**EPISODE 29: The Informatics Industry**

**Host – Dr. Anita Murcko:** Hello and welcome to the For Your Informatics podcast, where we explore the limitless world of biomedical Informatics. My name is Anita Murcko and I'll be your host today. Our podcast is being sponsored by the Women in AMIA Leadership Seed Grantees. Thank you, sponsors, and thank you for joining us today.

Today we will talk about Informatics and industry with our guests, Eileen Koski of IBM Research and Dr. Russ Leftwich of InterSystems. They are the Chair and Vice Chair of the AMIA Informatics Partnership Council. We'll learn about them more shortly. Before we get started, we'll have a special introduction to this episode by Dina Santucci. Dina is Vice President of Business Development. Dina will provide some important context to this exciting episode.

**Introduction by Dina Santucci:** Thank you, Anita. In addition to being the professional home for informaticians who work in clinical settings, research, and academia, AMIA is also the professional home and partner for companies and organizations that support the Informatics community through solutions and services. AMIA offers many opportunities for industry representatives and their companies, including a corporate membership program, an Informatics Partnership Council, nearly two dozen working groups, various committees, and more. One way in which industry representatives often share their expertise is by providing valuable education at AMIA's conferences, our industry partner sessions and lunch and learns are designed to allow industry representatives to showcase their knowledge and position their companies as innovative thought leaders. Another opportunity to contribute is by participating on the public policy response teams. So as you navigate your way through your career in Informatics, I would encourage you to think of AMIA as your professional home. AMIA is here to support you.

**Host:** Thank you so much, Dina. And you can learn more about the AMIA Informatics Partnership Council at AMIA's website. AMIA.org or by contacting Dina at DSantucci@amia.org. Now let's talk with our special guest today.

Thank you so much for joining us, Eileen and Russ.

**Eileen:** Hi. Thanks, Anita. Thanks so much for having us.

**Russ:** Yeah, thanks, Anita. I'm very happy to be here.

**Anita:** Well, we are so excited to talk with both of you today. So, Eileen, let's start with a brief introduction. Can you tell us a little about yourself and your background?

**Eileen:** Certainly. I began working in medical Informatics very early in the industry, and I was not trained specifically in medical Informatics. I was trained in social medical sciences, which is a combination of public health and social science, in my case, anthropology at Columbia University. But at the same time, I was working in research at Columbia Presbyterian, where I was working in medical Informatics. And over the period of time while I was in graduate school, my day job, as it were, in medical Informatics, became much more compelling and ended up becoming my career. And I was working initially in actually a graphical medical record system in Oncology. And then I worked for many years in oncology building clinical systems, in cardiology, Cath lab systems, a heart transplant tracking database, and

designing and running clinical trials in cardiovascular medicine, and worked in Informatics for many years in that capacity, supporting research.

And after that, I left the university and went to Quest Diagnostics, which is a laboratory company where I was the director of Informatics research. Because we did a great deal of work around data research at Quest, moved on to medical health solutions, did work also in data governance, which is very critical to making sure that the data we use in healthcare and research is valuable, and then eventually ended up here at IBM Research, where I've been able to combine many of the different elements of my earlier career in my work here at IBM Research.

**Anita:** Wow, what a fascinating career journey. Thank you so much for sharing that. Eileen. I'm going to ask Russ, can you share with us how you got into medical Informatics?

**Russ:** Yes. Thanks, Anita. I really started, I guess, Informatics before the field existed. I was an engineering major at Arizona State, and I had a second job, by learning to program computers. I got an opportunity to work on measuring blood flow and coronary artery bypass grafts. And after that summer in the operating room, I got interested in medical school, went off to Vanderbilt, to medical school, and then practiced medicine in Nashville and on the clinical faculty at Vanderbilt for over two decades.

I wanted all along to change to a career in Informatics, so I had an opportunity to make that career change. I was inspired in large part by the increasing challenge that clinicians had having the data that they needed to make the best clinical decisions. I went to work for the state of Tennessee as the Chief Medical Informatics Officer for their eHealth initiatives. And then six years ago, I took a position with InterSystems, where I now work as their clinical interoperability expert. And I have returned to Arizona, and I'm now an adjunct on the biomedical Informatics faculty at Arizona State University. My involvement with AMIA goes back over 20 years and has been a very important part of my career development and career changes.

