



## Cervical Cancer in India: Challenge and Opportunities

With age-standardized incidence and mortality rates of 22 and 12.4 per 100,000 women per year, cervical cancer is the second leading cause of cancer deaths among women in India. Twenty-five percent of all global deaths due to cervical cancer occur in India. The reason for this difference is lack of effective screening and access to timely treatment. The overall 5-year relative survival of 46% for all cervical cancers in India is strongly determined by the stage at diagnosis, with survival as low as 7.4% for advanced stage disease compared with 73.2% for localised cancer.

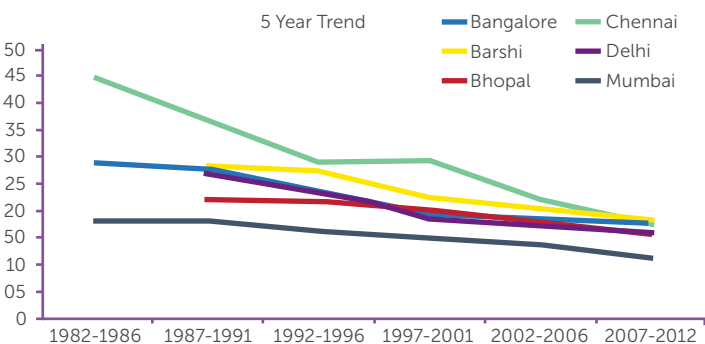
	Incidence*	Mortality*	5- year prevalence (%)
<b>India</b>	22.0	12.4	72.0
<b>South-East Asia</b>	16.3	8.0	67.9
<b>World</b>	14.0	6.8	59.6

\*per 100,000 women per year, Age standardised  
Source: Globocan 2012; incidence and mortality data for all ages.  
5-year prevalence for adult population only.

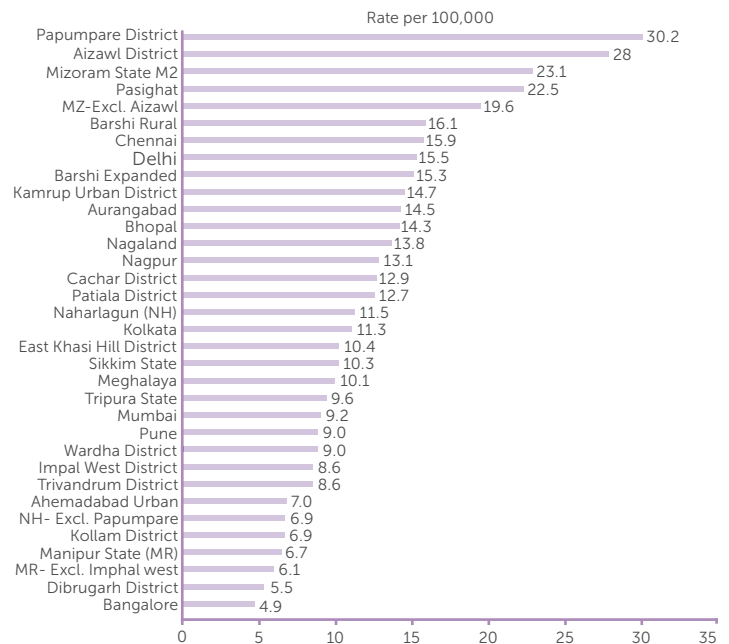
### Primary source of cancer surveillance data in India

The Indian Council of Medical Research (ICMR) initiated the National Cancer Registry Programme (NCRP) in 1981. Three population-based cancer registries (PBCRs) at Bangalore, Chennai and Mumbai and three hospital-based cancer registries (HBCRs) at Chandigarh, Dibrugarh and Thiruvananthapuram were set up. The latest 3-year report (2012-2014) has data from 27 PBCRs and 17 HBCRs. The following figures show the trends in cervical cancer incidence rates in selected PBCRs.

