SEXUAL HEALTH

ABSTRACTS
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Abstracts from the IANS 2026 Scientific Meeting

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'Taking it to the People'

A global conference on anal cancer and other anal HPV-associated conditions.

Artificial Intelligence

1. Artificial intelligence for high-resolution anoscopy: first multicontinental validation study for simultaneous detection and differentiation of anal cancer precursors across different imaging platforms

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Background: Diagnostic assessment during high-resolution anoscopy (HRA) is limited by substantial observer-related variability. With the rising incidence of anal cancer, improving diagnostic reliability is a clinical priority. Artificial intelligence (AI) may address this challenge through integration of computer-aided detection (CADe) and diagnosis (CADx). This study aimed to develop an interoperable CADex model capable of simultaneously detecting and distinguishing low-grade (LSIL) from high-grade squamous intraepithelial lesions (HSIL).

Methods: A multicenter dataset used 542 HRA procedures from 10 institutions using 8 imaging platforms (including colposcopes, proctoscopes, and colonoscopes). Training set included 55,488 annotated frames, while 9798 images were reserved for testing. Bounding-box annotations were assigned as LSIL or HSIL according to histopathology. Performance was evaluated for detection and classification tasks. The CADe component was assessed using mean average precision (mAP) and mAP at an intersection-over-union threshold of 0.50 (mAP50), while CADx performance was evaluated using sensitivity, positive predictive value (PPV), and overall accuracy.

Results: The CADx component achieved an overall classification accuracy of 96.9%, with HSIL sensitivity and PPV of 90.6% and 96.1%, respectively, and LSIL sensitivity and PPV of 92.3% and 93.9%. The CADe component achieved a mAP of 0.568 and an mAP50 of 0.971.

Conclusions: This study introduces the first interoperable and explainable artificial intelligence framework for simultaneous detection and characterization of HPV-associated anal lesions. Robust performance across multiple institutions, continents, and imaging platforms highlights strong generalizability and real-world applicability. Visual explainability enhances transparency and clinician confidence, representing an important step toward clinical adoption.

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2. High-performance multi-class detection of anal lesions on high-resolution anoscopy using deep learning

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Background: High-resolution anoscopy (HRA) interpretation is critical for identifying pathology but remains operator-dependent. The ANCHOR Study showed that treating high-grade squamous intraepithelial lesions (HSIL) reduces anal cancer progression, yet HRA access is limited by extensive training requirements. Unlike dermatology, HRA presents unique challenges: 3D anatomy, octant-based orientation, and distinguishing intra-anal from perianal lesions.

Methods: A dataset of 205 HRA images spanning 11 lesion classes was curated from 15 clinical sessions (mean age 57; 7 females), with risk factors including HIV, smoking, and men who have sex with men (MSM). Region-level labels were manually annotated by specialists with pathological diagnoses. A You Only Look Once (YOLOv8)[1] model was implemented for multi-class localisation and classification, chosen to balance detection accuracy with deployability in clinical settings. Model performance was assessed using 5-fold cross-validation and an independent hold-out test set ($n = 30$). Primary metrics included mean average precision at 0.50 intersection over union (mAP50), precision, and recall.

Results: The model showed strong and stable discrimination between LSIL, HSIL, and malignant lesions. Mean average precision at mAP50 was 93.8% (95%CI: 90.0–97.6%) in cross-validation and 95.7% (93.9–97.4%) on the independent test set. Precision was 95.1% (93.0–97.2%) and recall 89.8% (88.0–91.6%), indicating a favourable trade-off between false-positive and false-negative risk for lesion-level detection.

Conclusions: This YOLOv8-based framework accurately detects anal lesions and may serve as a scalable adjunct to screening pathways. AI-assisted tools could improve access and support earlier HSIL detection, though further prospective validation is required to assess clinical integration.

Epidemiology and natural history

3. Anal Cancer HSIL Outcomes Research (ANCHOR): characteristics of those in the treatment arm that developed cancers compared with those without cancer

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Background: The ANCHOR study enrolled 4535 people with HIV 35 years and older who were randomized to either active monitoring or treatment of high-grade squamous intraepithelial lesions with a primary endpoint of progression to anal cancer. Nine individuals developed anal cancer in the treatment arm (TA) developed prior to study cessation. We reviewed factors associated with progression to cancer in the TA.

