Mayo Clinic Q&A - Dr. Matthew Binnicker - COVID-19 At Home T...

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SPEAKERS

Dr. Halena Gazelka, Narrator, Dr. Matthew Binnicker

N **Narrator** 00:01

Coming up on Mayo Clinic Q&A,

D **Dr. Matthew Binnicker** 00:04

The majority of the at home tests, the vast majority of those are the antigen tests, again looking for the viral protein in a nasal swab sample.

N **Narrator** 00:13

Testing for COVID-19 is part of the overall strategy to end the pandemic. Using a rapid at home antigen test can provide quick results, but it's important to understand when and how to test.

D **Dr. Matthew Binnicker** 00:25

What we're recommending is that if you're performing an at home antigen test that you use the test exactly as the instructions call for.

D **Dr. Halena Gazelka** 00:34

Welcome, everyone to Mayo Clinic Q&A. I'm your host Dr. Halena Gazelka. We're recording this podcast on Monday, January the 24th, 2022. Testing for COVID-19 has been a big topic during the pandemic and very important in helping to end it. But, understanding the testing, including

the type of tests, how and when to use which test, it's very confusing to most individuals. And so, here to help us sort this out is Dr. Matthew Binnicker, who is the director of clinical neurology at Mayo Clinic. Welcome, Matt.

D Dr. Matthew Binnicker 01:10

Thanks. Really glad to be here.

D Dr. Halena Gazelka 01:12

I admit that I think this is an incredibly confusing topic. And so, I'm delighted that we're going to talk about this today. Can you tell our listeners, Matt, the two type of tests that can tell if you have COVID-19, the PCR and the antigen?

D Dr. Matthew Binnicker 01:29

There are really two main categories of tests that are being used currently to diagnose patients with COVID-19. The first is what I would call molecular tests, probably better known as PCR tests. And those have really been the gold standard, the most commonly and frequently used tests since the beginning of the pandemic. The PCR tests are looking for the virus's genome, its RNA genome in samples like a nasal sample that's collected. Those tests are really sensitive, meaning we can detect really low levels of the virus in a sample. They're very specific, meaning we shouldn't get many false positive results with those tests because they are so specific. Usually, they're sent to a lab. So, results can take some time, maybe up to 24 hours. And at some points during the pandemic results were taking multiple days to get back to patients. The other type of test is what are known as antigen tests. And those are most commonly being performed at home by patients. Those look for a viral protein in the patient sample. So, a nasal swab is collected much like a pregnancy test, easy to perform, you get results in 15 to 20 minutes. So, quick, easy, but they also have some important limitations that we can talk about.

D Dr. Halena Gazelka 02:52

And to add to the confusion, Matt, there is antibody testing. How does that differ from what you just described?

D Dr. Matthew Binnicker 02:59

So, yeah. There are antibody tests, or serology tests that are looking for antibodies that are generated by the immune system in response to infection with the virus. Those tests are good for purposes of determining how many people in a population were exposed to a virus, or in some cases how many have responded and produced antibodies in response to immunization. The problem with the antibody-based tests is that the antibodies typically take 10 to 14 days to reach levels that can be detected by those tests. So, because of that they're not very useful for diagnosing acute COVID-19 infection. They're better for determining whether someone's been exposed to the virus kind of after the fact, or whether they've responded to a vaccination.

D Dr. Halena Gazelka 03:58

Matt, there's a lot of at home testing going on now. Are those typically PCR tests, or antigen tests, or some of each?

D Dr. Matthew Binnicker 04:06

Yeah, the majority of the at home tests, so when you go to a local pharmacy and pick up an over-the-counter test, the vast majority of those are the antigen test, again looking for the viral protein in a nasal swab sample. There are, I believe, two options that are what we call molecular tests, or looking for the viral RNA. They're very hard to come by. I believe that one of those requires a physician prescription to get. So, if you're getting an at home test, chances are it's an antigen test that typically takes 15 to 20 minutes.

D Dr. Halena Gazelka 04:42

Because if it was a PCR test, it would have to be sent to a lab to process, correct?

D Dr. Matthew Binnicker 04:47

So, those two options that I mentioned, you can perform those at home. But there also are at home collection options, so you can collect a sample at home, and then mail it into a laboratory, so that of the options that are truly at home tests, those are difficult to find. And there's only two of those. And then if you're getting a PCR test, but collecting the sample at home, that's being used more frequently and kind of provides patients with greater flexibility, not having to go into a collection site to get that sample collected.

