

Mayo Clinic Q & A “Diagnostics and precision medicine intro...


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SPEAKERS

Dr. Halena Gazelka, Narrator, Dr. Alicia Algeciras-Schimnich

- N** Narrator 00:00
Coming up on Mayo Clinic Q&A, a look at diagnostic and precision medicine. Mayo Clinic Biopharma Diagnostics collaborates with Biopharma Diagnostics and bio companies to provide precision medicine that identifies the disease of a particular patient and helps provide early and proper treatment.
- D** Dr. Alicia Algeciras-Schimnich 00:20
The faster we reach the right diagnosis for a patient not only improves their outcomes to deal with that disease and have the right treatment, but it has been shown that the overall cost of health care is also reduced by providing the right answers faster.
- D** Dr. Halena Gazelka 00:37
Welcome, everyone to Mayo Clinic Q&A. I'm your host, Dr. Halena Gazelka. Mayo Clinic Biopharma Diagnostics collaborates with Biopharma Diagnostic and other biotech companies to enable precision medicine through advanced diagnostics. So, how does diagnostic testing lead to precision medicine, and what does that mean for our patients? Here to discuss that with us today is the medical director of Biopharma Diagnostics, Dr. Alicia Algeciras. Welcome Alicia.
- D** Dr. Alicia Algeciras-Schimnich 01:10
Thank you. I'm happy to be here.
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Dr. Halena Gazelka 01:13

I'm delighted to get to speak with you today. I love to learn something new every day, and I just have a feeling I'm going to learn something from you. But before we start our discussion about diagnostic testing, I'd love it if you would tell our audience a little bit about your lifelong passion for science and how that led you here to Mayo Clinic. I heard that you loved science even as a child.

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Dr. Alicia Algeciras-Schimnich 01:35

Yes, absolutely. You know, I've always been drawn to science, especially laboratory sciences. I find it very exciting and thrilling to be able to use laboratory tests and laboratory findings to provide better patient care and provide better answers to patients. And when I started in college, I had the opportunity to work in a research laboratory. I had a wonderful mentor, and that led me to the opportunity to actually come to Mayo Clinic as an undergraduate student. I spent two summers here doing research. And again, wonderful mentors here at Mayo that fostered my passion for research and laboratory science. And here I am many years later working in the clinical laboratories at Mayo Clinic.

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Dr. Halena Gazelka 02:33

I love your story. I think it's so fascinating. You know, we all may have something a little bit inborn in us that interests us, but then it's really mentoring and others who help to bring that out and help us find a career path with it. So, that's just wonderful.

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Dr. Alicia Algeciras-Schimnich 02:50

Thank you.

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Dr. Halena Gazelka 02:51

So, Alicia many people have heard of Mayo Clinic, but they may not have heard of Mayo Clinic Biopharma Diagnostics. What is it?

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Dr. Alicia Algeciras-Schimnich 03:01

So yes, our group has been around for a number of years now. And we offer a number of solutions for pharmaceutical companies, biotechnology companies, as well as in vitro diagnostic companies. And our goal is to really make the right connections between these companies and Mayo Clinic, either expertise or resources, whether that's working with our clinical laboratories, or working with various experts in the research areas or clinical areas. So, just to give you a little bit more detail are examples of how we work with this company. For example, with a pharmaceutical company, we might engage with them to provide laboratory testing to support a clinical trial. And that could be used to select patients that will benefit from being on that trial. Or it could be to measure patient outcomes when they're taking the therapy during the trial. We also partner with companies to develop new tests that can be used as part

of that clinical trial to monitor a patient's response or in the context of in vitro diagnostic companies. We work with them to help them bring laboratory tests into the market faster but ensuring they're ensuring that they are high quality tests that meet patient needs.

D Dr. Halena Gazelka 04:34

How very interesting. Alicia, during the COVID 19 pandemic, an incredible awareness was brought to the public of the needs to be innovative and to develop diagnostic testing rapidly as there was no real COVID tests before this and there were so many developed. Can you walk us through what diagnostic testing is, what it involves, and how it helps physicians and patients find solutions?

D Dr. Alicia Algeciras-Schimnich 05:01

Yes, you know, a laboratory test is one that it can either help in making a diagnosis for a disease, or it can help guide the clinician to the right diagnosis or to the right treatment. So, it's usually a blood test, but it could also be urine, or it could be in saliva, for example. You maybe heard of the recent COVID-19 saliva test. But, in all cases, you know, when a sample is collected, then it's sent to the laboratory for analysis, and then we provide a result to the clinician that is able to either help them make the right diagnosis, or it can help them guide treatment.

