



ANALYSIS OF CERVICAL CANCER INCIDENCE AND EFFECTIVENESS OF TREATMENT IN THE WORLD. A COMPARATIVE STUDY BETWEEN INDIA AND KYRGYZSTAN.

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ABSTRACT

Purpose:

Cervical cancer is the leading cause of cancer mortality in India, accounting for 17 Percent of all cancer deaths among women age 30 to 69 years. At current incidence rates, the World Health Organization (WHO) estimates that the annual burden of new cases in India will increase to nearly 225,000 by 2025.

Up to 40 percent of cases of cervical cancer in Kyrgyzstan are detected at late stages of development. The Ministry of Health annually spends more than \$ 500,000 on the diagnosis, treatment and care of such patients.

Cervical cancer is among the top two most frequent cancers detected among women in Kyrgyzstan.

Its prevention and control require a concerted effort to improve awareness among women regarding primary and secondary prevention strategies as well as access to care for treatment and palliation.(p. [1])

Methods:

This study primarily has chosen and reviewed 20 journals on cervical cancer based in India and Kyrgyzstan. The statistics is confiscated from the worldwide websites WHO and CDC. A literature review was done to document the process of formulation of the guidelines, in addition to inputs from the officials involved in the process of developing them.

Introduction:

INDIA

As per Globocan 2020, 604,100 new cases of cervical cancer were detected globally in 2020 and 341,831 deaths were attributed to this malignancy. In India, cervical cancer accounted for 9.4% of all cancers and 18.3% (123,907) of new cases in 2020. It still is amongst the commoner cancers in India and a leading cause of cancer-related deaths in women in low- and middle-income countries. Although the age-standardized incidence rate of cervical cancer decreased substantially by 39.7% (95% UI 26.5–57.3) from 1990 to 2016, it is the second leading cause of cancer deaths for females in 12 Indian states [(p. [3])].

The most effective prevention strategy for cervical cancer is the systematic screening of women through an organized program along with treatment and follow-up of the screen detected precursor lesions. The focus on the detection and prevention of cervical cancer must be emphasized in a highly populated country like India (p. [4]). Management algorithms for screen-positive women in cervical cancer prevention programs have undergone substantial changes in recent years.

Cervix Cancer Surgery:

Radical Hysterectomy : The uterus, Cervix, both ovaries and surrounding tissues are removed in this surgery. Removal of surrounding tissues is of utmost importance to remove the cancer completely. So, this surgery is called Radical Hysterectomy. Pelvic LN Dissection is also done.

Minimally invasive radical hysterectomy was associated with higher rates of all-cause mortality (HR, 6.00; 95% CI, 1.77-20.3), disease-specific mortality (HR, 6.56; 95% CI, 1.48-29.0), and loco-regional recurrence (HR, 4.26; 95% CI, 1.44-12.6) compared to open surgery (p. [8])

