they've done studies, they show there's no clear benefits to surgery over a nonsurgical treatment. As a patient, I sure want to know that like if I'm going to have no difference between physical therapy and surgery after two years, heck, I'm going to go with the physical therapy. Can you imagine if we could use AI to look at all of these interventions we do as clinicians, medications, procedures, and then truly compare and understand how they impact patient outcomes in a real-world setting done by providers, not study investigators, I just think the potential to how we provide healthcare is enormous.

Speaker 3:   Absolutely, I agree. With this amount of promise with AI, what are the reasons you think that adoption has been so low? I know you mentioned figuring out the attributes, having clinicians involved. Are there other challenges that you've observed?

Holly Urban: I agree that adoption is low. I think one thing we also need to understand that AI is a powerful tool, but it's not the end, right? It's not improving patient care, it's just a tool to help you improve patient care. I think we need to all remember that. There's basic organizational issues you need to think about because you need the access to the right kinds of data, and then you need the right infrastructure framework to support these innovative techniques. The EHRs, for example, have the data, but is it available to AI developers? If you have AI developers, then do you have the right infrastructure and the right access to the right data? There's just some basic infrastructure that probably needs to be addressed. The other probably even bigger issue I think is related is to bias. There's been so much discussion about bias, and I think that's really one of the biggest factors limiting the use of AI in healthcare.

The example I always think of is the Framingham Heart Study, which was developed not using AI, but we've learned now that the Framingham cardiovascular risk score works very well for white patients, but it doesn't work very well for Black patients. That leads to potential undertreatment of Black patients, which could lead to worse outcomes for that vulnerable population and which is totally unacceptable. When you think about how that was designed, you can see how AI-generated models could also be biased leading again to undertreatment in vulnerable groups, which again is definitely not acceptable. I think a fundamental issue is making sure that you have the right data in your data sets to make sure that you're able to represent any issues related to health equity.

We do need to make sure we're doing better as an industry and how we standardize and normalize, how we collect data for health equity. ICD Z codes are a good start, but I think across the board there's a huge amount of

variability in how we collect, how we assess health issues related to health equity, and to social determinants of health. I think that's true across different organizations, not just EHR vendors, I think there's a lot of variability between EHR vendors, but also between different organizations that are using the same EHR vendors, they're collecting that data in a different way. I think that we probably leaders in the field really need to be thinking about how we standardize that data collection and normalize it so that we have better data sets to utilize.

Other things I think about in terms of when you are creating AI models, how you combat bias, I think you have to have diverse teams. Confirmation bias is something we should all be well aware of where you're just going to look at the evidence that supports your preconceived notions. But if you have diverse teams, that helps with that confirmation bias issue. Again, making sure that any AI models you're developing include data around social determinants of health, race, and gender health equity issues. Then, again, making sure you have engaged clinicians at the table to ensure that those trial questions are clinically relevant and that you're able to evaluate any study results with a conscious mind toward whether or not there may be biases involved.

Speaker 2: That reminds me that last year in AMIA, we had this keynote speaker talking about disability. But one thing she noted is that disability wasn't even captured well in the data today. So when it come to the measurement and to be able to combat bias against disability, if they can even have a fair starts to begin with, I guess there is just no data to help them.

Holly Urban: It was foundational. We're not going to be able to get anywhere in improving issues related to health inequity and to bias without having the right data to that reflects some of that. So even stuff like zip code data, which may suggest if certain zip codes have food deserts, that's probably in some cases going to have a material impact on a disease state or a clinical outcome. We don't know that we can make assumptions, we can make guesses, but without having the data to test against, it's all you're making assumptions, you're not really proving out in a real-world evidence framework.

Speaker 2: Here are the things that we have that biggest community here from both ACM and AMIA in the audience, like one stand for more computer scientist and practitioner, the other more stand for medical informatics, are there any things that you would call out that it can help with this data challenges or any upper-level EHR challenge you have seen in your career that you feel that intersection of this true community can start looking into more to help address?

Holly Urban: When I think about my career, by far the most exciting opportunities have involved the use of enabling technologies to improve patient care. If clinicians and scientists, technologists can partner in how they evaluate and assess enabling technologies and how they can be leveraged in healthcare, that's the happy path. I think that's provides the best outcome. Because I, as a clinician,

can make hypotheses how maybe a new technology like AI, I think AI is a good example, how AI can be applied. But I really need computer scientists to really help me understand, show me the way they're the ones who are going to be able to say what the technology can or can't do. So that's why it really comes back to that partnership because you need both that technical understanding and the clinical context in order to truly understand how enabling technologies like AI can be leveraged in healthcare.

So the partnership, in my mind, is absolutely critical. I think when I think about the two organizations that are represented on this podcast, AMIA can certainly help identify some of the broader issues, the context, how does health equity impact patient outcomes. Then partnering with ACM on equitable applications of technology, so ensuring safer algorithms, that kind of thing. It's definitely all about that partnership.

Speaker 3:   Talking about that partnership, you shared with us your journey from being a primary care physician and rounding on your own patients, then now transitioning to industry, do you have any advice that you could give mid-career professionals that are tuning in from AMIA and ACM, thinking about exploring different career paths or transitioning?

