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At a new Tennessee lab, coronavirus testing without the 'brain tickler' swabs

Saliva-based coronavirus tests have the potential to rival deep nasal swabs, which are notoriously uncomfortable. **Brett Kelman, Nashville Tennessean**

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test results

this deadly virus."

USA TODAY GRAPHICS

Most tests require a medical professional, dressed head-to-toe in protective equipment, to insert a swab deep into the nasal canal and swipe across

nose, and for some it cause pain, sneezing and bleeding. Then, as your squirm and snort with discomfort, they move to the other nostril and do it again. Tens of millions of Americans have undergone tests like this during the ongoing coronavirus pandemic, and the unpleasant swabs have earned a notorious-butinaccurate moniker - the "brain tickler."

But an emerging technology has the potential to free Americans from these tickles. Federal officials recently opened doors for the development of tests that detect coronavirus in a samples of saliva, not nasal swabs, and a new Nashville lab is positioned to ride a wave of spit to the forefront of testing.

Why widespread COVID-19 testing is crucial to fighting the coronavirus pandemic COVID-19 widespread testing is crucial to fighting the pandemic, but is there enough testing? The answer is in the positivity rates. JUST THE FAQS, USA TODAY

Phase Labs, which expects to begin testing this month, is the first facility in Tennessee to hunt for coronavirus exclusively with saliva samples. At a brandnew facility in Southeast Nashville, laboratory robots move with

inhumanprecision, mixing pipettes of spit with a chemical reagent that detects the virus. The underlying scientific process is similar in most ways to a traditional nasal test and promises similarly accurate results, but no swab is

"We happen to be the first lab, but we will not be the last," said Steve Kress, the CEO of Phase2 Labs. "We are seeing a testing evolution take place. We will not be stuck on a nasal swab pathway forever." The advantages to saliva testing vs. nasal swabs State and city health officials said this month they do not have concrete plans to introduce saliva testing at public-funded test centers that perform most of

the coronavirus tests in Tennessee. But officials agreed that saliva testing offers intriguing advantages to the status quo and a clear potential to grow. CORONAVIRUS: Nashville losing ground to COVID-19 as clusters arise among school-aged kids and families

Deep nasal swabs, officially called a "nasopharyngeal swabs," can cause a patient to sputter or sneeze, projecting virus particles further than a normal

exhale. This creates an exposure risk for staff at testing centers, and while protective equipment can minimize this risk, it does not erase it.

Nasal cavity

Swab

Nasopharynx Throat NASOPHARYNGEAL SWAB: The swab enters the nose and is then pushed to the back of your throat, just above the nasopharynx. It is then rotated to collect viral speci

But recent research suggests saliva can be as reliable as nasal samples when searching for coronavirus, Schmitz said. Considering this, saliva testing could be "really valuable" when testing a large population of asymptomatic people or testing a smaller group over and over. In these scenarios, saliva tests have th

e potential to rival the nasal testing infrastructure that exists today, he said.

"If you are someone who has to screened for coronavirus on a regular schedule,

In contrast, saliva testing requires test takers to merely spit into a sample co

ntainer, presenting far less risk of exposure. Saliva samples also have the p

otential to be collected at home, avoiding exposure risk at a testing center altog

Coronavirus testing did not initially focus on saliva because spit is traditionally

less reliable for detecting flu, said Dr. Jonathan Schmitz, medical director of Va

nderbilt University Medical Center's Molecular Infectious Disease Laboratory.

you probably wouldn't want a nasopharyngeal swab every sing le time," Schmitz said. "And, in fact, for really large-scale collection, it just c omes down to the logistics of it all." **CORONAVIRUS:** If Nashville switched labs sooner, 12,000+ could've got faster

ne Health, that distributes an acidic spray used to treat chronic wounds. Th e new lab was planned before coronavirus then construction was acc elerated because of the pandemic. Dr. Peter Bryant-Greenwood, one of the Phase2 founders, said the facility was envisioned an elite laboratory dedicated to respiratory illnesses like asthma a

nd chronic obstructive pulmonary disease, or COPD.

