ARC Journal of Gynecology and Obstetrics
Volume 9, Issue 3, 2025, PP 1-8
ISSN 2456-0561 (Online)
DOI: https://doi.org/10.20431/2456-0561.0903001
www.arcjournals.org

Diagnostic Accuracy of Visual Inspection with Acetic Acid as a Primary Screening Tool in Detecting Precancerous and Early Cervical Cancer

[*]Dr. Fahmida Shireen[1], Dr. Joyutpala Shukla[2], Dr. Monogna Chitralekha Kundu[3], Dr. Shamim Jahan[4], Dr. Shamsun Nahar[5]

[1]*Assistant Professor, Department of Obstetrics and Gynaecology, Upazila Health Complex, Gobindaganj, Gaibandha, Bangladesh*

[2]*Assistant Professor, Department of Obstetrics and Gynaecology, Officer on Special Duty (OSD), Directorate General of Health Services (DGHS), Mohakhali, Dhaka, Bangladesh*

[3]*Assistant Professor, Department of Obstetrics and Gynaecology, Upazila Health Complex, Nandigram, Bogra, Bangladesh*

[4]*Assistant Professor, Department of Obstetrics and Gynaecology, Upazila Health Complex, Palash, Narsingdi, Bangladesh*

[5]*Assistant Professor, Department of Obstetrics and Gynaecology, Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh*

·Received: 02 September 2025 Accepted: 17 September 2025 Published: 23 September 2025

Corresponding Author:** ***Dr. Fahmida Shireen, *Assistant Professor, Department of Obstetrics and Gynaecology, Upazila Health Complex, Gobindaganj, Gaibandha, Bangladesh*

Abstract

Background: *Cervical cancer is a leading cause of female cancer mortality in Bangladesh, largely due to late-stage diagnosis despite being preventable. This study aimed to assess the diagnostic accuracy of Visual Inspection with Acetic Acid (VIA) as a primary screening tool for precancerous lesions and early cervical cancer.*

Aim of the study: *The aim of the study was to evaluate the diagnostic accuracy of Visual Inspection with Acetic Acid (VIA) as a primary screening method for detecting precancerous lesions and early-stage cervical cancer.*

Methods: *This cross-sectional prospective study at the Department of Obstetrics and Gynecology, Rajshahi Medical College Hospital, Bangladesh (July–December 2007) included 100 women to evaluate VIA for detecting precancerous and early cervical lesions. Eligible women were ≥30 years or sexually active <30, with suspected STIs, symptoms, or unhealthy cervix; pregnant women or those with obvious cervical growths were excluded. VIA-positive cases underwent colposcopy and directed biopsy.*

Results: *Majority were aged 30–39 years (49%); 78% had coitarche <18 years, 75% first childbirth <20 years, and 54% used hormonal contraception. Symptoms were absent in 35%, discharge was most common (54%); 82% had a healthy cervix. Colposcopy detected CIN in 57% and invasive cancer in 3%, while biopsy confirmed CIN in 47% and invasive cancer in 5%. Colposcopy showed sensitivity 88.5%, specificity 70.8%, PPV 76.7%, and NPV 85%.*

Conclusion: *VIA proved to be an effective primary screening tool, with colposcopy showing high accuracy (sensitivity 88.5%, specificity 70.8%) against biopsy in detecting precancerous and early cervical lesions.*

Keywords: *Diagnostic Accuracy, Visual Inspection with Acetic Acid, Cervical Cancer Screening.*

1. INTRODUCTION

Cervical cancer ranks as the second most common cancer among women worldwide, following breast cancer [1].

The majority of cases and deaths, over 85% and 88% respectively, occur in developing countries, where access to screening and treatment is often limited [2,3]. In these regions, cervical cancer represents a

significant public health challenge and carries substantial social and economic consequences, particularly as it frequently affects women of reproductive age [4,5]. Most cases are diagnosed at advanced stages, contributing to high mortality rates; for example, in Bangladesh, the estimated incidence is 167 per 100,000 population [6]. While the disease burden has declined in Western countries due to organized screening programs, cervical cancer remains a leading cause of female cancer mortality in many underdeveloped regions [7].