Methods: Demographic and clinical data were collected at baseline. Enrolled individuals underwent anal cytology, high-resolution anoscopy (HRA) and digital anorectal exam (DARE) at 6-month intervals. A quality assurance committee reviewed clinically concerning cases and adjudicated all cases of anal cancer diagnosed during the study. Predictive factors were analyzed using Wilcoxon test and Fisher's exact test.

Results: Of the 9 individuals in TA diagnosed with cancer during the ANCHOR study, 8 of 9 were men, Black or Hispanic and 50 years of age or older (88%). Nobody in the TA who developed cancer was uninsured. The nadir CD4 + T-cell was less than 200 in six TA individuals with cancer (67% vs. 43% non-cancer). More than half of participants in the TA had a history of smoking (Table 1). The lesions were greater than half of the anal canal/perianus in 33% of those with cancer and 13% in those without cancer. The digital anorectal exam was abnormal in 7 individuals who developed cancer (78% compared to 12% non-cancer).

Table 1. ANCHOR: progression to cancer in the treatment arm compared to HSIL.

Variable	All		Cancers		Treatment Arm		*P*-value
	N	%	*N*	%	*N*	%	
All	2272	100.0	9	100.0	2263	100.0	
Gender							0.7158
Male	1920	84.5	8	88.9	1912	84.5	
Female	352	15.5	1	11.1	351	15.5	
Race							0.1792
White	1052	46.3	2	22.2	1050	46.4	
Black	1027	45.2	5	55.6	1022	45.2	
Other	44	1.9	.	.	44	1.9	
Unknown/Not reported	149	6.6	2	22.2	147	6.5	
Race/Ethnicity							0.6019
Non-Hispanic White	716	31.5	1	11.1	715	31.6	
Non-Hispanic Black	853	37.5	4	44.4	849	37.5	
Hispanic	608	26.8	4	44.4	604	26.7	
Other	32	1.4	.	.	32	1.4	
Unknown	63	2.8	.	.	63	2.8	
Insurance							0.8826
Private insurance	712	31.3	3	33.3	709	31.3	
Medicaid	823	36.2	4	44.4	819	36.2	
Medicare (± Medicaid)	488	21.5	2	22.2	486	21.5	
No insurance	128	5.6	.	.	128	5.7	
Other or Unknown	121	5.3	.	.	121	5.3	
Age at Screening							0.0886
<50 years old	954	42.0	1	11.1	953	42.1	
50+ years old	1,318	58.0	8	88.9	1310	57.9	
Nadir CD4+ T-cells							0.4811
<200 cells/mm^3	967	42.6	6	66.7	961	42.5	
200–500 cells/mm^3	1103	48.5	3	33.3	1100	48.6	
>500 cells/mm^3	200	8.8	.	.	200	8.8	
Unknown	2	0.1	.	.	2	0.1	
Smoked more than 100 cigarettes							0.7483
Unknown	301	13.2	.	.	301	13.3	
Yes	1184	52.1	5	55.6	1179	52.1	
No	787	34.6	4	44.4	783	34.6	
Lesion size							0.0954
<=50% of anal canal/perianus	1983	87.3	6	66.7	1977	87.4	
>50% of anal canal/perianus	289	12.7	3	33.3	286	12.6	
DARE							<0.0001*
Normal	1996	87.9	2	22.2	1994	88.1	
Abnormal	276	12.1	7	77.8	269	11.9	

Conclusions: Though small numbers, the ANCHOR treatment arm characteristics were largely not statistically different between those who developed cancer and those who did not.

4. Anal cancer incidence trends in Western Australia, Australia, the UK and USA: evidence supporting a role for anal wart treatment and high-resolution anoscopy services

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***Background*:** Anal cancer incidence is increasing globally. Evidence that treatment of high-grade squamous intraepithelial lesions (HSIL) reduces progression to anal cancer has led to increasing implementation of high-resolution anoscopy (HRA) services. Western Australia (WA) has maintained a centralised HRA and anal wart treatment service, primarily at Royal Perth Hospital (RPH), providing an opportunity to examine population-level trends in anal cancer incidence.

Methods: Age-standardised anal cancer incidence data for Australia and individual states were obtained from Australian Institute of Health and Welfare cancer registry datasets for 1982–2019 (Fig. 1). Temporal trends were analysed using incidence rate ratios (IRRs). Trends in the United Kingdom and United States were examined for contextual comparison. Annual incidence trends in WA and Australia were statistically compared.