Phase2 Labs is owned by an existing Nashville health care company, PhaseO

Nashville health care company launching Phase2 Labs

nerable people that Phase2 Labs wanted to serve. It was now or never. "It really put a lot of pressure on us," Bryant-Greenwood said. "If we want to h elp the chronic respiratory disease patients, the first thing we've got to do is

keep COVID away from them. Otherwise, that population will be consumed by

Then coronavirus arrived, posing an imminent threat to same vul

Phase 2 Lab chief medical officer Peter Bryant-Greenwood describes how their facility will use saliva testing to detect coronavirus Wednesday, Oct. 14, 2020 in Nashville, GEORGE WALKER IV / THE TENNESSEAN

saliva-based testing kit by the U.S. Food and Drug Administration in August. The FDA gave emergency approval to about six saliva-based tests, but most are being used on a relatively small scale so saliva test is not yet widely available to the public.

CORONAVIRUS: Nashville identifies 12 more cluster sites, 60 clusters now revealed

A Phase2 Labs saliva collection kit is demonstrated Wednesday, Oct. 14, 2020 in

facility.

GEORGE WALKER IV/ THE TENNESSEAN

undergo less government scrutiny before use.

Nashville, Tenn. The lab is working to implement saliva testing for coronavirus at its

That is likely to change. The federal government announced recently it will no

coronavirus tests, including saliva tests, to submit these tests to the FDA for

makes it easier for labs to launch their own coronavirus tests, opening the door

emergency use authorizations like the one given to Fluidigm. This change

for more companies to expand into saliva testing, although these tests will

longer require individual clinical laboratories that develop their own

Phase2

Saliva Collection Kit

Bryant-Greenwood said Phase2 Labs plans to develop its own saliva-based test that will check not just for coronavirus but a full panel of other respiratory illnesses. Schmitz, director of the Vanderbilt lab, said the hospital was not currently performing saliva-based coronavirus tests but had not closed the door on the possibility of developing its own test. Could Tennessee broadly offer saliva testing? Maybe. Saliva testing is not currently available at free coronavirus testing centers run by the city of Nashville or the state of Tennessee, although the state has offered some limited saliva testing to specific facilities like nursing homes and mental health facilities. Dr. Tim Jones, chief medical officer of the Tennessee Department of Health, said there is potential for saliva testing to become more broadly used. But Jones added that the comfort and exposure benefits of saliva testing can also be achieved with shallow nasal swabs, which the state already uses at some test sites already, and self-collected swabs, which it does not.

Tyra Woods trains to do saliva testing for coronavirus at Phase2 Lab Wednesday, Oct. 14, 2020 in Nashville, Tenn. GEORGE WALKER IV/ THE TENNESSEAN Jones stressed the state government was wary of changing its testing strategy haphazardly, especially considering the rapid pace of coronavirus research. Tests are one piece of the puzzle, but labs must also produce results consistently and quickly, even if the face of surging demands, he said.

"Apropos of the many many technologies and laboratories and companies that

have contacted us, we have heard many many promises about their abilities to

meet those needs that, for a variety of reasons, have not panned out," Jones

conversations with Tennessee Health Commissioner Lisa Piercey about the

state government potentially using the new lab to process saliva samples in the

future. The Health Department did not confirm or dispute these conversations

Dr. Alex Jahangir, head of Nashville's coronavirus task force, said earlier this

month that the development of saliva testing is promising.

said. "And so, it's pretty risky for us to be someone's first customer."

Kress, the Phase2 Labs CEO, said on two occasions the lab had direct

occurred.

@brettkelman.

"It seems really great," Jahangir said. "It has not to my knowledge passed FDA approval on a mass scale, but if it does it makes a lot of sense. It's less invasive. It's cheaper from what understand. And if it becomes available, absolutely, I think that's a way to go."

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the discomfort of nasal swabs. The lab is also in discussion with nursing homes and some medical providers that may offer saliva testing to patients. When the Phase2 laboratory is fully operational, it should be able to process 36,000 tests a day, company officials said. Phase2 will begin testing with a system developed by Fluidigm, a California biotechnology company that was granted an emergency use authorization for a

Phase Labs chose a location in March, replacing a textile business in an office park on Harding Place in Southeast Nashville. PathGroup, a massive laboratory that processes tens of thousands of nasal samples from Nashville's city-run test centers, is directly across the street. As of this month, Phase2 Labs is nearly ready to begin its work. On a Wednesday morning earlier this month, technicians were training with lab equipment and performing trial runs on uninfected samples of saliva. Lab officials said real tests will begin in weeks, and the lab's first customers will

be film production companies that test employees constantly and want to avoid

Updated 6:26 a.m. CDT Oct. 25, 2020 f you've ever been tested for coronavirus, you almost certainly didn't enjoy it. sensitive tissue. The sensation is not unlike having seawater forced up your