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Report presented by

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2018-2020

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From the desk of

FOGSI Representative to SAFOG

Dear Friends from FOGSI & SAFOG,

It gives me immense pleasure to be with you, while I finish first half of my tenure as FOGSI representative to SAFOG. This year has been a great learning experience which gave me unique opportunity to visit SAfOG countries as well communicate with the leaders and people of South Asian nations at various levels.

South Asian countries share not only geographical borders but also history, culture, colors, food and festivals. We share common health issues as well issues of women empowerment which have many positivity as well few gaps. Associations like FOGSI and SAFOG can play a major role not only in exchange of academics but also learning experience for many health programs and policies. Beside we have a role to create peace, mutual understanding and respect for each other.

This publication has compilation of key articles in field of screening and prevention of women cancers , which is crucial yet take a little back stage in work as well programs. This is taken also as opportunity to showcase vision of leaders and various academic and organizational work of SAFOG with special context of FOGSI initiatives. In a common background of being so called low resource world but actuality of high human and technical resource powerhouse of future world we have to identify our responsibilities and strength. We have to set our priorities and work for realistic gains in improving overall women and family's health statistics.

This small effort is a humble step for this ongoing journey, I owe a big thanks to FOGSI members for electing me unopposed for this unique post and special thankful for all authors for their academic contribution. I thank office bearers of FOGSI as well SAFOG and all coordinators of events who happily included SAFOG sessions in major events and conferences.

Life move in unison, Let always be together for well being of all,

Dr. Sadhna Gupta
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2018-2020

Prevention of Cervical Cancer – Methods, Efficacy and Indian Experience

Introduction

Cervical cancer is the 2nd most common female cancer in women aged 15 to 44 years in India. Cervical cancer ranks as the 2nd leading cause of female cancer in India. About 122,844 new cervical cancer cases are diagnosed annually in India (estimations for 2012)[1]. The aetiological role of HPV infection among women with cervical cancer is well-established. HPV virus prevalence is as high as 83% in cervical cancer [Table 1]. HPV is a necessary cause of cervical cancer, but it is not a sufficient cause. Other cofactors are necessary for progression from cervical HPV infection to cancer. Tobacco smoking, high parity, long-term hormonal contraceptive use, and co-infection with HIV have been identified as established cofactors. Co-infection with Chlamydia trachoma is and herpes simplex virus type-2, immunosuppression, and certain dietary deficiencies are other probable cofactors.

Figure 1 : Human Papilloma Virus

	No. Tested % (95% CI)	HPV 16/18 Prevalence
Normal cytology	8,845	5.0 (4.6 - 5.5)
Low-grade lesions	177	28.2 (22.1 - 35.3)
High-grade lesions	253	62.8 (56.7 - 68.6)
Cervical cancer	2,006	83.2 (81.5 - 84.8)

Table 1 : HPV Prevalence[2]

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Preventive Measures Against Cervical Cancer

Cervical cancer screening practices

Cytologic screening with or without human papillomavirus (HPV) DNA testing has led to vast improvements in prevention and early detection

of cervical cancer. In most developed countries, the Age Standardized Incidence Rate (ASIR) for cervical cancer is less than 10/100,000, whereas in developing countries, the ASIR of cervical cancer ranges from 25 to 55/100,000[3]. Screening can be cytology base, HPV DNA testing or visual based techniques.

Cytology based Screening : There are two methods for preparing a specimen for cervical cytology: the conventional Pap smear and the liquid-based, thin layer preparation. Cytology grades the specimen according to the Bethesda System revised 2001. The sensitivity of conventional Pap cytology ranges between 30 and 87%, and its specificity ranges from 86 to 100% in various studies.

Interpretation/result
Negative for intraepithelial lesion or malignancy (when there is absence of neoplasia this should be stated specifically, regardless of other findings)
In addition, describe, if present:
Infection (Trichomonas vaginalis, Candida spp, shift in flora consistent with bacterial vaginosis, Actinomyces spp, cellular changes)
Other non-neoplastic findings, such as, but not limited to:
Reactive cellular changes associated with inflammation/cellular repair, radiation, or an intrauterine contraceptive device
Glandular cells post hysterectomy
Atrophy
Other
Endometrial cells (in a woman age ed40) and specify whether negative for squamous intraepithelial lesion
Epithelial cell abnormalities
Squamous cell
Atypical squamous cells (ASC)
Atypical squamous cells of undetermined significance (ASC-US)
Cannot exclude high-grade squamous intraepithelial lesion (HSIL; ASC-H)
Low-grade squamous intraepithelial lesion (LSIL) cellular changes consistent with HPV, mild dysplasia, CIN 1
HSIL moderate/severe dysplasia, CIN 2, CIN 3, CIS
Squamous cell carcinoma
Glandular cell
Atypical
Endocervical cells
Endometrial cells
Not otherwise specified
Atypical, favor neoplastic
Endocervical cells
Not otherwise specified
Endocervical adenocarcinoma in situ (AIS)
Adenocarcinoma

Table 2 : Revised Bethesda System

HPV DNA Testing : The Cobas® HPV Test is the only FDA-approved cervical cancer screening test that allows HPV 16 and 18 genotyping concurrently with high-risk HPV testing. The test utilizes amplification of target DNA by the Polymerase Chain Reaction (PCR) and nucleic acid hybridization for the detection of 14 high-risk (HR) HPV types in a single analysis.

A randomized controlled trial (RCT) was conducted in the Osmanabad district in India to test the efficacy of single round of cervical cancer screening by HPV, cytological testing or visual inspection of the cervix with acetic acid (VIA) on the incidence and mortality of cervical cancer. The trial reported a significant 48% reduction immortality from cervical cancers after 7 years following single round of HPV testing[4].

Visual Based Techniques : Cytology- or HPV-based cervical cancer screening is currently not a feasible option for population-based screening in low-income countries including India due to lack of resources, trained staff and infrastructure. Alternative low-cost and effective cervical cancer screening methods like visual inspection of the cervix with the naked eye after application of acetic acid (VIA), after magnification (VIAM) and after application of Lugol's Iodine (VILI) are being utilised. The sensitivity and specificity in a pooled analysis of 11 cross-sectional studies across India and Africa were 76.8 and 85.5% for VIA and 91.7 and 85.4% for VILI, respectively[5].

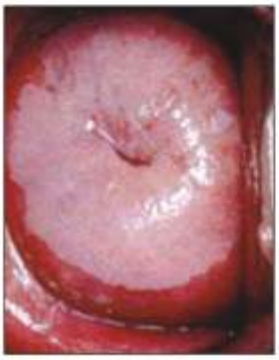

Figure 2 : VIA positive, huge acetowhite lesion on cervix

Screening Guidelines: Most of the organisations like American Cancer Society (ACS) [41], the American Society for Colposcopy and Cervical Pathology (ASCCP), the American Society of Clinical Pathology (ASCP), the United States Preventive Services Task Force (USPSTF) and the American Congress of Obstetrics and Gynaecologist (ACOG) recommend that screening for cervical cancers with Pap smears is to be initiated at 21 years and continued every 3 years between the ages of 21–29 years. Thereafter, between the ages of 30 and 65 years, screening can be conducted every 5 years if contesting with Pap smear is done or every 3 years if Pap smear screening alone is used. There is no need to screen women older than 65 years unless there was a diagnosis of cervical pre-cancer lesion.

India is low resource settings. Opportunistic screening instead of universal screening is the dogma of cancer prevention in India [6]. It depends on the individual's decision or on encounters with health-care providers. According to WHO household Survey 2003, population coverage of cancer screening in India is mere 0.1–4%[7]. Visual based techniques are being promoted in low resource settings with screen and treat approach. The 'screen-and-treat' approach is an alternative method in which the treatment decision is based on the results of the screening test or strategy (sequence of tests or triage for those with a positive first screening test result) and not on a histologically confirmed diagnosis of CIN 2+ unless an invasive cancer is suspected.

HPV Vaccination

Two prophylactic vaccines, a quadrivalent vaccine which protects against HPV 6, 11, 16 and 18 and a bivalent vaccine which protects against HPV 16 and 18, are currently available and marketed in many countries worldwide for the prevention of

Availability of a cervical cancer screening programme	Yes
Quality assurance structure and mandate to supervise and to monitor the screening process	No
Active invitation to screening	No
Main screening test used for primary screening	Cytology
Undergoing demonstration projects	VIA/HPV test
Screening ages (years)	35-64 (cytology)
Screening interval or frequency of screenings	3 years

Table 3: Characteristics of cancer screening in India[9]

HPV-related diseases. The quadrivalent vaccine Gardasil (Merck, USA) was licensed in 2006 and the bivalent vaccine Cervarix (GlaxoSmith Klein, Belgium) was licensed in 2007. In 2014, a nonvalent vaccine, Gardasil 9 (Merck, USA) against HPV types 6, 11, 16, 18, 31, 33, 45, 52, and 58 has been approved but it's not available in India.

Quadrivalent HPV vaccine is nearly 100% efficaciousin adolescent age group [8]. Studies found e" 99.5% serocon version rates following 3-doses of quadrivalent HPV vaccine in girls aged 9-15 years. HPV vaccines are most efficacious if administered before the onset of sexual activity, i.e. before first exposure to HPV infection. Both vaccines are to be administered as a 0.5-ml intramuscular injection in the deltoid region from the age of 9 years onwards. There is no need to screen for HPV infection or HIV infection prior to HPV vaccination. Since the currently available vaccines do not protect against all high-risk HPV types, HPV vaccination remains primary prevention tool and does not eliminate the need for screening later in life. Guidelines for HPV vaccination by various organisations are provided in Table 3.The WHO recommends the HPV vaccination to be included in the national immunization program in countries where the prevention of cervical cancer and/or other HPV-related diseases constitutes a public health priority.

India has not included HPV Vaccination in National Immunisation Programme (NIP). It has selected status in the states of Delhi, Punjab and Uttar Pradesh. States of Delhi and Punjab in commenced HPVvaccination in November 2016 and Uttar Pradesh commenced HPV vaccination in February 2017. Coverage for the first dose in two districts in Punjab (initial introduction districts) exceeded97% with excellent safety and acceptability profile. The National Technical Advisory Group on Immunization (NTAGI), an advisory body that recommends vaccines for India's Universal Immunization Programme (UIP), has given the green signal to the introduction of the Human papillomavirus (HPV) vaccine in the NIP.