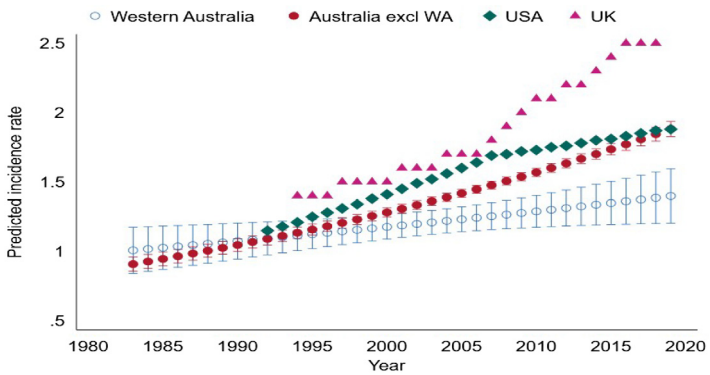

Fig. 1. Age standardised incidence Rates of Anal Cancer in Western Australia[#] Compared to the rest of Australia 1982–2019, with United Kingdom* and USA^rates AIHW 2023; Table S7.1 in Cancer Data in Australia. [#] Age standardised against Australian population, [*] Age standardised against European population, [^] Age standardised, against USA population.

***Results*:** Anal cancer incidence increased significantly in Australia overall (IRR 1.020/year, 95% CI 1.018–1.023; $P < 0.001$). In contrast, the increase in WA was significantly lower (IRR 1.009/year, 95% CI 1.002–1.017; $P = 0.017$), with a significant difference between trends ($P = 0.005$). WA incidence began diverging from national trends from approximately 1996, with increasing separation thereafter. Comparable increases occurred in the USA, although the rate appeared to moderate after 2005, while UK incidence accelerated.

Conclusions: These long-term population-based findings support evidence that treatment of HSIL reduces progression to anal cancer. The divergence in WA preceded major expansion of HRA services at RPH in 2017 and may reflect longstanding anal wart treatment practices. Although causality cannot be established, the findings raise the hypothesis that anal wart removal, combined with HRA-based detection and treatment of precursor lesions, may reduce persistent anal HPV infection and anal cancer incidence. Further investigation using individual-level longitudinal data is warranted.

5. Anal cancer screening outcomes among persons with and without HIV and high-grade vulvar dysplasia: an urban cohort study

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Background: Anal cancer is caused by persistent high risk human papilloma virus infection and is preceded by high grade intraepithelial disease. For persons living with HIV (PLWH), there is a 15- to 20-fold increased risk of developing anal cancer compared to HIV-individuals.[1–3] Regardless of HIV status, vulvar dysplasia is associated with an increased risk of anal dysplasia, likely due to field effect;[4] and these individuals are in the highest risk category needing anal cancer screening.[5–7] We conducted this study to better understand anal

cancer screening practices and outcomes in our large urban healthcare system prior to and in early stages of the release of the IANS anal cancer screening guidelines.

Methods: This was a retrospective chart review of individuals with severe vulvar dysplasia or worse between 2000–2025. Patient demographics, comorbidities, smoking status, cervical and anal cancer screening histories (if any) were collected. Descriptive analyses were conducted; and additional analyses were carried out.

Results: There were 3966 individuals who met inclusion criteria. Of those, 299 (7.54%) underwent anal cancer screening; the majority were screened after vulvar dysplasia diagnosis (70.6%), while 5.7% were screened both before and after diagnosis (Table 1). Among PLWH – who comprise 5.8% of the total population – 36 had anal cancer screening. Of those, 44% were screened within 1 year, compared to 30% of HIV- population who underwent screening.

Table 1. Anal cancer screening outcomes within the study populations of interest by HIV status.

HIV Status	Anal Cancer Screening at any time during study period	Anal Cancer Screening within 1 Year of Vulvar Dysplasia Diagnosis
HIV+	36	11
HIV-	263	61
Total	299	72

Conclusions: Individuals with severe vulvar dysplasia are underscreened for anal cancer. In our population, PLWH are more likely to be screened than HIV-counterparts.