**Anita:** Thank you so much, Russ. Eileen, I was wondering if you might share with us what your relationship with AMIA has been and how that has impacted your career.

**Eileen:** I've been involved with AMIA, just like Russ, for over 20 years, and initially my first interaction was submitting an abstract for presentation at an annual symposium meeting. And over time, I became much more engaged with some of the working groups in particular. And I was vice chair and chair of the AMIA Knowledge Discovery and Data Mining Working group, and over the years became more and more involved, leading to when I joined IBM, becoming part of the Informatics Partnership Council and the AMIA liaison within IBM. And in addition, I have become a member of the Public Policy Committee, which is something that I find extremely gratifying and extremely interesting.

**Anita:** So AMIA has been an important part of your career throughout both of you, Russ and Eileen, are definitely going to allow us to understand how personally AMIA has impacted you and how AMIA has impacted the organizations that are now part of the Informatics Partnership Council that we will talk about. Well, thank you very much. What a very widely differing paths you've had that have brought you together at AMIA. You are both very involved in the AMIA Informatics Partnership Council. As we said earlier, the chair and the vice chair, you are both working for industry. So let me start with a key question. And Russ, can you tell us exactly what we mean when we say industry?

**Russ:** Yeah, that is a good question, because I think the concept of industry has changed a great deal over the course of AMIA's existence and continues to change. So is dynamic, if you will. But particularly in the past ten years with the incredible change in technology, development of new technology, industry from the informatics standpoint has expanded to include many things that didn't even exist even a decade ago. And with pharmaceutical companies now having Informatics positions, with translational science, with the development of DNA sequencing technology, and with the incredible increase in computing power, the fact that patients themselves, individuals have become have their own technology that they carry with them having their home to engage with their health and their health care. That idea of industry is still changing. Much of the healthcare takes place outside of traditional healthcare institutions, and certainly health takes place outside of medical and clinical facilities. But all of the technology vendors and developers make up what I would call the industry around Informatics today, and it continues to expand.

**Anita:** Well, thank you. That was a great answer, bringing us up from the past to the present of industry. And I'm going to ask, Eileen, do you have any other perspectives on what industry means to Informatics?

**Eileen:** Well, I think industry uses Informatics in many ways that people would be very surprised about. Because I started working in industry at Quest Diagnostics, which is a laboratory company. But even when I started, which was there, which was more than 20 years ago, they had an Informatics research organization because they realized they had a great deal of data and they could learn more about what was going on in our environment looking at that data rather than simply giving reports back to clinicians. So many other organizations, I also worked at Med, Co Health, where they also did a tremendous amount of research in terms of ways to advance the science of pharmacy practice. And so I think one of the things that would surprise people is how much research actually happens in industry that is not necessarily R&D research, which is what people would expect, but really true Informatics research. And right now, I work at IBM Research, and we have a group that focuses on computational health, looking at different ways to apply AI and advanced analytic techniques to really learn new things about health care questions that have been very difficult to answer. We've been working on a huge project recently with JDRF in terms of looking at progression to type one diabetes for children at risk. We've been working on Huntington's disease with CHDI, looking at how patients progress symptomatically who had Huntington's and several other diseases. We've been working on heart disease with Brogan Institute. So we partner with important academic institutions and foundations to help really advance the science of medicine, using technology as our tool to do so.

**Anita:** That's fascinating. And it really leads us to exactly what does the AMIA Informatics Partnership Council do?

**Eileen:** So the Informatics Partnership Council (IPC) was formed about 14 years ago, actually maybe 15 years now. And it was a way to bring together organizations from the very varied, as you've heard, organizations that represent industry to understand what their perspectives were on the field, how they could contribute to the field, how they can advance the cause, even though they are not in what might seem the core constituency of the more academic or professional societies. And so the group has focused a great deal also on policy initiatives and understanding how regulatory issues relate to bringing new technology to the market and to help patients and clinicians do their work.

**Anita:** The IPC has been growing over the last few years. You started with how many 14 years ago?

**Eileen:** To be honest, I wasn't a member 14 years ago, so I'm not sure how many they started with, so I really can't answer that question. But we have been growing over the last couple of years.

**Anita:** All right.

**Russ:** It has been growing, and even the name has changed to Industry Partnership Council to reflect more the role that it plays in allowing industry members and supporters of AMIA to have a voice and have a two way interaction with the rest of the AMIA membership, which is extremely important, I think. The Partnership Council, in its growth originally included some healthcare organizations, which resulted in changing its name to the Informatics Partnership Council. And now, separately, there will be a Healthcare Organization Council. As the whole industry and Informatics industry continues to expand.