Other Measures of Primary Prevention

Some of the measures of primary prevention of cervical cancer include quitting tobacco, delaying the age at initiation of sexual activity to above 18 years, restricting the number of sexual partners and the use of condoms. The National Family Health Survey 2015-16, conducted by the health

Figure 3 : Nonavalent HPV Vaccine

	ACIP (CDC) 2014	ACOG 2016	RANZCOG 2015 (AU and NZ)	WHO Immunization Strategic Advisory Group	SOGC 2007 (Canadian)
Age of vaccination (females)	11 or 12 years (can begin from 9 years)	11 or 12 years (can begin from 9 years)	Sexually active females up to 45 years	Girls between 10-13 years	9 to 26 years
Age of vaccination (males)	11 or 12 years (can begin from 9 years) only HPV 4 or HPV 9	11 or 12 years (can begin from 9 years) only HPV4 or HPV9	Men up to 26 years	Not recommended	Not yet approved
Older age groups	Females till 26 years and males till 21 years (males 22 to 26 years may be vaccinated)	Males and females up to 26 years		Catch-up strategies recommended if feasible, affordable and cost-effective	
No. of doses	2 doses before 15th birthday; 3 doses after 15th birthday	2 doses before 15th birthday; 3 doses after 15th birthday	3 doses at 0,2,6 months	2 doses before 15th birthday; 3rd doses after 15 birthdays	3 doses
Prior HPV exposure	May protect against non-exposed HPV	May protect against non-exposed HPV	May protect against non-exposed HPV	May protect against non- exposed HPV	May protect against non-exposed HPV

Table 3 : HPV Vaccination Guidelines

ministry, found that the use of condoms had gone up in 10 years from 2% to 12% among sexually active unmarried women aged 15 to 49 years. The maximum use of condoms among unmarried women was seen in the 20-24 years age group. Awareness should be spread about safe sex practices through adolescent sex education classes in school and colleges. Cancer education sessions can be arranged by ASHA, ANMs and Angarwadi workers about the risk factors of cervical cancers and importance of screening in prevention and early detection.

Conclusion

Women continue to be afflicted by a disease that is potentially preventable and treatable when detected early. The magnitude of cases can be drastically reduced by a comprehensive and holistic screening programme. As HPV infection is an obligatory aetiology of cervical cancer, routine HPV Vaccination of young girls and boys can tremendously reduce the risk and the economic burden of this preventable disease.

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The least we can do is to give something a chance before condemning it.

HPV Vaccines for Cervical Cancer Prevention Efficacy, Limitation and Economics in Developing Countries

Introduction

Cervical cancer is the second most common cancer in women after breast cancer. Globally there is a population of 2,784 million women aged 15 years and older who are at risk of developing cervical cancer. Over 80% of these deaths occur in developing countries with highest incidence rates found in Africa and Latin America. Cervical cancer is an important public health problem for adult women in developing countries. India has a population of 432.20 million women aged 15 years and above, who are at risk of developing cervical cancer and accounts for an estimated 122,800 new cases and 67,500 deaths annually due to cervical cancer, which is one fourth of the global burden. The high mortality due to disease is mainly because of lack of awareness and absence of an organized screening programme.

The causal role of persistent infection with high risk types of human papillomavirus (HPV) has been documented beyond reasonable doubt and its association is shown in ~99.7% of cervical cancer cases worldwide. HPV is a very common infection and over 80% of all sexually active individuals harbour at least one HPV type during their lifetime. Age and sexual activity are the major influencing factors for HPV transmission. More than 100 types of HPV have been recognized of which about 15 types are oncogenic and HPV 16 and 18 infections are associated with approximately 83.1% of cervical cancer in India.

Preventive health has always been neglected in low middle income countries (LMICs) like India. Cervical cancer is a preventable cancer as it has a long precancerous phase, with availability of screening methods for early detection and highly efficacious treatment. The morbidity burden due to this cancer is humongous and the financial burden it poses over the economy is more than any other chronic disease. Mortality rates are higher due to lack of awareness, late diagnosis and majority of women seek help only after they become symptomatic or at an advanced stage. HPV tests have been developed for screening and prophylactic HPV vaccines have been developed against the major types. Screening of asymptomatic patients is <5% even in well-organized healthcare programs. HPV vaccination can reduce the risk of infection by HPV types targeted by the vaccine.


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Impact of HPV vaccination in developing countries

In developing countries, cervical cancer is the biggest single cause of years of life lost from cancer, because it affects relatively young women. HPV vaccines stimulate development of an immune response that prevents infection, progression to cervical intraepithelial cancer and, eventually, genital cancers. The ideal time of vaccination is therefore before sexual debut. HPV vaccination can reduce the risk of infection by the HPV types targeted by the vaccine. An ideal vaccine would protect against all types with potential for invasive genital cancer.

HPV Vaccines

Three vaccines are presently approved by the FDA for prevention of HPV infection: bivalent vaccine Cervarix®(Glaxo Smith Kline), quadrivalent vaccine Gardasil®(Merck) and nonavalent vaccine Gardasil-9®(Merck). All three vaccines prevent infections with HPV types 16 and 18, two high-risk HPVs that cause about 70% of cervical cancers worldwide and is responsible for an even higher percentage, ~84%, in India. HPV 16/18 are also associated with some of other cancers including oropharyngeal, anal, vaginal, vulval, etc. In addition, Gardasil® prevents infection with non-oncogenic HPV types 6 and 11, which cause 90% of genital warts. Gardasil-9 prevents infection with these four HPV types plus five additional high-risk HPV types (31, 33, 45, 52, and 58).

Two of these, the bivalent (bHPV) and quadrivalent (qHPV) vaccines, are available in developing countries. Both vaccines are composed of type-specific HPV L1 protein, the major capsid protein of HPV. Expression of the L1 protein using recombinant DNA technology produces virus-like particles (VLPs). Thus these vaccines do not lead to any infection in the individual.

Safety & Efficacy

Extensive data on the safety of HPV vaccines are now available from large clinical trials as well as population programmes. Globally, more than 270 million doses have been administered with no serious adverse event linked to the HPV vaccine and with an excellent safety profile. The adverse events reported after the HPV vaccine administration were generally mild in intensity and were similar to those expected after any vaccination. These included vaccination site pain, tenderness, swelling, fever, headache, myalgia and gastrointestinal symptoms. The safety of HPV vaccines is monitored by the WHO Global Advisory Committee for Vaccine Safety (GACVS) which regularly reviews the evidence related to their safety. GACVS in 2016 stated that decreased use of safe and effective vaccines based on weak evidence can lead to harm and the available evidence does not raise any concern related to the safe use of HPV vaccines.

All the vaccines have shown good efficacy of over 98% in preventing persistent HPV infection and the precursor lesions, CIN 2/3 and adenocarcinoma in situ with the vaccine types. There is also some evidence of protection by other related types e.g., HPV 31 and 33. Data from Australia, the first country to implement HPV vaccination in the national program, show a reduction in the vaccine types, but also some reduction in other oncogenic types and some evidence of herd immunity. Despite the efficacy that has been observed with the prophylactic vaccines, some limitations have been observed. None of these vaccines protects against all the oncogenic types responsible for cervical cancer. Thus screening must continue, and HPV testing will probably be the most effective method for

this purpose. So far it does not appear that a booster dose will be required, but this is yet to be determined. The long term effectiveness of the vaccine, correlation of antibody levels with duration of protection and impact of cross-protection are still being evaluated. It is over a decade since the vaccines were first launched in 2006. The studies have a follow-up of bHPV vaccine for 9.4 years and of qHPV vaccine for 8 years which has shown that the vaccine is immunogenic and well tolerated.

Challenges in developing countries

Lack of awareness about cervical cancer, role of the vaccine, its availability and cost are major barriers in developing countries. Social and cultural factors may also contribute to the low vaccination rates in these countries with multi-religious populations, especially because it targets a sexually transmitted infection and the vaccination program primarily targets female children and adolescents. These issues significantly influence the willingness of health policy makers, health care providers, parents, adolescent and young girls to receive vaccine.

Vaccine delivery in developing countries involves both public and private sectors. The public sector essentially benefits from NIPs (National Immunization Programmes) in collaboration with the WHO's Expanded Programme on Immunization (EPI). WHO recommends that routine HPV vaccination should be included in NIPs, provided that prevention of cervical cancer or other HPV-related diseases constitutes a public health priority, vaccine introduction is programmatically feasible, sustainable financing can be secured and the cost effectiveness of vaccination strategies in the country or region is considered. With respect to developing countries, where there may be limited facilities for health care, WHO recommends evaluation of simultaneous administration of HPV vaccine with routine vaccines via existing frameworks. Girls under 15 years of age can be administered two doses at an interval of 6 months, though this can be extended to 12-15 months. A recent cohort study by Bhatla et al (2018) suggests that girls up to 18 years could be given only two doses with equivalent benefit but this has yet to be accepted as practice.

Addressing the Barriers

Access to HPV vaccine among young women is influenced by the overall health policy and decisions of key stakeholders operating at different levels including healthcare providers, teachers, parents and the young women themselves which are barriers in implementing the HPV vaccination programmes. In some countries, the quadrivalent and nonavalent vaccines are licensed for males and a gender-neutral vaccine may find better acceptance.

1. Individual-related barriers

Women and young girls in low and middle income countries (LMICs) face many barriers that prevent them from receiving adequate and timely cervical cancer vaccination, screening and treatment. Lack of awareness about cervical cancer and knowledge about prevention are key factors. The limited knowledge of HPV including its prevalence, implications on health and HPV vaccine efficacy among the parents and health care providers is a significant barrier to implementation of vaccine coverage in adolescent girls. A survey carried in a low income county of Wufeng in central China that aimed at determining women's knowledge about cervical cancer and screening, demographic characteristics and the barriers to screening showed that women who had knowledge of cervical cancer were more willing to utilize the services than those without knowledge.

Major determinants of social acceptance of vaccine in India are parental awareness and attitude. A study done in college girls in Kolkata by Basu et al revealed that though the knowledge of girls about screening methods was low but a majority desired to have protective vaccination against cervical cancer. Also important are financial constraints and so are competing health priorities like immunization of under-5 children. The concern about sustainable supply of the vaccine is also one of the issues.

2. Community-related factors

It has been observed in various studies that there are parental concerns regarding the fear of future fertility, risk of increased or earlier sexual activity and vaccine safety. This results from young women not having the necessary sexual health education. The parental concerns for safety and fear of side effects have been cited in the literature as an important barrier, with higher concern if the child is 9–12yrs (46.3%) versus 13–18 (41.4) years of age. In an HPV vaccine demonstration project in India, Peru, Uganda and Vietnam, parents and guardians of girls who were partially vaccinated or who did not get vaccinated mentioned lack of awareness about the vaccination program as the reason for not being vaccinated. In Uganda cultural barriers are a concern for HPV vaccination. It was noted that parents in communities that participated in the HPV demonstration project were concerned about future fertility of the vaccinated girls.

Cultural barriers include the myths contributing to negative perceptions towards HPV vaccination and moral or religious beliefs. A key existing myth is the concern of HPV vaccination encouraging sexual promiscuity. However, a large survey at Kaiser Permanente on nearly 300,000 girls found no increase in the number of partners, incidence of STI or teenage pregnancy, which were considered as markers and outcome measures in this study.

Gender issues also exist, with vaccination more routinely recommended for girls (76%) as compared to boys (46%) regardless of age. Social structure demands parental consent to be taken for vaccinating adolescent girls and young females who are the primary targets. Parents' attitude to vaccines in turn will depend on their awareness, knowledge and perceptions regarding vaccines and their outlook towards their children's sexuality and certain personal beliefs. This also significantly influence willingness of health policy makers, health care providers, parents, and adolescent and young girls to receive vaccination.

