

COVID-19 spotlights data challenges in precision health + sparks innovations: Q&A with Quest Diagnostics' David Freeman

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The COVID-19 pandemic has drawn unparalleled attention to the importance of laboratory testing and the power that data has in the healthcare ecosystem.

Faced with the demands of the pandemic and the need for wide scale testing, Quest Diagnostics has been driving innovation to help meet the needs of its patients, providers, hospitals, health systems, health plans, pharmaceutical companies and public health organizations. Since the start of the pandemic, Quest has rolled out at-home and drive-through testing with partners including Walmart and developed a PCR test, antibody tests and panels that test for COVID-19, flu and other respiratory conditions all with the same swab.

"We've become a company that has reported more than 20 million diagnostic results, more than 4 million antibody tests and is continuing to innovate in ways that probably a year ago you would not have anticipated," David Freeman, general manager of healthcare analytics solutions at Quest Diagnostics, told *Becker's*.

Here, Mr. Freeman discusses some of the main challenges in the diagnostic information services business and how innovations during the pandemic are helping to drive forward precision health outcomes.

Editor's note: Responses have been lightly edited for clarity and length.

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Question: Talk to us about how Quest Diagnostics is leading the way in our healthcare delivery system with precision health?

David Freeman: Quest Diagnostics is in the business of being a diagnostic information services company. We're looking to provide the insights from which action can be taken, so our whole reason for being is to provide those insights. Because of our unique relationships, we're really at the center of the healthcare ecosystem. We have relationships with patients, providers, hospitals, health systems, health plans, pharma and public health. Being able to think about all of those relationships and the data that we have and how to support each of those stakeholders with critical information is really one of the critical ways that we're doing that.

Q: What do you believe are the challenges or obstacles around precision health that keep it from being more widely embraced in healthcare in the U.S.?

DF: One of the primary obstacles has to do with the linking of data. If you think about EMRs, Quest has more than 650 EMR interfaces. You may think to yourself, 'why do we need so many interfaces?' It's because of the diversity of that primary medical record. With the work that hc1 is doing in Quest and the lab stewardship, we've really gotten to the point where we can be EMR agnostic and can navigate providing a health matrix and applying an analytics framework to data in a seamless and interoperable way. However, it's easy to say that and hard to do it. To deliver analytics across multiple laboratory information systems and EMRs requires so much data harmonization. We're really at that tipping point where machine learning and global compute is enabling this, so I think we're at the beginning and it's only going to continue.

I also think that the privacy environment continues to evolve. If you think about the European Union's General Data Protection Regulation, it's an opt-in environment. The U.S. is slowly moving from an opt-out environment to an opt-in environment. How do you create the ability to link data in a way that is privacy preserving and be able to shift between identified data for those who have that kind of HIPAA authorization to see identified data and then move into de-identified workflows, when that's the appropriate action – all while doing it in a way that still preserves the ability to link a patient's information in an anonymized way? These are some of the big challenges. We're starting to see signs of these matters evolving, but it's going to continue to take some time as we as we migrate through this.

Q: Eighty percent of medical decisions are driven by lab results but account for only about 2 percent of total medical spending. Nothing else comes close in terms of value for each dollar invested. With the importance of laboratories in the spotlight as a result of the pandemic, what impacts are you seeing for labs from your role at Quest Diagnostics?

DF: I'm really proud of being at Quest Diagnostics. The company has really shown its stripes during this pandemic. Under stress, I think people and organizations reveal who they really are at the core, and Quest has been amazing. There has been incredible creativity and persistence across all our front-line teams and just really marshaled from a dead stop to becoming a company that has reported more than 20 million diagnostic results, more than 4 million antibody tests and is continuing to innovate in ways that probably a year ago you would not have anticipated.

We've gotten really good at standing up a health event to do on-demand, drive-through testing with our partners such as Walmart. We have a trial program with Walmart and to deliver at-home, on-demand diagnostic kits for in-home testing. We've leveraged our data and our partners' data to create local risk indexes to predict where there will be hotspots for COVID-19 to help with those back-to-work, back-to-school and back-to-life plans for organizations to think about. They have to consider questions such as: 'should we be locking down? Should we do increased testing? How do we proactively respond?' Once you have that information, you have the ability to really react.

We were always connected to the whole ecosystem. All of a sudden now, the whole world understands the importance of laboratory testing in a way that it never did before. The power of labs is that they're kind of a universal language. Everyone knows when you talk about your cholesterol or A1C levels that when you say a value, it's understood. It's kind of this common way of speaking, understanding and measuring. And then it's available really fast, right? If you think about claims data, it takes three months to get it, but laboratory results are often available in the next day or two. That fast analysis and the availability of the information are also very powerful. Lastly, it's not just qualitative, but it's also quantitative. The ability to put on a spectrum where a patient with regard to a condition is – are they normal? Are they pre diabetic? Are they diabetic? Or are they brittle diabetic? These are ways of really quantifying where people are on their disease journey.

Q: Have there been innovations that have occurred as a result of the pandemic? If so, where are you focusing on at Quest Diagnostics?

DF: There have been a number of innovations that have occurred. First of all, we came out with our first PCR test, and we've really followed it up with a series of additional laboratory tests. The antibody tests then followed, and we now have panels with COVID-19, flu and other respiratory conditions with the same swab. Because the symptoms look very similar, people are not going to know which condition they have. Therefore, being able to do that moment-in-time test and to understand all those different outcomes is really important.