**Anita:** The IPC has evolved to become an extremely important part of the Informatics world, particularly at AMIA. As far as your organizations are concerned. Has the investment been a worthwhile investment being part of AMIA? And could you give us an example?

**Eileen:** I would say absolutely. As I said, I've been in medical Informatics for very long time. Before I joined IBM Research, there was a lot of, I don't want to say antipathy, exactly, but some resistance to industry submissions to AMIA. But what I think people didn't realize is that we weren't building products per se. We weren't submitting work. That was an advertisement. We were doing science. And so over time, we began to develop a relationship with the organization, and they realized that, yes, we were doing science. We were doing research, we were part of the AMIA community. We were not there just to advertise things that were for sale because we don't actually sell things in IBM research. We do engagements with partners. And so that was a really important development as we began to establish the credibility of industry organizations as real partners in this enterprise of medical Informatics.

**Anita:** And from your standpoint, Russ, do you see Inter Systems and their relationship with AMIA a beneficial and growing relationship?

**Russ:** Yes, absolutely. There was really a relationship before InterSystems became a corporate member or industry partnership Council member, because we have a number of individuals in our systems who have our longtime members of AMIA, including myself. And it was partly that contingent that encouraged InterSystems to join AMIA. And the benefit has been obvious to the rest of our company that much of the leading edge development of Informatics is first reported, and those things are the things that InterSystems incorporates into their products and technology.

**Anita:** InterSystems And IBM Watson have been sponsors of important parts of AMIA programming. Have you had any particular programs that were meaningful or especially exciting for the organization or for yourself or both?

**Eileen:** I would say absolutely, yes. When the IBM was offered the opportunity to sponsor a session, a panel session a couple of years ago, we jumped at the chance, and we ended up sponsoring, I guess, three over time. And they were a tremendous opportunity for us to bring together experts in the field and talk about topics that were of interest to people. One topic was on how you actually implement AI in a clinical setting. Another year, we talked about other aspects of AI, and this past year we focused on equity and what are the struggles in achieving health equity as we look at bias in AI algorithms and how do you address these issues? And every year we have found that this was a tremendous way to bring together people from the community and really open up a topic for discussion in the community. And

then last year, we also sponsored the AI reception for the new DEI reception for the new DEI committee at AMIA. And that was very, very gratifying for us because we think that's such an important recognition of the importance of achieving health equity and using Informatics as one of the platforms and one of the mechanisms to do so.

**Anita:** Great. And I'm going to ask Russ if he has any particularly memorable contributions or sponsorships from InterSystems as far as the IPC goes?

**Russ:** Yes. Well, InterSystems, as an industry partner is finding it very valuable to be involved in sponsoring the different AMIA meetings. We've become the title sponsor for the AMIA Informatics Summit four years ago, and the Clinical Informatics conference is also important engagement for InterSystems and providing industry partner sessions at these meetings and engaging with the attendees at the meetings on their research and their challenges in implementing technology in their healthcare organizations. So InterSystems is finding involvement with AMIA and the industry partnership very valuable.

**Anita:** Well, thanks a lot. Eileen, let me ask you a question about IPC itself. What types of organizations are part of the Informatics Partnership Council?

**Eileen:** The group is actually quite varied. We have people who represent government. We have people who represent EHR vendors, data technology corporations, terminology vendors, pharmaceutical companies, and knowledge management. It's really quite a varied group because there are many different industries that take part in medical informatics activities.

**Anita:** And how does an organization become part of the Informatics Partnership Council?

**Eileen:** There is an opportunity to become a corporate member of AMIA, and as a corporate member, you are entitled to a seat on the Informatics Partnership Council. And the corporate members contribute a certain amount of money to AMIA and are able to sponsor a variety of activities throughout the year as part of their membership.

**Anita:** Excellent. And Ross, let me ask you specifically, what does the Council do?

**Russ:** Well, the Council at the highest level provides a forum for the corporate and organizational members of AMIA, they're not all corporations per se, to interact with one another and to have a two way dialogue with the rest of the AMIA membership and with AMIA leadership. An important part of that has been the public policy part of AMIA and a two way dialogue between the IPC and AMIA around public policy, learning what AMIA is doing around public policy, and providing input from the IPC members about public policy.