3. Health system-related factors

A key challenge for LMICs is the sustainable financing of HPV vaccine. Parents' out-of-pocket expenses are a concern for providers. This is driven by two factors—vaccine price and delivery cost. Lack of political commitment is identified as another most important challenge to successful implementation of HPV vaccine programmes. Expensive new public health interventions demand more cost-effectiveness and sustainability evidence in order to convince policymakers. NIP is the most successful public health system in the world and the infrastructure of trained staff, cold chain, logistics, clinics and outreach services, and information systems is a resource that could be utilized to deliver HPV vaccine. The number of doses however poses challenges in implementing the HPV vaccine in LMICs. Logistic issues at the health provider level in particular for transporting staff and vaccine is also an important issue.

GAVI (Global Alliance for Vaccines and Immunization) has supported HPV vaccine delivery in over 20 eligible countries through

demonstration projects between 2013-2016. Nine of these countries made national decisions to scale up and received approval from GAVI for vaccine support and financing. However, many LMICs, still have significant programmatic and financial barriers to implement HPV vaccine nationally. Despite co-financing of vaccine supply for GAVI eligible countries, competing priorities have led to continuation of some of the earlier introduced infant vaccines at the expense of plans to scale-up HPV vaccination.

Vaccine delivery to adolescent girls and other health interventions is reported as a significant challenge. Though various demonstration projects and national programmes of HPV vaccine delivery found that the methods like school-based programmes, at health centres and the use of campaign approaches, were successfully employed to achieve higher coverage. School absenteeism was one of the primary reason for not being vaccinated in programmes in India, Peru and Uganda and in government schools in Tanzania, although school attendance was reported to be very high in all countries, suggesting school-based methods are appropriate but measures are needed to capture the children absent on the day of vaccination.

Increasing the chance of acceptability

In LMICs several barriers and challenges exist against the introduction of HPV vaccines, including high cost and logistic challenges. These can be alleviated with the help of preferential pricing and aid from philanthropic organisations, as well as by reducing the dose schedules for girls under 15 years old as recommended by WHO.

In order to overcome the distrust and fear generated from years of exploitive health interventions including clinical trials, coercive population control and compulsory vaccination campaigns, public trust must be generated for HPV vaccines through the adoption of the vaccines into the NIP. In NIP the vaccines are delivered free of cost through central/state government agencies, health workers and private practitioners. Inclusion of HPV vaccines in the program would not only improve access to the vaccine by covering associated costs but would also improve vaccine acceptability and delivery to the primary target who lack access to cervical cancer screening services. In addition to generating the political will to adopt HPV vaccines into the NIP, the trust of policymakers, government officials and the public must also be built by dissociating the vaccine from issues related to sexuality.

Parental awareness and attitude towards the vaccine are major determinants of acceptability. Educating the pediatrician and family physician about HPV and cervical cancer may benefit further in increasing the acceptance of vaccine among parents. Another important aspect is the importance of media, as most of the information reaches general population through television, newspapers and internet.

With support from GAVI and the WHO recommendation for two doses, LMICs are now in a better position to introduce this vaccine. Amongst the LMICs, Malaysia and Bhutan have successfully introduced HPV vaccine into their NIP and among the low income countries high coverageis seen in Rwanda and Uganda. These programs suggest that vaccine uptake can be improved by providing evidence-based education and outreach. Improved coverage in LMICs can be enabled with political will, nationwide sensitization campaign, school-based vaccination, and community involvement.

With the recent approval of the HPV vaccine by the Indian health system, there is a demand to

survey the acceptance levels of this vaccine in India. Although considerable research regarding the acceptance of the HPV vaccine has been done in developing countries and even in parts of India, there is still a need to know the impact of religious and sociocultural aspects affecting the decision making in developing countries with diverse populations. Delhi was the first state in India to initiate a public HPV vaccination program for school children, on the occasion of National Cancer Awareness Day in 2016. This program invites girls aged 11 to 13 years to get vaccinated at the Delhi State Cancer Institute. Approximately 25,000 doses have been administered to date. The government of Punjab also initiated HPV vaccination in a campaign in the Bathinda and Mansa districts in 2016. In phase 1, nearly 10,000 girls studying in class 6 of government schools were covered. In total, 5,851 girls were vaccinated at Bathinda and 4,002 at Mansa, constituting 97.5% and 98.5% coverage, respectively. A cost-efficacy analysis by Prinja et al found this to be a very cost-effective intervention. In phase II the program will be gradually scaled up to include all girls in class 6 in both government and private schools across the state. The program is adopting both a facility-based and school-based approach to vaccination in the second phase. These initial programs mark the first steps toward elimination of cervical cancer burden in India over the next decades.

Conclusion

Globally, now it is widely accepted that vaccination against high-risk strains of HPV is a safe and effective means of primary prevention of cervical cancer. More than 80 countries have introduced HPV vaccination in their national immunization programs, of which 33 are low and middle-income countries (LMICs). Since the introduction of HPV vaccine many positive developments have been done. Reduced number of doses and more flexible schedules have reduced costs and facilitated programme implementation. Recent clinical trials are assessing the efficacy and duration of protection offered by 1 dose of HPV vaccine, based on recent promising data on efficacy. The 9-valent vaccine is also expected to expand to markets beyond the US. Additional vaccine manufacturers are expected to introduce new and cheaper HPV vaccines. These positive developments are likely to significantly change the global HPV vaccine market in the coming years.

Cost-effectiveness studies on HPV vaccination have shown that spending on HPV vaccinations is more cost effective than treating cervical cancer. A significant burden of HPV-related disease occurs in LMICs, where HPV vaccination is not available or is not part of the national immunization programme. Several factors are combining to accelerate uptake and coverage of HPV vaccines among LMICs. Most notable are the increased policy attention to STI and cervical cancer prevention and control, the ongoing support from the Gavi Alliance to low-income countries, and the continued downward pressure on HPV vaccine prices. The potential impact of increased access to this vaccine on STI and cervical cancer prevention is enormous. In addition, effective management of HPV diseases requires a multifaceted approach and there is need to actively utilize mass media and hospitals to carry out educational and promotional programmes to be designed for parents which will increase their willingness to have their children vaccinated, eventually increasing the HPV vaccination rate of teenage children.

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Simplicity is natural way to live fully.

Screening of Cancer Cervix and Breast in Nepal - Current Status and Challenges

Each year more than 20,000 women die from cervical and Breast cancer which is more than complication related to pregnancy and child birth. Approximately 88% of death from cervical cancer and 50% of death from breast cancer occur in low and middle–income countries. Population based cancer registry which is considered to be the best indicators of cancer measurement does not exist in Nepal. Thus exact cancer burden and prevalence of cervical and breast cancer in Nepal is still unknown. According to published data based on multi-institution hospital based cancer registry cervical and breast cancer is first and second most common cancer among women and the trend did not change between 2003 and 2013.It is estimated that about 10,020 new cervical cancer is made by the situation analysis undertaken by JHPIEGO (2008).According to GLOBOCAN 2012, an estimated 1,700 new breast cancer cases were diagnosed in Nepal 2012 with an age standardized rate (ASR) of 13.7 new cases per 100,000 women, while 870 fatalities in women occurred, with an ASR of 7.2 fatalities per 100,000 women.

Cervical cancer is entirely preventable disease whereas early detection of breast cancer can saves life. According to 'WHO', Screening is a public health intervention used on a population at risk, or target population to identify individuals with high probability of having or developing a disease but not undertaken to diagnose a disease. To have successful Screening program, one of the key elements is to increase coverage of target population. Developed countries like USA, Australia have already demonstrated that successful cancer screening programs can significantly decrease incidence and mortality from cancer death. For cervical cancer, many countries have incorporated HPV vaccine in their National Immunization Programed as primary prevention and regular Pap smear and HPV DNA test in reproductive health program to detect preinvasive and early stage cancer. For Breast cancer, breast self- examination (BSE), clinical breast examination and mostly mammography which can reduce mortality risk by 20% are adopted. Unfortunately no National or regional cervical and/or Breast cancer screening program exist in Nepal. Even millennium Development Goal#5(MDG 5) sets specific targets and indicators to improve maternal health, Government and NGOs have

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contributed substantial funding towards this effort. But Government have not given priority in preventive oncology. So the current status of both cervical and breast cancer screening is opportunistic screening in whole Nepal.

NNCTR in collaboration with Australian Cervical Cancer Foundation had vaccinated 3,300 quadrivalent HPV vials to 1096 school girls (10-26 years) in free of cost. This HPV vaccine is not part of National Immunization Program of Nepal. High cost, lack of awareness and lack of easy availability are the main reasons that only few girls from high income family are taking this vaccine currently in Nepal.

Government has made National Guidelines for Cervical Cancer Screening and Prevention (CSSP) in 2010 which recommends to screen women of 30-60 years with VIA (visual inspection of acetic acid) test every 5 years. In certain districts, government and some NGOs are working on project: screen and treat approach to prevent cervical cancer with VIA to screen and treat precancerous lesion using cryotherapy in a single visit. But these programs are not able to cover large target population and facing lots of difficulties to conduct in regular basis. Similarly few NGOs are currently conducting free breast and cervical screening camps where awareness classes, free clinical breast examination and free pap smears, VIA test and colposcopy have been doing but not in large enough to decrease the burden of cervical and breast cancer incidence in Nepal.

Pap smear is available only in some tertiary centers especially if situated in urban areas. So women are doing only opportunistic pap smear screening test. The main reasons of low uptake of these screening test is lack of awareness, lack of availability and moreover low attitude of womens health towards herself. If we talk about HPV DNA test, only two or three molecular lab is available in whole Nepal recently and that is situated only in capital city (Kathmandu). Most of people including medical professionals are not aware of this HPV DNA test.

Few published data showed that more than 80% women had no knowledge about cervical cancer screening and only 3-4% had ever done screening before. In multivariate analysis cervical smear done was positively associated with literacy and living in urban area.

Similarly recommended screening methods for breast cancer i.e breast self-examination and clinical breast examination is not usually practiced in Nepal. The reason behind this is lack of awareness in mass public and lack of trained human resources even though this is very simple technique. A study (Marmot MG et al) in Nepal in 2008 had already been demonstrated that BSE could be regarded as tool to aid primary prevention strategies for breast cancer. Mammography which can reduce mortality by 20% is not available in most of the places. Only few private hospitals in urban country has this facility. High resolution ultrasound can also be one of the tool for breast cancer screening, however currently is only used if a suspicious lesion is detected. Moreover only few radiologist are trained to do this and facility available in tertiary center situated in big cities. Although American cancer Society (ACS) recommended breast MRI (magnetic resonance imaging) screening especially for BRCA mutation carriers and their first degree relatives, the number of MR imaging units is markedly low in Nepal in proportion to the number of hospitals and not affordable to most of the population as it is costly.