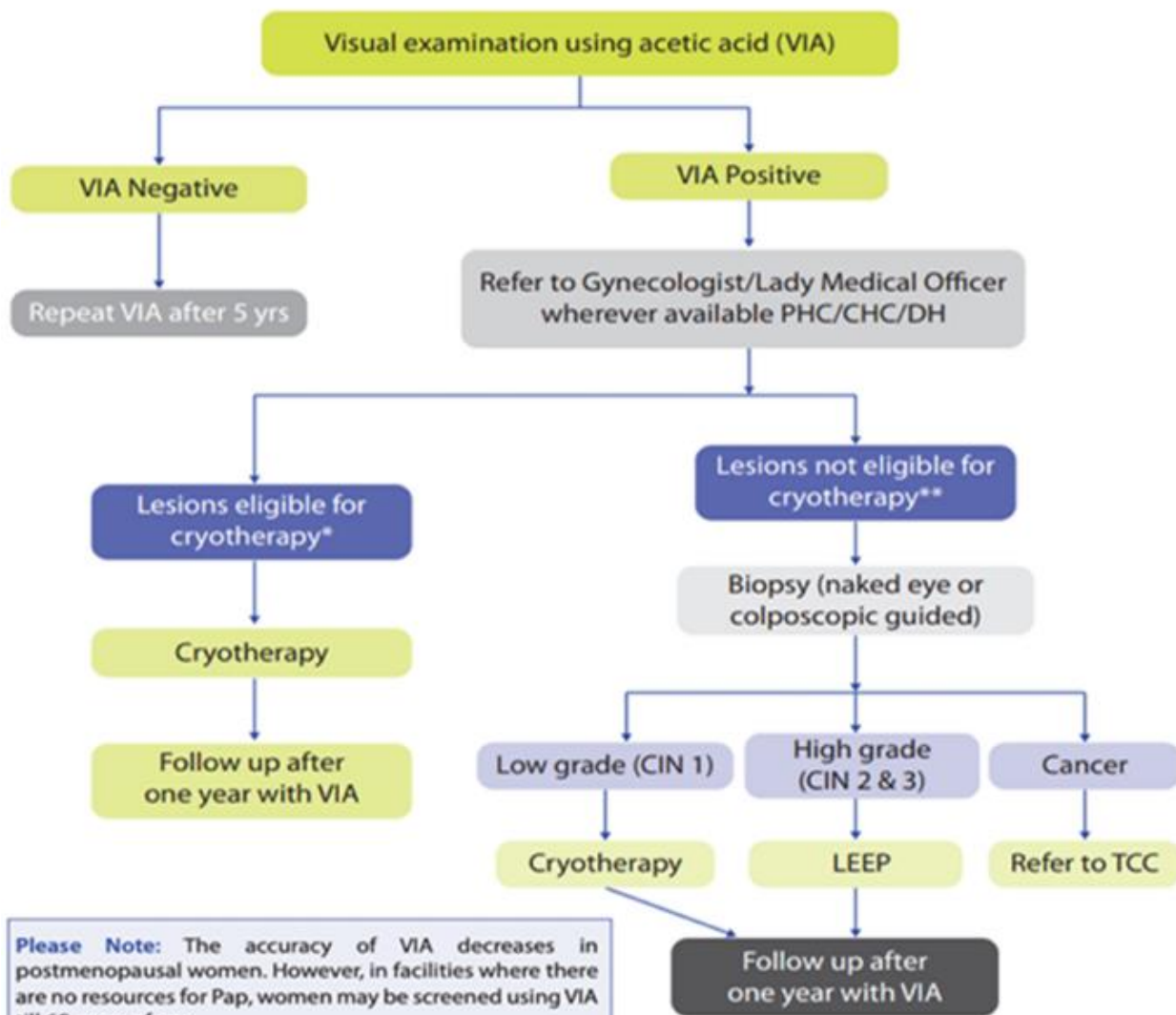
Non radical surgery: Parametrectomy is responsible for the majority of complications related to radical hysterectomy for cervical cancer. Study showed no significant difference in adjuvant treatment, recurrence and overall survival rates between the two arms but a higher surgical morbidity after Class III radical hysterectomy (84 vs. 45%). Reade *et al* analyzed 341 patients with early-stage cervical cancer who were treated with either simple hysterectomy or simple trachelectomy and showed crude recurrence rate 6.3 per cent and disease-related mortality rate 1.5 per cent, comparable outcomes were achieved by radical procedures. (p. [9])

An abdominal radical trachelectomy (ART) allows a more extensive paracervical and paravaginal dissection compared with vaginal approach. Einstein *et al*^[2] showed a 50 per cent wider parametrial resection in ART compared with vaginal radical trachelectomy. However, ART is also associated with increased risk of adhesions and increased frequency of ligation of uterine artery which may potentially impair subsequent fertility. (p. [10])

Chemotherapeutic and radiotherapeutic effects:

Concurrent treatment with CT-RT results in gastrointestinal and hematologic toxicity, principally. In Green metaanalysis. (p. [13]) the combined modality results in acute toxicity hematological and was severe or life-threatening in more patients in the CT-RT group than in the control group (neutropenia, 16% vs. 8%; platelets, 1.5% vs. 0.2%). Grade 3 or 4 gastrointestinal toxicity was also greater in the CT-RT group than in the control group (9% vs. 4%). A thromboembolic complications were noted in 16.7% of 48 patients who received chemoradiation, the routine use of erythropoietin increased incidence of thromboembolic complications.(p. [11])

Annexure 1b: Screening and Management Algorithm for Cervical cancer



Please Note: The accuracy of VIA decreases in postmenopausal women. However, in facilities where there are no resources for Pap, women may be screened using VIA till 65 years of age.

