



# “THE IMPORTANCE OF AWARENESS, SCREENING AND VACCINATION IN REDUCING THE CERVICAL CANCER BURDEN - INDIAN CONTEXT”

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**Abstract:** Invasive Cervical Cancer (ICC) is the fourth most common cancer and a leading cause of death among women globally. Cervical cancer remains to be one of the public health concerns in India. The increased awareness about the disease and diagnostic measures especially conventional cytology screening program in many developed countries has effectively brought down the incidence rate of cervical cancer in many parts of the west. As per the WHO reports, effective primary (HPV vaccination) and secondary prevention approaches (screening for, and treating pre-cancerous lesions) are important for reducing the burden of cervical cancer among women. The recent statistics by National Family Health Survey (2019-2021) is alarming as only 1.9% of women aged 30-49 years have undergone basic cervical cancer screening. This paper looks at the risk factors, signs and symptoms, incidence rate, vaccinations, national policies and programs and suggestive measures to reduce the occurrence of cervical cancer and related mortality.

**Index Terms - Invasive Cervical Cancer, HPV vaccination, Cancer Screening**

## 1. INTRODUCTION

Invasive Cervical Cancer (ICC) is the fourth most common cancer and a leading cause of death among women globally. World Health Organization estimates show that cervical cancer incidence and mortality vary widely by region, with low and middle income countries having more than 90% of cervical cancer deaths. Cervical cancer remains to be one of the public health concerns in India. As per the recent Global Cancer Observatory 2020 report, India records the highest number of cervical cases in Asia. Factors such as poor knowledge on screening, lack of awareness on symptoms, issues related to affordability and accessibility to health care services are the probable reasons for increase in incidence and prevalence of cervical cancer, especially in developing countries. The increased awareness about the disease and diagnostic measures especially conventional cytology screening programme in many developed countries has effectively brought down the incidence rate of cervical cancer in many parts of the west. As per the WHO reports, effective primary (HPV vaccination) and secondary prevention approaches (screening for, and treating pre-cancerous lesions) are important for reducing the burden of cervical cancer among women.

This paper looks at the risk factors, signs and symptoms, incidence rate, vaccinations, national policies and programs and suggestive measures to reduce the occurrence of cervical cancer and the death rates.

The study also reviews different research studies conducted in the last few years. The research reports retrieved from google scholar is used for reference to see the status of cervical cancer awareness at different regions of India.

## GLOBAL CALL FOR ELIMINATION OF CERVICAL CANCER

World Health Organization, in the year 2018 called all the stakeholders to effectively take part in the political will to eliminate cervical cancer and work towards a common goal. Further WHO in the year 2019 initiated a global strategy towards the elimination of cervical cancer as a public health problem with clear targets to accelerate for a ten-year period, from 2020 to 2030.

- 90% of girls to be fully vaccinated by 15 years of age with two doses of HPV Vaccine
- 70% of women screened to take up high performance test at 35 years and 45 years of age
- 90% of women with cervical pre-cancer and cancer receive treatment to achieve a goal of less than four cases per 10,000 women.

## CERVICAL CANCER

Cervical Cancer is a cancer observed in the cervical region (the opening part between the lower part of the uterus and the vagina). Various strains of Human Papilloma virus (a sexually transmitted infection) causes infection and the persistent infection over a period of time causes cervical cancer. About 70% of infections are caused due to two HPV strains (HPV 16 and HPV 18), and infection caused by both these strains are asymptomatic, thus delaying the diagnosis.

### SYMPTOMS:

- ✓ Unusual vaginal bleeding (during or after sex, between periods or after the menopause)
- ✓ Changes in the color or odor of vaginal discharge
- ✓ Pain during intercourse
- ✓ Pain in the lower back/pelvis/lower abdomen.

### RISK FACTORS

In a study done among India Women, it is observed that early marriage, first intercourse at younger age, higher parity raises the chances of HPV infections, thus leading to higher incidences of cervical cancer.