Both cervical and Breast cancer are in curable stage if diagnosed in early stage and treated appropriately. But still most women of cervical

and breast cancer are only diagnosed in late stage where cancer is in incurable stage causing huge financial burden and unnecessary death which could have avoid. Moreover both cervical and breast cancer is generally asymptomatic initially especially painless resulting to be present at far progressed stage when it's too late to save their lives.

To summarized, the main reason for not implemented cervical and breast cancer screening program in Nepal are firstly, lack of awareness and education, and secondly, a lack of available and affordable preventive services, with no government support.

To reduce the burden, now challenges start from the women herself. Priority of most of the women are clear that are to feed and care for the family, trend the home and health and well-being of everyone else should come first. Low attitude of women herself towards health should be changed. Most of the women even well educated, living in sophisticated areas where all the facilities of screening services are available, are not regularly doing screening test.

Secondly gender inequality of society should be changed. The male dominating society has to understand that young age of onset of these cancer, high case fatality ratio, considerable costs of cancer treatment, the social and economic burden upon the families are devastating. In our society especially in low income family, a mother's death can have catastrophic consequence on the children left behind. Women with senior roles in every sectors should be motivated to use their platform to elevate the status of women's cancer as part of the women's health and equity agenda.

Challenges also come to us as health care providers especially Gynecologist not to miss single opportunistic cervical and breast cancer screening to all eligible women whatever the facility we have in our settings.

But biggest challenges come to our government to have cheap, easily available and accessible screening programs which has to be implemented to cover large number of target populations. Education program should be start from health care providers to large public awareness because till now only limited knowledge is incorporated in curriculum of health care professionals and not much training program has been conducted to enhance their skills. Since most of the female of our country especially living in rural areas are illiterate, awareness to be given to these women are challenging. Given the geographic condition of our country, infrastructure of our primary health center and limited human resources the other great challenge is to make available of this services in rural areas. Particularly in rural areas, considering the burden of their daily household works, farming, time and the costs for travel to nearby hospitals, these type of screening program has to be implemented as door to door basis.

Government has yet another challenge in implement vaccination program, unlikely to other developed country where most of vaccination program is with collaboration of school program, school drop out rate of female child is very much high.

With all these existence challenges, limited resources, investment in preventive health will be still more economic in low resource country like Nepal because the cost involvement in treatment will be very high once the cancer is diagnosed and not affordable many times by most of the people.

Protocols for Screening of Endometrial Carcinoma - Guide to Clinician

Introduction

Endometrial carcinoma is one of the commonest carcinomas that are affecting females. It affects mainly postmenopausal and perimenopausal age group. According to GLOBOCAN2012 incidence of Endometrial Carcinoma is 4.8% and five year prevalence is 7.1%.[1] In the light of present knowledge, early detection and prompt treatment of early cancer and precancerous conditions provide the best possible protection against cancer. Endometrial cancer is uncommon before age 40 and the incidence increases with increasing age, peaking between ages 75 and 79, with a median age at diagnosis of 66.6 years. When it is diagnosed in stage I, five-year survival is 96%, compared with 77% for regional disease, and 44% for disease with distant metastasis.[2] Cancer screening may be defined as the "search for unrecognised malignancy by means of rapidly applied tests". Before going deep into the screening guideline we have to know some basics of classic screening criteria.[3]

i) The condition should be an important health problem
ii) The natural history of the condition should be understood
iii) There should be a recognisable latent or early symptomatic stage
(iv) There should be a test that is easy to perform and interpret, acceptable, accurate, reliable, sensitive and specific
(v) There should be an accepted treatment recognised for the disease
(vi) Treatment should be more effective if started early
(vii) There should be a policy on who should be treated
(viii) Diagnosis and treatment should be cost-effective
(ix) Case-finding should be a continuous process.

In the light of the above criteria we shall discuss further about the guidelines of screening of endometrial carcinoma. The methods of carcinoma screening may done by; mass screening by comprehensive cancer detection examination, mass screening at single site, selective screening.[4] Mass screening by comprehensive method includes rapid clinical examination and examination of one or more body sites by the physician. Mass screening at single site is usually done to screen

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cervical, breast and lung carcinoma. Selective screening is mainly applicable to examine the high risk group population. Screening is when a test is used to look for a disease before there are sign and symptoms. Till now there is no simple and reliable test to diagnose endometrial cancer in women who do not have any sign and symptoms.

Endometrial carcinoma has a premalignant lesion known as endometrial hyperplasia which often presents with abnormal uterine bleeding and by diagnosing it we can prevent endometrial cancer. Till date no major organization has developed screening protocol for endometrial carcinoma. Unfortunately endometrial sampling (biopsy) is unable to reduce mortality rate related to endometrial cancer as per evidence. The American Cancer Society (ACS) recommends about the awareness of the women particularly in menopausal group about the risks and symptoms of endometrial carcinoma and prompt early report to the physician if there is any abnormal uterine bleeding or any vaginal spotting.[5]

There is increased risk endometrial carcinoma up to 60% in women with Lynch syndrome (hereditary nonpolyposis colorectal cancer). The National Comprehensive Cancer Network (NCCN) guidelines[6] suggest routine immunohisto chemistry (IHC) or microsatellite instability (MSI) testing, irrespective of family history, in individuals having colorectal or endometrial cancers to diagnose the patients require genetic testing for Lynch syndrome. Additionally if any women with endometrial cancer before age 50 and family members of anyone with Lynch syndrome, should undergo genetic testing for Lynch syndrome.

The NCCN guidelines for risk reduction in women with Lynch syndrome:

- Hysterectomy and bilateral salpingo-oophorectomy should be offered to women who have completed child bearing and carry MLH1, MSH2, or MSH6 mutations
- Endometrial sampling in every annum for carriers of MLH1 or MSH2
- Annual colonoscopy (for risk reduction of colorectal cancer)
- Routine transvaginal ultrasound and serum CA-125 testing are not recommended.

Methods of Screening

1. **Pap smear :** Benign endometrial cells are quite frequent in premenopausal women found in the posterior fornix of vagina if done just after menstruation due to shedding of cells with the menstrual blood. But in case of post menopausal women such finding is limited to only 25-50% sensitivity. Atypical glandular cells in pap smear also caries risk of endometrial cancer or cervical cancer and they should undergo further evaluation like endometrial biopsy.[7]

2. **Transvaginal sonography to visualise endometrial thickness (ET) :** Transvaginal ultrasonography has been widely used to thoroughly evaluate the endometrium. Endometrial thickness is marked as the maximum anterior–posterior diameter of the endometrial echo on transvaginal view of the uterus in a long axis. The transvaginal ultrasonography with endometrial sampling consistently found that an endometrial thickness of less than or equal to 4–5 mm in patients with postmenopausal bleeding reliably excluded endometrial cancer.[8,9] Many studies in many centres have concluded that postmenopausal patient with bleeding have an extremely high negative predictive value and it is a reasonable first approach. An endometrial

thickness of greater than 4 mm is not diagnostic of any particular pathology and cannot exclude pathology. There are lesser trials on transvaginal ultrasonography in postmenopausal patients without bleeding. Postmenopausal asymptomatic women with endometrial thickness of less than or equal to 6 mm had a negative predictive value of 99.94% for excluding malignancy and a 99.77% negative predictive value for complex hyperplasia.[10]

Asymptomatic postmenopausal women with incidental ultrasonographic finding suspected to be an intrauterine polyp should underwent hysteroscopy but possibilities of endometrial carcinoma or complex hyperplasia is remote.[11]

The importance of an endometrial thickness greater than 4 mm on incidental detection in a postmenopausal patient without symptoms like vaginal bleeding has not been defined. This finding does not require any further investigation but an individualized assessment based on patient's demography and risk factors is justified. Transvaginal ultrasonography is not an ideal screening tool for cancer in postmenopausal women without symptoms.

3. **Pipelle endometrial sampling :** It is discovered by Cornier in 1984. The Pipelle is the device for which many studies have been reported in the publications. The endometrial pipelle sampling is like cytological smear test. First, the Cusco's speculum is introduced into the vaginal fornix. Pipelle forceps is then inserted gently through the external cervical os and upto the uterus. The pipelle procedure takes about one minute and by moving forward and backward, sample is obtained. Some lower abdominal discomfort or cramping pain may be experienced.

   Pipelle endometrial sampling had a sensitivity of 73% and a specificity of 100% for endometrial disease. Pipelle Prospective ENDOmetrial carcinoma (PIPENDO) study

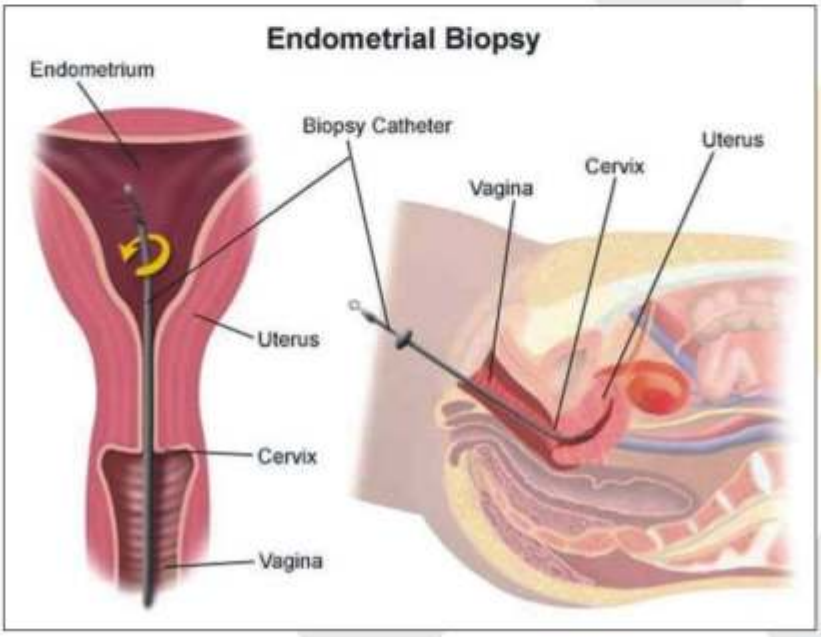


Fig 1. Pipelle endometrial Sampling (Source: Krames StayWell 780 Township Line Road, Yardley, PA 19067 267-685-2500)

showed that panel of prognostic biomarkers to improve preoperative diagnosis of endometrial carcinoma in order to identify those patients require additional treatment.[12]

4. **Vabra Aspirator :** Aspiration technology was introduced by Bela Lorincz, in the year 1934. It can be used as a method with few complications in an outpatient setting. As a safe, simple, and reliable procedure for screening for endometrial pathology, recently aspiration technology has been demonstrated.[13,14] The Vabra aspirator is most commonly used aspiration device in clinical studies to evaluate endometrial lesions. It is a metal cannula with length of 24 cm and diameter of 3 mm. Inner side of the curved ending there is an aperture of 1.5×16 mm. The cannula is connected to a plastic receptacle, which contains a sieve, also of plastic material, to retain the fragments of tissue. After insertion of the cannula into the uterine cavity, the pump is switched on. The two proximal openings in the cannula are covered by an index finger to create negative pressure, while holding the plastic receptacle. As a result, the uterus is emptied by suction, and then the cannula is withdrawn. The procedure is then repeated several times to make sure that the whole surface are sampled.

