

# Cervical Cancer Screening Program in Rangpur Medical College Hospital: 11 Years Experience

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## Abstract:

**Background:** Prevention of cervical cancer is the easiest with regular screening tests and follow up. CIN is a pre-malignant condition, detection of which is possible by VIA and colposcopy. **Objective:** To identify the performance of Cervical Cancer Screening Program in Rangpur Medical College Hospital through 11 Years. **Methods and materials:** Apparently healthy, married or sexually active women (>10 years) and women aged >30 years attending Gynae OPD were included in this study. After counseling and informed consent a speculum examination was performed for direct visualization of cervix to identify the squamo-columnar junction. Freshly prepared 5% acetic acid was applied to the cervix for one minute. All the VIA positive women were further evaluated by colposcopy. Women with negative VIA were advised for 3 yearly VIA test. Suspected CIN cases were evaluated by colposcopy guided punch biopsy or LEEP biopsy and histopathology. **Results:** VIA screening was provided for 11,792 women from August 2005 to August 2016 and 932 (7.9%) were positive VIA. From November 2007 to August 2016, total women underwent colposcopy were 1548. Among them 632 (40.8%) were normal, out of abnormal cases 730 (80.3%) were CIN-1, 147 (16.1%) were CIN-2, 14 (1.5%) were CIN-3, 17 (1.8%) were invasive and 8 (0.5%) were unsatisfactory. From November 2007 to August 2016 punch biopsy was taken in 384 women and total 568 women were treated by LEEP. **Conclusion:** In a low resource setting like Bangladesh VIA and colposcopy can detect 80% pre-invasive cervical lesion and may be one of the most important tool to prevent cervical cancer and its mortality.

**Key words:** VIA (Visual inspection of cervix with acetic acid), LEEP (Loop electrosurgical excision procedure), OPD ( Outpatient department), CIN (Cervical intraepithelial neoplasia), CIS (Carcinoma in-situ), SCC (Squamous cell carcinoma).

## Introduction:

Cervical cancer is the fourth most common cancer in women in the world. Of the 528,000 new cases detected globally in 2012, developing countries accounted to about 85% of its global burden. It kills approximately 270,000 women worldwide each year<sup>1-2</sup>. While the incidence and mortality rates of cervical cancer have declined in developed countries with the advent of successful screening programs, whereas there has been very poor such trend in developing countries<sup>3-5</sup>. Screening programs were implemented in developing countries since the early 1980's, yet have failed to reduce the mortality rates successfully. According to WHO only 5% of women in developing

countries are screened appropriately. Likely reasons for failure in screening programs and poor follow up include lack of funding, inaccessible rural areas where most of the population in developing countries reside, lack of awareness, illiteracy, and poverty. Globally about 50% of all cancers occur in developing countries, yet only 5% of resources are spent on the fight against cancer.

In Bangladesh every year an estimated 13,000 women are diagnosed with cervical cancer and 6600 die from the disease<sup>6</sup>. Following the recommendations of the WHO, about 25 countries have included VIA screening in their national program. Some of the countries in Asia that have

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implemented VIA screening in the public health program are China, Thailand and Bangladesh<sup>7,8</sup>. Population based cervical cancer screening was initiated in Bangladesh in 2004 as a pilot study and in 2005 as a national program<sup>9</sup>. VIA is a simple and affordable screening test with acceptable sensitivity and specificity in the range of 56-77% and 64-86% respectively in a research setting<sup>10,11</sup>. Scaling up of VIA-based screening program into national program is taking in many low- and middle-income countries<sup>12-16</sup>.

VIA is a simple, cheap and easy-to-learn method and does not require laboratory equipment and test results are immediate. VIA is an attractive method for these reasons in both developed and underdeveloped countries. With suspicious lesions detected, women are advised for colposcopy and further treatment.

#### Objective:

The objective of this study was to identify the performance of Cervical Cancer Screening Program in Rangpur Medical College Hospital through 11 Years.

#### Methods and materials:

This hospital based retrospective, observational study is carried out in Rangpur medical college hospital in outpatient department of obstetrics and gynecology from August 2005 to August 2016. Eleven thousand seven hundred and ninety two women were screened. VIA was started in 2005, Colposcopy in 2007 and that of 'see and treat' in 2008. Informed written consent was obtained from each women and relevant obstetric and gynecological history was obtained and recorded in hospital register book. All the expenses are bear by hospital authority. Inclusion criteria apparently healthy, married or sexually active women (>10 years) women aged > 30 years. Exclusion criteria more unmarried women, women with frank invasive cancer cervix, women with bleeding per vagina during menstruation and pregnancy were excluded. All women were subjected for per speculum examination to identify the external os with pinkish squamous epithelium and reddish columnar epithelium, squamo-columnar junction and transformation zone. Cotton swab soaked in freshly prepared 5% acetic acid was applied to cervix for one minute and then cervix was carefully inspected

for any aceto-white lesions, particularly in the transformation zone. VIA is performed by trained nurses and Colposcopy by gynecologist who are trained in colposcopy, cryotherapy and loop electrosurgical excision procedure (LEEP).