Early identification and treatment of precancerous lesions are critical, as they can prevent progression to invasive cancer, making cervical cancer largely preventable. Effective screening programs are therefore essential to reduce mortality and disease prevalence [8]. Pap smear cytology has proven successful in lowering cervical cancer deaths through early detection [9]. However, precancerous changes and early-stage cervical cancer often do not present symptoms, highlighting the importance of proactive screening.

Conventional screening with the Pap smear allows detection of early cervical epithelial changes, including precancerous lesions and early invasive cancer. Although widespread Pap testing has reduced cervical cancer incidence, its success depends on high-quality cytology, trained personnel, reliable laboratories, and appropriate follow-up [10]. In many developing countries, Pap smear screening is limited by cost, invasiveness, time requirements, and the need for skilled interpretation, and patient consent is not always provided. As a result, alternative screening approaches have been explored [7]. Visual Inspection with Acetic Acid (VIA) is a simple, low-cost method that provides immediate results. The procedure involves applying dilute acetic acid to the cervix and examining the transformation zone under light, where precancerous areas appear as aceto-white changes visible to the naked eye [11]. VIA is particularly suitable for low-resource settings and can be integrated with a screen-and-treat approach to effectively reduce cervical cancer morbidity and mortality.

Despite evidence supporting VIA as an effective, low-cost screening tool, its diagnostic performance has varied across different settings, with sensitivity and specificity influenced by population characteristics, provider expertise, and healthcare infrastructure. In Bangladesh, where cervical cancer remains a major cause of morbidity and mortality, data on the accuracy of VIA compared to histopathological confirmation are still limited. The purpose of the study was to assess the diagnostic accuracy of Visual Inspection with Acetic Acid (VIA) as a primary screening method for detecting precancerous lesions and early-stage cervical cancer.

2. Objective

- To evaluate the diagnostic accuracy of Visual Inspection with Acetic Acid (VIA) as a primary screening method for detecting precancerous lesions and early-stage cervical cancer.

3. Methodology & Materials

This cross-sectional prospective study was conducted at the Department of Obstetrics and Gynecology, Rajshahi Medical College Hospital, Rajshahi, Bangladesh, from July 2007 to December 2007. A total of 100 women were included to evaluate the diagnostic accuracy of Visual Inspection with Acetic Acid (VIA) as a primary screening tool for precancerous lesions and early-stage cervical cancer.

Inclusion Criteria

- Married or sexually active women aged ≥30 years.
- Below 30 years but onset of Sexual activity before 20 years of age.
- Women with suspected or known sexually transmitted infections (STIs).
- Women with clinical symptoms or signs suggestive of early cervical cancer, including pervaginal discharge, irregular pervaginal bleeding, postcoital bleeding, or lower abdominal pain.
- Patients with a clinically unhealthy-appearing cervix.

Exclusion Criteria

- Presence of obvious growth, ulcer, or mass at the cervix.
- Pregnant women.

Data were collected using a structured questionnaire under the supervision of the study team, recording

sociodemographic factors, age, risk factors, obstetrical and gynecological history, clinical findings, and results of VIA and colposcopy. Eligible participants were referred to the VIA center, where, after counseling, they were placed in the lithotomy position, and the cervix was exposed using a Cusco's speculum. Five percent acetic acid was applied, and the cervix was examined after one minute for acetowhite changes around the squamo-columnar junction (SCJ). VIA-positive cases underwent colposcopic evaluation, and colposcopically directed biopsies were obtained from suspicious areas for histopathological analysis. All procedures adhered to ethical standards, including informed consent, confidentiality, and patient-friendly practices.