- *Eligibility for cryotherapy:**
- The lesion should not be spread over more than 2 quadrant of cervix
 - The entire lesion is located in the ectocervix without extension to the vagina and/or endocervix
 - The lesion is visible in its entire extent
 - The lesion can be adequately covered by the largest available cryotherapy probe
 - There is no suspicion of invasive cancer

- **Cryotherapy not recommended if:**
- Symptoms:**
1. Postcoital bleeding
 2. Postmenopausal bleeding
- Examination:**
3. Overt cervical growth
 4. Irregular surface
 5. Bleeds on touch

(p. [5])

INDIA

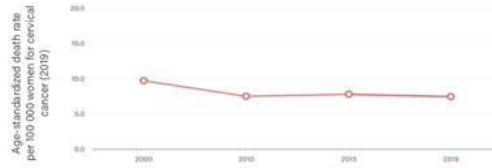
CERVICAL CANCER PROFILE

TOTAL POPULATION,
FEMALE (2019): 656 300 000

TOTAL DEATHS,
FEMALE (2019): 4 191 000

Morbidity and Mortality

Crude cervical cancer incidence per 100 000 women (2020):	18.7
Age-standardized cervical cancer incidence per 100 000 women (2020):	18
Cumulative risk of cervical cancer, ages 0-74 (2020):	2.0%
Cervical cancer deaths (2019):	45 300
Cervical cancer mortality-to-incidence ratio (2020):	0.62
Population-based cancer registry exists (2021):	Yes



Primary Prevention

HPV vaccination programme coverage among girls (2020)



HPV vaccination is not included in the national vaccination schedule

HPV vaccination programme (2020):

HPV included in national vaccination programme:	No
Scale of vaccination programme:	-
Year of introduction:	-
Primary target cohort:	-

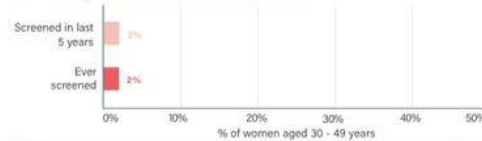
Related risk factors:

Tobacco use prevalence, women aged 15+ years (2020):	12%
Condom use at last high-risk sex (2015-2016):	40%
HIV incidence per 1000, women aged 15+ years (2020):	ND

Secondary Prevention

National screening programme for cervical cancer exists (2021):	Yes
Primary screening test used (2021):	VIA
Target age range of programme (2021):	30-65 years
Programme/guidelines exist to strengthen early detection of first symptoms at primary health care level (2021):	Yes
Clearly defined referral system exists from primary care to secondary and tertiary care (2021):	Yes

Screening for cervical cancer (2019)



Fewer than 1 in 10 women have been screened for cervical cancer in the last 5 years

Treatment and Supportive Care

National guidelines on cervical cancer management exist (2021):	Yes
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Number of radiotherapy units per 10 000 cancer patients (2021):	5
Number of brachytherapy units per 10 000 cancer patients (2021):	2

Cancer diagnosis and treatment services generally available (2021):

Cancer centre or cancer department at tertiary level:	Yes
Pathology services (laboratories):	Yes
Cancer surgery:	Yes
Chemotherapy:	Yes
Radiotherapy:	Yes

Number of medical staff (per 10 000 cancer patients):

Radiation oncologists (2019):	3
Medical physicists (2019):	16
Surgeons (2009):	273
Radiologists (2019):	346
Nuclear medicine physicians (2019):	3

Palliative care for patients with NCDs in the public health system generally available (2021):

In primary health care facilities:	Yes	Reported annual opioid consumption - excluding methadone - in oral morphine equivalence per capita (2017):	<1mg
In community or home-based care:	Yes		

WHO Cervical Cancer Elimination Strategy Targets for 2030

90% of girls fully vaccinated with the HPV vaccine by the age of 15

70% of women are screened with a high-performance test by 35 years of age and again by 45 years of age

90% of women identified with cervical disease receive treatment

ND = data not available

VIA = Visual inspection with acetic acid

* Programme coverage: % of national target population (among 9-14-year-old girls)
 † Coverage by age 15: % of population turning 15 that have been vaccinated against HPV at any time between ages 9 to 14
 See Explanatory Notes for indicator descriptions.

World Health Organization - Cervical Cancer Country Profiles, 2021

KYRGYZSTAN

Even with high occurrence of cervical cancer in the country, Kyrgyzstan today does not have an active screening programme. Early detection of abnormalities that signal the presence of cancerous cells ensures women can be initiated on treatment rapidly before the cancer spreads. Cervical cancer is preventable if it is treated at an early stage.

Médecins Sans Frontières, present in Kyrgyzstan for over twenty years, is one of the few international medical organizations working in the country for several years now. We aim to share our experience of screening and treating cervical cancer lesions at an early stage through proven and cost-effective measures in other countries such as Malawi and the Philippines, to enable the Kyrgyz Ministry of Health to build a solid foundation for a country-wide prevention programme.