5. Tao Brush: It was introduced in 1993 and approved by the Food and Drug Administration for use.[15] The sheath is pulled back, to collect endometrial cells, and then the brush is introduced at the level of the fundus of the uterus through the cervical canal. The 3brush is then rotated 360° for 3–5 times to collect endometrial cells. The outer sheath is then pushed back to the tip, and the device is removed from uterus. The brush is cut off and dropped into liquid media and sent for assessment and diagnosis.[16] It can be used in an outpatient basis, without the need for anesthesia. It is simple, user friendly and appears to be well accepted by women. Sensitivity of this procedure is 89.9% to 100%, and needs more randomised trials, but the specificity is 91.0% to 96.0%.[17] Moreover, it is significantly less painful than Pipelle ($P < 0.01$).[18] In Del Priore et al.'s comparison study, the Tao Brush had 95.5% sensitivity and whereas the Pipelle had 86% sensitivity, when correlated with diagnosis.[19] The sensitivity and specificity were 100% for detecting atypical hyperplasia and carcinoma with Tao Brush as reported by Wu et al.[20] Williams et al. found that adequacy in sample collection were significantly more by using the Tao Brush than the Pipelle and more women preferred the Tao Brush as endometrial sampler.[21] However, it is difficult to distinguish between simple hyperplasia without atypia from other pathology likedisordered proliferative endometrium or endometrial polyps.

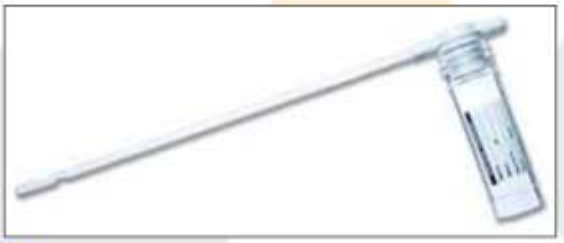


Fig 2: Vabra Aspirator

6. SAP-1 device: The SAP-1 device was discovered and used first in China in the year 2001. The sheath of this sampler is approximately 3 mm in diameter and 25 cm in length. This protective sheath outside the loop can prevent contamination with cervical and vaginal cell. To collect

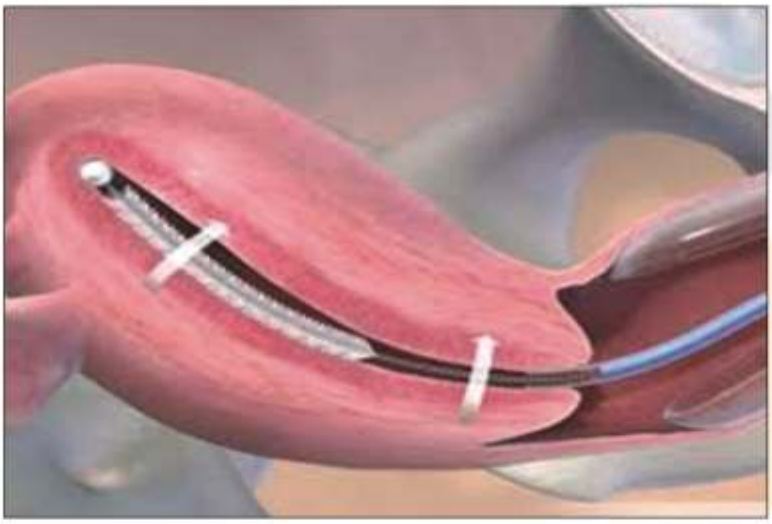


Fig 3: Tao Brush

endometrial cells, the device is first inserted to the level of the fundus and then the outer sheath pulled back, and then the loop is rotated in a clockwise. After collection of endometrial sample, the outer sheath is pushed to the tip and the device removed.

The SAP-1 sampler (Surepath) may become a reliable method for screening endometrial carcinoma and its precursors, especially in postmenopausal and asymptomatic women. In the study by Wen et al., adequate specimens for cytology were obtained using the SAP-1 sampler. The accuracy of endometrial cytology for diagnosing endometrial carcinoma and its precursors was 92.4 % (sensitivity, 73 %; specificity, 95.8 %; positive predictive value, 75 %; and negative predictive value, 95.3 %).[22]

7. Li brush : New endometrial sampler, named the Li Brush which applied on a patent in 2014. Compared with other samplers, the Li Brush was designed as an inverted cone, similar in shape to the uterine cavity. In theory, this Brush can collect more endometrial cells than possible with other samplers, especially cells in the uterine horns, allowing a more accurate diagnosis of endometrial lesions. Clinical trials of the Li Brush have been launched in outpatient and inpatient clinics for Phase III study.

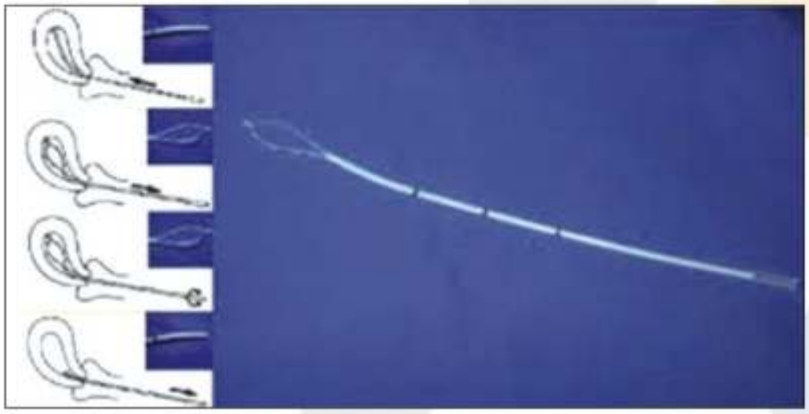
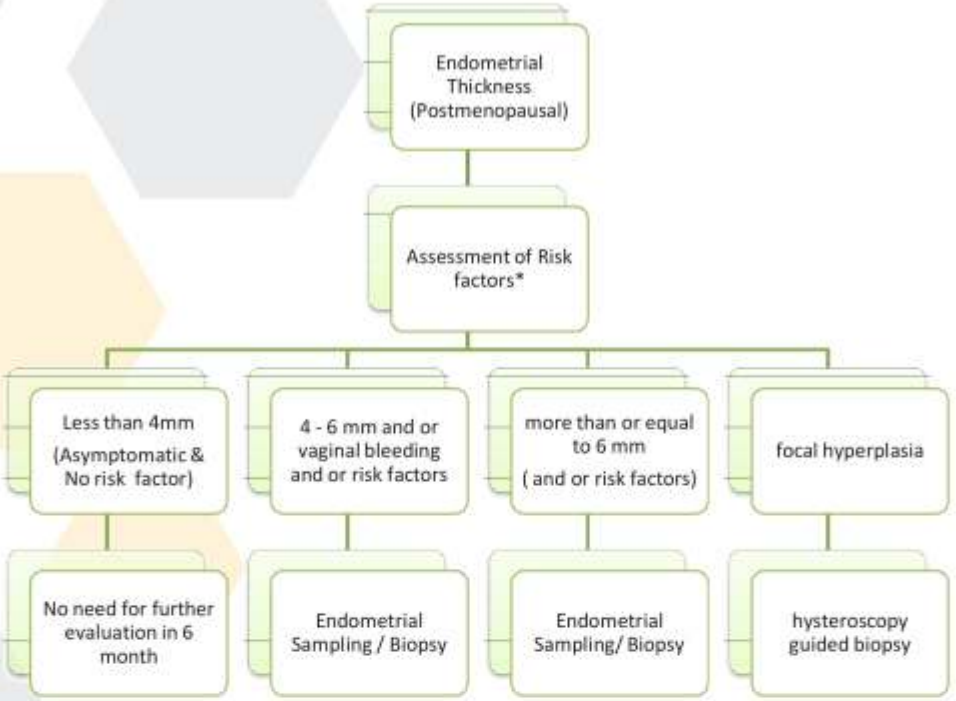


Fig: SAP-1 device

Proposed Guideline for Endometrial Screening :



*Risk Factors:

- Imbalance in hormone levels, like taking estrogen after menopause, birth control pills, or tamoxifen; the more number of menstrual cycles (over a lifetime), obesity, certain ovarian tumors, and polycystic ovarian syndrome
- Western Diet and poor exercise
- Diabetes
- Family history (having close relatives with endometrial or colorectal cancer)
- Breast or ovarian cancer in the past
- Endometrial hyperplasia in the past
- Radiation therapy to the pelvis to treat another cancer

Conclusion

The methods and instruments for the endometrial carcinoma screening have their own advantages and drawbacks. Cost and adequacy in sampling is a major issue. Tao brush is being popularised as a screening tool with more accuracy in sampling and diagnosis. The devices which are discovered for endometrial sampling should possess the following things. First, the tool should collect endometrial sample adequate for investigation and detection of pathology. Second, the endometrial sample should correctly reflect the condition of the uterine cavity to more wisely show a pathway to physician for proper management. Moreover, the screening should not be costly in order to be use in the community of a wide range of women for early detection of endometrial carcinoma. The aim should be to develop an endometrial sampling tool that could guide physician more complete histological and cytological information about the uterine cavity.

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With Ovarian Cancer Awareness, There is Hope

Ovarian cancer (OC) is the seventh most common cancer in the world killing more women than cervical and endometrial cancers combined. India has the second highest mortality for OC after China[1]. A woman has a one in 70 risk of OC in her lifetime. The incidence increases with age from 1.4 cases / 100000 in women younger than age 40 to 45.0 cases/100000 in women older than 60 years. Seventy percent of women are diagnosed with stage 3 or 4 disease with 5 year survival of 40%[2]. If detected early, they have significantly improved prognosis. So early detection of OC by screening will give medicine an upper hand against this lethal illness.

The recent change to the International Federation of Gynecology and Obstetrics staging system for high-grade serous cancers in 2014 included ovary, fallopian tube, and primary peritoneum together as primary sites of disease, reflecting the difficulty in distinguishing the location in which the cancer developed. Fallopian tube cancers, previously believed to be quite rare, are high-grade serous cancers approximately 90% of the time and have identified precursor lesion (serous tubal intraepithelial carcinomas), whereas precursor lesions have not been identified on the epithelial surface of the ovary

Screening of OC to prevent disease and death will be rewarding as effective treatment for early stage disease exists and this is superior to treatment in advanced stage. Limitations of screening are as follows- a) OC umbrella has heterogenous natural histories and tissue origins. Understanding tumour biology is evolving. In OC, the concept of stage 1 disease progressing to stage 4 disease is unproven[3]. Histologies of stage 1 OC have a predominance of mucinous, clear cell and endometrioid cancers where as advanced stage disease has a predominance of serous cancers. Also low grade and high grade serous OC reflect distinct tumour biologies with different carcinogenic pathways[4] b) The disease incidence is low in general population c) Pre clinical stage is not definitely known. d) A suitable screening test requires both high sensitivity and specificity. Women who have a positive screen require further investigation- exploratory surgery. So it is important to maximize specificity in order to obtain a high positive predictive value, and decrease the number of false positive screening.