In the study, test was reported as positive, negative and unsatisfactory VIA test. Visualization of the dense aceto-white lesion with sharp margins located in the transformation zone, close to squamo-columnar junction (SCJ) was considered as positive test whenf no aceto-white lesions were observed on the cervix, polyps protruding from cervix, bluish in color, nebothian cysts which appears as button like areas, faint patchy or doubtful lesions with ill-defined, indefinite margins or irregular, acetowhite areas resembling geographical lesions away from the SCJ; were considered as negative test.

If SCJ not clearly seen the test was considered as Unsatisfactory. If VIA turns to be positive and incase of unsatisfactory VIA, the patient was subjected to further evaluation by Pap smear, colposcopy and guided biopsy.

#### Results:

Of the 11,792 women screened, 932 (7.9%) were positive on VIA (Table I).

**Table-I**  
*Distribution of VIA results by positive and negative (n=11,792)*

	No.	%
VIA Negative	10,860	92.1
VIA Positive	932	7.9
Total	11,792	100.0

Regarding age of the VIA positive cases, 24.4% were <30 years, majority (55.8%) were between 30-40 years, and 19.8% were >40 years of age (Table II).

**Table-II**  
*Distribution of VIA positive women by age (n=932)*

	No.	%
< 30 years	227	24.4
30-40 years	520	55.8
> 40 years	185	19.8
Total	932	100.0

All (100%) were married, among them 48.2% were married when they were around 15 years i.e. age of menarche and 40.6% married between the ages of 16 and 19 years and 11.2% were married at or above 20 years (Table-IV).

**Table-III**  
*Distribution of VIA positive women by parity (n=932)*

	No.	%
0-1	122	13.1
2-3	668	71.7
>4	142	15.2
Total	932	100.0

Of the VIA positive women, 54.1% were age between 16-19 years when they first delivered and 17.7% were around the age of 15 years (Table-V).

**Table-IV**  
*Distribution of VIA positive women by age at marriage (n=932)*

	No.	%
<15 years	449	48.1
16-19 years	379	40.7
>20 years	104	11.2
Total	932	100.0

**Table-V**  
*Distribution of VIA positive women by age at first delivery (n=932)*

	No.	%
<15 years	165	17.7
16-19 years	504	54.1
20-25 years	236	25.3
>26 years	27	2.9
Total	932	100.0

About 87% women were multipara, most (60.3%) of them belongs to low socio-economic family (monthly income <10,000 TK) and 94.5% women were housewife (Table-III, VI, VIII).

**Table-VI**  
*Distribution of VIA positive women by monthly income (n=932)*

	No.	%
≤ 5000 TK	356	38.2
6000-9000 TK	206	22.1
10000-14000TK	155	16.6
15000-19000 TK	76	8.2
>20000 TK	139	14.9
Total	932	100.0

**Table-VII**  
*Distribution of VIA positive women by occupation (n=932)*

	No.	%
Housewife	881	94.5
Service holder	51	5.5
Total	932	100.0

In total 1548 women underwent colposcopy from November 2007 to August 2016. Among them 632 (40.8%) were normal, 730 (80.4%) were CIN-1, 147 (16.2%) were CIN-2, 14 (1.5%) were CIN-3, 17 (1.9%) were invasive and 8 (0.5%) were unsatisfactory (Table-VIII, IX). VIA unsatisfactory cases were further evaluated by Pap smear or colposcopy.

**Table-VIII**  
*Colposcopic evaluation of VIA positive cases (n=1548)*

	No.	%
Normal	632	40.8
Colposcopic abnormalities	908	58.7
Unsatisfactory	08	0.5
Total	1548	100.0

**Table-IX**  
*Distribution of Colposcopic abnormalities (n=908)*

	No.	%
CIN-1	730	80.4
CIN-2	147	16.2
CIN-3	14	1.5
Invasive carcinoma	17	1.9
Total	908	100.0

According to national policy 'screen and treat' was started in 2008 in our centre in suspected cases of CIN as non-compliance to treatment is high. CIN-2 or CIN-3 cases were treated by loop electrosurgical excision procedure (LEEP) under local anesthesia. Cryotherapy and cold coagulation for treatment of CIN are not available in our centre. Specimens were sent for histopathology.

Colposcopic directed punch biopsy was taken in 384 cases and LEEP done in 568 cases (Table 10).