The data of 83 patients with CC at the Osh Interregional Oncology Center (2015–2017) were studied. The average age was 56.2 years. According to the stages, there were: IIIa – 36 (43.4%), IIIb – 40 (48.1%), IV – 7 (8.5%) patients. The diagnosis in all was verified histologically (93.9% squamous cell carcinoma). A consistent design of explanatory mixed methods with two cross-surveys (patients and medical workers) was used.

According to the ethnicity, there were Kyrgyzs – 48 (58.7%), Uzbeks – 27 (32.5%) and other 8 (8.6%). Forty-six patients were married (55.4%), 22 (26.5%) were widows, 13 (15.7%) of patients were divorced and 2 (2.4%) were never married. Only 16 (19.3%) patients had higher education. Most of the patients did not work, were housewives (37 or 44.6%). The patients' awareness of CC was mainly via the Internet (39 or 47.0%) and through health service staff (37 or 44.6%). Only 16 (19.3%) women knew the information that CC is curable. About 50% had a monthly income of less than \$ 200, 15% of patients considered their financial situation as poor. Twenty-six women (41.3%) had access to palliative care, but the majority of patients (57 or 58.7%) did not receive palliative and psychological care at all.

Palliative care of CC in the Osh region is limited due to insufficient development of the oncogynecological service, lack of medical personnel, social workers and inadequate pain control. (p. [12])

According to the estimates of the World Health Organization, about 600 women in the Kyrgyz Republic develop cervical cancer every year, of which 300 cases are fatal. This type is the second leading cause of cancer in women in the country and is the most common form of cancer in women aged 15-44. Doctors hope that the start of vaccination against the human papillomavirus (HPV) will help prevent the disease. Some parents of teenage girls have already refused vaccination.



KYRGYZSTAN

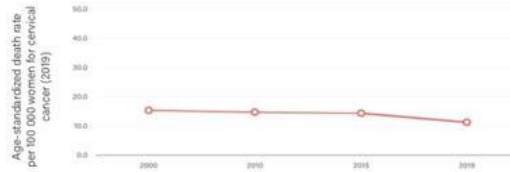
CERVICAL CANCER PROFILE

TOTAL POPULATION,
FEMALE (2019): **3 242 000**

TOTAL DEATHS,
FEMALE (2019): **13 700**

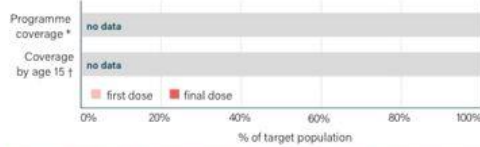
Morbidity and Mortality

Crude cervical cancer incidence per 100 000 women (2020):	15.1
Age-standardized cervical cancer incidence per 100 000 women (2020):	15.4
Cumulative risk of cervical cancer, ages 0-74 (2020):	1.6%
Cervical cancer deaths (2019):	310
Cervical cancer mortality-to-incidence ratio (2020):	0.57
Population-based cancer registry exists (2021):	Yes



Primary Prevention

HPV vaccination programme coverage among girls (2020)



HPV vaccination is not included in the national vaccination schedule

HPV vaccination programme (2020):

HPV included in national vaccination programme:	No
Scale of vaccination programme:	-
Year of introduction:	-
Primary target cohort:	-

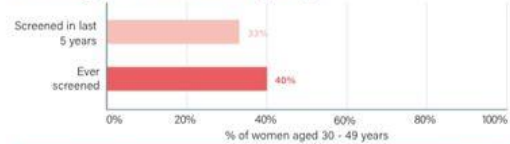
Related risk factors:

Tobacco use prevalence, women aged 15+ years (2020):	3%
Condom use at last high-risk sex (2012):	67%
HIV incidence per 1000, women aged 15+ years (2020):	0.09

Secondary Prevention

National screening programme for cervical cancer exists (2021):	No
Primary screening test used (2021):	-
Target age range of programme (2021):	-
Programme/guidelines exist to strengthen early detection of first symptoms at primary health care level (2021):	Yes
Clearly defined referral system exists from primary care to secondary and tertiary care (2021):	No

Screening for cervical cancer (2019)