D Dr. Halena Gazelka 05:25

So, I've seen news reports about swabbing the throat instead of the nose. Is this a good idea? Does it work?

D Dr. Matthew Binnicker 05:34

Yeah, there have been quite a few reports on social media is where it started. And then quite a few news media stories about this. During the early days of the Omicron surge, what we noticed and have e continued to notice through clinical experience, is that many patients are experiencing a sore throat as one of the initial symptoms of their disease. And so, I think there became some interest in whether swabbing the throat could detect COVID-19. Now the tests that were being used were the at home antigen tests, and all of the at home antigen tests are approved to use a nasal swab. None of the tests that are currently available for us to purchase were validated and authorized by the FDA for testing of throat swabs. So, what we're recommending is that if you're performing an at home antigen test that you use the test

exactly as the instructions call for, which is a nasal swab. There's been some reports that, you know, Omicron may be more prevalent in the throat. Interestingly enough there was just a study released in a preprint, meaning it hasn't gone through the full peer review process that compared nasal swabs against throat swabs using one of the more common antigen tests and found that throat swabs don't work as well. So, this is really important not to get your information about testing off of social media, but really wait for the scientific data to come out to support the approach we use.

D Dr. Halena Gazelka 07:11

Excellent point. Matt, to help our listeners out, I was hoping you and I could go through a couple of scenarios and you could tell me which test would be preferable for the individual in that scenario. So, how about if I'm an individual, I think I've been exposed, but I don't have any symptoms?

D Dr. Matthew Binnicker 07:30

So, in that case you've been exposed to someone with confirmed COVID-19, but you're asymptomatic. The best approach is to wait three days after that exposure and to schedule a time to have a sample collected to be sent off to a lab for PCR. The antigen tests, they don't perform as well in individuals that lack symptoms because there's nothing to guide us of when that test should be performed. So, their sensitivity is lower. It's been shown, the antigen test to be as low as 35 to 40% in asymptomatic individuals, so those that don't have symptoms. The PCR tests are really the most sensitive and give us the best chance at picking up those asymptomatic infections.

D Dr. Halena Gazelka 08:16

And Matt, may I take that a step further and ask you, is it advised that if you know that you have had a close exposure that you be tested?

D Dr. Matthew Binnicker 08:26

It is a good idea that if you've had a known exposure that you get tested. Now, there's been some leniency in the fully vaccinated population. So, if you have been fully vaccinated, if you're eligible for a booster, you've received that booster, and you're exposed, it's not a requirement to test in many situations, but still probably a good idea. In the unvaccinated population having been exposed to someone with confirmed COVID-19, yes getting tested, waiting three days on average, and because it takes some time for that virus to reach detectable levels is the recommended strategy.

D Dr. Halena Gazelka 09:07

Okay, scenario number two, what if I have COVID symptoms?

D Dr. Matthew Binnicker 09:13

So, if you have COVID symptoms, so sore throat, fever, runny nose, congestion, loss of sense of taste or smell, which is actually we're seeing that less frequently now with Omicron variant compared to past strains. But, if you're experiencing any of those, I think a reasonable first step if you have access to an at home antigen test, is to perform an antigen test. If you get a positive result by any of the authorized at home tests in the presence of COVID-19 symptoms, that's a really reliable result, and that can inform your decision making about isolating and not exposing others at work or school. Now, if you test negative by an at home antigen test, it doesn't mean you're in the clear. It's important to either perform another antigen test 24 hours later, or to schedule a time to have a lab-based PCR performed. The reason why we're recommending in some situations for the lab PCR to be done if symptoms persist, is that many of the lab PCR tests that are being used now test for both COVID and influenza, and we're seeing quite a bit of influenza in the country as well. And so, the at home antigen test will miss that influenza possibility, whereas the lab-based test can cover for the influenza as well.

D Dr. Halena Gazelka 10:37

And the symptoms are so similar.

D Dr. Matthew Binnicker 10:40

They are. Yeah, influenza and COVID-19 clinically resemble each other very closely, especially in the early days after disease onset. So, it's almost impossible to distinguish the two diseases without a laboratory test.

D Dr. Halena Gazelka 10:55

Sometimes even common upper respiratory infections like what we call the common cold sounds like lot of the same symptoms.