The other important role has been for the IPC to provide the content and develop the presentations and panels on industry opportunity for students and for AMIA members who are considering career changes into industry and to know what the opportunities are in industry.

**Anita:** If you don't mind, let's talk a little bit about opportunities, and particularly let's focus on our new members, our students. How can students learn about the industry side of Informatics and what should they know about getting started?

**Eileen:** So I think there are a number of opportunities for students. I know that many of our organizations have internship programs that allow students to spend a summer with an organization, and most of these organizations really provide very rich internship opportunities where the students are really part of research projects and get to really learn a great deal about what is done in these corporations.

There are also in some cases, I know at IBM we also have externships where we work with academic partners and so work through an academic program with students directly so that there's another opportunity there. And often those opportunities had ended up in presentations at AMIA annual symposiums of successful work that was done by the students, and the students have been able to present that work.

Another way is just to take a look. I mean, the programs are often not as visible in terms of the exhibit hall, but I think that's changing. I know that last year there were more corporate exhibit booths. So if a student comes to AMIA, they should really take a look at what's on exhibit and talk to the exhibitors and find out what kind of programs they offer and what kind of jobs are available. But because the jobs are really very rich and varied. As I mentioned earlier, that there's a lot of research that happens in industry, but there's also a great deal of applied work around products and services that are very important to the academics world, such as electronic health records and improving the way they work and improving how they perform for clinicians or drug discovery and drug repurposing and many, many different types of work that really relies on a deep understanding of medical Informatics.

**Anita:** So, Eileen, students are sometimes a little shy about talking to members who may be at a booth at an AMIA meeting. What is your suggestion to improve that interaction?

**Eileen:** Well, I think that, first of all, and I understand why students would be shy. It can be a little bit intimidating. And some of the booths, they're very crowded and noisy and active. But the reality is many of the industries who are there are actually looking to recruit. And so this is one of the places that they are eager to talk to people. And so you should recognize that when you go to talk to somebody at a booth. And the other thing is you might want to consider going to some of the working group meetings because the working groups are smaller, they're focused on a specific topic, and it's a place where you will often find people you have common ground with. And many of our industry partners do have members who have been active in AMIA for many, many years or involved in the working groups. And that's another good place to get a chance to meet people and talk to people one on one in a more relaxed setting.

**Anita:** Eileen, I'm going to ask you to say just another couple of words for people who may not be familiar with the working groups at AMIA. Can you (Eileen: of course, sure), give a little background there?

**Eileen:** Sure. There are quite a few working groups at AMIA where at some conferences there are also sort of called birds of a feather sessions, but the working groups have specific topics. There's a public health working group, there's a knowledge discovery and data mining working group. And so these groups have committee meetings that are open to all members, and they sometimes do presentations or they have discussions of issues of particular interest to that topic area. There's a student working group in particular, which is also a great place to go to meet other students who are at AMIA. And they tend to be small. They tend to be very interactive, and so they're wonderful places to get to know what

people at AMIA are actually doing and to have a much better chance to interact one on one than if you're simply sitting in a room listening to a presentation.

**Russ:** I think the other opportunity to engage the working groups is that a number of the working groups have sponsored sessions or workshops at the annual meeting. And if a student has interest in a particular area, attending that session that the working group is promoting would be a very good way to engage with that working group and its members and its interests, if you will.

**Eileen:** And some of those pre-conference symposiums are also conducted by people from industry. And again, that's another place where it's a smaller venue, it's more focused, and it's much easier to approach people and get to know people.

**Anita:** That is great advice. So if I am a student or if I'm a health Informatics professional looking to make a change, what are those couple of milestones? What pathway might you suggest for me to get into industry?

**Russ:** Well, I'm glad you mentioned the career changers, because that's a very important group or cohort. I think for many of the industry partnership organizations looking to recruit and an opportunity for those interested in career changes. Unlike the students, I think there are many positions in industry that the past experience, particularly experience in healthcare delivery, in implementation, is very important to the industry partners as a background for positions they're looking to fill. And that's a very win-win situation for those wishing to change careers and for the industry partners looking for new, experienced employees, if you will. I think for those career changing professionals having their resume or CV formatted to reflect their experience, that might be of value to industry is important. Another role that IPC has had in the past is promoting the resume review, CV review for students and for others looking for new employment.

