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Michael Astion and Jane Dickerson
Interventions That Can Help Reduce Diagnostic Errors
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Guests: Dr. Michael Astion is Medical Director of Laboratories at Seattle Children's Hospital and Clinical Professor of Laboratory Medicine at the University of Washington. Dr. Jane Dickerson is Co-Director of Chemistry and Director of Reference Lab Services at Seattle Children's Hospital.

Randye Kaye: Hello, and welcome to this edition of "JALM Talk," from *The Journal of Applied Laboratory Medicine*, a publication of the American Association for Clinical Chemistry. I'm your host, Randye Kaye.

Diagnostic errors in medicine continue to be a large problem for effective healthcare delivery. As a result, moderate and severe consequences from the errors, including death, account for 75% of diagnostic errors in the United States.

"Interventions That Can Help Reduce Diagnostic Errors" was published in the July 2018 issue of *The Journal of Applied Laboratory Medicine*. The editorial discusses the associated JALM Review "The Definition and Scope of Diagnostic Error in the US and How Diagnostic Error is Enabled" by Dr. Michael Laposata.

The authors of the editorial are Dr. Michael Astion and Dr. Jane Dickerson. Dr. Astion is Medical Director of Laboratories at Seattle Children's Hospital and Clinical Professor of Laboratory Medicine at the University of Washington. Dr. Dickerson is Co-Director of Chemistry and Director of Reference Lab Services at Seattle Children's Hospital. Both Dr. Dickerson and Dr. Astion are co-founders PLUGS (Patient-Centered Laboratory Guidance Services), a national collaboration of organizations that help hospitals and clinics actively increase the value of lab testing.

Welcome back to "JALM Talk," Drs. Astion and Dickerson. First question, can you briefly describe the laboratory stewardship movement and why you think it is so important to decrease diagnostic errors?

Dr. Jane Dickerson: Sure. The laboratory stewardship movement is not actually new, it has probably been around as long as laboratory testing has been around, but the semantics around it, the naming, has evolved over the years. So, it used to be known as laboratory utilization, or test optimization, and there's been a recent push to use the terminology "stewardship" in order to capture the collaborative team

wise nature, which is so important for the success of this movement.

And, even though it has been around for a long time, we're not going to see it diminish in the near term. It's more important now than ever due to increasing laboratory tests and increasing complexities within our health system. And the reason why it's so important is because laboratory stewardship aims to improve diagnostic errors in the three top causes of lab-related patient harm, which is misordering tests, misinterpreting test results, and failing to retrieve those test results in order to make the diagnosis in a timely manner for the patients, and that's really why it's so important and related to Dr. Laposata's work in reducing diagnostic errors.

Dr. Michael Astion: I would just add that the-- you know the biggest source of errors in laboratory testing is ordering the wrong test, failing to retrieve the test, and misinterpreting it, and a lot of people don't realize that--they think it's mislabeling or something like that. So, all of those are related to diagnostic errors, either delays or we're getting the wrong diagnosis, and those are the basis of stewardship, ordering the right tests, retrieving it, and systems for interpreting it correctly. So that's why it's such a perfect fit for diagnostic errors.

Randye Kaye: All right, thank you. Let's stay with you for a minute and I want to talk about universities and hospitals who have both been criticized for increasing administrators relative to teachers and care providers. Can you explain why you think this may contribute to diagnostic errors in hospitals?

Dr. Michael Astion: Yeah, I mean the main reason why the rise of the administocracy, which has been written about a lot and not just for universities and hospitals, but a variety of other areas, contributes to diagnostic errors; it's actually a latent error. You know, it doesn't directly contribute, but what it creates is a tremendous amount of waste and noise and distraction that keeps us away from medical care.

So, organizations like a hospital or university have multiple goals. I use the case of hospitals specifically. So, hospitals obviously have multiple competing goals. First, and foremost, they want to get good patient outcomes. To do that, they have to diagnose correctly. They also want to satisfy the patients, sometimes satisfying the patient isn't the same as getting a good outcome, because the patients may want to direct their own testing or direct their own care in ways that the providers disagree with.

The patients may think they have a diagnosis that they don't have, because they've self-diagnosed. Then, there's

providers satisfaction and then there's safety -- patient's safety, and then there's employee satisfaction, and then there are various goals around making the hospital more environmentally friendly. There's goals around having less paper, and using less fuel, and creating less garbage, and there's all kinds of initiatives to get people to enjoy the workplace more.

