

HPV (Human Papillomavirus) Vaccination for prevention of cervical cancer

HPV is the short name for human papillomavirus

Usually infectious agents cause acute communicable diseases and vaccination prevents such communicable diseases. But, few infectious agents cause non communicable diseases such as cancers in long term effects of persistent virus infections. Viral diseases leading to cancers are estimated as 20%.

One example of virus agents causing cancer is Hepatitis B virus in developing the Liver cancer. the National Immunization programme has already introduced Hib vaccine (in the form of Pentavalent vaccine) in 2006 into infants aiming to prevent liver cancers in adulthood.

Human Papillomavirus (HPV) vaccine is the 2nd opportunity provided for prevention of a cancer by a vaccine through the National Immunization programme aiming to prevent Cervical cancer.

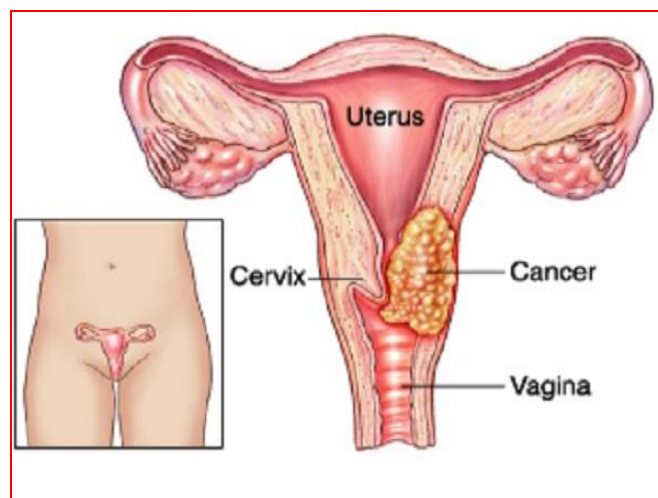
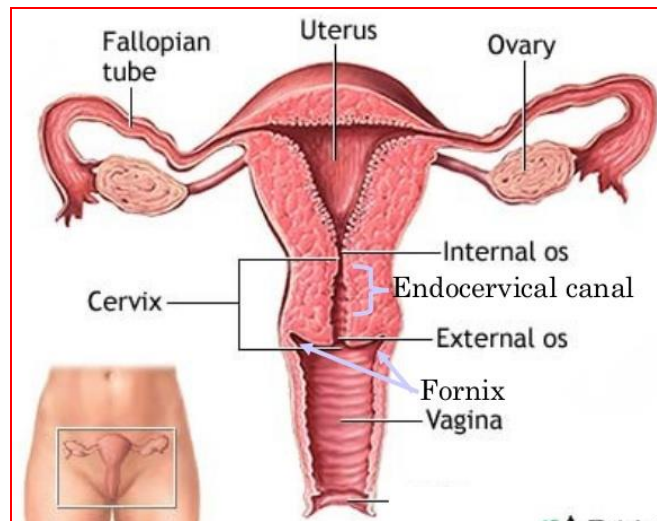
HPV is a group of more than 100 related viruses. Each HPV virus is given a number which is called a genotype of the HPV. This is a common virus which can stay in surfaces such as skin and mucous membranes (e.g. oral and genital tract surfaces). But the virus just by staying on surfaces will not cause any signs and symptoms to such as a disease to identify whether virus is on the surface or not. It does not actually cause an acute illness and even sometimes in life it can spontaneously disappear due to various reasons. But some genotypes are dangerous. Even though they do not cause acute illnesses or disease to the person just by staying, it tends to stay without disappearing (harbouring surfaces) and gradually causes cellular changes in specific areas in the body, which later transform into cancer cells or into non-cancerous cell growths resulting in warts. The interval between the acquisition of HPV infection and progression to advanced stage of cervical cancer is usually about 10 years or longer.

Cervical HPV infection can be diagnosed using tests based on HPV-DNA performed on cervical or vaginal swabs; HPV-induced changes in the cervical epithelium can be detected by cytology using a microscopic examination of exfoliated cells, known as the Papanicolaou (Pap) test. Testing for HPV DNA, cytology, and visual inspection with acetic acid are used for cervical cancer screening in early identification of cervical cancer.