**Anita:** That sounds extremely important, valuable, and any other advice that you might have for students or individuals looking to get into the Informatics industry side, Eileen.

**Eileen:** One thing I think people need to remember is that none of these decisions need to be permanent for your entire career. Many people go back and forth. I spent nearly 20 years in academia before I went to industry. At one point I went back to academia and then I went back to industry so people can move back and forth the jobs because as your career develops, you develop different interests. You may begin to focus on specific things the industry develops around you and opportunities may become available to do certain things that weren't available before.

Think about how much Informatics is now actually in the form of a deliverable product, as opposed to as Russ and I had both mentioned earlier, it tended to be a very research oriented enterprise. And while there's still a great deal of research on how to improve these products and services and develop new mechanisms to apply Informatics to challenges in healthcare, both in clinical medicine, in research, as well as in the healthcare systems in terms of how we deliver care and how we organize delivery of care, such as the enormous changes in the growth of telemedicine as a result of COVID. All of these things open up new avenues for work, and some of that work is going to be focused in an academic setting. Some of it is going to be in an industry setting. People need to recognize that they can move more freely back and forth between those settings over the course of their career. And both bring as Russ indicated, oftentimes an industry will be looking for somebody with deep clinical or research experience because of the perspectives they bring to the table. On the other hand, very often an academic center may be

looking for somebody with industry experiences. They're looking to figure out how do we best implement these tools, how do we best use these tools? Sometimes they need somebody with the industry experience, so it's a very fluid career market.

**Anita:** Russ, do you have any thoughts about this evolution of careers, industry, academia, and the fluidity, as Eileen has mentioned?

**Russ:** Yes. The whole concept of research and implementation is changing over the past couple of decades, and I think that affects Informatics as a whole, but it also very much affects the interaction between industry organizations and AMIA and the informatics field. At the turn of the millennium, the idea of a learning health system was first proposed and has been developed since then. And one of the observations at the beginning was that it took 17 years for knowledge to get from research into applied practice. And I think one of the objectives has been to shorten that interval, and research and innovation have started to converge as a concept in activity. And that very much affects what Eileen has been talking about the interest of the industry partners in employing experienced informaticists to bring their knowledge into industry and accelerate this process of bringing research into actual product or implementation. It becomes operational research, and it becomes innovation when it's brought into industry.

**Anita:** Well, I'm going to say thank you to both of you for helping us understand a little more about how academics and industry bring innovation to healthcare. You have been very generous with your time, Eileen and Russ, and I want to say thank you so much for sharing your time and insights with us. You can also learn more about the Informatics Partnership Council at the American Medical Informatics Association at www.amia.org.

Eileen and Russ, before we let you go, do you have any last words of wisdom for listeners who want to learn more about the industry side of Informatics? And we'll start with Eileen.

**Eileen:** The biggest thing I would say is to really keep an open mind and to really explore what your options are. Think about the topics that are interesting to you and think about what organizations might be focused on those topics, and not think so much, at least at first, about is it industry? Is it academia? But think about what it is that you want to accomplish in your career and then be open minded about where that takes you.

**Anita:** Oh, that's wonderful. Russ, do you have any last words of wisdom for us?

**Russ:** Well, I think the students should and the career changers should be proactive about reaching out to industry partners and others in industry. If they think they have an interest in that particular category of industry, they're looking for opportunities like internships and summer experiences. And to reach out about those, do it early. Certainly the spring is probably too late to be looking for those types of opportunities. The Annual Symposium would be a better timing if you're looking for something and to actually ask the industry members that are at annual symposium if their companies have opportunities, if you're a student or well, this is mostly for students, if you're a student that has interest in finding that type of internship experience.

**Anita:** Thank you, Eileen, and Russ, for your wonderful insights on opportunities for Informatics professionals in industry. This is Dr. Anita Murcko concluding this episode of the For Your Informatics

podcast where we explore together the limitless world of medical Informatics with Chair and Vice Chair of the Informatics Partnership Council, Eileen Koski and Russ Leftwich. Thank you very much.

**Outro:** Thank you for joining us for this edition, for your Informatics a podcast where we explore the limitless world of medical Informatics. Follow us on Twitter, Instagram and LinkedIn @FYInformatics and never miss an episode. We would love to hear from you. Let us know what you think about the show ideas for future topics or guests and other suggestions until next time.