

Managing women with cervical cancer symptoms: Cervical One-Stop Assessment Clinic

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Abstract

Aim

Women with symptoms suggestive of cervical cancer require prompt specialist gynaecological review with access to diagnostic testing. A Cervical One-Stop Assessment Clinic (COSAC) was established at Cork University Maternity Hospital in 2021. This retrospective review evaluates the first three years of this service.

Methods

Anonymised data from all attendees of the between September 2021 and September 2024 were collected, including referral indication, cervical cancer risk factors, examination findings, investigations, and onward referrals. Descriptive analysis was performed using Microsoft Excel.

Results

During the review period, 1714 COSAC appointments were offered based on referral details and 1522 of these women attended (88.9%). The mean age was 39 years. Most referrals were for abnormal cervical appearance (812, 53.5%) or post-coital bleeding (408, 26.8%). The majority of attendees were up to date with HPV screening and had tested negative (1238, 90.7%). Most attendees had a normal examination and did not require biopsy (1155, 76.2%). Of the 185 (12.2%) biopsied, most results were benign, including metaplasia (133, 71.9%) and cervicitis (42, 22.7%). Pre-cancer cervical intraepithelial neoplasia was identified in three women (3/1522), two with low grade changes. Advanced squamous cell carcinoma was confirmed in two women. Both were over 35, multiparous and overdue for screening with no prior colposcopy.

Discussion

COSAC clinics provide specialist care for symptomatic women and help maintain colposcopy capacity for those with an abnormal screening result. They are low resource, high impact

services which could be considered a useful adjunct for implementation in gynaecology units nationally and internationally.

Introduction

Cervical cancer is the fourth most prevalent cancer among women globally, with 660,000 women diagnosed annually. Approximately 30,447 European women and 250 Irish¹⁻³ women are diagnosed each year. The incidence of cervical cancer in Ireland has reduced from 15 to 10.4 per 10,000 since the introduction of an organised population-based cervical screening programme (CervicalCheck) in 2008⁴. Cervical cancer is primarily attributed to persistent high-risk human papillomavirus (HPV) infections, which induce alterations in cervical cells^{2,4,5}. HPV is common, with approximately 80% of individuals acquiring it through sexual contact at some stage in their lives⁵. Cervical screening enables early detection and treatment of high-risk HPV and pre-cancerous changes, reducing cervical cancer incidence⁵. Irish women aged from 25 to 65 years are invited for cervical screening and each year approximately 263,000 women are screened through primary care medical providers⁶. Women with persistent high-risk HPV or cytological abnormalities detected are referred for review in one of fifteen national colposcopy clinics within pre-agreed defined waiting times⁶. CervicalCheck has guidance in place for maximum waiting times for review following receipt of referral to colposcopy services. Those with concerns for invasive disease based on clinical exam are highest priority and the programme recommends that they should be seen within 2 weeks, those with high grade cytology within 4 weeks and those with low grade cytology within 8 weeks. These target review times are some of the key performance indicators (KPI) that colposcopy clinics in Ireland audit and report to CervicalCheck.

Symptoms such as post-coital bleeding or an opportunistic finding of an abnormal cervical appearance may indicate an underlying cervical malignancy⁷. In Ireland, women with suspected cervical pathology are referred to a variety of clinics such as colposcopy, general gynaecology and less commonly gynae-oncology^{7,8}. Colposcopy services, under the CervicalCheck programme, traditionally managed a significant proportion of these referrals⁸. There was a notable increase in clinically indicated referrals to colposcopy services in recent years, reaching a point where more than one-third of all referrals were clinically driven⁹. This made it challenging for colposcopy clinics to meet the programme advised maximum wait time of 8 weeks for all patients referred^{6,8}. With the introduction of primary HPV screening in March 2020, a 40% increase in referrals was anticipated between the second and fifth years of the programme. This was predicted to further increase demand for colposcopy services^{6,8}.

We established a dedicated Cervical One-Stop Assessment Clinic (COSAC) in 2021 in our local unit to provide a structured approach to clinical referrals, incorporating specialist review as well as competent diagnostic assessment for women referred from a health care provider with

concerns of potential cervical pathology. This service was established to run in parallel but separate to the CervicalCheck colposcopy service. The primary aim of this review was to examine the patient outcomes from the first three years of the COSAC service at Cork University Maternity Hospital.