4. RESULTS

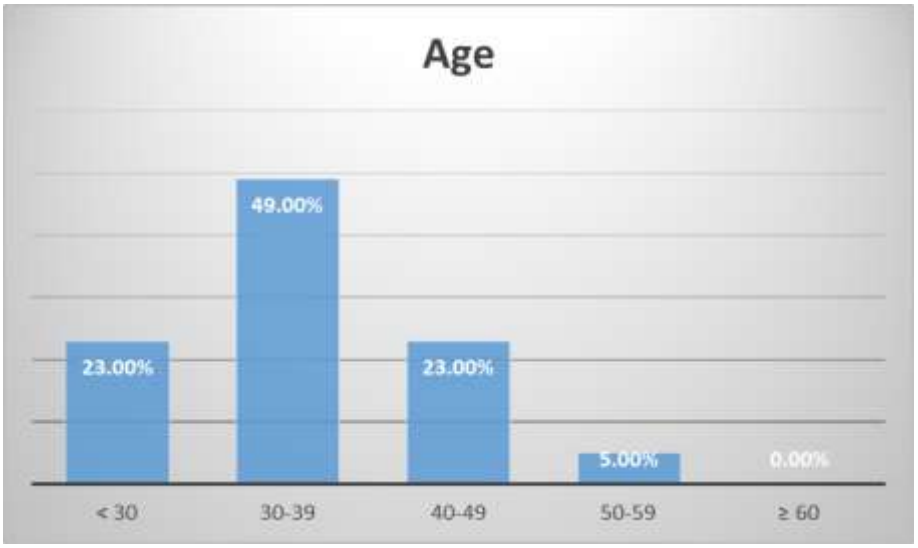

Figure 1. *Age Distribution of Study Subjects (n = 100)*

The majority of patients were in the 30–39 year age group (49.0%), followed by those aged <30 years (23.0%) and 40–49 years (23.0%). Only 5.0% were between 50–59 years, and no patients were ≥60 years.

Table 1. *Risk Factors Associated with Cervical Cancer (n = 100)*

Variable		Frequency (n)	Percentage (%)
Age at first coitus	< 15 years	24	24.0
	15–17 years	54	54.0
	≥ 18 years	22	22.0
Age at first delivery (n = 93)	< 15 years	25	26.9
	15–20 years	45	48.4
	20–25 years	16	17.2
	> 25 years	7	7.5
Contraceptive use	None	19	19.0
	Barrier	10	10.0
	Hormonal	54	54.0
	Both	17	17.0
Family history of cancer	Yes	9	9.0
	No	91	91.0

More than half of the patients (54.0%) reported first coitus at 15–17 years of age, while 24.0% had first coitus before 15 years and 22.0% at ≥18 years. Among those who had given birth (n = 93), the majority (48.4%) had their first delivery between 15–20 years, followed by 26.9% before 15 years, 17.2% between 20–25 years, and only 7.5% after 25 years. Contraceptive use was most common with

hormonal methods (54.0%), followed by both methods (17.0%), barrier (10.0%), and none (19.0%). Family history of cancer was reported in 9.0% of cases, while 91.0% had no such history.

Table 2. *Distribution of Clinical Sign-Symptoms and Speculum Findings of the Patients (n = 100)*

Variable		Frequency (n)	Percentage (%)
Sign–symptoms	None	35	35.0
	Excessive vaginal discharge	54	54.0
	Dyspareunia	44	44.0
	Backache	30	30.0
	Dysuria	22	22.0
	Post-coital bleeding	14	14.0
	Abnormal inter-menstrual bleeding	12	12.0
	Lower abdominal pain	8	8.0
	Heavy irregular vaginal bleeding	6	6.0
Speculum findings	Apparently healthy cervix	82	82.0
	Erosion / Ectropion	10	10.0
	Cervical polyp	5	5.0
	Ulcer	2	2.0
	Nodular / Nabothian cyst	1	1.0

More than one-third of patients (35.0%) had no presenting symptoms, while the most frequent complaint was excessive vaginal discharge (54.0%), followed by dyspareunia (44.0%), backache (30.0%), and dysuria (22.0%). Other reported symptoms included post-coital bleeding (14.0%), abnormal inter-menstrual bleeding (12.0%), lower abdominal pain (8.0%), and heavy irregular vaginal bleeding (6.0%). On speculum examination, the majority of patients (82.0%) had an apparently healthy cervix, while erosion or ectropion was observed in 10.0%, cervical polyp in 5.0%, ulcer in 2.0%, and nodular/nabothian cyst in 1.0% of cases.