3 in 10 women have been screened for cervical cancer in the last 5 years

Treatment and Supportive Care

National guidelines on cervical cancer management exist (2021):	Yes
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Number of radiotherapy units per 10 000 cancer patients (2020):	1
Number of brachytherapy units per 10 000 cancer patients (2020):	1

Cancer diagnosis and treatment services generally available (2021):

Cancer centre or cancer department at tertiary level:	Yes
Pathology services (laboratories):	Yes
Cancer surgery:	Yes
Chemotherapy:	No
Radiotherapy:	DK

Number of medical staff (per 10 000 cancer patients):

Radiation oncologists (2019):	ND
Medical physicists (2019):	2
Surgeons (2013):	2854
Radiologists (2019):	1069
Nuclear medicine physicians (2019):	5

Palliative care for patients with NCDs in the public health system generally available (2021):

In primary health care facilities:	DK	Reported annual opioid consumption - excluding methadone - in oral morphine equivalence per capita (2017):	<1mg
In community or home-based care:	DK		

WHO Cervical Cancer Elimination Strategy Targets for 2030

90% of girls fully vaccinated with the HPV vaccine by the age of 15

70% of women are screened with a high-performance test by 35 years of age and again by 45 years of age

90% of women identified with cervical disease receive treatment

ND = data not available DK = don't know
 * **Programme coverage:** % of national target population (among 9-14-year-old girls)
 † **Coverage by age 15:** % of population turning 15 that have been vaccinated against HPV at any time between ages 9 to 14
 See [Explanatory Notes for indicator descriptions](#).

Comparison:

SPECIAL POLICIES UNDERTAKEN TO PREVENT CERVICAL CANCER IN INDIA:

National health policy

The National health Policy of India which was first drawn up in 1983 and subsequently revised in 2002 and 2017 provides the overall guidelines for the health sector in the country. Its primary aim is to inform, clarify, strengthen and prioritize the role of the Government in shaping health systems in all its dimensions- investments in health, organization of healthcare services, prevention of diseases and promotion of good health.

Cervical cancer policy/strategy

At present, there does not appear to be a single comprehensive cervical cancer program at the national level in India. Some provisions for cervical cancer prevention and treatment are included within the documents related to the aforementioned policies and strategies.

Cervical cancer screening policy/strategy

There is no comprehensive national screening program in India at present. A lifetime screening prevalence of 29.8% among women aged 30-49 has been reported from a nationally representative survey. The Ministry of Health and Family Welfare has recommended the Visual Inspection with Acetic Acid (VIA) screening method for women aged 30-65 with a 5-year interval since 2016 as per the operational framework.

HPV immunization policy/strategy

Although there is no national human papillomavirus (HPV) immunization program in India, there are several efforts, including one state- wide program in Sikkim, another program in two districts of Punjab and an opportunistic program based in Delhi.

SPECIAL POLICIES UNDERTAKEN TO PREVENT CERVICAL CANCER IN KYRGYZSTAN:

Kyrgyzstan joins European Cervical Cancer Prevention Week

HPV vaccination was officially introduced in Kyrgyzstan in 2022. Nationwide, 63% of the 200 000 targeted adolescent girls aged 9–14 have already been vaccinated. Prior to introduction, many health workers were trained to administer the vaccine and in how to communicate about the vaccine, including addressing potential questions and concerns. Information materials were also circulated to inform parents. The introduction comes in the context of the country's Immunoprophylaxis Programme for 2020–2024.

Result:

When cervical cancer is diagnosed at an early stage, the 5-year relative survival rate is 92%. When cervical cancer is diagnosed after it has spread to nearby tissues, organs, or regional lymph nodes, the 5-year relative survival rate is 59%. (p. [2]). A recent study by Ginsburg et al. reported that HPV has also caused a slow-moving health crisis akin to a pandemic that is hiding in plain sight. Immediate, coordinated action is needed to bring together global partners into collaboration with private-sector manufacturers of vaccines, diagnostics, and cancer treatments. This is critical for facilitating effective intervention to prevent nearly 350,000 cervical cancer deaths in 2021 and

the future.(p. [7]).It is also inferred that the prevention is far better than the treatment in the case of cervical cancer.

Conclusion:

Indian government has started to bring up a cost effective programme to prevent the cervical cancer and is implementing various camping programmes for people of lower socioeconomic status but is still unable to take it nationwide.

The government of Kyrgyzstan is falling behind in bringing up a wide screening program and has a lack of expertise including trained personals and equipments. The country also has not taken enough policies in the field of screening as well as treatment of cervical cancer which has lead to a severe increase in cervical cancer deaths.

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