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A yearly screening test that could detect tumours below 0.5 cm in diameter has been estimated to reduce mortality from serous ovarian cancer by 50%[5].

Ovarian Cancer Screening Trials

Screening trials have predominantly evaluated the potential use of Transvaginal ultrasound, with and without concurrent biomarker serum CA-125 levels.

Trial	Population	Design	Intervention	Primary Endpoint	Result
Shizuoka Cohort(6 ,7,8) Study (n= 82,487)	Asymptomatic postmenopausal women	Randomized controlled trial	Annual pelvic Ultrasound and serum CA-125 levels	Detection of early (stage I) ovarian cancers	No significant difference in stage distribution between intervention and control group
Prostate, Lung Colorectal and Ovarian (7, 8) (n= 78,216)	Asymptomatic postmenopausal women	Randomized controlled trial	Annual serum CA-125 for 6 y and annual Transvaginal sonography for 4 y	Ovarian cancer mortality	No significant difference in ovarian cancer mortality between the 2 arms
UK Collaborative Trial of Ovarian Cancer Screening(7, 8) (n = 202,638)	Asymptomatic postmenopausal women	Randomized controlled trial	Annual serum CA-125 levels interpreted using a predefined algorithm, with follow-up Transvaginal sonography as needed (multimodality) vs annual Transvaginal sonography alone	Ovarian cancer mortality over a 14-y study period	No significant difference in ovarian cancer mortality at the end of the 14-y study period; a stage shift was seen in the multimodality arm
UK Familial Ovarian Cancer Screening Study (7, 8) (n = 3563)	Women with first degree relative with history of ovarian cancer	Prospective single-arm study	Annual serum CA-125 and Transvaginal sonography	Test performance	Sensitivity : 81%–87.5% PPV : 25.5%

Table 1

Adverse effects of Screening

The potential harmful consequence of screening is number of surgeries performed in women without cancer. For example in the PLCO screening arm, 3285 (8.5%) had a false positive test result. Of these, 1080 (33%) underwent surgical follow-up, and 163 women (15%) experienced at least one serious complication.

Consensus Recommendations

American Cancer Society, American College of Obstetricians & Gynaecologists (ACOG), Society of Gynecologic Oncology, US Preventive Services Task Force recommends against screening in average risk women. The conclusion was that screening could lead to unnecessary surgical interventions based on false positive results and that the harms outweigh the benefits[9].

Risk Stratification

Risk stratification improves the effectiveness of screening by enriching the population for individuals at greatest disease risk.

Risk assessment (Offer genetic testing & Counseling)

Patients with an increased likelihood of having an inherited predisposition to breast and ovarian/ tubal/peritoneal cancer should receive genetic counseling and be offered genetic testing. Genetic counseling should include the collection of a three-generation pedigree and involves comprehensive risk assessment based on the patient's personal and family histories[10, 11]

Women AFFECTED with:

- High grade Epithelial ovarian/tubal/peritoneal cancer
- Breast cancer ≤45 years
- Breast cancer with close relative with breast cancer δ≤50 years or close relative with epithelial ovarian/tubal/peritoneal cancer at any age
- Breast cancer ≤50 years with a limited family history
- Breast cancer with ≥2 close relatives with breast cancer at any age
- Breast cancer with ≥2 close relatives with pancreatic cancer, aggressive prostate cancer (Gleason score ≥7)
- Two breast primaries, with the first diagnosed prior to age 50.
- Triple negative breast cancer ≤60 years
- With breast cancer and Ashkenazi Jewish ancestry
- Pancreatic cancer with ≥2 close relatives with breast, ovarian/tubal/peritoneal,pancreatic, or aggressive prostate cancer (Gleason score ≥ 7)

Women UNAFFECTED with cancer, but with:

- A first degree or several close relatives that meet one of the above criteria
- A close relative carrying a known BRCA1 or BRCA2 mutation
- A close relative with male breast cancer
  a. Invasive and ductal carcinoma in situ breast cancers.
  b. Close relative is defined as a first degree (parent, sibling, and offspring), second degree (grandparent, grandchild, uncle, aunt, nephew, niece, half-sibling) or third degree (first cousin, great-grandparent or great-grandchild) relative.
  c. Limited family history includes fewer than 2 first- or second-degree female relatives surviving beyond 45 years.

Table 2

Three familial syndromes (High Risk) [10, 12]

1. Breast Ovarian Cancer Syndrome (BOCS)
2. Site Specific Ovarian Cancer Syndrome (SSOCS)

   Both are caused by inherited mutation in Breast cancer susceptibility gene 1 (BRCA-1) and Breast cancer susceptibility gene 2 (BRCA-2 genes)
3. Lynch Syndrome (Hereditary Nonpolyposis colon cancer) which is caused by mutations in DNA mismatch repair genes responsible for repairing errors in DNA replication.

BRCA-1 and *BRCA-2* are located on chromosomes 17q21 and 13q12-13, respectively, and are inherited in an autosomal dominant fashion. They encode nuclear proteins that are functionally similar. Both proteins participate in the repair of double-stranded DNA damage, as well as the regulation of gene expression at a transcriptional level. Loss of BRCA protein function leads to failure to repair DNA damage, resulting in the activation of p53, with subsequent initiation of cell cycle arrest or apoptosis. In the absence of functional p53, however, the cell continues to proliferate, DNA

damage accumulates, and the likelihood of ensuing malignancy increase. BRCA germline mutations are associated with development of high grade serous carcinomas[7]. Life time risk of developing high grade serous cancers of ovary, fallopian tube or peritoneum is 60% for BRCA1 and 30% for BRCA2 mutation carriers

If more than one family member is interested in being tested, it is best to start BRCA testing with a person who has (or had) cancer of the breast or ovary. Testing for BRCA mutations on stored samples of DNA from deceased relatives is also possible.

Lifetime risk of OC in Lynch Syndrome is 12%. Most ovarian cancers in Lynch syndrome are non-serous histology, specifically endometrioid, clear cell, or undifferentiated carcinomas.[13]

Screening in high risk women

Creates a false sense of security and may delay or prevent prophylactic surgery. There is increase in interval cancers (cancers presenting between screening events). Screening in high risk women is removed from guidelines.[14]

Practitioners can consider screening for high-risk patients with pelvic examination, Transvaginal ultrasound, and CA-125 every 6 months beginning at age 30 years or 5 to 10 years before the earliest age of diagnosis in the family. Screening should continue until RRSO is performed.[15]

Risk Reduction Salpingo Oophorectomy[16, 17]

The strategy with greatest potential for risk reduction is bilateral salpingo-oophorectomy, which is a safe surgery. Laparoscopic approach is preferred. Risk Reduction Salpingo oophorectomy (RRSO) is a life saving procedure in women with germline mutations at age 35- 40 years, once child bearing is complete. This reduces the risk of future OC, peritoneal cancer and breast cancer risk by 80-90 % and is associated with 68% reduction in all-cause mortality.

Optimal time to perform RRSO

Recommended at age 35- 40 years for BRCA1 mutation carriers once childbearing is complete and 40-45 years for BRCA2 mutation. OC occurs ten years earlier and with greater frequency in BRCA1 mutation carriers than among BRCA2 carriers. In a woman with BRCA1 mutation, OC prevalence after RRSO performed before the age of 40 is 1.5% and it rises to 4.0 % and 14.2% if surgery is delayed until age 40 years or 50 years respectively. Whereas, in BRCA2 carriers the prevalence of OC before the age of 50 is only 1% and its proportion increased slightly with age

Technique of RRSO

The procedure involves Bilateral salpingoophorectomy with removal of the entire fallopian tube, Cytologic examination of peritoneal washings, Random peritoneal and omental biopsies along with a biopsy of any suspicious lesion and Serial sectioning of the entire fallopian tube and ovaries at 2 mm intervals and microscopic examination of all sections.

Comprehensive examination of the fallopian tube similar to the Sectioning and Extensively Examining the FIM briated End (SEE-FIM) protocol have estimated the frequency of occult serous carcinoma to be between 0.6% and 1.1% in women with no history of or risk factors for serous carcinomas of the uterus or other pelvic sites.

In women with breast cancer mutations, 5% to 6% of fallopian tubes from prophylactic salpingo-oophorectomies have serous tubal intraepithelial

carcinomas present. On pathologic examination, precursor lesions arise predominantly in the distal fallopian tube and not within the ovary.

Long term effects of RRSO

Symptoms of surgical menopause exist . Safety of HRT in mutation carriers (PROSE study group) shows that RRSO did not negatively impact breast cancer risk. HRT should be individualized and closely monitored.

Role of Hysterectomy

Hysterectomy is not routinely recommended in BRCA carriers along with RRSO.

In Lynch syndrome , Hysterectomy is mandatory when performing RRSO because of coexisting endometrial cancer risk. These patients should also undergo periodic screening mammography, colonoscopy and endometrial biopsy if not hysterectomized.

Chemoprevention

Use of Oral contraceptive pills decreases the risk of ovarian cancer proportionate to its length of use. The average risk reduction per year of use is 5% to 8%. The use effectively reduces the lifetime risk of developing an OC by 50% when taken for more than 10 years. The use of an oral contraceptive pill reduces the risk of users developing high-grade serous cancers and should be discussed when counseling women on contraceptive use.[18]

Other chemopreventive drugs include Tamoxifen and Raloxifen

Other risk reducing procedures

Tubal ligation

Tubal ligation reduces the risk of endometrioid cancer by 52% and clear cell cancer by 48%, presumably by blocking retrograde menstruation and preventing endometriotic deposits within the pelvis. However, tubal ligation reduces the risk of developing highgrade serous cancers by only 19%, supporting the theory that these cancers arise within the distal end of the remaining fallopian tube.

When considering permanent contraception, the fact that the complete removal of the fallopian tube may provide additional benefit should be discussed.[18]

Opportunistic Salpingectomy

Removal of easily accessible fallopian tubes at the time of hysterectomy for benign gynecologic disorders may reduce the risk of developing high grade serous cancers without additional procedural risk, and is recommended.[18]

In premenopausal women, salpingectomy does not appear to affect ovarian function, but this possibility should be discussed before surgery. If tubes are inaccessible at the time of surgery, additional surgical steps should not be performed to access them. Opportunistic salpingectomy does not increase complication rates, length of hospital stay or overall recovery time. It may lead to minor increase in surgical time.[18]

Removal of the ovaries in premenopausal women may increase the risk of cardiovascular disease and is not recommended without clinical indication

Ovarian cancer whispers. Raise your voice against it

As population screening is not recommended, the emphasis should be on clinical decision making . Health professionals should be aware of symptoms and appropriate tests to be carried out.