Table 3. *Distribution of Colposcopic Findings (n = 100)*

Variable		Frequency (n)	Percentage (%)
Squamo-columnar junction	Seen clearly	85	85.0
	Not clear	15	15.0
Acetowhite lesion site	Upper lip	88	88.0
	Lower lip	12	12.0
Colposcopic impression	Normal	29	29.0
	Inflammation	11	11.0
	CIN I	25	25.0
	CIN II	21	21.0
	CIN III	11	11.0
	Invasive carcinoma	3	3.0

Colposcopy revealed that the squamo-columnar junction was clearly visualized in 85.0% of cases, while it was not clear in 15.0%. Acetowhite lesions were predominantly located on the upper lip of the cervix (88.0%), with 12.0% on the lower lip. Regarding colposcopic impression, 29.0% of patients had a normal cervix, while abnormalities included inflammation (11.0%), CIN I (25.0%), CIN II (21.0%), CIN III (11.0%), and invasive carcinoma (3.0%).

Table 4. *Distribution of Colposcopically Directed Biopsy Findings (n = 100)*

CDB	Number (n=100)	Percentage
Normal	25	25.0%
Inflammation	23	23.0%
CIN I	29	29.0%
CIN II	12	12.0%
CIN III	6	6.0%
Invasive carcinoma	5	5.0%

Histological evaluation of colposcopically directed biopsies revealed that 25.0% of patients had no disease and 23.0% had inflammation. Cervical intraepithelial neoplasia (CIN) was detected in 47.0% of cases, comprising CIN I (29.0%), CIN II (12.0%), and CIN III (6.0%). Invasive carcinoma was diagnosed in 5.0% of cases.

Table 5. *Sensitivity and Specificity Analysis of Colposcopy Using CDB as the Gold Standard (n = 100)*

Colposcopic findings	Disease		Total (%)
	Disease Positive (%)	Disease Negative (%)	
Positive	46 (76.67%)	14 (23.33%)	60 (60.0%)
Negative	6 (15.0%)	34 (85.0%)	40 (40.0%)
Total	52 (52.0%)	48 (48.0%)	100.0%
Sensitivity	88.46%		
Specificity	70.83%		
False positive	29.17%		
False negative	11.54%		
Predictive value of positive test	76.67%		
Predictive value of negative test	85.00%		

Since all subjects were VIA positive by study design, diagnostic accuracy was assessed using colposcopy against colposcopically directed biopsy (CDB) as the gold standard. Colposcopy detected disease in 60.0% of cases, while biopsy confirmed disease in 52.0%. The sensitivity and specificity of colposcopy were 88.46% and 70.83%, respectively. The positive predictive value was 76.67% and the negative predictive value was 85.0%.

5. Discussion

The diagnostic accuracy of Visual Inspection with Acetic Acid (VIA) as a primary screening tool for cervical cancer was evaluated among women attending a tertiary care hospital in Bangladesh. Cervical cancer, a major public health concern in low-resource countries, often presents at advanced stages due to limited access to effective screening. In this study, VIA demonstrated its utility in detecting precancerous and early-stage cervical lesions, with colposcopically directed biopsy serving as the gold standard.

The findings highlight the influence of sociodemographic and reproductive risk factors, alongside the importance of feasible, low-cost screening strategies to reduce morbidity and mortality associated with cervical cancer.

In the present study, the majority of participants were aged 30–39 years (49.0%), followed by women under 30 years and those aged 40–49 years, each accounting for 23.0% of cases. Only a small proportion of subjects were aged 50–59 years (5.0%), and no participants were ≥60 years. This age distribution is consistent with previous findings, such as the CDC report, which indicates a median age of 50 years for HPV-associated cervical cancer, reflecting higher prevalence in middle-aged women and a decline in older age groups [12]. Similarly, a study on Korean women undergoing cervical screening demonstrated that the prevalence of high-risk HPV is highest in women under 30 years, with a notable decrease in older age groups [13]. These findings suggest that precancerous and early cervical lesions are most commonly detected in women between 30 and 49 years, highlighting the importance of targeted screening within this age range. In this context, VIA remains especially valuable, as it is widely accessible and cost-effective for screening the most at-risk women in resource-limited settings.