#### The risk factors identified by the American Cancer Society are, as follows:

- ✓ Infection caused by Human Papilloma Virus (HPV)
- ✓ Being sexually active at young age/ sexual partner (single/multiple) with HPV infections.
- ✓ Women who have HIV/AIDS or those with suppressed immune system are also prone to get infections.
- ✓ Women who have been infected with chlamydia (a bacteria that infects the reproductive system).
- ✓ Long term use of oral contraceptives (birth control pills)
- ✓ Having multiple full term pregnancies.
- ✓ Young age pregnancy
- ✓ Family history
- ✓ Poor diet
- ✓ Lower economic status (as women may not have access to screening tests)

Using of Intra-uterine device is said to reduce the risk of cervical cancer and usage of condoms is said to reduce the sexually transmitted infections.

### CERVICAL CANCER IN INDIA

As per the National Cancer Registry Programme 2022, cancer of the breast and cervix are the most common cancers among women and cervical cancer accounted for 6-29% of all women cancers. India is home to about 16% of the world's women and accounts for about one-fourth of cervical cancer incidence and nearly a third of global cervical cancer deaths.

National Technical Advisory group for immunization (NTAGI) report published in December 2022 says Indian women face a 1.6 percent life time cumulative risk of developing cancer and 1.0 percent cumulative death risk from cervical cancer.

In India, it is estimated that 14, 61, 427 new cases of cervical cancer have occurred in the year 2022 and the approximate rate of incidence is 100.4 per 100, 000. Papumpare district, Arunachal Pradesh had the highest incidence rate of cervical cancer in Asia.

The statistics released by WHO titled "Cervical Cancer Country Profile – India 2021" says that fewer than 1 in 10 women has undergone cervical cancer screening in the last 5 years in our country, age- standardized cervical cancer is 18 years and the incidence rate is 18.7. The report also indicates that HPV vaccination is not included in the national immunization programme, which would have otherwise prevented the occurrence of cervical cancer.

### NATIONAL POLICIES AND PROGRAMMES

It has been more than 45 years since the Government of India launched cancer control programs, yet the Indian women are still battling with the dreadful disease. The symptom presentation, in the last stages of cancer may be a reason why women report the disease at a later stage, making the prognosis poor. The recent statistics by National Family Health Survey (2019-2021) is alarming as only 1.9% of women aged 30-49 years have undergone basic cervical cancer screening, thus increase the severity of the issue.

The Government of India is taking consistent efforts at primary, secondary and tertiary level to reach out the women, yet the ignorance level of women and minimal available resources make the screening and treatment process beyond the accessibility of women living in remote areas.

**1975** - The Government of India initiated the National Cancer Care programme.

**1984** – The Ministry of Health - Indian Government focused on primary prevention and early detection.

**2013**- Introduction of National Programme for Prevention & Control of Cancer, Diabetes, Cardio-vascular Diseases and stroke (NPCCDCS) - Integrated approach to deal with Non- Communicable diseases. NPCCDCS programme has 5 important strategies – Health promotion, screening, early detection, awareness generation and promotion of a healthy life style.

**2018**- Introduction of Health and wellness Centre programme for strengthening of the screening, prevention, control and management of non-communicable diseases including cervical cancer through community health workers.

2022 –Recommendation of HPV vaccine in the Universal immunization programme - National Technical Advisory Group for Immunization (NTAGI) with a one-time catch up of 9-14-year-old adolescent girls.

## AWARENESS ABOUT CERVICAL CANCER

The government of India is taking earnest efforts in reaching out to both the rural and urban areas in creating awareness on different types of cancer. The initiatives under NPCCDCS has trained and empowered community health workers, Accredited Social Health Activist (ASHA) workers, Medical team to reach out to the community. The taboo attached with the HPV infection, neglecting women's reproductive health, access to gynecological team, skipping regular medical checkups after 35 years of age, poor economic status can be the reasons why women often miss out on early diagnosis. Most of the women are not even aware of the vaccination available for prevention of HPV.

In addition to health education, sex education can play a role in creating awareness among young girls on menstrual hygiene, reproductive health and vaccination. One of the oncologist working in the cervical care specialty in fact recommended that men should also be educated about the women's reproductive health, so they turn sensitive to the needs of women's gynecological issues and start supporting them financially and morally to take up screening, which can pave way for early detection.

A study done by Narayan and team on "Knowledge, Attitude and practice towards cervical cancer among women attending Obstetrics and Gynaecology Department", A Cross-sectional hospital based survey in South India found that women have good knowledge, positive attitude toward cervical cancer screening, and prevention. Despite the awareness, there is still a significant gap to transform into practice.