HPV genotype 16 and 18 are the most common cancer causing genotypes for cervical cancer and considered as high risk genotypes. Almost 99.7% of Cervical cancers are caused by any genotype of HPV and two high-risk genotypes of HPV virus, types 16 and 18, account for about 70% of all cervical cancer cases. There are vaccines that can prevent infection with the types of HPV that most commonly cause cancers.

Message : HPV causes majority of cervical cancer and preventive vaccine is available

What is cervix and what is cervical cancer



Cervical cancer is a preventable non-communicable disease. Globally most affected age group is around 30-55 years causing high morbidity and mortality to women. Over 80% of these newly diagnosed cases are from developing countries. Nearly 12% of all female cancers are cervical cancers. Globally, it accounts nearly 266,000 deaths annually and 85% are from developing countries. Without organized cervical cancer preventive programmes and urgent attention in preventing deaths, it is projected that cervical cancer deaths would rise by almost 25% over the next 10 years

In Sri Lanka, it is estimated that 7.52 million are at risk of developing cervical cancer, 1395 cases and 814 deaths (according to international estimates, IARC)). According to National Cervical Cancer Control Programme data, a total of 850 - 950 cases of cervical

cancer has been identified and admitted to hospitals annually . Cervical cancer is the 2nd most common female cancers accounting for 10% of all female cancers in Sri Lanka.

Cervical cancer is gradually developing around 30 years and peak around 50-55 years and the National Cancer Control statistics show the following graph of age distribution of cervical ancer cases in Sri Lanka

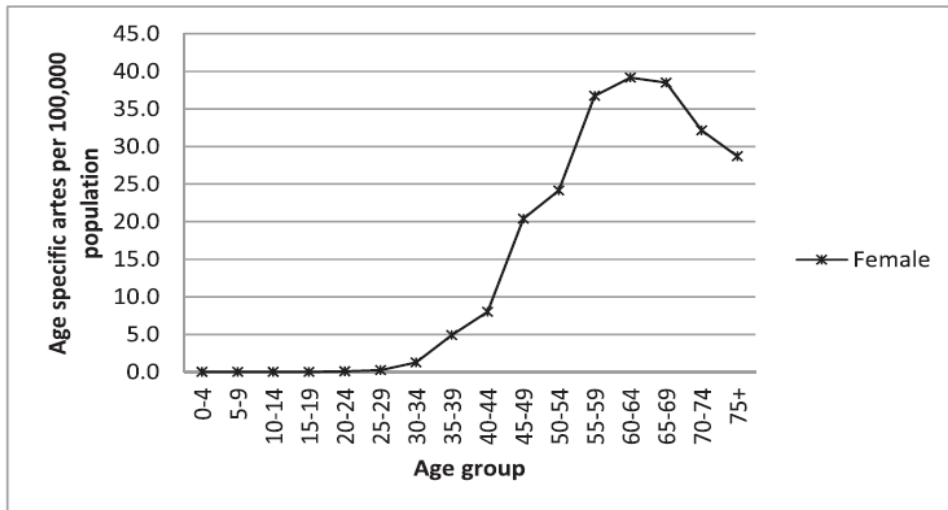


Figure 16: Age specific rates- Cervix uteri

Source : National cancer control programme

Message: Cervical cancer is a burden in Sri Lanka among women in most essential time in life affecting the family

Cervical cancer prevention

Tertiary prevention : Treatment for cervical cancer stages

Once cervical cancer develops, and presented with signs and symptoms of cervical cancer itself or any other problem of disseminated diseases due to cancer spread is investigated and treated. All complicated cases will be managed. But majority will die with complications, resulting in family losing the mother or wife. Health care system has to bear a huge health care cost on investigations surgery , radiotherapy, drugs and on follow up managemnt. Inspite all such expenditure, the women would die due to complications. These are preventable deaths as preventable vaccine is now available.