If a woman (above 50 years) reports any of the

symptoms, particularly more than 12 times per month[19]

- Persistent abdominal distension (bloating)
- Feeling full and/ or loss of appetite
- Pelvic or abdominal pain
- Increased urinary urgency and/or frequency
- Symptoms suggestive of Irritable bowel syndrome (IBS)
- Unexplained weight loss, fatigue or changes in bowel habit

Serum CA125 is measured in women with symptoms. If serum CA125 is 35 IU/ml or greater, an ultrasound scan of the abdomen and pelvis is done.

If the ultrasound suggests ovarian cancer, the woman is referred urgently for further investigation.

For any woman who has normal serum CA125 (less than 35 IU/ml), or CA125 of 35 IU/ml or greater but a normal ultrasound , she is assessed carefully for other clinical causes of her symptoms and investigated if appropriate. If no other clinical cause is apparent, advise her to return if her symptoms become more frequent and/or persistent.

Cancer Antigen -125[20]

CA-125 was discovered in 1981 by Bast et al. This remains to be the single best biomarker for OC. It is a high molecular weight mucin found in mullerian derived epithelium, namely fallopian tube , endometrium and endocervix. Normal surface epithelium does not express CA 125 but it is elevated in 80% of patients with epithelial ovarian cancer and in over 90 % of patients with advanced stage disease.(8)

CA125 is not approved as a screening tool for early detection of OC. It is FDA approved for use in monitoring patients with OC for disease persistence and recurrence.

False positive elevations are seen with benign ovarian cysts, endometriosis, Fibroids, Diverticulitis, Cirrhosis of liver, pancreatitis, renal failure, Tuberculosis and so on.[8]

Other biomarkers

Human Epididymis protein 4 (HE4) is the second best performing marker with a sensitivity of 73 %. A panel of CA125, HE4 and Mesothelin is believed to provide a signal three years before OC diagnosis.[6]

Risk of Ovarian Cancer Algorithm(ROCA)[20]

The ROC for an individual is calculated using a computerized algorithm based on the Bayes theorem, which compares each individual's serial CA-125 levels with the pattern in cases compared with controls. The closer the CA-125 profile to the CA-125 behavior of known cases of ovarian cancer, the greater the risk of ovarian cancer. The final result is presented as the individual's estimated risk of having ovarian cancer so that a ROC of 2% implies a risk of 1 in 50.

This is based on the observation that women with ovarian cancer tend to have increasing levels of CA125, whereas women without ovarian cancer tend to have static or decreasing levels, even if they remain above a cut off of 30 U/ml . The greater the rate of rise in CA125 levels, the greater the risk of ovarian cancer.

In women at normal risk, CA125 is tested annually. In intermediate ROCA risk ,CA125 tested in three months and the risk is recalculated. Elevated ROCA risk triggers referral to a trans-vaginal scan (TVS)[21].

Transvaginal sonography[22]

This is a useful test routinely performed along with biomarkers. Abnormal results include a) ovarian volume more than 10 cc cm b) cyst volume more than 10 cc cm c) any solid area or

papillary projection extending into the cavity of a cystic ovarian tumour of any size d) any mixed (solid/cystic) component within a cystic ovarian tumour.

Conclusion

Early detection of OC remains compelling as well as challenging. Thomas Gellhaus, President of the American College of Obstetricians and Gynecologists (ACOG) has rightly said that there is no effective strategy for ovarian cancer screening. Available screening tests, such as the Risk of Ovarian Cancer Algorithm (ROCA) test, are neither accurate nor reliable to screen asymptomatic women for early ovarian cancer. Currently, it appears that the best way to detect ovarian cancer is for both the patient and her clinician to have a high index of suspicion of the diagnosis in symptomatic women.

Those with personal or family history of breast, ovarian, pancreatic and prostate cancers should undergo genetic testing and counselling. Risk reduction salpingo oophorectomy is recommended in BRCA 1 and BRCA 2 mutation carriers. Contraceptive pills, Tubal ligation and opportunistic salpingectomy have a role in risk reduction and should be counselled positively.

Numerous developments in the last few years into disease aetiology, evolution and biomarker discovery suggest that a new era in screening is underway.

Abbreviations

OC - Ovarian cancer

BRCA1 - Breast cancer susceptibility gene 1

BRCA2 - Breast cancer susceptibility gene 2

RRSO - Risk reduction Salpingo oophorectomy

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With the openness which is created out of thankful heart, real growth is possible.

Breast Cancer Screening in Low-and Middle-Income Countries

Breast awareness is being aware about symptoms of breast cancer, looking out for them regularly and reporting them.

Breast cancer is the most commonly occurring female cancer in the world.

Breast cancer is commonest cancer of urban Indian women and second commonest in rural Indian women.

Breast cancer accounts for 27% of all newly occurring cancers worldwide and approximately 15% of all cancer deaths.

India is experiencing an unprecedented rise in the number of breast cancer cases across all sections of society. More than 1lakh women are diagnosed with breast cancer every year (as per National Cancer Registry).

There is no way we can prevent breast cancer, but we can definitely detect it early and treat adequately.

A Five Step Framework to Guide Screening Strategies in LMICs

1. Choose an evidence threshold to select a screening strategy.
2. Match strategy to the capacity to conduct diagnostic evaluations and to treat patients.
3. Assess data about screening options
4. Take all necessary steps to ensure screening quality.
5. Implement screening with careful evaluation and measurement of outcomes.

Only and only with early detection, we can achieve longer survival.

To make people aware of early detection it is going to need lots of efforts since Indian society is so deep rooted in myths and alternative treatments and unusual illogical beliefs.

Presently India already has one of the worst survivals from breast cancer in the world and India ranks number one in the numbers of healthy life years lost (DALY – Disability Adjusted Life Years) due to breast cancer.

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Healthcare is low on priority and even in major cities "Screening " is an alien word.

Most people present only when symptomatic and on an average "symptomatic" cancers are stage 2B and beyond. So due to late presentation survival rate decreases.

In the West, majority of cancers (>75%) present in stage 1 and 2 resulting in good survival. There is an increase in number of patients presently with mammogram-detected cancer with no symptoms. To reach this achievement India needs aggressive promotion of screening and awareness and proper treatment.

Screening for Breast Cancer

Breast cancer screening is based on the concept that early detection of the disease often makes it possible to abort the natural progression to death, while a late diagnosis has a more ominous outcome. Thus goal of the breast screening is to gain lead-time.

Disease presentable but not detectable------ LEAD TIME--------→ Disease clinically detectable
(Asymptomatic) (Symptomatic)

The breast screening tools involves Self breast examination (SBE), Clinical breast examination (CBE) and Screening Mammography. Breast ultrasonography and MR mammography are optional studies done as and when indicated.

Recommendations for Breast MRI screening as an adjunct to Mammography :

Recommended Annual MRI screening (based on evidence)

- BRCA mutation
- First degree relative of BRCA carrier but untested
- Lifetime risk of 20%-25% as defined by BRACAPRO or other models that are largely dependent on family history

Recommended Annual MRI screening (based on expert consensus opinion)

- Radiation to chest between ages 10 and 30
- Li Fraumeni syndrome and first degree relatives
- Cowden and Bannayan-Riley-Ruvalcaba syndromes and first degree relatives

Insufficient evidence to recommend for or Against MRI screening

- Lifetime risk of 15%-25% as defined by BRACAPRO or other models that are largely dependent on family history
- Lobular Carcinoma in situ (LCIS) or Atypical lobular hyperplasia
- Atypical Ductal hyperplasia
- Heterogenously or extremely dense breast on mammography

Screening guidelines

Age group (yrs)	American Cancer Society (ACS) 2003-2007	American College of Radiology (ACR) 2004	National Cancer Institute (NCI) 1997	US Preventive Service Task Force (USPSTF) 2002
20 - 39	BSE – monthly CBE – 3 yearly	No recommendation	No recommendation	No recommendation
40+	CBE – yearly Mammography - yearly	CBE – yearly Mammography - yearly	Mammography – 1-2 yearly	Mammography – 1-2 yearly with or without CBE
Age to stop	No upper age limit	No upper age limit	No upper age limit	Against screening after 70 yrs

BSE – Breast self examination; CBE – Clinical breast examination

- Women with personal history of breast cancer including Ductal carcinoma in situ

Recommended against MRI screening (based on expert consensus opinion)

- Women at less than 15% lifetime risk

Ultrasound Screening

Ultrasonic Imaging has been used as an adjunct to mammography in women with a suspicious abnormality that is not easily or fully seen on mammogram or to image an area of the breast that has such dense fibro glandular tissue that the ability of mammography to provide a clear image is limited.

Breast Cancer Screening Holds Great Potential

- Breast cancer screening and improvements in therapy have changed the course of breast cancer in high resourcenations.
- We have the opportunity to implement screening models in low and middle-income countries that can reduce the mortality burden that will inevitably result from the rising incidence of breast cancer around the world.
- Screening enables us to detect a cancer much before it produces symptoms. As early detection of breast cancer is a key to survive breast cancer, we should promote screening.

> *"Maturity comes with learning : not necessarily with age."*

Manyata FOGSI initiative – A step for Quality Ethics and Dignity in health care

Quality Ethics and Dignity was this year FOGSI President theme. MAnyata initiative is one of the main practical stand and project for achieving this aim. We as FOGSI and SAFOG representative made every effort to make Manyata a mile stone project which is run by FOGSI for our FOGSI Members. A series of academic CMEs, A series of enrolloing centres and assessment and accreditation we worked with all arms –Jhipiego, NPMU, society office bearers and head of health facilities. We have come along a long way and wish to achieve more and more for goal of fulfilling obstetric care with quality assurance, Ethics and Dignity.

Recommendation for promoting Vaginal Delivery

1. Panel and expert communicates that rate of caesarean section across the population is around 25-30%, and varies according to type of institution and catering of low, moderate or high risk cases. However there is need to reduce primary caesarean section rate due to increased immediate and future obstetric complications in relative indications
2. There are multiple and combined factors for taking decision of caesarean and vaginal delivery and it is effected by obstetric demography, human and technical infrastructure, patient socioeconomic cultural status and pregnancy and delivery complications
3. Robsons classification is a good and simple tool for self auditing as well for linear analysis. Adoption of Robsons classification should be a positive step to improve obstetric care in health care system of all resource settings. Administrators should be proactive in documenting and auditing caesareans section as well vaginal delivery data with details of indication and obstetric outcome.
4. Conduct of safe vaginal delivery entails close maternal and fetal observation for 4-24 hours. Panel strongly recommends development of trained nurses and midwifery cadre who are trained and skilled in monitoring of labor, recognition of birth complications and routine neonatal care and resuscitation. There is felt dearth of this cadre. Government should take steps for quality education in nursing and midwifery and availability in public as well private settings from entry to in job. However panel recommends doctor/ specialist led and midwifery supported care rather than midwifery led care
5. Labor room protocol from Admission to immediate postpartum care should be followed. Use of Partogram, Active Management of third stage of labor, Watch for golden hour are few standard procedure. FOGSI has also framed 16 minimum essential safe labor room practices. Adherence to such protocols ensures quality obstetric care and promotes vaginal delivery.
6. Teaching and training of doctors for assisted vaginal delivery and obstetric makeovers like version, breech delivery, shoulder dystocia should be implemented vigorously in undergraduate as well postgraduate curriculum. Professional organization should also come forward for skill enhancement regular workshops. Panel appreciate role of FOGSI, IAP for many such initiative.
7. Use of some obstetric Practice like induction of labor, C, Section for cord around neck, non assuring CTG, IUGR and medical problems should be reviewed thoroughly and if possible with 2 opinions for reducing primary section rate.