Methods

This retrospective study was conducted at Cork University Maternity Hospital (CUMH), a tertiary teaching hospital in Ireland. The study included women who attended the COSAC clinic at CUMH from 24th September 2021 until 30th September 2024. Eligible cases were identified by reviewing the integrated patient management system scheduled appointments records for the clinic.

Following four successful pilot clinics in 2021, a weekly COSAC service was launched in our unit in September 2021. The clinic is located within the Colposcopy department, which is fully equipped with a couch suitable for cervical examination as well as diagnostic testing. The COSAC team consists of a consultant gynaecologist, proficient in colposcopy and cervical pathology, chaperoned by a healthcare assistant, with assistance from administrative support for scheduling. Each clinic reviews 12 women. Using a structured proforma for history (Appendix 1) followed by pelvic and speculum examination with diagnostic cervical sampling performed if required. Examination of the cervix was performed under direct vision with an appropriate light source. Colposcopy was not routinely performed. Additional testing such as microscopy and cervical screening are available if indicated. Interventional treatments such as silver nitrate, diathermy and LLETZ are also available. Onward referrals to other services such as colposcopy, ultrasound, ambulatory hysteroscopy or gynaecology theatre can also be arranged. Letters summarising review to the referring healthcare provider are automatically generated from the completed proformas on electronic healthcare records.

A standardised data collection set was developed to ensure uniformity in data recording. The dataset encompassed both clinical and procedural information such as indication for referral to the clinic, risk factors for cervical disease, findings from clinical examinations, details of diagnostic tests performed, results, and any onward referrals. Anonymised data were extracted from the Maternal & Newborn Clinical Management System (MNCMS) electronic database from August to November 2024 by a single researcher and transcribed into a password-encrypted Microsoft Excel file in compliance with the General Data Protection Regulations (GDPR).

Statistical analysis proportions were used to describe categorical variables, while means and standard deviations (SD) or medians and interquartile ranges (IQR) were used for continuous variables, depending on distribution. All analyses were conducted using Microsoft Excel.

Ethical approval was obtained from the Clinical Research Ethics Committee of the Cork Teaching Hospitals as well as the hospitals Local Information Governance Group. All data were anonymised, and patient consent was waived due to the retrospective nature of the study. Throughout the study, ethical considerations were prioritised, ensuring data anonymity and secure storage in accordance with hospital protocols.

Results

During the time-period reviewed, 1714 appointments were offered to women for the COSAC clinic, of whom 1522 accepted the appointment, giving an attendance rate of 88.9%. Table 1 outlines demographics of attendees, with an overall mean age of 39 years although a wide range was present (16-84 years). Most were multiparous (65.9%, n=1003), approximately 20% (n=205) of whom had a prior caesarean section. Smoking/vaping incidence was 14.7%. Majority of the cohort were aged 25-65 (n=1364) and were thus eligible for free cervical screening within the national screening programme. Most of these (90.7%, n=1238) were up to date with screening and had a recent HPV negative result. The rate of prior attendance at colposcopy in those referred was 16.4% (n=224), with 11.1% of the cohort (n=152) having undergone previous treatment for cervical intra-epithelial neoplasia. None of those who had previously attended colposcopy had CIN identified when they attended the COSAC service.

Table 1: Demographics of attendees of COSAC September 2021 until September 2024

	All attendees N = 1522 (%)
Mean Age (range)	39 (16-84)
Parity	
Nulliparous	519 (34.1%)
Multiparous	1003 (65.9%)
<i>Previous Caesarean Section</i>	205/1003 (20.4%)
Currently smoking cigarettes or vaping	224/1522 (14.7%)
HPV Immunised	211/367 (57.4%)*
<i>*aged ≤30 years and eligible for national vaccination programme</i>	
	Attendees ≥ 25 years** N = 1364 (%)
Screening history	
Cervical screening up to date and normal	1238 (90.7%)
Cervical screening HR HPV ^t positive within last 12 months	32 (2.3%)
Cervical screening HR HPV ^t positive with abnormal cytology and normal colposcopy in last 36 months	4 (0.3%)
Cervical screening overdue	90 (6.7%)
Colposcopy history	
Previous Colposcopy review	224/1364 (16.4%)
Previous normal colposcopy	72/224 (32.1%)
Previous Colposcopy treatment	152/224 (67.9%)
<i>Previous Large Loop Excision of Transformation Zone (LLETZ)</i>	111 (73%)
<i>Previous Cold Coagulation</i>	13 (8.5%)
<i>Unspecified</i>	28 (18.4%)

