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Saliva Tests Making Their Way to Routine Care

By Alan Mozes
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THURSDAY, March 22 (HealthDay News) -- Simple, cheap diagnostic tests based on the analysis of saliva are within spitting distance of development, says a consortium of American researchers.

Scientists say the novel protocol could be available as a standard of care as early as 2011 to screen for a variety of major diseases.

"The ability to detect and monitor diseases through noninvasive means is a highly desirable goal in health care," said Dr. David T. Wong, director of the Dental Research Institute at the University of California, Los Angeles. "Saliva, a totally noninvasive fluid, holds this ability but is not currently used in (the) mainstream. All of this is just about to change."

Wong was scheduled to describe the new tests Thursday at the International Association for Dental Research annual meeting, in New Orleans.

To develop the saliva-based screens, Wong has teamed up with researchers at the U.S. National Institute of Dental and Craniofacial Research; the University of California, San Francisco; and the Scripps Research Institute.

Together, the team is engaged in a painstaking mapping of so-called "diagnostic alphabets" present in saliva. Identifying the components of such alphabets is key to "reading" the signs of disease.

So far, two such alphabets are substantially decoded: one based on salivary proteins and another based on salivary messenger RNAs (mRNA) -- molecules integral to the formation of proteins.

More than 1,500 salivary proteins have been identified, the authors noted, alongside about 3,000 mRNAs.

Based on their detective work, Wong's group announced that their research has already uncovered indicators pointing the way toward diagnosing both oral cancer and an autoimmune illness called Sjogren's syndrome.

He noted that oral cancer can be identified in saliva by screening for five specific proteins and four mRNAs that form a unique diagnostic signature in more than 90 percent of cases.

Similarly, a small subset of proteins and mRNAs appears to serve as markers for Sjogren's syndrome.

Early detection of oral cancer via saliva testing could potentially help boost survival rates among the

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more than 31,000 Americans that the American Cancer Society estimates are currently diagnosed with some form of oral cancer each year. Approximately 7,000 men and women die from the disease annually.

An even larger patient pool now combats Sjogren's syndrome, a disorder in which white blood cells attack moisture-producing glands, causing dry eyes and dry mouth. The syndrome affects upwards of 4 million Americans.

The potential of the work now under way by Wong and his team is supported by experts at the American Association for Dental Research. They believe that saliva, like blood and urine, can be viewed as a repository of important information on illness and exposure to environmental substances.

Already, new tests are being developed that use saliva to detect measles, mumps, rubella, hepatitis (A, B and C), breast cancer, Alzheimer's disease, and cystic fibrosis.

In 2004, the U.S. Food and Drug Administration (FDA) approved a saliva-based test for HIV, the virus that causes AIDS. Future diagnostic tests may also ultimately rely on saliva for indications of unhealthful exposure to lead, as well as to monitor abuse of drugs or alcohol.

Wong said that the objective is to place easy-to-use saliva-screening technologies in the hands of physicians, dentists and nurses as quickly as possible.

"This is truly an exciting and revolutionary goal," he said, adding that current efforts aim "to establish the scientific credibility and clinical utilities of saliva."

Dr. Robert Genco is a distinguished professor of oral biology and microbiology in the Schools of Dentistry and Medicine at the State University of New York in Buffalo. He agreed that saliva-based diagnostics show real promise.

"The field is very exciting, and the quest for such diagnostics is important," he said. "Because if you can take a simple sample like saliva and then do a test to diagnose disease -- particularly for diseases that don't show themselves very well -- you can perhaps have some information before the situation gets too serious."

"The key issue is what is the predictive value or reliability of such a test in an individual. And that's a very high barrier to overcome," he cautioned. "But I think the cutting-edge approach these researchers are using is sensible and holds a great deal of promise."

More information

For more on saliva diagnostics, visit the [American Association for Dental Research](#).

SOURCES: David T. Wong, M.D., director, Dental Research Institute, University of California, Los Angeles; Robert Genco, DDS, Oh.D., distinguished professor of oral biology, School of Dentistry, and professor of microbiology, School of Medicine, State University of New York at Buffalo, N.Y., March 21-24, 2007, General Session of the International Association for Dental Research, New Orleans

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