D Dr. Matthew Binnicker 11:03

That's right. And with Omicron we are seeing more individuals, especially those who have been fully vaccinated, come down with very minor illness that resembles very much the common cold. So, if you're experiencing a minor sore throat, runny nose, maybe a mild cough, getting tested for COVID-19 is a really good idea because it could be COVID-19, even in the presence of mild symptoms.

D Dr. Halena Gazelka 11:29

Alright, now scenario number three. I've had COVID-19, and I want to know if I am in the clear to return to work to school to other activities?

D Dr. Matthew Binnicker 11:38

Yeah, so in the case of someone having been diagnosed with COVID 19, there's options depending on where you work, where you live. The CDC is currently advising that anyone who tests positive for COVID-19 isolate at home for a minimum of five days. After five days, they can return to work, or to school, again depending on the location and the local guidelines as long as they wear a mask. Now, some employers are taking it a step further. Whereas after five days of isolation, they may require a negative COVID-19 antigen test to return to work. And the reason why some employers are using the antigen tests instead of the PCR is because a PCR we know can stay positive sometimes for weeks, and in some immunosuppressed patients that PCR test can stay positive for months. So, an antigen test should become negative as the amount of virus in a person's upper respiratory tract declines. And so, if you don't have symptoms, your symptoms are improving, it's been at least five days since you began your isolation, and you test negative by an antigen test, that information can be used to help create a safe opportunity to return to school or work.

D Dr. Halena Gazelka 12:10

Matt, I know that here at Mayo Clinic we have begun to provide antigen tests to employees who are on the job but begin to experience symptoms so that they can test. I imagine this has something to do with the sheer volume of tests that are being performed, and I'm wondering what does that look like? How many tests are you doing during this time?

D Dr. Matthew Binnicker 13:23

Yeah, you know we've been almost two years into this pandemic, but it's hard to believe that about a week ago we did the most tests in the upper Midwest that we had ever done since the pandemic began. We did close to 40,000 COVID-19 PCR tests at our Mayo Clinic locations in the upper Midwest in one week's time. Of those we saw about 30% of those 40,000 being positive. So, again really record high positivity rates. And you're right, the use of antigen testing in certain scenarios, either someone has symptoms, or they've already tested positive, or trying to get them back to work safely really helps to supplement kind of our testing toolbox and alleviate some of the stress on the labs that are getting, just again, record high volumes of samples for testing.

D Dr. Halena Gazelka 14:20

Wow, that's incredible. That's pretty impressive. I would like to see that all in action.

D Dr. Matthew Binnicker 14:25

Yes. Yeah, the team is amazing, and they've continued to put up with a lot of change and just one challenge after another, and the sample volumes continued to increase. So, props to all the laboratory staff.

D Dr. Halena Gazelka 14:40

So Matt, what is the outlook for COVID-19 testing in the future? Do you see it continuing as we are?

D Dr. Matthew Binnicker 14:46

So, we think that the Omicron surge is likely going to peak sometime within the next week. And then I expect cases and testing demand to steadily decline from there. Now even if COVID-19 levels reach low levels across the country, so less than 5% positivity rates, there will still be needs for testing especially in at risk populations, those undergoing high-risk procedures and surgeries. And then as the virus kind of enters into more of an endemic state where we're seeing predictable geographically defined outbreaks, kind of like what we see with influenza every year, we'll still need to test for COVID-19. And I envision that if you have symptoms, a respiratory infection in the winter months, in the future you're probably going to get tested for COVID-19 and influenza, again because it's very difficult to distinguish the two based on your symptoms alone, how we manage you with antiviral treatments, or different management strategies is different depending on which virus you have. So, I see COVID-19 testing here to stay, and it will probably be included in symptomatic individuals for years to come.

D Dr. Halena Gazelka 16:01

Well, thank you Matt. This has been a really enlightening and informative discussion. I appreciate it.

D Dr. Matthew Binnicker 16:07

Oh, again glad to be here, and it's a constantly evolving situation. But I think something that we have, the teams have responded to and continued to help to provide care for our patients. So, thanks for having me on.

D Dr. Halena Gazelka 16:22

Yeah, thanks for all that you're doing to help with the pandemic. Our thanks to Dr. Matt Binnicker, director of clinical virology at Mayo Clinic, for being here to help clear up our questions about COVID-19 testing. I hope that you learned something. I know that I did. And we wish each of you a wonderful day.

N Narrator 16:40

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