TruScreen® is a unique electro-optical technology that provides a direct means of tissue differentiation as a primary screening tool in the general population for cervical cancer and precancerous change (CIN).

The Pap test has been successful in decreasing cervical cancer death rates in industrialised countries. Pap tests, however, are not effective in low resource or developing health economies due to the lack of infrastructure and lack of highly trained personnel to read the smear.

TruScreen has been shown to detect cervical cancer and its precursors just as frequently as a top quality conventional Pap test. TruScreen also provides this high accuracy with an instant report. This prevents the risk of losing contact with the patient due to the delay associated with transportation of samples to laboratories for analysis and reporting.

Polartechnics is a leading Australian medical technology company listed on the Australian stock exchange since 1987.

Pioneering research and development on the Truscreen system for real-time cervical tissue differentiation has involved close collaboration with leading clinicians and hospitals across the world.

Studies have involved women from Australia, Brazil, Italy, Philippines, People’s Republic of China, Russia, Singapore, South Africa, Spain, United Kingdom and the United States of America.

TruScreen has been in routine clinical use over the last three years in Australia and Italy and is now progressively targeting international markets.

Real-Time results – a new paradigm in cervical screening

polartechnics.com
Level 1, 140 William Street Sydney NSW 2011 Australia
Telephone: +61 2 9358 3276 • Facsimile: +61 2 9368 1070
marketing@polartechnics.com
TruScreen cervical screening system

The TruScreen is a portable system used to directly identify cancer or pre-cancerous cells in cervical tissue. TruScreen uses low levels of electric signals and light to examine the cervix by gently touching the surface of the cervix with a hand-held wand.

Unlike cytology, TruScreen does not only examine surface epithelial cells. Light at specific frequencies is transmitted through cervical tissue identifying changes in the basal and stromal layers. This includes increases in blood circulation and variations in blood vessels that occur with pre-cancerous change.

The TruScreen system also assesses the electrical properties and response of the tissue. The electrical measurements are stimulated by the delivery of a very small impulse (about one volt) in millisecond pulse sequences that repeat 14 times per second. The decay response curve will vary according to the capacitance of the tissue - a measurement of the ability of the tissue to either hold or dissipate a charge. Different tissue types and the properties of the tissue have different capacitance.

The console has a microcomputer to calculate these tissue differences, and the results are compared to an integrated database of 2,000 patients from wide geographic and ethnic backgrounds with differing histological diagnoses. A sophisticated algorithm framework has been developed in collaboration with the Australian Government’s applied research division, CSIRO, to distinguish between normal and abnormal (cancerous and precancerous) tissue.

A single use sensor with precision lens and electrodes are used to interface with the cervix and protect against cross-infection. A simple series of lights (similar to traffic lights) guides the operator to place the probe on new spots across the cervix.

TruScreen Clinical Performance

In a multi centre study, TruScreen was shown to detect precursors of cervical cancer (CIN 1-3) at an equivalent sensitivity to a top quality Pap smear. Ongoing studies confirm this performance.

Since TruScreen results come from an objective, self-checking digital system, they are free of the highly subjective human judgment required for cellular diagnosis on conventional Pap smears.

TruScreen can be effectively used with minimal training of medical or paramedical staff to allow cervical cancer detection without the infrastructure and resource costs associated with cytology based screening.

Preference

TruScreen is also more acceptable to women than a conventional Pap test.

A comparative study between use of the TruScreen and the conventional Pap test at the Whittington hospital in London showed that TruScreen was associated with significantly less pain, pressure and scraping than experienced with the spatula or brushes used to collect cells from the cervix in cytology based screening. Women also strongly preferred access to an immediate result.

REFERENCES