^tHR HPV –High Risk Human Papilloma Virus

** Aged ≥25 years and eligible for national cervical screening programme

Table 2 outlines the indication for referral to the COSAC service. The most frequent indication was a sample takers concern about an abnormal cervical appearance (n=812, 53.5%) followed by post-coital bleeding (n=408, 26.8%) and cervical polyps (n=166, 10.9%). A small number of women were pregnant at time of review (<1%) or immunocompromised due to medical treatment (<2%).

Table 2: Indication for referral to COSAC September 2021 until September 2024

	All attendees N = 1522 (%)
Abnormal cervical appearance	812 (53.3%)
Post coital bleeding	408 (26.8%)
Cervical polyps	166 (10.9%)
Post coital bleeding & abnormal cervical appearance	74 (4.8%)
Other ^t	43 (2.8%)
Contact bleeding at time of cervical screening*	19 (1.2%)
Relevant Other	
<i>Currently immunocompromised or cancer diagnosis</i>	24 (1.6%)
<i>Currently Pregnant</i>	13 (0.9%)
Post coital bleeding reported at COSAC review	523 (34.4%)
Intermenstrual bleeding reported at COSAC review	69 (4.5%)

^t Irregular vaginal bleeding, new diagnosis of bowel cancer, dyspareunia, vaginal discharge, pelvic pain

*Eligible for national cervical screening programme

Table 3 describes the cervical examination findings at the time of review. Half of the cohort had a completely normal cervical appearance (48.7%, n=741). Findings in the remainder included cervical ectropian/erosion (16.7%, n=253), nabothian cyst/follicles (12.6%, n=192), cervical polyp (10.8%, n=165) and cervical scarring from a previous LLETZ procedure (5.2%, n=79). Less common findings were erythema/hyper-vascular appearance (0.9%, n=13) and hyperkeratosis/leucoplakia (0.3%, n=5). Eight women did not have an examination performed due to inability to tolerate speculum examination or the clinical exam was considered inappropriate. Of the 1552 women reviewed, two were identified with advanced cervical cancer during the time-period of this study. Both women were >35 years, multiparous, overdue on cervical screening with no prior history of colposcopy attendance. Both attended primary health care providers with abnormal vaginal bleeding and were referred due to clinical concerns about the appearance of the cervix. Both were diagnosed with cervical

cancer on clinical examination at the first visit to the COSAC clinic and were subsequently confirmed as a greater than stage 2B squamous cell carcinoma.

Table 3: Cervical examination findings at time of COSAC review 2021 - 2024

	All attendees N = 1522 (%)
Benign	
Normal	741 (48.7%)
Ectropion	253 (16.7%)
Nabothian follicles/cyst	192 (12.6%)
Cervical polyp	165 (10.8%)
Inflammation/Cervicitis	79 (5.2%)
Previous LLETZ	55 (3.6%)
Erythema/hypervascular	13 (0.9%)
Other ^P	9 (0.6%)
No exam/unable to examine	8 (0.5%)
Hyperkeratosis +/- leukoplakia	5 (0.3%)
Malignant	
Cervical cancer	2 (0.1%)

^Pcervical fibroid/uterine lesion/uterine polyps/red spots on cervix

Table 4 outlines investigations performed at time of COSAC and their subsequent results. Given the high incidence of up-to-date HPV negative screening tests, very few women required cervical screening. The opportunity was taken to perform screening for women with a normal exam who were due screening (3.9%, n=59). Of these the majority were reported as HPV negative (79.6%, n=47) or HPV positive with normal cytology (5%, n=3). Six of the 59 were HPV positive with cytological abnormality and were referred to colposcopy. One of these women was subsequently diagnosed with CIN 2 in colposcopy and successfully treated with a LLETZ procedure.