Early sexual debut and early childbearing were prominent among the participants, with 24% reporting first coitus before 15 years and more than half (54%) between 15–17 years, while nearly three-quarters had their first delivery before 20 years. These findings are consistent with the pooled analysis by Louie et al.[14], which demonstrated that women who initiated sexual activity at ≤16 years or between 17–20 years carried significantly higher odds of developing invasive cervical cancer compared to those with later onset. The biological plausibility relates to increased vulnerability of the immature cervical epithelium to persistent HPV infection during adolescence, thereby accelerating the progression to precancerous changes.

Additionally, the high prevalence of hormonal contraceptive use in our cohort (54%) resonates with earlier reports linking long-term hormonal contraceptive exposure with elevated cervical cancer risk, further underscoring the clustering of risk factors in this population. Although only 9% reported a family history of cancer, the predominance of early coitarche, early parity, and hormonal contraceptive use highlights the heightened susceptibility of this group. These results reaffirm the need for cost-effective primary screening methods such as VIA to identify women exposed to multiple overlapping risk factors in low-resource settings.

A considerable proportion of participants (35%) were asymptomatic, which is consistent with the report from Medscape's *Cervical Cancer Clinical Presentation* that many women with early cervical cancer may not present with symptoms [15]. Among symptomatic cases, excessive vaginal discharge (54%) was the most common complaint, aligning with the literature that highlights discharge, postcoital bleeding, dysuria, and vaginal discomfort as typical manifestations of early disease. Other symptoms in our series, such as dyspareunia (44%), backache (30%), and postcoital bleeding (14%), also reflect these common clinical features. Speculum examination revealed that most women (82%) had an apparently healthy cervix, supporting findings by Akter et al.[16], who similarly observed that many VIA-positive women show no remarkable changes on speculum examination. Nonetheless, abnormal findings in our study, including cervical erosion/ectropion (10%), cervical polyp (5%), ulcer (2%), and nabothian cyst (1%), parallel the spectrum of abnormalities described in both Medscape [15] and Akter et al.[16], reinforcing the notion that early cervical pathology often remains clinically silent or presents with nonspecific signs. These findings highlight the importance of VIA as a frontline screening method, since many women may not exhibit overt clinical signs at presentation.

Colposcopic findings revealed that the squamo-columnar junction was clearly visualized in 85% of cases, and most acetowhite lesions were located on the upper lip (88%). Colposcopic impressions showed a considerable proportion of low-grade lesions, with CIN I detected in 25% of cases, followed by CIN II in 21%, CIN III in 11%, and invasive carcinoma in 3%. These findings align with those of Habib et al.[17], who also reported a notable distribution of lesion grades among VIA-positive women, with inflammation (26.2%), CIN I (38.1%), CIN II (11.1%), CIN III (9.5%), and invasive carcinoma (9.5%), showing similar trends in both low- and high-grade lesions.

Similarly, Pothisuwan et al.[18] described that among VIA-positive cases, 42.4% had high-grade lesions (CIN II/III), while the remainder had lower grade or no significant lesion, which corresponds with our observation of a mixed spectrum of colposcopic findings. Together, these comparisons highlight that VIA-positive women represent a heterogeneous group with varying degrees of cervical pathology, emphasizing the importance of colposcopy for accurate grading and further management following initial VIA positivity.

The distribution of biopsy findings in the present study shows a predominance of low-grade lesions, with 29% CIN I and 25% normal histology, while higher-grade lesions such as CIN II (12%), CIN III (6%), and invasive carcinoma (5%) were less frequent. This pattern is consistent with the findings of Ochs et al.[19], who, in a large series of 2,005 conizations, reported 13.6% cases without dysplasia, 11.0% with CIN I, 22.1% with CIN II, 49.9% with CIN III, and 3.5% with invasive carcinoma. Although their study demonstrated a higher proportion of CIN III compared to the present study, both sets of results reflect the characteristic distribution where a significant fraction of cases fall within the lower-grade spectrum, while progressively fewer cases are diagnosed with CIN II, CIN III, or invasive cancer. This similarity underscores the importance of biopsy in detecting the full spectrum of cervical lesions, ranging from benign or inflammatory changes to invasive carcinoma, and validates the role of VIA as a gateway to identifying women requiring confirmatory colposcopic biopsy.

