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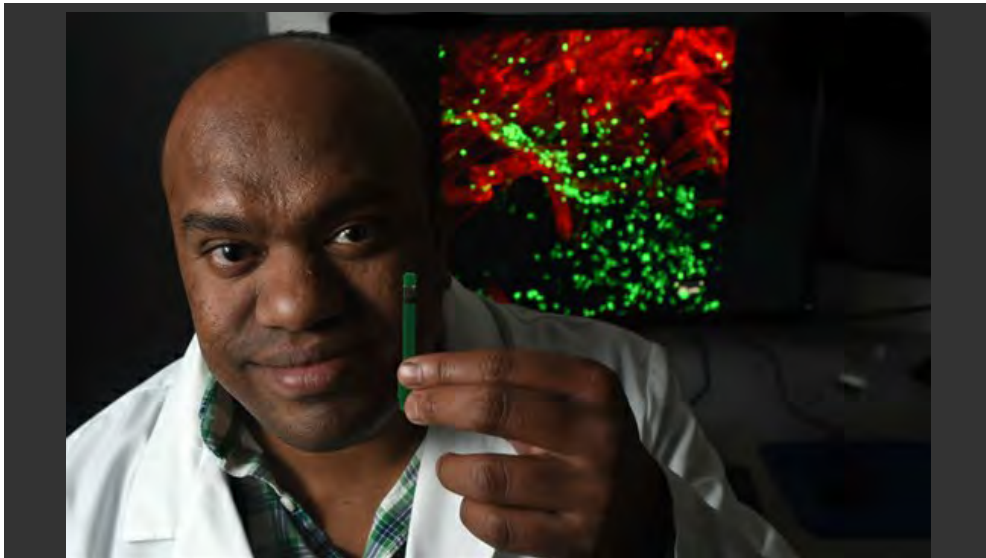
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Device that could halt bird flu needs funding to hit market faster



Avian flu

David Bebee, Record Staff
University of Guelph School of Engineering Prof. Suresh Neethirajan holds an avian flu detector cartridge. Behind him is an image of a fluorescent-tagged pathogen.

Waterloo Region Record
By Gordon Paul

As the quarantine zone for a bird flu outbreak expanded into part of Waterloo Region, a researcher held in his hands a device that could stop the spread of the disease.

But without a cash injection from the government or private sector, his brainchild could take two years to hit the market.

The portable device, about the size of a smartphone, can detect bird flu in a matter of minutes, University of Guelph Prof. Suresh Neethirajan said in an interview on Thursday. Farmers currently send blood samples to labs, where results can take several days.

"Everybody wants the tool right away," Neethirajan said of his device. "There's a big need. It has tremendous potential in terms of creating an impact in predicting the disease and preventing the disease."

The gadget, which analyzes a small blood sample, not only detects bird flu — it also reveals the chance of an outbreak.

"Due to the ability to differentiate between low-pathogenic strain and high-pathogenic strain, one would be able to not only judge the condition of the birds, but can also effectively deploy our tool as an early-warning system,"



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Neethirajan said. Pathogenic refers to the ability to cause disease.

If an outbreak appears likely, farmers could take steps to control it.

"We want the farmers to go from reactive to predictive to proactive approaches," Neethirajan said. "The frequency of testing ... will definitely help the farmers make effective management strategies, reducing the outbreaks."

Earlier this week, bird flu was detected at a second farm in Oxford County, this one north of Woodstock, prompting food safety officials to set up a second quarantine zone to control the movement of animals, products and equipment to stop the disease from spreading.

The new zone covers a 10-kilometre radius from the farm, according to the Canadian Food Inspection Agency, and includes part of Waterloo Region. Dozens of poultry farms are in the zone.

Due to the outbreak, more than 70,000 birds have died or been euthanized.

Neethirajan, a professor in the University of Guelph's School of Engineering, said his device needs to go through a "validation stage" and regulatory approval before it hits the market.

"We are expecting at least a year and a half to two. If we get funding, then we may be able to push it ..."

A cash injection of \$1 million could cut in half the time it takes to hit the market.

Neethirajan has been working on the device for more than two years.

Money to speed up the project could either come from the private sector or the government, he said.

"We have the technical know-how — all we need is some kind of (money) to keep us going to achievement," Neethirajan said.

He said the Ontario government is interested.

"We have got their attention. Only because of the outbreak, we got their attention."

One option is the Ontario Ministry of Agriculture and Food, Neethirajan said.

Susin Micallef, a spokesperson for the ministry, said initial funding for the project came from industry and the federal government.

She said her ministry has funded other research related to bird flu, including vaccine development and alternative methods for managing the disease.

The ministry funds research through a partnership with the University of Guelph and open research programs, Micallef said.

"Funding for these programs is invested through an annual competitive call-for-proposals process," she said.

Neethirajan said a funding boost would make a world of difference.

"One person is working on the whole task," he said. "We could divide a big task into multiple tasks. We could hire additional people to work on specific segments, specific problems."

The device can detect H1N1 and H5N1 strains of bird flu. With a few modifications, it can also detect the H5N2 strain, the cause of the Oxford County outbreak.

The price tag of the device hasn't been set, but Neethirajan figures it will be less than \$1,000.

Work on the device is being done in the university's bionanotechnology lab.

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What is bird flu?

- Bird flu, formally called avian influenza, is an infectious viral disease of birds.
- H5N2, the strain blamed for the Oxford County outbreaks, is believed to originate from wild birds, which can carry the virus without exhibiting any signs.
- H5N2 doesn't pose a risk to food safety when poultry products are properly handled and cooked. H5N2 has never caused human infections.
- Most bird flu viruses do not affect humans, but some, such as H5N1 and H7N9, have caused serious infections in people. Since 2003, 650 human infections with H5N1 have been reported. More than half of them died from their illness. H7N9 has been confirmed in 134 people, with 43 deaths.
- H5N1 and H7N9 have pandemic potential because they continue to circulate widely in some poultry populations, most humans likely have no immunity to them, and they can cause severe disease and death.
- The majority of human cases of H5N1 and H7N9 infection have been associated with direct or indirect contact with infected live or dead poultry.

Sources: World Health Organization, Canadian Food Inspection Agency, Feather Board Command Centre, Centres for Disease Control, flu.gov.

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