6. Anal HSIL despite treatment: findings from the VIVA trial

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Background: The VIVA trial[1] evaluated whether the 9-valent HPV vaccine reduced recurrent high-grade squamous intraepithelial lesions (HSIL) or persistent HPV infection among persons previously treated for anal or vulvar HSIL who were disease-free at enrollment. The trial was stopped early for futility. During screening, many potential participants had active anal HSIL despite prior therapy and were ineligible for enrollment. In a subset of these participants, we evaluated high-risk HPV (hr-HPV) detection and HPV16 viral load before and after anal HSIL treatment.

Methods: We enrolled persons with histologically-confirmed anal HSIL who were scheduled for treatment. Participants self-collected up to 4 weekly anal swabs pre-treatment and 8 weekly swabs post-treatment for qualitative hr-HPV and quantitative HPV16 DNA testing. We compared hr-HPV detection rates and HPV16 viral load before and after treatment using the Wilcoxon signed-rank test.

Results: Among 149 persons screened with high-resolution anoscopy at VIVA study entry, 33 (22.1%) had anal HSIL despite prior treatment. Of 16 participants enrolled in the substudy, 9 completed longitudinal swab collection. Of 118 anal swabs collected, hr-HPV was detected in 89.9% of samples (106/118). Detection rates decreased after treatment from 100% of pre-treatment samples (40/40) to 84.6% of post-treatment samples (66/78; $P = 0.049$). Mean HPV16 viral load decreased from 235,997 to 105,357 copies post-treatment ($P = 0.84$).

Conclusions: A substantial proportion of persons previously treated for anal HSIL were unable to maintain HSIL-free status during VIVA screening. Short-term hr-HPV detection also remained common after treatment, highlighting the need for more effective therapeutic strategies for anal HSIL.

7. Analysis the results of anal cancer screening in women with vulvar precancerous lesions

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Background: To investigate the detection rate of human papillomavirus (HPV)-related anal lesions in women with vulvar high-grade squamous intraepithelial lesions (vHSIL), and to provide real-world data to inform screening strategies for female populations at high risk of anal squamous cell carcinoma (ASCC).

Methods: A total of 12 patients with vHSIL who underwent anal cancer screening at Peking University First Hospital from January 2025 to December 2025 were enrolled. Clinical data were collected, including anal cancer screening results (anal HPV testing, anal canal cytology, high-resolution anoscopy) and recent lower genital tract assessments (lower genital tract HPV testing, cervical cytology, colposcopy, vulvoscopy).

Results: The mean age of the enrolled vHSIL patients was 52.1 ± 8.7 years (Table 1). Among them, 16.7% had a history of receptive anal intercourse, 91.7% had lower genital tract HPV infection, and 25% had concurrent cervical HSIL. The anal HPV infection rate was 66.7%, and the abnormal anal cytology rate was 33.3%. High-resolution anoscopy (HRA) revealed abnormalities in 50% of patients, of whom 5 were diagnosed with anal high-grade squamous intraepithelial lesions or cancer by biopsy, yielding a detection rate of 41.7%. Multisite HPV infection was present in 66.7% of patients, and multisite lesions were identified in 50%.

Table 1. Clinical characteristics of vHSIL patients.

Characteristics	Total (*n* = 12)
Age/years, $\bar{x} \pm s$	52.1 ± 8.7
History of receptive anal intercourse, *n* (%)	2 (16.7%)
vHSIL status, *n* (%)	
Treated	3 (25.0%)
Untreated	9 (75.0%)
Low genital tract HPV infection, *n* (%)	11 (91.7%)
Abnormal cervical cytology, *n* (%)	5 (41.7%)
Cervical lesion, *n* (%)	
Normal or insufficient for evaluation	9 (75.0%)
HSIL	3 (25.0%)
Anal HPV infection, *n* (%)	8 (66.7%)
HRA, *n* (%)	
Normal	6 (50.0%)
LSIL	1 (8.3%)
HSIL	4 (33.3%)
Cancer	1 (8.3%)
Multi-site HPV infection, *n* (%)	8 (66.7%)
Multi-site lesions, *n* (%)	6 (50.0%)

Conclusions: Women with vHSIL are at high risk for ASCC, with a substantial prevalence of multisite HPV infection and multisite lesions. These findings support the prompt initiation of anal cancer screening following a vHSIL diagnosis, along with comprehensive evaluation of the anogenital region. Enhancing specialized training in HRA for clinicians and establishing multidisciplinary collaboration are essential for improving early detection rates and patient outcomes.