### Trends in cervical cancer incidence rates (selected PBCRs)



### Age-standardized Incidence Rates for cervical cancer in women from all 27 PBCRs



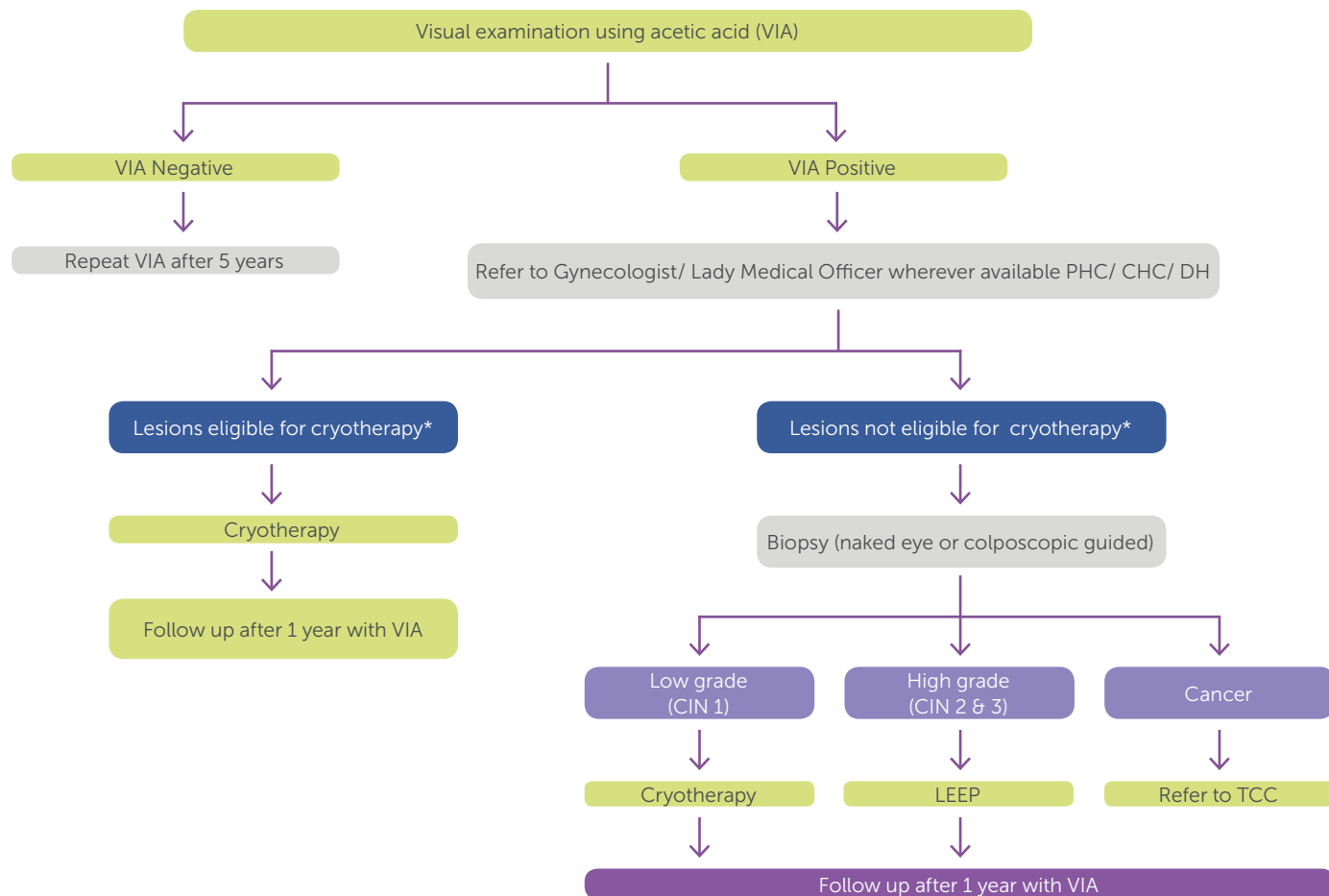
### Cervical cancer and human papillomavirus

Globally, 70–80% of cervical cancers are attributed to human papillomavirus (HPV), mainly genotypes 16 and 18. In India, HPV prevalence is 88–97% among women with cervical cancer and 10–37% among women with no gynecological morbidities. Cervical cancer incidence is greater among women of lower classes, those less educated, and those with a larger number of children. (Sreedevi et al, *Int J Womens Health*. 2015)

### Primary and secondary prevention of cervical cancer

The Government of India has commenced a program to screen all women aged 30-64 years for cervical cancer every 5 years using visual inspection by acetic acid under the National Program for Prevention and Control of Cancer, Diabetes, CVD and Stroke of the National Health Mission. The Operational Framework of Management of Common Cancers has provided broad programmatic guidelines as well as screening and management algorithm (see below). This is consistent with the WHO-recommended strategy for secondary prevention with treatment of pre-cancerous lesions.

**Figure 1. Screening and Management Algorithm for Cervical Cancer**



### What do we need?

Action is needed both for primary and secondary prevention of cervical cancer. HPV vaccination is now globally accepted as a safe and effective means of primary prevention of cervical cancer, and the issue of HPV vaccine introduction into government immunization programs has been intensely debated in India. Delhi and Punjab have initiated a public HPV vaccination program. Experiences gained at the programmatic and the community levels will be key to scaling up the program.

Also urgent is to make the secondary prevention programs efficient, affordable, scalable and sustainable. In the case of VIA, quality control has proven to be highly variable, resulting from difficulties enforcing quality assurance and supportive supervision, impacting profoundly on both the sensitivity and specificity, as the interpretation of VIA is highly subjective. VIA positivity rates can vary as much as 10-fold, suggesting the need to bring in quality control measures.

HPV DNA testing is being advocated, but pricing remains prohibitive. Over time, this strategy will likely replace VIA as an initial screening test, but VIA will continue to play a role in a secondary screen for those who test positive for the cancer-causing subtypes of HPV.

### A suggested approach

Mobile technologies are ideally suited to surveillance and are a fundamental component of health systems critical for measuring the progress of disease control and prevention measures, for appropriate targeting of resources, and for elimination of diseases. This also helps with data collection systems for patient and programme monitoring, which are confounded by lack of standardized tools and resources.

The mobile smart phone-based platform allows non-physician health providers to send cervical images and their diagnoses/treatment plans to more skilled health providers and peer-educators/trainers so that they can receive real-time supportive supervision and provide high quality cervical cancer screening services without requiring in-person training. This program can bridge the resource and health human resource gaps by facilitating supervision of newly trained cervical cancer screening providers from a remote site.

We need to test this tool alongside a primary screen for HPV DNA, a study in which this approach is compared with the traditional VIA testing will be of great value.

These tools enhance the skill of health providers, facilitate same day treatment for precancerous lesions, appropriate referrals for cancerous lesions and support a robust, real-time data monitoring and evaluation system that is accessed by government partners/stakeholders and other users at the local, district, state and national level.