Noninvasive device for the canine detection of the volatile organic compounds associated to cervical cancer

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Mexi-Can group

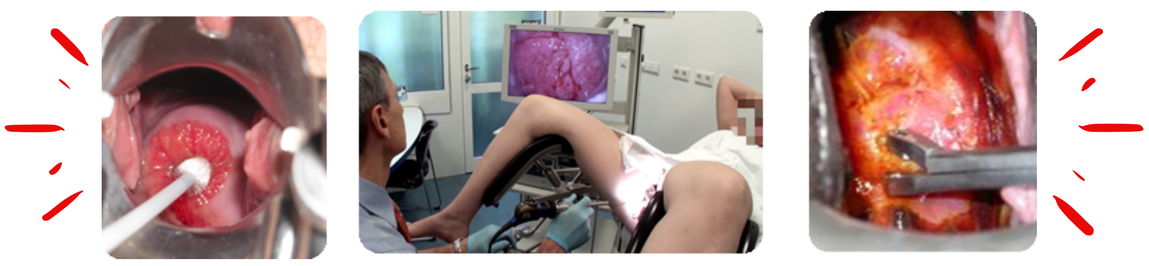
Background

Cervical Cancer (CC) is a public health concern

1st place in mortality in 44 countries
1st place in incidence in 27 countries

It's a multifactorial disease: Virtually 100%-related to human papilloma virus (HPV) infection

SIL& CC screening procedures are painful and intrusive



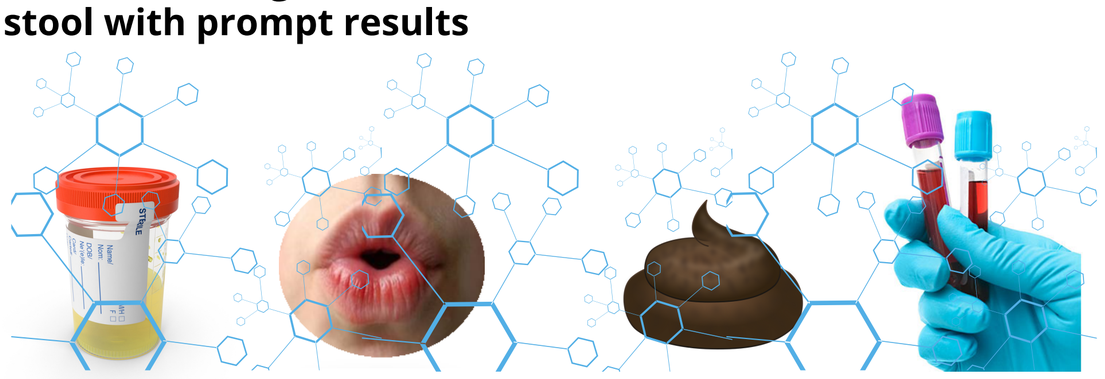
One of the 100% preventable cancer types through Squamous Intraepithelial lesions (SIL) detection as precursor of CC

If there are several tools for an early detection, why does CC?

Technical skills

Human skills

In the late 20th Century, reports of cancer detection by trained scent (sniffer) dogs have been on the rise, using different biological fluids such as urine, breath, blood, and stool with prompt results



Methods

Clicker

20 fresh biopsies

50 CC smear samples and 30 healthy cervical smears samples

PATENT PENDING

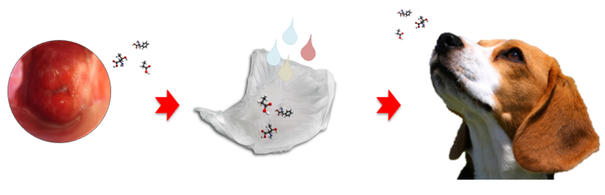
270 Gadgets: 170 from healthy women as controls and 100 from patients with CC

Results

AMAZING!

Sensitivity	(95% CI)	92.78%	96.36%
Specificity	(95% CI)	99.10%	99.55%
PPV	(95% CI)	92.78%	96.36%
NPV	(95% CI)	99.10%	99.55%
PPV_{MX}	(95% CI)	93.95%	97.00%
NPV_{MX}	(95% CI)	98.91%	99.45%
FN		7	2

Conclusions



Dog training is able to detect "some odour (VOC)" exhaled by the cancer cells

The gadget is an alternative tool as fast screening, accesible, inexpensiveness, accuracy, ease of use, non-invasiveness, and high sensitivity and specificity

Applications for these tools extend to providing much needed medical attention for women from cultural backgrounds imposing several prohibitions, deep-rooted cultural taboos, or lack of health coverage.

The use of a trained dog for screening facilitates prevention campaigns in areas of difficult access, saving money, labor, and the loss of lives due to late diagnosis.

Reference

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