The majority of the cohort (76.2%; n=1155) seen at the COSAC clinic did not require any form of cervical biopsy/histological assessment. Where a cervical biopsy was taken (12.2%, n =185) the majority yielded benign results including metaplasia (71.9%, n=133) and cervicitis (22.7%, n=42). All those that had a polyp removed (n=174) returned benign histology.

Cervical intraepithelial neoplasia (CIN) was identified in three women in COSAC and as mentioned a subsequent women referred from COSAC to colposcopy due to screening abnormality. Two of these were low grade CIN with cervicitis at time of examination. The first a 30-year-old overdue screening who had been referred with an abnormal cervical appearance. The second was a 20-year-old, non-smoker, non-HPV vaccinated who was

referred with an abnormal cervical appearance and post coital bleeding. One case of high-grade CIN was identified in a 22-year-old smoker who was not HPV vaccinated. She had been referred due to post coital bleeding and had a cervical ectropian on examination. All three of those with CIN identified in COSAC were referred for a full colposcopic assessment. In addition, two women were diagnosed with advanced squamous cell cervical cancer

Referral to other services was required for 8.5% (n=130/1514) of the cohort. The commonest referral was for treatment of symptomatic cervical ectropian/erosion (31.5%, n=41) and to colposcopy services for repeat review (25.3%, n=33). The two patients with cervical cancer were referred to the gynae-oncology service.

Table 4: Investigations performed at time of COSAC review and their results September 2021 - September 2024

	All attendees N = 1514 (%)*
HPV +/- cytology	
Cervical screening performed	59 (3.9%)
Cervical screening results;	
<i>HR HPV Negative</i>	47 (79.6%)
<i>HR HPV Positive & cytology Negative</i>	3 (5%)
<i>HRHPV & low grade cytological abnormality</i>	5 (8.5%)
<i>HRHPV & high grade cytological abnormality</i>	1 (1.7%)
<i>Inadequate</i>	3 (5%)
Cervical histopathology	
No histological sampling required	1155 (76.2%)
Cervical Polyp removed – <i>all benign histology</i>	174 (11.5%)
Cervical biopsy taken	185 (12.2%)
Results of which were as follows;	
<i>Insufficient</i>	3 (1.6%)
<i>Benign/metaplasia</i>	133 (71.9%)
<i>Cervicitis /inflammation</i>	42 (22.7%)
<i>Cervical intraepithelial neoplasia low grade</i>	2 (1.1%)
<i>Cervical intraepithelial neoplasia high grade</i>	1 (0.6%)
<i>Squamous Cell Carcinoma</i>	2 (1.1%)
Referred to other services	130 (8.5%)
<i>Colposcopy</i>	33 (25.3%)
<i>Cold coagulation for symptom relief of PCB</i>	41 (31.5%)
<i>Post-Menopausal Bleeding clinic</i>	9 (6.9%)
<i>Ambulatory Hysteroscopy</i>	21 (16.1%)
<i>Inpatient theatre procedure</i>	10 (7.7%)
<i>Gynae-oncology</i>	2 (1.5%)
<i>General gynaecology clinic</i>	8 (6.2%)

*Eight women did not have examination performed in COSAC

In our service, GPs can also refer women with suspected cervical cancer directly to colposcopy where they are usually seen within 2 weeks. In 2020, 42% of colposcopy referrals to our unit were for clinical reasons as opposed to abnormal screening tests. Following the introduction of the COSAC service by 2023 referrals to our colposcopy unit on clinical grounds had reduced to 3.9%.

Discussion

The first three years of COSAC service at Cork University Maternity Hospital has achieved specialist cervical review with access to diagnostic testing for more than 1500 women referred with clinical symptoms or health care provider concerns related to cervical pathology. The incidence of cervical cancer in this cohort was low at 1.3 per 1000. Among eligible attendees, 91% of the cohort did not require screening as they were up-to-date and had tested HPV-negative and 76.2% of women had a normal cervix, did not require a cervical biopsy and were discharged after a single visit. Significant pathology, including high-grade neoplasia or cervical cancer, was identified in three women, less than 0.2% of those reviewed.