8. Association between Gardasil-9 vaccination and HPV genotype prevalence in previously exposed GBMSM in Australia: study protocol

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Background: The age-standardised incidence of anal cancer in Australia increased from 1.3 to 2.2 per 100,000 between 1985 and 2025,[1] largely driven by early-onset cases among individuals aged 40–49 years.[2] Incidence is substantially high among men who have sex with men (MSM).[3] Some adults who have missed routine school-based HPV vaccination access the 9-valent HPV vaccine (Gardasil 9) through self-funding, highlighting an evidence gap to inform a moving age-threshold catch-up HPV vaccination for previously unvaccinated cohorts of gay, bisexual, and other MSM (GBMSM) aged ≥26 years in 2027. This study aims to assess the impact of Gardasil 9 on HPV genotype distribution among GBMSM and evaluate feasibility of anal self-sampling in Australia.

Methods: Self-collected anal samples from 900 vaccinated (Perth) and 900 unvaccinated (Sydney) GBMSM aged ≥35 years will be tested using the Roche Cobas 5800 and Allplex HPV28 assays to detect HPV genotypes and assess sample adequacy. Survey data will capture HPV vaccination status, HPV knowledge, attitudes and practices, anal cancer screening behaviours, and acceptability of self-sampling. Associations between vaccination status and HPV16 infection and other high-risk HPV (hrHPV) types will be analysed using multivariable logistic regression; hrHPV burden will be assessed using Poisson regression.

Results: No data are available at submission. Planned outputs include adjusted prevalence ratios for HPV16 and other hrHPV, sample adequacy, and acceptability.

Conclusions: This study will provide Australian evidence on HPV vaccine effectiveness in older, non-HPV-naïve GBMSM and evaluate anal self-sampling to inform birth-cohort-restricted catch-up vaccination and community-based anal cancer screening.

9. Association of psychosomatic disorders with high-risk HPV and anal precancerous lesions in men who have sex with men: a cross-sectional study

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Background: Men who have sex with men (MSM) face a high risk of anal squamous cell carcinoma driven by persistent high-risk human papillomavirus (HR-HPV) infection. Psychosomatic disorders may impair cellular immunity and facilitate HPV persistence, yet their combined role in anal precancerous lesions remains underexplored. This study investigated whether psychosomatic status, assessed by the Diagnostic Criteria for Psychosomatic Research (DCPR), is independently associated with HR-HPV infection and anal precancerous lesions among MSM.

Methods: A cross-sectional study was conducted among 71 self-identified MSM attending an anal cancer screening clinic. Psychosomatic disorders were defined as DCPR-positive (≥1 DCPR cluster). HR-HPV infection was detected by PCR from anal canal swabs, and cytological abnormalities were graded by liquid-based cytology using the Bethesda system. High-grade squamous intraepithelial lesions (HSIL) were confirmed by high-resolution anoscopy-guided biopsy when indicated. Multivariable logistic regression adjusted for age, education, and monthly income was used to evaluate associations.

Results: Among 71 participants, DCPR positivity showed a trend toward increased risk of HR-HPV infection (adjusted OR 2.462, 95% CI 0.784–7.733, $P = 0.123$) and biopsy-confirmed HSIL (OR 2.555, 95% CI 0.776–8.415, $P = 0.123$). Notably, DCPR positivity was significantly associated with cytological high-grade lesions after adjusting for confounders (OR 5.067, 95% CI 1.114–23.044, $P = 0.036$) (Fig. 1, Table 1).