Glimpses of FOGSI SAFOG Activities 2018

AICOG Bhuvneshwar - Panel on prevention of cancer in women 20 January 2018, Panel moderated by Dr. Atul Munshi, Dr. Sadhana Gupta, SAFOG session organized on 19 January, Good representation from all member countries. All participants were presented special momento. SAFOG Session was followed by SAFOG council meeting coordinated by SAFOG Secretory General Dr. Narendra Malhotra

21-23 May, 2018 at South Asia Initiative in Diabetes in Pregnancy (SAIDIP) organized under leadership of Dr. Hema Diwakar, SAFOG Session were conducted A. Panel on Ground realities in DIP moderated by Dr. Anil Kapoor. In Panel Dr. Sadhana Gupta represented SAFOG, B. SAFOG Symposium with Speaker Dr. Shyam Desai, Dr. Ritu Joshi, Dr. Ashma Rana with chair Dr. Sadhana Gupta & Dr. Madhuri Patil

30th June 2018 at Critical Care conference at Bengaluru under leadership of Dr. Shobha Gudi and Dr. Alpesh Gandhi as scientific chair, SAFOG Session on Obstetric Sepsis and Sepsis Bundle was organized in which various international faculties participated. In session many aspect of diagnosis and management of obstetric sepsis with case situations in current scenario were discussed. There was high appreciation for the quality and content of session.

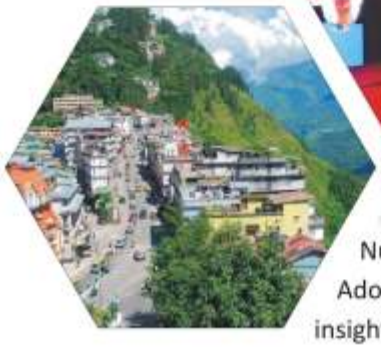
5-7 July 2018 at International Women Health Summit organized under leadership of FGOSI President Dr. Jaydeep Malhotra, SAFOG Panel was organized on burning issue of 'Promoting Vaginal Delivery'. Panel was moderated by Dr. Sadhana Gupta & Dr. Shyam Desai, Panel constituted academician, Medical College teachers, social worker and private clinician. Recommendation of the panel are enclosed in BOX 1 which were submitted to FOGSI President and shared with SAFOG Council Meeting

In July SAFOG day was celebrated at London with academic and social exchange. The event was coordinated by SAFOG president Dr. Rubina Sohail and Secretary General Dr. Narendra Malhotra.

On 28-29th July 2018 SAFOG session was organized on Sepsis in Gestosis Conference at Nagpur, speaker were Dr. Sadhana Gupta, Dr. Alpesh Gandhi.

At FIGO held 14-19 October SAFOG Academic Council meeting was organized on 17 October. Session on Critical Care Obstetrics was organized on 17 October, on 18th October A Panel on "Nine Months Nine Challenge'' was moderated by Dr. Jaydeep Malhotra with panel representing Doctors from SAFOG member countries.

On 2nd November in aegis of RCOG & SAFOG, under coordination with Dr. Suchitra Pandit half day workshop on "Prevention of Still Birth" was organized at New Delhi. Dr. Suchitra Pandit, Dr. Heyman, Dr. Mala Arora, Dr. Sadhana Gupta, Dr. Alpesh Gandhi participated in workshop. Academic quality and innovative content was highly appreciated by participants.



SAFOG Issues – Our problems and solutions FOGSI representative to SAFOG made special efforts to highlight special relations of SAFOG countries in respect of cultural, social, political and health related issues. Together we can understand and move forward. On 24 November at East Zone Yuva FOGSI at Gangtok, panel was moderated by Dr. Sadhana Gupta on screening of women cancer in low Middle income countries. Panel from all over the country came up with innovative directions. On 8th December in FOGSI Adolescent conference at Chennai, under leadership of Dr. Jayam Kanan and Dr. Sampath Kumari in symposium on Nutrition Dr. Sadhana Gupta delivered her sc deliberation - Adolescent of South Asia –Are we different. Which drew a different insight by audience.

On 9th December International conferenc eon Thillur - only adolescent was organized at Chennai under leadership of Dr. Jayam Kanan and Dr. Sampat Kumari. In special session on Nutrition SAFGo Secretory General Dr. Narendra Malhotra talked for nutritional value of foods in South Asian region and Dr. Sadhana Gupta delivered her address on Adolescent of South Asia - are we Different. Session drew a lot of appreciation.

On 11 January at AICOG 2019, Bengaluru. SAFOG Session is on the theme of Adherent Palcenta - Do's and Dont's. with talk and panel on Typical and Atypical Case Situations.

Manyata - Momentum for quality maternity care by FOGSI

Saving Mothers Conference

2-4 August 2019, Gorakhpur

INVITATION

The greatest gift God gave us is life

It is mother who brings this gift of life on earth. Being critically ill or losing own life while giving new life by mother is a tragic event for family ,community and society. It is more pricking in 21st Century when we have technology and means to prevent most of these untimely death. As FOGSIans and obstetrician our role starts from giving optimum obstetric care and reaches new dimensions by being leaders and mind set changer for speaking for right of women to live and healthy during child birth.

FOGSI Saving mothers conference on 2-4 August 2019 at Gorakhpur is to put an organized effort for safe pregnancy and child birth by one of the biggest professional body of the world that is FOGSI. First conference on saving mothers was organized at Allahabad in October 2016 with grand success and it inspired us to organize the second one under dynamic leadership of FOGSI President 2019 Dr. Nandita Palshetakar. We have designed the scientific program of conference so as to include updated knowledge, technology and skill in obstetric care. Maternal Fetal Medicine is upcoming subspecialty, Critical mothers need critical care and obstetric care unit should be ready to face any emergency situations. These are three pre conference workshops on these subject in this conference which will be coordinated by national and international experts. International and national persons of eminence will grace the conference for sharing their vision, experience and knowledge for optimizing mother and neonatal health. Oration, keynote address, panel, symposium, video session are designed to cover each and every aspect of obstetrics. All related FOGSI committee with its chair and members are involved actively in making this conference focussed and visionary. There will be one hall dedicated to yuva Obstetrician for presenting their research, Quiz, Stump the expert and yuva speaks session. There will be good time allotted to interact with expert.

We along with organizing committee invite you for FOGSI Saving mothers conference at holy city of Gorakhpur on 2-4 August 2019. Gorakhpur is fast developing city of Eastern UP, close to Nepal and world famous for Nath Guru Gorakhnath Temple, Kushinagar – Death place of Lord Budha and Geeta Press for publication of philosophical and religious books. It is well connected by air, train and road and now boast of 50 year old Government Medical College, upcoming AIIMS , NER head quarter of Railways and important airbase of Indian Airforce.

Gorakhpur Obs Gyn society has organized state, Zonal and national conferences in the past with great success - North Zone Yuva FOGSI 2010, Adolescent Congress 2002, ICOG Conference 2003, 2007 & UP state chapter 2003, 2016 to name a few. We all are geared up to make your stay and academic experience memorable.

What we do really matters in life, especially in saving lives,

Wishing you A very happy new year and enjoyable learning for Saving Mothers,

Dr. Nandita Palshetkar
FOGSI President 2019

Dr. Alpesh Gandhi
Scientific Chairperson
FOGSI President Elect 2020

Dr. Sadhana Gupta
Organising Chairperson
FOGSI representative SAFOG

Dr. Reena Srivastava
Organizing Chairperson

REGISTRATION FORM

FOGSI Member ☐ Non FOGSI Member ☐ PG ☐

FOGSI Membership No. .....

Name Dr. .....

Designation .....

Institution/Organization .....

Accommodation Needed Yes ☐ No ☐

Address for Communication .....

..... PIN .....

Phone/Mobile .....

E-mail (must) .....

Workshop Maternal Fetal Medicine ☐ Critical Care in Obstetrics ☐

Labor room Emergencies and Medicolegal aspect in obstetric emergencies ☐

Registration for Conference ☐ Workshop ☐ Accompanying Person ☐

Note : For PG student letter of Head of Department must be enclosed for verification.

Signature

Conference Fee Details

	Till 28 Feb'19			up to 30th June, 2019			Spot
	FOGSI	Non FOGSI	PG	FOGSI	Non FOGSI	PG	For All
Conference	INR	INR	INR	INR	INR	INR	INR
with Workshop	7500	8500	6500	9000	10000	8000	12000
Workshop	2000	2500	1500	2500	3000	2000	4000
Conference	6000	6500	5500	7000	8000	6500	9000
Accompanying Person	6000	6000	6000	7000	7000	7500	8000

Please send the registration form at Secretariate with DD in the name of Saving Mothers 2019 or transfer the fee directly in the account :

Account Name : **Saving Mothers 2019**
Account Number : **37955616237**
Account Type : **Current**
Bank Name : **State Bank of India**
IFSC Code : **SBIN000086**
Bank Branch : **Bank Road, Gorakhpur**

Dr. Sadhana Gupta
Organising Chairperson, FOGSI representative SAFOG
Jeevan Jyoti Hospital & Medical Research Centre
South Jatepur, Bobina Road, Gorakhpur - 273001, UP, India
Phone : 0551-2330173, 2334233 Mobile : +91 9839614738, 6392894791
Email : fogsisavingmothers2019@gmail.com, drguptasadhana@gmail.com

Hearty invitation for

Saving Mothers Conference

2-4 August 2019

@ Gorakhpur

Dr. Nandita Palshetkar
FOGSI President 2019

Dr. Alpesh Gandhi
Scientific Chairperson
FOGSI President elect 2020

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Organising Chairperson
FOGSI representative SAFOG

Dr. Reena Srivastava
Organising Chairperson

Dr. Amrita S. Jaipuriar
Organising Secretory

Dr. Babita Shukla
Organising Secretory

Organized by

Gorakhpur Obs. & Gyn. Society

http://fogsisavingmothersconference2019.com

PROFESSIONALISM MATTERS

April 4-6, 2019

Bangabandhu International Conference Centre (BICC)

Sher-E-Bangla Nagar,
Dhaka, Bangladesh
E-mail : safog.dhaka2019@gmail.com