Secondary prevention: Screen and treat for cervical pre cancer stages

HPV-induced changes in the cervical epithelium can be detected by cytology using a microscopic examination of exfoliated cells, which is also known as a Papanicolaou (Pap) test. Persistent HPV infection can be diagnosed by repeated tests for HPV DNA. Cytology or testing

for HPV DNA, or both, are used for cervical cancer screening and diagnostic follow-up in many countries. In low-resource settings that lack a complex health infrastructure, visual inspection of the cervix with acetic acid or Lugol's iodine is used to identify cervical lesions.

Pap smear screening programme is focused on early detection of cases and timely treatment. It is highly an effective intervention and many countries have implemented it as a part of routine cancer prevention strategy. It is recommended for females in age 21 - 65 groups and screening to be performed in every 3-5 years period.

Pap smear screening programme in Sri Lanka is in place for the last two decades and all women at the age of 35 years (or above) are offered one time screening at the well women clinics conducted by Medical Officers of Health. But due to several reasons, a significant number of cervical cancer cases at advanced stages are still occurring in the country.

Primary prevention : vaccination for the prevention of cervical cancer by preventing HPV virus (geno type 16 and 18) entering and persisting to cause cervical cancers

Two prophylactic vaccines are currently available and used in many countries worldwide for the prevention of HPV-related disease including cervical cancers. A quadrivalent vaccine (contain HPV-genotype 6,11, 16 and 18) and a bivalent vaccine (HPV-genotype 16 and 18) are the 2 vaccines available, both of which are directed against cancer causing genotypes of HPV genotype 16 and 18. The quadrivalent vaccine was first licensed in 2006, and the bivalent vaccine in 2007. Both vaccines are intended to be administered if possible before exposure to HPV infection.

By 2014, in the world 58 countries (30%) had introduced HPV vaccine in their national immunization programmes for girls and most of other countries started HPV vaccination, especially developing countries, during the last 2-3 years. In the South East Asia Region where Sri Lanka belongs, Bhutan, Bangladesh, Nepal and India (some states) are currently using HPV vaccination while Thailand and Myanmar has their plans to introduce HPV vaccination for cervical cancer prevention.

National Immunization Programme in Sri Lanka implemented by the Epidemiology Unit, Ministry of Health, has taken measures to introduce quadrivalent HPV vaccine since July 2017. This quadrivalent HPV vaccine prevents cervical cancer by preventing HPV genotype 16 and 18 but it has an additional benefit for prevention of non-cancerous HPV genotypes of 6 and 11 for prevention of genital warts.

Global advisory committee for vaccine safety regularly vigilant and reviews evidence on vaccination in countries and closely monitors and reviews HPV vaccine safety information. In January 2016, this committee re-assured and concluded that HPV vaccine is a very safe vaccine based on country evidences

HPV vaccination was available in Sri Lanka in the private sector since 2010 (bivalent HPV vaccine registered in 2010 and quadrivalent HPV vaccine registered in 2012). But the opportunity of quadrivalent HPV vaccine for the prevention of cervical cancer is available free to the child since 2017.

In summary:

- HPV vaccine is given through National Immunization Programme from 2017
- It will be given through the school based vaccination programme
- All girls in Grade 6 are given the HPV vaccination on completion of 10 years of age
- Two doses of the vaccine need to be given for complete protection of the vaccine preventable cervical cancer proportion of cervical cancers (caused by cancer causing genotypes 16 and 18)
- Minimum interval (gap) between 2 doses of the HPV vaccine should be six months
- If any child misses the HPV vaccination at school due to any reason, it will be provided from the area Medical Officer of Health office (MOH office)
- HPV vaccine dose can safely be combined with aTd vaccine
- HPV vaccine is a safe vaccine. Mild local reactions (such as pain and redness) can occur and severe adverse events are very rare. However, Health care staff will take all precautionary measures as for the procedures following for all other vaccinations in the country
- Cervical cancer is preventable. Safe, effective preventable HPV vaccine is available which prevents 70% of cervical cancers. HPV vaccine needs to be given to girls (at Grade 6) for the protection but needs to continue pap smear screening at 35 years for women

Further reading:

Human papillomavirus vaccines: WHO position paper, May 2017, Weekly epidemiological record, No 19, 2017, 92, 241–268. http://www.who.int/immunization/policy/position_papers/hpv/en/

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