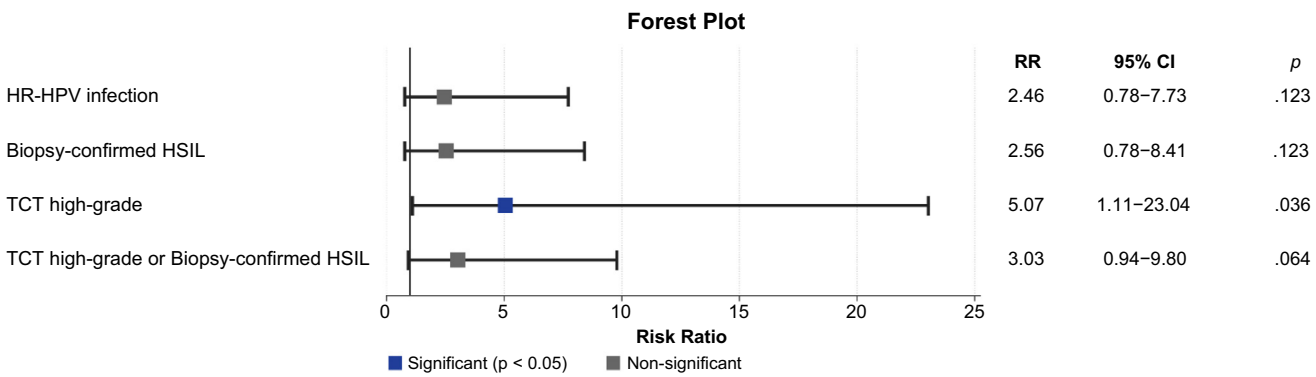

Fig. 1. Forest plot of the association between DCPR status and HPV infection and precancerous lesions.

Table 1. Baseline characteristics of participants by DCPR status.

Variable	DCPR negative (*n* = 34)	DCPR positive (*n* = 37)	*P*-value
Age (years, mean ± SD)	32.32 ± 6.549	33.19 ± 6.549	0.467
Education level, *n* (%)			0.453
Bachelor's degree or lower	24 (70.6%)	23 (62.2%)	
Master's degree or above	10 (29.4%)	14 (37.8%)	
Monthly income, *n* (%)			0.636
≤5000 RMB	5 (14.7%)	7 (18.9%)	
>5000 RMB	29 (85.3%)	30 (81.1%)	

Conclusions: Psychosomatic disorders are common among MSM undergoing anal cancer screening and are significantly associated with cytological high-grade lesions. Positive but non-significant trends were also observed for HR-HPV infection and histological HSIL, suggesting a potential 'psycho-immune infection' axis. Larger studies are warranted to confirm these associations.

10. Cross–site HPV and anal disease behaviour: a longitudinal descriptive study

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Background: HPV–related anal disease is well characterized in Category A patients, but longitudinal HPV patterns and outcomes are underreported in other patient groups. This study describes initial patient characteristics, HPV profiles, and cytologic findings surrounding anal HPV encounters before and after anal screening or an anal HPV diagnosis.

Methods: A retrospective review of a single–provider, prospectively maintained, IRB–approved rare anal tumours database (2013–2026) identified 41 patients. REDCap extracted demographic variables, HPV DNA typing, cytology from anal and non–anal sites, high–resolution anoscopy (HRA) utilization, and longitudinal outcomes. Cytology was considered positive for ASCUS, LSIL, or HSIL.

Results: Forty–one patients (25 female) were included. Median age was 60 years (29–87), and median follow–up was 56 months (0–209). Twenty–nine patients underwent 62 HRAs. Eleven patients had prior HPV–related disease at non–anal sites. Nine women were HPV–positive (non-anus) with abnormal cytology [median 4 events (1–7)], and three were HPV–negative with abnormal cytology. HPV 16 was the most common for non–anal sites ($n = 6$). Median time from non–anal HPV positivity to abnormal cytology was 8 months (0–252). At anal evaluation, 29/41 patients were HPV–positive, and 27/29 had abnormal cytology; six additional patients were HPV–negative with abnormal cytology. Anal HPV types were predominantly non–16/18 HR ($n = 22$). Median time from prior non–anal HPV positivity to anal HPV positivity was 33 months, and median time from anal HPV positivity to abnormal cytology was 3 months (0–75).

Conclusions: Early longitudinal findings suggest women with prior non–anal HPV disease frequently develop anal HPV abnormalities with shorter latency. HPV profiles differ between anal and non–anal sites, and anal cytologic abnormalities may develop more rapidly.

11. Long-term follow-up of participants in the Study of the Prevention of Anal Cancer (SPANC)

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Background: The Study of the Prevention of Anal Cancer (SPANC) was a large longitudinal natural-history study of anal HPV infection and related abnormalities in HIV–positive and HIV–negative gay, bisexual, and other men who have sex with men (GBM). At study exit, participants were assigned an individualised anal cancer risk-rating based on anal HPV and disease characteristics; those at moderate-to-high risk were advised to undergo clinical follow–up. We describe outcomes 9–14 years after study completion in 2015, including referral attendance, duration of care, treatment uptake, and anal cancer incidence, to inform service design.