Symptoms which could suggest cervical cancer, such as abnormal vaginal bleeding, require specialist review¹⁰. This should include a comprehensive history as well as a speculum and pelvic examination with visualisation of the vulva, perineum, vagina, and cervix⁷. Further investigation may be required if abnormal cervical features are present or if unexplained symptoms persist to ensure that underlying conditions are identified¹⁰. It is important that this happens even if cervical screening results are normal¹¹. For women's convenience, the location of cervical review should facilitate diagnostic testing and any necessary interventional treatments^{7,8}. Internationally, there is variation in clinical practice as to where this assessment is best conducted, with no consensus between general gynaecology clinics, ambulatory gynaecology clinics, or other secondary care services^{12,13}. Our study demonstrates that implementation of the COSAC service provides an innovative, pragmatic, and effective solution to ensuring women with symptoms can access appropriate expertise. The COSAC model ensures women with cervical gynaecological symptoms, with up-to-date HPV negative cervical screening results, have prompt access to specialist gynaecological review with concomitant access to diagnostic testing and intervention¹⁰. Women get to see the right person in the right place at the right time¹⁴.

This study demonstrated that the majority of women were referred due to sample taker concerns regarding an abnormal cervical appearance on clinical exam and yet most had benign cervical pathology at time of COSAC review. This finding may suggest a lack of clinical experience or care provider confidence in recognition of benign cervical conditions such as ectropion and nabothian cysts. Internationally, most countries do not have dedicated educational programmes on cervical disease and there is no clear focus on educating sample

takers on benign variants in normal cervical appearance^{11,15}. Training in obstetrics and gynaecology is not a mandatory component of general practitioner (GP) training in Ireland. Training in colposcopy is not a mandatory requirement for Higher Specialist training in Obstetrics and Gynaecology in Ireland. Subsequently, it is not common practice for trainees to have exposure to colposcopy clinics or cervical pathology as part of their usual workload. To address this clinical gap in knowledge, we have recently scheduled trainees to these clinical sessions in our unit, facilitating hands-on learning and equipping them with skills needed to manage these patients more effectively. Additionally, the CervicalCheck screening education unit in Ireland has a number of freely available resources including clinical reference charts, webinars, and a training standards document to provide ongoing education to sample takers¹⁵. This approach aligns with recommendations for structured clinical education to strengthen provider competency and improve care delivery within cervical screening pathways^{16,17}. This study stands out as the first Irish review showcasing a proactive and effective solution to an international issue; the growing number of referrals for cervical examinations based on clinical concerns or clinical symptoms^{18,19}.

This study's retrospective design limits the available clinical data for review, however we do not feel this negatively impacts our study. We recognise the lack of patient and public involvement in the service and this review which is an area we hope to address going forward by undertaking a service user feedback survey.

We have demonstrated that implementing a COSAC service ensures women with cervical gynaecological symptoms have timely access to appropriate care while maintaining sufficient colposcopy capacity for screened positive women. Consideration should be given to establishment of a COSAC in all gynaecology units both nationally and internationally.

Declarations of Conflicts of Interest:

None declared.

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Appendix 1: Clinical Proforma COSAC

**This lady was seen in the Cervical One Stop
Assessment Clinic**

Age:

Referral indication: Abnormal looking cervix ▼

Other relevant history:

LMP:

Contraception:

Cervical Screening Test:

Parity 0 ▼ **Previous Caesarean Section** No ▼

Smoker/Vaper Yes ▼ **HPV vaccinated** Yes ▼

Relevant Medications:

Examination:

Vulva: Normal **Vagina:** Normal **Cervix:** Normal
VE/Bimanual: Normal

Procedure:

None ▼

Plan:

Patient is discharged no obvious pathology ▼

**Please note this clinic has not ruled out pre-invasive
disease of the cervix and the patient still needs to
attend for routine smears and we have informed her of
this. If symptoms persist please consider re-referral to
the general gynaecology service.**

Appendix 2: CervicalCheck Clinical reference chart



Clinical Reference Chart for Visual Inspection of the Cervix



This resource is a guide for sample takers to help them identify different cervical appearances. This guide should not replace formal training. All sample takers should undertake an accredited cervical screening education programme.