## SCREENING MEASURES

Researches in India and other developing countries have showed that even single round of screening is very effective in reducing the incidence and mortality rate compared to no screening. Once in a life time approach -ie. every woman should atleast be screened once in a life time strategy in a limited resource country with a high population like India. In this study, the author also mentions that most of male members are not aware of the women's health and directly or indirectly don't permit women to reach to the nearest health care centres.

Different types of screening measures, generally followed in diagnosis are

**Cytology test (Pap Smear)** - Most commonly used method in Urban India. Cytology test has been effective in the eliminating the cervical cancer trend in the developed countries. The repeated rounds of testing due to poor sensitivity, requires more funds and infra-structure facilities thus making it impossible for rural and economically disadvantaged women to take up the screening test.

**Visual Inspection with Acetic Acid (VIA):** VIA is the most commonly used method in rural areas. This method is also recommended by Federation of Obstetric and Gynecological Societies of India (FOGSI) in limited resource settings and the simplicity in testing has been helpful in training the health care personnel to screen and engage in multi-level coordination.

**HPV testing:** This test, conducted on cells from the cervix, can recognize the DNA of the high-risk varieties of HPV that can cause pre-cancers and cancers.

## THE STATUS OF HPV VACCINATION IN INDIA

Cervical cancer is both preventable and curable, as long as it is detected and managed early. Since most cervical cancers are caused due to HPV infection, it can be prevented by HPV vaccination and WHO has strongly recommended that prevention through vaccination of one of pillar strategy of global strategy adopted to eliminate it. The vaccination of HPV is considered effective in reducing the occurrence of cervical cancer among young women since the dose is recommended before the first sexual activity. Many women have lot of fear and misconceptions about the cervical cancer and are very apprehensive to take vaccination.

According to WHO, vaccination of HPV- naïve girls is cost-effective preventive measure, particularly in low resourced developing countries. In India, HPV vaccines has been licensed in 2008 for females aged 9 to 45 years. The Indian Academy of Pediatrics committee on Immunization (IAPCOI) recommends vaccines for girls starting from 9 years of age and FOGSI recommends vaccines for girls between 9-14 years. Vaccines in the sexually active elder women is considered to be less effective but provide some benefit to protect from some strains of HPV, if they have not been benefitted earlier.

In the year 2016, Delhi was the first state in India to implement opportunistic HPV Vaccination for school going girls in the age group of 11-13 years. Though there were no contra-indications reported, the programme had a minimal reach compared to the state's expectations. Also, simultaneously Government of Punjab developed operations guidelines and implementation vaccination with the technical inputs from ICMR, WHO and UNICEF. A strong and effective campaign more in two districts - Bathinda and Mansa which has highest incident rate (17.5 and 17.3 per 100, 000 respectively) was targeted and 98% of target population was vaccinated. The success rate in Punjab paved way for the policy makers to reach out to other states.

In 2018, Sikkim targeted young girls in the age group of 9-14 years and administered two doses with a gap of six month and Sikkim was the first and only state to complete vaccination for young girls.

Before 2022, the vaccination programme is not a part of the Universal vaccination programme. The HPV vaccination recommended to be introduced under the universal immunization programme in the middle of 2023 can be a promising primary strategy to reduce and eliminate cervical cancer in India.

A letter from central government to all the states and union territories (December 2022) has asked all the stakeholders to take necessary actions for the following steps:

- Organizing HPV vaccines through schools
- Coordination of both Government and Private school management board in the district
- Generating awareness through school teachers
- Supporting health team to plan vaccination campaign in state excluding months of examination and holiday.

## CONCLUSION

Cervical cancer is both preventable and curable. Awareness and screening programme can be very effective strategies help to detect the symptoms of cervical cancer early, thus improving the prognosis and reducing the treatment complication and related death. The incorporation of HPV vaccine in the universal vaccination programme is a promising strategy and a welcome move for prevention and elimination of cervical cancer.

Once- a –life approach in screening will help all women to get screened for the risk of cervical cancer and awareness at the primary level through health care workers can be an effective strategy to reach out to the rural and remote areas. Increasing awareness on the disease and vaccination can be a significant factor to remove the bias and barriers of screening and facilitate early detection. The concerted efforts by all the stakeholders in improving the awareness, screening and prevention would lead to realizing the WHO global action for elimination of cervical cancer.

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