D Dr. Halena Gazelka 05:51

And so, it's important that this be rapid I imagine or as quickly as quickly performed as possible?

D Dr. Alicia Algeciras-Schimnich 05:58

Yes, absolutely. I think, you know, that's the key with some of the laboratory testing. The reason why laboratory tests are important is because patients sometimes present to the doctor with symptoms that are nonspecific and might overlap with various diseases. So, let's just take for example, COVID-19. When you look at COVID-19, the flu, and the common cold, they all have nonspecific symptoms and symptoms that may overlap. However, we know that the outcomes of a patient infected with COVID-19 might be very different than a patient infected with the virus that caused the common cold. In addition, we know that the spreading of the different diseases might be different. So, it is very important that we know what virus is causing the symptoms on that individual, so they can get the right treatment and that can be a quicker answer for these patients.

D Dr. Halena Gazelka 07:05

That makes perfect sense, Alicia. So, being expeditious is important as well as being precise.

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Dr. Alicia Algeciras-Schimmich 07:12

Yes, absolutely. You know, and the faster we reach the right diagnosis for a patient not only improves their outcomes to deal with that disease and have the right treatment, but it has been shown that the overall cost of health care is also reduced by providing the right answers faster.

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Dr. Halena Gazelka 07:33

One other question that many of our listeners may have, and I would enjoy hearing your answer as well, is that we hear a lot these days about precision medicine. In fact, we have a Center for Individualized Medicine here at Mayo Clinic. What is precision medicine? And how does diagnostic testing play a role in precision medicine?

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Dr. Alicia Algeciras-Schimmich 07:53

Yes, so you know, precision medicine has been one of the greatest advancements in science, if you ask me. Because it really takes away the one size fits all approach of medicine, and it really becomes a more tailored treatment based on that patient's genetic makeup. And so, that by knowing the patient's genetic information, the clinician can make decisions about the best treatment, about the right dose for that patient, and also can decide whether there is the need for having different monitoring approaches on that patient taking a medication because of the way that the patient might respond to a particular treatment or therapy. So, just to give you an example of how that has helped patients, when you look at a woman with breast cancer, we know that about 25% of woman have a genetic mutation that predispose them to make too much of a certain protein called Her2. Now we're able to do genetic testing in the laboratory for that protein and determine whether that particular patient produces too much of it. If they produce too much, now we are able to tailor their treatment and in addition to give them chemotherapy or radiation therapy, we can add a drug that is called Herceptin. And that drug has been shown to be specifically successful or useful to treat patients that make too much of this particular protein. So, by doing this more individualized treatment, we improve the outcomes of this woman that are positive for HER2, and it also really has been shown that overall increases the chances that the cancer will not come back on these women.

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Dr. Halena Gazelka 10:08

That's just wonderful Alicia, it sounds like it's rather than a shot in the dark approach where you just give a chemotherapy because someone has breast cancer, that you can be much more specific, and it treats specifically and therefore more accurately.

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Dr. Alicia Algeciras-Schimmich 10:25

Yes, absolutely. And really, we're doing this very often with not just breast cancer, but with many other cancers that we can look at the genetic composition of that individual and tailor their treatment. And really, it's been a great success for our patient outcomes.

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Dr. Halena Gazelka 10:43

That's wonderful. Thank you for being here today. Do you have anything else that you'd like to share with our listeners today about your field of study?

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Dr. Alicia Algeciras-Schimmich 10:56

No, I think that, you know, we're very excited. I'm personally very passionate about what we're doing in biopharma, at Mayo Clinic Biopharma Diagnostics, being able to make those connections with industry to advance patient care to provide better outcomes. And, you know, we are doing great. We're growing significantly, and I'm excited that we're just in the process of building a new lab here in Rochester that will help foster some of these collaborations and been able to bring some more of these companies to work with Mayo Clinic.

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Dr. Halena Gazelka 11:40

And I'm just delighted to meet you today, Alicia, and to know that there are people like you who are working so hard on finding solutions for our patients. It is amazing. Thank you.

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Dr. Alicia Algeciras-Schimmich 11:50

Thank you for having me.

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Dr. Halena Gazelka 11:52

Our thanks to Dr. Alicia Algeciras, for being here today to talk to us about precision medicine and diagnostics and how they tie together. I hope that you learned something. I know that I did. We wish each of you a wonderful day.

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Narrator 12:07

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