There is a wide variation of normal appearances of the cervix dependent on the following factors:

Patient age: Cervical appearance may vary with age, such as changes in vascularity, texture, and size. Post-menopausal changes, such as thinning of the epithelium and decreased vascularity, may affect cervical appearance.

Reproductive history: Parity (number of pregnancies), and type of delivery can influence cervical size, shape, and texture.

Previous cervical procedures: such as a LLETZ or Cone Biopsy procedure, may alter cervical anatomy and appearance.

Medications: Hormonal medications may influence cervical mucus production and texture.

The cervix consists of two types of epithelium:

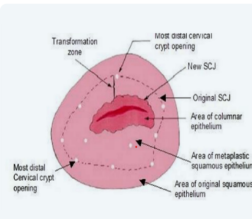
- **Squamous epithelium:** Covering the outer part of the cervix (ectocervix) and the vaginal walls. This is smooth, featureless, multi-layered, stratified skin which protects the cervix and vagina.
- **Columnar epithelium:** A single layer of cells which lines the endocervix and is often seen on the ectocervix at the cervical os. The presence of columnar epithelium seen on the ectocervix is called an ectopy or ectropion.

Variations in cervical appearance:

- **Colour:** Varies with age, hormones, and race. Usually pink or reddish, with increased vascularity. May appear bluish or purplish during ovulation.
- **Texture:** Typically smooth and firm, but may show irregularities or nodularity, especially around the external os. Influenced by hormonal changes, inflammation, infection or benign pathologies.
- **Size and shape:** Generally cylindrical, 2 to 3 cm long, may vary over time. Cervix may be bulky after delivery or smaller in size in nulliparous women. The post-menopausal cervix may appear pale and shrunken.
- **Ectropion (ectopy):** Glandular tissue on the outer surface, often red or inflamed. Common in reproductive-aged women, may cause discharge or bleeding after intercourse, typically doesn't require treatment.
- **Nabothian cysts:** These are a normal anomaly. They are small, fluid-filled sacs on the surface, resulting from blocked glands. They do not require treatment and will often resolve spontaneously.
- **Cervical polyps:** Growths originating from the surface or canal of the cervix, varying in size and colour. They can cause abnormal bleeding or discharge and are mostly benign. However, removal may be necessary if they cause symptoms or raise concerns about malignancy.

Points to note:

- Prior to sample taking, always check if the cervix appears normal and the patient is due for screening on the [CervicalCheck website](#).
- If a woman complains of persistent unexplained symptoms, consideration should be given to performing additional diagnostic tests to identify a cause. Referral to the nearest Ambulatory Gynaecology or Gynaecology clinic may be required.
- Never take a screening sample if the cervix appears suspicious for cervical cancer, refer urgently to colposcopy.
- Remember, always end each screening appointment by advising the patient to not ignore symptoms of cervical cancer, even in the presence of a normal screening test, and to seek medical advice promptly.



All sample takers need to be able to identify the cervical landmarks needed in order to obtain a quality sample. A sample taker must visualise the cervix in its entirety and ensure cells are sampled from the squamocolumnar junction (SCJ) and the transformation zone (TZ).

The original SCJ originates in the endocervical canal, the columnar cells evert under the influence of oestrogen, the SCJ comes to lie on the ectocervix moving the original SCJ out onto the surface of the ectocervix. The epithelium between these two SCJs, (the new and the original) is the transformation zone (TZ). The transformation zone is an area of changing cells, and it is the most common location on the cervix for abnormal cells to develop. It may be small or large and typically becomes more ectocervical during a woman's reproductive years, returning to an endocervical position after menopause.

The SCJ can be fully visualised

Type 1
Transformation zone (TZ)



The SCJ can be visualised with/without manipulation of the speculum

Type 2
Transformation zone (TZ)



The SCJ cannot be visualised

Type 3
Transformation zone (TZ)