But, in general, medical doctors and nurses, laboratory professionals, tend to focus on medical goals. It's just the natural part of being in the workplace where that's what we're doing most of our day, is focusing on medical goals. But administrators especially if they are not medical, tend to focus on the things that they're either good at or enjoy, which tends to be things like building, you know, physical plants and making the place look nicer, more comfortable, more inviting, better food, more--nicer paint, or financial responsibility, just staying fiscally responsible, making budgets, et cetera. So, the more that the competing goals move us away from medical -- there is only a certain amount of energy in the day and there are only a certain amount of hours. So, the more we're doing these other things, which nobody can argue with -- you know, that they're unimportant--no one wants to have a hospital that is dirty or doesn't recycle your Coke can. But, that is not the foremost -- you know the recycling program at the hospital--is not the foremost reason that people come in to the hospital especially, if they're very sick and they're going to have, you know, a transplanted organ or something like that.

So, all these things create noise and distraction and the more non-medical people there are in the campus, the more these non-medical things get an emphasis and it moves us away from working on diagnostic error, which is really an important thing. And, so this is true of all aspects of patient's safety and medical care not just, you know, diagnostic error, but that's the main reason that the administocracy is a big problem.

Randye Kaye: Yeah, that's makes a lot of sense. I mean we have competing goals and we have goals that kind of support each other, and obviously medical goals are extremely important. Let's talk for a minute about electronic health records and other aspects of IT; these are blamed for all kinds of problems in medicine. Can either of you talk about some easier IT-based interventions that can help with diagnostic errors?

Dr. Jane Dickerson Yeah, you know, there's actually a very large body of literature on all the unintended consequences when electronic medical records and computerized provider order entry systems were first adapted more than a decade ago

and since then, there has been an additional body of literature adding to that of the various interventions that you can enact in order to improve those. So it's kind of a -- I don't know if "chicken and egg" is right metaphor here, but we created a system that now, we have to put a lot of effort in to fix, to band-aid, and there are some relatively simple things that you can do and in fact, we've just learned recently through a provider at the University of Pennsylvania, named Dr. Mitesh Patel.

He has a whole program and some great papers describing a new word for what these IT interventions basically are, and it's called "nudging," and I think he's the chief of a nudging unit. And you see this on all kinds of electronic systems including online shopping that you do, or ordering Uber for example, and it's basically just getting providers to do the thing that they want to do in the first place, but that the system is designed in such a way it's making it extremely difficult. For a laboratory that's ordering the right test even when tests names can be very confusing and competing; Vitamin D is a great example.

So, you can nudge the provider by hiding the tests that they shouldn't order or by putting notifications around it, so that it's clear, or by even just changing the name of the test so that it makes sense to a provider instead of saying, "Vitamin D via mass spec," you could just say, "Vitamin D for nutritional monitoring," that's an example, and those are relatively simple things that you can do and there's a list of these interventions and a literature that you can get ideas from.

Randye Kaye: That's great. So, these interventions exist and yet, sometimes people don't use them, so can you touch on maybe some barriers to implementing these interventions even though you consider them easier?

Dr. Jane Dickerson: I can definitely touch on that. There are still so many, so many different kinds of barriers, some of them are political and exist in the infrastructure of the organization, you have to get consensus or sometimes you have to get in line behind a host of other projects that involve modifying the computerized provider order entry system, and so you have to wait or escalate. You have to have a champion. It could be that your vendor that you're working with says that an intervention isn't possible.

And so then, you have to convince the leadership that actually it is because most of the time, it actually is, and there's lot of literature to support that and various discussion forums, including on the AACC Artery that you can get other ideas from other users; that use the same EMR for example. And then sometimes, it is hard to

implement in a way that your organization has implemented that version of the CPOE system, and so it might work in one institution, but it doesn't mean it's going to work at yours. And so, you have to try a bunch of things and you have to look and see to see if it had the impact that you intended.

Randye Kaye: Thank you. So, just before we -- those were all the questions I had. Do either of you have anything to add that I haven't asked you that you feel is important for our listeners to know?

Michael Astion: I would just add to what Dr. Dickerson just said around barriers to implementing IT interventions, that it's always a good idea to be very friendly with your IT leadership. Try to meet with them frequently, buy them coffee, give them a nice word because, you know, in the end, you got to get on, you got to queue up, you can do a certain amount in the lab, and I encourage people to do as much as they can without having to go to the larger hospital IT group, but if you have to go the larger hospital IT group, if you're treating people well and they know who you are, you might keep your place on the queue or even move up in the queue and have a favor done for you, so I really recommend highly interacting with them.

Randye Kaye: That was Dr. Michael Astion and Dr. Jane Dickerson from Seattle Children's Hospital and the University of Washington Department of Laboratory Medicine talking about "Interventions That Can Help Reduce Diagnostic Errors" from the July 2018 issue of JALM. Thanks for tuning in for "JALM Talk." See you next time, and don't forget to submit something for us to talk about!