

# Problems at Bend lab no factor in OSP testing

By Scott Hammers  
The Bulletin

BEND (AP) — An audit of Oregon State Police crime labs points to a growing backlog of evidence waiting to be tested.

Auditors with the Oregon Secretary of State's office found it takes an average of 65 days to complete testing on a submitted piece of evidence, while the number of cases in which it takes at least 30 days to complete testing has jumped 90 percent since 2005.

The backlog is in significant part due to the growth in the amount of evidence submitted to the labs for testing. From 2005 to 2014, requests for testing have jumped 31 percent, while staffing levels at the labs have remained largely flat.

The labs perform a variety of testing services, including analyzing fingerprints lifted from crime scenes, DNA testing and tests to identify

suspected drugs and other substances.

The OSP's five crime labs in Bend, Clackamas, Central Point, Pendleton and Springfield employ 127 people and received 29,500 requests for testing in 2014. A sixth crime lab, in Ontario, was closed in 2011.

Recent allegations concerning the mishandling of evidence at the Bend crime lab does not appear to be a factor in the audit's findings, said Molly Woon, spokeswoman with the Secretary of State's office.

Forensic analyst Nika Larsen, who worked at the Pendleton lab before moving to the Bend lab in 2012, is suspected of skimming drugs from samples submitted for testing. Larsen was placed on paid leave this fall, and both labs have suspended drug testing. Larsen has not been charged with any crimes.

Woon said the audit was substantially complete before the allegations against Larsen

came to light, and while the suspension of drug testing at the Bend and Pendleton labs is not a likely factor in the backlog identified through the audit, it's likely exacerbated the backlog in recent months.

The audit identifies a number of ways the crime labs could become more efficient. The labs could do a better job transferring work among themselves — currently, the labs primarily serve the agencies in their parts of the state — and tracking the handling of individual pieces of evidence though the use of electronic note-taking.

Communication between the labs and the agencies sending them materials for testing could also be improved, the audit stated. Testing of evidence often continues even after a local district attorney's office has decided to drop charges, or after a suspect has pleaded guilty, according to the report, and law enforcement officers will sometimes submit more

evidence for testing than necessary, or file incomplete or unclear requests for testing.

Woon said auditors did not receive any information breaking down the number of requests for evidence testing by agency. Approximately 90 percent of the evidence handled by state crime labs is submitted by city and county law enforcement agencies, with the remainder coming from OSP. The labs do not charge local law enforcement agencies for their services.

The audit anticipates the labs' workload could increase further in the near future due to two relatively recent developments. The state's legalization of recreational marijuana use may lead to an uptick in testing blood and urine samples to identify intoxicated drivers, and a 2015 measure approved by the Legislature will provide more opportunities for convicted people to request DNA testing of evidence that might exonerate them.

# Tooth fillings with bioactive glass show promise

CORVALLIS — A few years from now millions of people around the world might be walking around with an unusual kind of glass in their mouth, and using it every time they eat.

Engineers at Oregon State University have made some promising findings about the ability of "bioactive" glass to help reduce the ability of bacteria to attack composite tooth fillings — and perhaps even provide some of the minerals needed to replace those lost to tooth decay.

Prolonging the life of composite tooth fillings could be an important step forward for dental treatment, the researchers say, since more than 122 million composite tooth restorations are made in the United States every year. An average person uses their teeth for more than 600,000 "chews" a year, and some studies suggest the average lifetime of a posterior dental composite is only six years.

The new research was just published in the journal *Dental Materials*, in work supported by the National Institutes of Health.

"Bioactive glass, which is a type of crushed glass that is able to interact with the body, has been used in some types of bone healing for decades," said Jamie Kruzic, a professor and expert in advanced structural and biomaterials in the OSU College of

Engineering.

"This type of glass is only beginning to see use in dentistry, and our research shows it may be very promising for tooth fillings," he said. "The bacteria in the mouth that help cause cavities don't seem to like this type of glass and are less likely to colonize on fillings that incorporate it. This could have a significant impact on the future of dentistry."

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Bioactive glass is made with compounds such as silicon oxide, calcium oxide and phosphorus oxide, and looks like powdered glass. It's called "bioactive" because the body notices it is there and can react to it, as opposed to other biomedical products that are inert. Bioactive glass is very hard and stiff, and it can replace some of the inert glass fillers that are currently

mixed with polymers to make modern composite tooth fillings.

"Almost all fillings will eventually fail," Kruzic said. "New tooth decay often begins at the interface of a filling and the tooth, and is called secondary tooth decay. The tooth is literally being eroded and demineralized at that interface."

Bioactive glass may help prolong the life of fillings, researchers say, because the new study showed that the depth of bacterial penetration into the interface with bioactive glass-containing fillings was significantly smaller than for composites lacking the glass.

Fillings made with bioactive glass should slow secondary tooth decay, and also provide some minerals that could help replace those being lost, researchers say. The combination of these two forces should result in a tooth filling that works just as well, but lasts longer.

Recently extracted human molars were used in this research to produce simulated tooth restoration samples for laboratory experiments. OSU has developed a laboratory that's one of the first in the world to test simulated tooth fillings in conditions that mimic the mouth.

If this laboratory result is confirmed by clinical research, it should be very

easy to incorporate bioactive glass into existing formulations for composite tooth fillings, Kruzic said.

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The antimicrobial effect of bioactive glass is attributed, in part, to the release of ions such as those from calcium and phosphate that have a toxic effect on oral bacteria and tend to neutralize the local acidic environment.

"My collaborators and I have already shown in previous studies that composites containing up to 15 percent bioactive glass, by weight, can have mechanical properties comparable, or superior to commercial composites now being used," Kruzic said.

This work was done in collaboration with researchers from the School of Dentistry at the Oregon Health & Science University and the College of Dental Medicine at Midwestern University.

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