**Table-X**  
*Distribution of biopsy taken for histopathology (n=952)*

	No.	%
Punch biopsy	384	40.3
LEEP	568	59.7
Total	952	100.0

**Table-II**  
*Distribution of histopathology reports of colposcopically detected CIN cases. (n=952)*

	No.	%
Chronic cervicitis with or without Squamous metaplasia	520	54.6
CIN-1	88	9.2
CIN-2	23	2.4
CIN-3	05	0.5
CIS	04	0.4
SCC	21	2.2
Reports missing	291	30.5
Total	952	100.0

Histopathology reports of colposcopically detected CIN cases revealed CIN-1 (9.2%), CIN-2 (2.4%), CIN-3 (0.5%), chronic cervicitis with or without squamous metaplasia (54.6%) and reports were missing in 30.5% cases (Table-XI).

### Discussion:

Cervical cancer constitutes 25% of all cancer cases in women and accounts for 13,000 new cases and 8000 deaths annually in Bangladesh. More than 80% of patients diagnosed with this eminently preventable cancer present as clinically advanced, inoperable stages<sup>12</sup>.

Among the cancers, cervical cancer accounts for almost one fifth of cases in women. The cervical

cancer burden is closer to that of maternal deaths (13000 deaths) in Bangladesh and one of the leading causes of cancer related death in women globally. Prevention of cervical cancer is possible not only by health propaganda and vaccination but also with available highly sensitive and specific screening tests. Currently, among 32 million women aged between 30 and 60 years, only less than 0.4% is screened annually with a Pap smear<sup>13</sup>. Though Pap smear is highly acceptable in the hand of expert but it is not feasible to introduce cytology based screening for cervical cancer control in a low resource country like Bangladesh as it is not simple, affordable, available, and cost-effective<sup>13</sup>.

This study reports the experience of implementing VIA-based cervical screening method in a low resource setting. The results show that adequately trained personnel under medical supervision can effectively perform cervical screening and follow-up care even with low resources.

The screen positivity was 7.9% which is consistency with other research studies in Asia and Africa where positivity range from 6.6% to 27.4%<sup>10,13</sup>. Table 2 showed that majority (55.8%) of the VIA positive women were between the age of 30 and 40 years indicating VIA is effective in pre-menopausal age. Though the national guidelines do not recommend screening for women aged <30 years, 24.4% women were in this age group as marital age is > 10 years is taken as the study subject. Table 3-7 showed the socio-demographic data or risks factors for developing cervical cancers. All (100%) the VIA positive women were married, about 87% were multiparity, 48.2% were married around the age of 15 years, 71.8% were teenage when first delivered, 60.3% women belonged to low socio-economic family and 94.5% women were housewife.

Table-VIII showed that 40.8% were normal on colposcopy and among the colposcopic abnormalities CIN-1 were 80.3%. On colposcopy, a little more woman was scored VIA negative or colposcopically normal which indicates the wide variability between the test providers due to the subjective interpretation of the test. In that case, more training and repeated refresher training of the test providers should be needed.

Table-IX showed that punch biopsy was taken in CIN-1 cases and LEEP done in CIN-2,3 cases. Though CIN-1 cases are regress to normal in 60% cases,



overtreatment was done as non compliance rate is high due to lack of awareness, illiteracy and poverty and “screen and treat” method adopted by national policy.

Table-X showed histopathology reports of punch biopsy and LEEP biopsy which revealed that 54.4% cases were chronic cervicitis with or without squamous metaplasia which indicate overtreatment and may be due to disparity between colposcopy and cytology. In that case, more evaluation is needed. Report missing rate is also high; in that case necessary action should be taken by maintaining log book, telephone or mobile no. or email address. Histopathologically diagnosed CIS and SCC cases were admitted for definitive treatment.

Since the results are immediately available, diagnostic tests and treatment can be done in the same visit ensuring good compliance for screen positive women<sup>14</sup>. In our center screen positive women has the facility of diagnostic confirmation in the same visit. Linkage of the screen positive to the diagnosis treatment is also an integral part of the program. LEEP is also widely considered to be an effective and appropriate means of treating pre-cancerous cervical lesions<sup>15,16</sup>.

The ‘Screen and treat method’ that was followed since the year 2008 onwards also suggests that it is equally effective, to get the women with lesions for treatment. A single round of screening would still offer good benefits for these women in reducing the incidence and mortality from cervical cancer. The experience from our study suggests that performance of this test can be improved with good quality training and supervision as quality assurance is essential for a successful VIA-based program. These results have important implications for efficient service delivery in cervical screening programs in low resource settings or even in integrating into primary care services.

Limitations of the study were during experiment, Cryotherapy and cold coagulation for treatment of CIN are not available in our centre which is very crucial for analysis and data collection.

### Conclusion:

In developing countries VIA based screening at all levels of health care systems have potential benefits and it is an adequate and acceptable screening method for cervical cancer with low cost. So, it should be widely accepted globally specially in low

resource settings like Bangladesh with proper improvement of the providers by time to time giving proper training.

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### Conflict of interest

The authors have no conflicts of interest to disclose.

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