Finally, colposcopy in this study demonstrated a sensitivity of 88.46% and a specificity of 70.83% when compared with colposcopically directed biopsy as the gold standard, which is broadly consistent with findings from other settings. Balmagambetova et al.[20] reported a sensitivity of 81.6% and specificity of 72.6% for detecting LSIL, values closely aligned with ours, though their sensitivity dropped to 56.6%

with higher grade (CIN2+) detection while specificity improved to 88.3%. Similarly, Dorji et al.[21] observed an overall sensitivity of 66.7% and specificity of 73.7% for detecting histological CIN2+, with senior colposcopists achieving slightly higher performance (80% sensitivity, 71.1% specificity). Compared to these, our results reflect higher sensitivity while maintaining comparable specificity, suggesting that colposcopy in our setting performs well, particularly for identifying lower-grade lesions, and aligns with the range of diagnostic accuracy documented in international literature. Taken together, these findings reinforce VIA as a sensitive, low-cost primary screening strategy that can effectively identify women at risk of precancerous and early cervical cancer in resource-limited settings like Bangladesh, where cytology-based screening is often not feasible.

6. Limitations of the Study

Despite careful attention, certain limitations remained:

- As the study was conducted in tertiary-level hospitals, the findings may not fully represent the overall population of the country.
- The use of purposive sampling introduced the possibility of selection bias.
- The short follow-up duration limited the assessment of long-term outcomes.

7. Conclusion

This study demonstrates that VIA-positive women frequently present with early age at coitus and childbirth, predominant use of hormonal contraception, and nonspecific symptoms such as vaginal discharge, despite many having a healthy-appearing cervix. Colposcopy identified a spectrum of cervical lesions, with histopathology confirming CIN in 47% and invasive carcinoma in 5% of cases. When compared with biopsy, colposcopy showed high diagnostic performance, with sensitivity of 88.5%, specificity of 70.8%, PPV of 76.7%, and NPV of 85%. These findings support VIA as an effective primary screening tool for detecting precancerous and early cervical cancer, with colposcopy serving as a reliable confirmatory method in low-resource settings.

References

[1] Sowemimo OO, Ojo OO, Fasubaa OB. Cervical cancer screening and practice in low resource countries: Nigeria as a case study. Tropical Journal of Obstetrics and Gynaecology. 2017;34(3):170-6.

[2] Ochomo EO, Atieli H, Gumo S, Ouma C. Assessment of community health volunteers' knowledge on cervical cancer in Kadibo Division, Kisumu County: a cross sectional survey. BMC Health Services Research. 2017 Sep 25;17(1):675.

[3] Bhattacharyya AK, Nath JD, Deka H. Comparative study between pap smear and visual inspection with acetic acid (via) in screening of CIN and early cervical cancer. Journal of mid-life health. 2015 Apr 1;6(2):53-8.

[4] Pisani P, Parkin DM, Bray F, Ferlay J. Estimates of the worldwide mortality from 25 cancers in 1990. International journal of cancer. 1999 Sep 24;83(1):18-29.

[5] Safaeian M, Solomon D, Castle PE. Cervical cancer prevention—cervical screening: science in evolution. Obstetrics and gynecology clinics of North America. 2007 Dec 1;34(4):739-60.

[6] Parvin Z, Naher L, Das SK, Khanam S, Rosy N. Visual Inspection of Cervix with Acetic Acid (VIA) as a Screening Tool for Early Detection of Cervical Pre-Cancer & Cancer. Faridpur Medical College Journal. 2018 Aug 24;13(1):24-7.

[7] Ashtarian H, Mirzabeigi E, Mahmoodi E, Khezeli M. Knowledge about cervical cancer and pap smear and the factors influencing the pap test screening among women. International journal of community based nursing and midwifery. 2017 Apr;5(2):188.

[8] Bharti A, Hansda R, Bala R, Kumar A. To determine the diagnostic accuracy of visual inspection of cervix with acetic acid as a screening tool to detect preinvasive cervical cancer–A meta-analysis. Journal of Family Medicine and Primary Care. 2025 Jul 1;14(7):2619-27.