How we're using that data is also really interesting – hc1 and Quest have deployed COVID-19 workforce advisor internally for our own use. We have laboratory-testing labs across the country, and these must have facilities. We have to keep them up because the country is depending on us to process this really high volume of laboratory tests. We have a real commitment to protecting those front-line workers. How do we do that? With hc1 and Quest, we have our big scale of laboratory tests and we have the hospitals that are affiliated with hc1 combined in a de-identified local risk index, and we're tracking both the site positivity rates as well as the home location of all the employees' positivity rates. That local risk index can tell you really important information such as if and

where you have a hotspot in one of your labs. We know this because we see a rise in the positivity rate; everyone's now familiar with looking on the news every night and saying 'okay, so our positivity rate for COVID-19 has changed.'

Well, we work together to create a predictive insight that gives us about a two-week heads up for facilities in counties where the positive rate is starting to go up. This tells us we need to do more testing of the employees on site because the very insidious thing about COVID-19 is that people may not have symptoms but may be infectious. If you can't count on symptoms to tip people off to who is sick and who is contagious, that means you need to use those algorithms and local risk index to drive an increase in testing. That's what we're doing.

These kinds of powerful insights that come from using the data and applying those algorithms really allows us to manage risk and protect our front-line workers in real time. It's a very novel and important use of diagnostic testing that come from these analytics. Brad Bostic, CEO of hc1, and I believe this model can be extended to think about flu, lead in the water and other conditions where we want to more proactively manage these issues in the future.

Q: Look into your crystal ball. Where do you see Quest Diagnostics making the biggest impact in healthcare over the next 12-24 months (and beyond)? What have you learned about yourself and your team at Quest Diagnostics over the challenging last few months?

DF: I have a really great team; I'm super proud of them. We always have this challenge of managing our current business and then thinking about how are you going to create value and grow. You're sort of bouncing between riding the bike and rebuilding the bike at the same time, and we're all dealing with so much stress, whether it's just because of the pandemic and our families or also because there's a lot of demand on Quest Diagnostics at this time. Yet, I really am proud of the leadership at Quest because they have really risen to the challenge and haven't lost sight of our values as a company. They have made really important contributions, and we have gotten signals from the market that what we do is really important. That is very rewarding and it is self-reinforcing.

It's been a tough year not just for us but also for everyone. I think when the year passes, people are going to be like, 'Oh, 2020? Glad that's behind us.' But ultimately, I'm really proud of our team, and I'm proud to be part of Quest Diagnostics.

Q: What's on the horizon? What's next, and what are you excited about?

DF: As far as for what's next for COVID-19, Quest is now participating in really novel ways across the economy. We are a diagnostic information services company providing this important function, but now we're working with airlines, pharmacy, retail, colleges and sports teams. This is because getting back to life, work and school is at this intersection of how do we convey that we're healthy, we're not a health risk so that we can be safely together? That diagnostic test is a part of the equation, but it also really inspires us to have some novel partnerships. If you think about solutions like Clear and Airside where you've got an identity management system – you're linking a test to that identity management system, so the people who come to work have a badge for touch-less entry. Maybe when that badge turns green, the person will be let in. Or when it turns red, they can't go in because they have a health questionnaire and diagnostic testing that suggests it's not a good idea to come to work, the concert, basketball game or your dorm.

This is really cool stuff and very exciting, but beyond the pandemic, which I know is kind of blotting out the sun right now, but one of the things that I'm most excited about is our work in clinical trials. Clinical trial and patient recruitment hasn't really changed that much in the past 30 years, and so there's this existing model where you have investigators and university settings who are private investigators. And you know, there's social media and advertising outreach to patients, but the problem is the majority of those patients fail the pre-screen, and you've spent 50 percent of your patient recruitment budget and there's a lot of churn on the clinical trial participants. There are some troubling statistics about all that – of the clinicians that participate in clinical trial research, half do one trial and then never participate in another. Only 40 percent of patients find out about clinical research that

may be relevant to their health condition from their care team. This means that the majority is on their own trying to figure it out, which is unfortunate.

We think really dramatic improvements can be made if we flip the model so that instead of starting with sites and investigators, we start with patients. And instead of moving patients to trial sites, we move the trials to where the patients are that really dramatic improvements can be made. We can reverse the tide of longer trials, more expensive trials, and a lack of relevancy to patients. That's what we're working on. We've demonstrated that we can actually really do this quite well, and we can help our pharma partners really think about how to approach the feasibility and planning of a clinical trial in different ways using mobile care resources, patient service centers and retail laboratory locations starting with the patients and then creating linkages to the care team and investigators. I'm really excited because at the end of the day that means we can maybe lower the economic hurdle rate to getting a new drug that's going to promote human health into a clinic, so we're excited about that.

Q: Anything else to add?

DF: At Quest, we're really about partnering across the healthcare ecosystem. There's a lot of distributed innovation that's happening, and we really are focused on how to partner and participate to create positive change. We have some really amazing partners, and hcl is one of them. Health Verity is another partnership where we're really leveraging native cloud solutions and analytics to really create fundamentally new solutions. It's participatory sport; you're continuing to try and focus on 'hey, what are the impacts that need to happen? And how do we align with the best folks in the marketplace to really bring those changes for all the stakeholders: our patients, providers, health systems, hospitals, health plans and sponsors? It's a great time to be in the innovation space in healthcare. I've been doing it for 30 years, and it's never been more exciting than now.

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