Holly Urban: I had the opportunity at AMIA last fall to do one of those ignite-style sessions, which I titled tongue in cheek going to the dark side about moving to a vendor role. I was expecting that it'd be me and probably two or three people sitting at a table having an informal conversation and about 35 people showed up. It was a lot of fun and which demonstrated to me that there's a fair amount of interest or people are at least wanting to explore roles in our informatics committee looking at vendor potential. So I'll repeat some of the things I said in that talk, but I do think volunteering or getting involved in informatic initiatives at your organization goes a long way. Helping with go-lives, being a super user, doing EHR optimization projects especially, that helps you do a couple things.

It helps you understand this the work that I really like, that I really enjoy. It also demonstrates to a potential employer that you've got some hands-on experience, even if you don't have formal training, but that you've got that informatics mindset and aptitude and gotten involved in a way that you could leverage and then a vendor role. I think there's a lot of great training resources out there. For example, AMIA 10x10 program is a great introduction to medical informatics. That AMIA 10x10 session can serve as the first class toward a full masters if people want to go that way. But it's a good starter to just get introduced to informatics in general. The only other thing that I'd say if you're serious about looking at vendor roles, networking is key. I mean, network, network, network. It does a couple things.

One, it helps you understand that there's a lot of variety of roles available on the vendor side and they're really different in terms of what your day-to-day job responsibilities would be. An example, if you work at a startup where you're

wearing a lot of different hats, that can be really fun and you're doing a lot of different things. You have a lot of input clinically in a lot of different areas, like my position now, we're not a startup, but it feels like a startup, and how we're all wearing a lot of different hats, but there's also a lot of risk. You don't know that your startup is going to be successful. You have to have some tolerance for risk if you want to go that route.

The other route is do you work for an established vendor that's been in the system a long time, lot less risk, but potentially more organizational resistance to change. As you network and talk to people, you can get a sense of what they're doing day to day and that balance between the clinical input and the risk. The other opportunity, the other advantage of networking is you may find actual opportunities where people are looking to hire clinicians and hire informatics. I've now in my career worked at four healthcare IT companies and every single job I've gotten has been networking. So knowing a person at the company who made the initial introductions and then helping me get the interview. I've gotten zero opportunities through cold applying. It's all been through my network.

This is going to sound crazy. My first job at McKesson, I had applied, I had not gotten an interview, I was sitting at my son's baseball game. If you have kids who play baseball, you know there's a lot of downtime. You get to know the other parents pretty well. One of the other parent's sister worked at McKesson and so she sent my resume to the person who ended up hiring me. You'd be surprised where network opportunities happen. My position at CliniComp, I was at a former colleague's retirement party and bumped into a woman I'd worked with previously, and she said, "Hey, I'm working at CliniComp and we're building a new EHR and we're looking for VP of product, you should come apply." I was like wow. This was at a retirement party. So you just never know what the universe is going to bring you in terms of opportunities. That's why I say you have to network, network, network. It's really key.

The other question I get, especially from early-stage folks is like, "How do I do this?" There are a lot of opportunities. This audience is AMIA, so go to AMIA, sign up for the networking sessions, talk to everyone. I mean, that's one of the great things about AMIA. It's all like-minded people who like to geek out about informatics stuff. So just having those conversations is a good way to meet people and understand what their work is. There's a lot of online communities too. If you can, maybe attend the conference, you can join women in AMIA or many of the other professional associations with AMIA. You could join your local chapter of HMIS. There's a lot of really strong local chapters of HMIS where you have an opportunity to network. I cannot emphasize that enough. It's really all about the network and just talking to people. You'd be surprised what may come just based out of that.

Speaker 2:   Yeah. Can't agree more. Opportunities for those who are prepared by [inaudible 00:35:36].

Holly Urban:	That's right.
Speaker 2:	Put yourself out there in order to be discovered. Networking and all this career advice you gave on the spot for people to really put themselves out there to be fun.
Holly Urban:	That's right.
Speaker 3:	Yeah. That's great advice.
Speaker 2:	Thank you. Before we close, are there any parting words you feel that you would like to share with our audience here? Now you know them better through our conversations. Are there any advice or any other parting words you feel you would like to share?
Holly Urban:	Sabrina and Sullafa, I just thank you so much for the opportunity to participate and have this conversation. I'm very passionate about, especially some of the career development because I felt like when I first started my career, I really didn't have the opportunity to have someone who could mentor me or give advice, so I'm always happy to do that mentorship and help young, especially people early in their careers as they look to grow in informatics. Thank you for that opportunity to talk about that. This whole conversation really represents one of the things I do love about AMIA, learning about all the amazing things that scientists are doing across the country. It's very inspiring and it's just also seeking those like-minded people that sit down and you're having conversation at lunch and then all of a sudden, you're geeking out over some new technology that you couldn't probably have this conversation with anybody else, but it's those like-minded people that are in the same boat as you and just loving the informatics world. Again, I just say thank you so much for this opportunity. I've really enjoyed it. I guess that's all I'll say today.
Speaker 3:	Well, thank you so much for joining us. It was such a pleasure talking.
Speaker 2:	Thank you. I believe that this year there will be even more people coming to the Ignite sessions at AMIA Symposium [inaudible 00:37:29] more of the different kind of career paths you're talking about here. Of course, for the ACM people, there are more conferences where we are partnering with medical informatics like in KDD and many other health informatic-related conferences in ACM. There are also opportunity that we can talk more about those issues we care here. Thank you again, Dr. Urban. Let's call you Holly now. After this conversation, we are all friends together. Thank you so much. Thank you for listening to today's episode.
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