[9] World Health Organization (WHO). WHO recommends DNA testing as a first-choice screening method for cervical cancer prevention [Internet]. 2021 [cited 2025 Sep 20]. Available from: https://www.who.int/europe/news/item/11-09-2021-who-recommends-dna-testing-as-a-firstchoice-screening-method-for-cervical-cancer-prevention

[10] Landis SH, Murray T, Bolden S, Wingo PA. Cancer statistics, 1999. CA: A cancer Journal for Clinicians. 1999 Jan 1;49(1):8-31.

[11] Afolabi EK, Olaogun AA, Ajenifuja KO, Adereti CS. Prevention of cervical cancer among female undergraduates in two universities in south-western Nigeria. Tropical Journal of Obstetrics and Gynaecology. 2013;30(1).

[12] CDC. HPV-associated cancer diagnosis by age [Internet]. Cancer. 2024 [cited 2025 Sept 19]. Availablefrom:https://www.cdc.gov/cancer/hpv/diagnosis-by-age.html

[13] Kim MJ, Kim JJ, Kim S. Type-specific prevalence of high-risk human papillomavirus by cervical cytology and age: Data from the health check-ups of 7,014 Korean women. Obstet Gynecol Sci. 2013 Mar;56(2):110-20.

[14] Louie KS, De Sanjose S, Diaz M, Castellsagué X, Herrero R, Meijer CJ, Shah K, Franceschi S, Muñoz N, Bosch FX. Early age at first sexual intercourse and early pregnancy are risk factors for cervical cancer in developing countries. British journal of cancer. 2009 Apr;100(7):119 1-7.

[15] Boardman CH. Cervical cancer clinical presentation. *Medscape*. 2023 [cited 2025 Sep 19].Availablefrom:https://emedicine.medscape.com/article/253513-clinical

[16] Akter T, Siddika A, Akter K, Akhter S, Haque MA, Akther N. Colposcopic Findings of Cervix in VIA (Visual Inspection of Cervix by Acetic Acid) Positive Cases at BSMMU, Dhaka, Bangladesh. Sch Int J Obstet Gynec. 2022;5(10):407-13.

[17] Habib N, Jikria N, Suborna SS, Aker N, Habib AA. Correlation of VIA Positive Cases with Colposcopic and Histopathological Findings in Diagnosis of Precancerous Lesion of Cervix in A Tertiary Care Hospital. Sch Int J Obstet Gynec. 2024;7(3):93-9.

[18] Pothisuwan M, Pataradool K, Tangjitgamol S, Srijaipracharoen S, Manusirivithaya S, Thawaramorn T. Visual inspection with acetic acid for detection of high grade lesion in atypical squamous cells and low grade squamous intraepithelial lesions from cervical Pap smear. Journal of Gynecologic Oncology. 2011 Sep 28;22(3):145.

[19] Ochs K, Meili G, Diebold J, Arndt V, Günthert A. Incidence trends of cervical cancer and its precancerous lesions in women of Central Switzerland from 2000 until 2014. Frontiers in Medicine. 2018 Mar 16;5:58.

[20] Balmagambetova S, Tinelli A, Urazayev O, Koyshybaev A, Ismagulova E, Sakiyeva K, Djussembekov S, Zholmukhamedova D. Colposcopy accuracy in diagnosing cervical precancerous lesions in western Kazakhstan. Gynecol Oncol Rep. 2020 Oct 24;34:100661.

[21] Dorji N, Tshering S, Choden S, Chhetri M, Bhujel D, Wangden T, Pradhan B, Bhutia PC, Tshomo U. Evaluation of the diagnostic performance of colposcopy in the diagnosis of histologic cervical intraepithelial neoplasia 2+(CIN2+). BMC cancer. 2022 Aug 29;22(1):930.

Citation: *Dr. Fahmida Shireen et al. Diagnostic Accuracy of Visual Inspection with Acetic Acid as a Primary Screening Tool in Detecting Precancerous and Early Cervical Cancer. ARC Journal of Gynecology and Obstetrics. 2025; 9(3):1-8. DOI: https://doi.org/10.20431/2456-0561.0903001.*