

Low cost *CervAstra* detects cervical cancer in a fast and inexpensive manner

By Dr. Bilqeesa Bhat

Bengaluru based start-up, Aindra System Pvt. Ltd., has developed artificial intelligence (AI) powered point-of-care device CervAstra for cervical cancer screening. The device is an end to end system automating the entire workflow for cervical cancer screening. The AI power helps in analyzing the samples and connecting experts on the cloud.



CervAstra: A portable and affordable device with faster diagnosis rate and needs minimal human intervention for detection of cervical cancer among women

CervAstra combines state-of-art optics, mechatronics, deep learning and cloud technologies to achieve unparalleled staining. The device was built using ASTRA, a computational pathology platform. The innovation analyzes pap smear (cells from cervix) samples to examine and detect both normal or abnormal cells within few hours as compared to other such devices which take longer time durations.

Breast cancer is the second most common cancer among Indian women. One woman dies every two minutes globally due to cervical cancer. Delay in diagnosis, high cost detection procedures, limited access and lack of affordable and preventive screening facilities, and general lack of awareness has led to an increase in the number of women detected with cervical cancer. All such limitations put together have resulted in increased mortality of cervical cancer patients.

Early detection in cervical cancer can save lives of women living in resource constrained health setups of rural India. More than 70% of health infrastructure and experts are restricted to urban areas and only around 30% health experts serve the rural population which comprises of about 70% of the Indian population. Thus, a device like CervAstra has emerged as a solution to tackle lack of infrastructure, shortage of pathologists and medical professionals and other systemic constraints.

The components of the device are quite compact and can be easily installed at the gynaecologist's clinic, diagnostic labs, government health departments, community and corporate hospitals. The AI-based computational pathology platform comprises of these components.

- **Intellistain:** The automated slide stainer that stains the biological samples and comes in 02 variants, 15 slides and 30 slides.
- **Vision X:** It is compact and portable system that gives extremely crisp images of a whole slide. These images enable extremely fast turnaround time and can be transferred to a clinician, thus, enabling telepathology.
- **Aindra AS:** It is an AI platform developed to facilitate computational pathology for a faster and more accurate diagnosis. Astra is built from data that is assessed by experienced senior pathologists.
- **Aindra Clustr:** It is one platform wherein one can access, analyse and share the report. Reports are in the Bethesda system and the digital images can be accessed by pathologists anytime. It enables patient to seek second opinion from other pathologists.

Thus, this AI-powered device has the potential to save lives in an affordable, reliable and accessible manner.

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