Methods: We conducted a retrospective longitudinal review using the Dysplasia and Anal Cancer Services Clinic electronic database (St Vincent's Hospital, Sydney) to November 2025. Outcomes included referral attendance, follow–up duration and frequency, histological outcomes, participation in anal HSIL treatment trials, and anal cancer diagnoses.

Results: Of 617 SPANC participants, 483 attending ≥3 study visits received a risk-rating (77 high, 169 elevated, 84 moderate, 153 low). Referral attendance occurred in 76.6% (59/77) of high-, 53.3% (90/169) of elevated-, and 28.6% (24/84) of moderate-risk participants; 50.8%, 42.2%, and 75.0% attended within recommended timeframes, respectively. Intra–anal HSIL was diagnosed in 81.4% of high-, 51.1% of elevated-, and

25.0% of moderate-risk attendees. Overall, 9.6% (59/617) participated in post–SPANC HSIL treatment trials. Five anal squamous cell carcinomas were diagnosed; all occurred among participants rated moderate-to-high risk.

Conclusions: These findings support structured prioritisation tools to optimise anal cancer screening and management in settings with limited high–resolution anoscopy capacity.

12. Prevalence and risk factors for anal human papillomavirus and neoplasia in people with HIV and solid organ transplant recipients

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Background: The Human papillomavirus (HPV) is the highest cause of anal cancer. The risk of HPV and anal cancer is higher in solid organ transplant recipients (SOTR) and people with HIV (PWH), but data of the risk in SOTR with HIV are limited. Current guidelines on screening for anal cancer in SOTR suggest first screening at 10 years post-transplant, but it remains unclear whether earlier screening is warranted in SOTR with HIV. This study aims to determine the prevalence of HPV and anal neoplasia in this population.

Methods: We performed a retrospective study of people referred to the HPV clinic at JHH from 11/2021 to 10/2024 and were seen at the High-Resolution Anoscopy (HRA) clinic. Patients underwent at least one of the following tests: anal HPV NAT for HPV genotypes, Pap test (cytology), and HRA with biopsy (pathology). We report prevalence of HPV genotypes, persistent HPV16, and anal low-/high-grade squamous intraepithelial lesion (LSIL/HSIL), stratified by transplant and HIV status.

Results: Among 511 patients included, 175 were immunocompetent, 313 had HIV only, 3 were SOTR without HIV, and 20 were SOTR with HIV (Table 1). Patients underwent anal HPV genotyping, cytology, and/or biopsy. HPV16 prevalence was approximately 25% and was similar across groups, while HPV18 and other high-risk HPV genotypes were significantly more common in SOTR with HIV (P of 0.01 and $P < 0.001$ respectively). This group also demonstrated the highest rates of cytologic dysplasia (5% LSIL, 18% ASCH, and 6% HSIL), with an overall dysplasia detection rate of 59%, compared to 39% in PWH and 31% in immunocompetent patients. Although biopsy-confirmed LSIL rates were similar between groups, SOTR with HIV had substantially higher rates of HSIL, 58%. The median time from transplant to first anal HPV test was 4.9 years.

Table 1. HPV test results of patients who were seen at HRA clinic, by HIV and transplant status.

	Immuno-competent[A] (N = 175)	PWH only (N = 313)	SOTR without HIV (N = 3)	SOTR with HIV (N = 20)	P value
Anal HPV NAT test					
No. of patients had at least one valid result for HPV 16, 18 and other high-risk type	174	310	3	19	
HPV type prevalence, no. (%)					
HPV16	44 (25)	76 (25)	0 (0)	5 (26)	0.98
HPV18	9 (5)	43 (14)	0 (0)	3 (16)	0.01
Other high-risk HPV type	65 (37)	207 (67)	1 (33)	15 (79)	<0.001
Any of HPV 16, 18 and other high-risk HPV, no. (%)	89 (51)	229 (74)	1 (33)	16 (84)	<0.001
At least two of HPV 16, 18 and other high-risk HPV, no. (%)	26 (15)	86 (26)	0 (0)	6 (32)	0.02
Persistent HPV 16, if >1 HPV NAT tests performed over a span of at least 12 months, no. /total no. (%)[B]	5/35 (14)	6/43 (14)	1/3 (33)	1/6 (17)	0.66
Anal HPV pap test					
No. of patients had valid results	139	279	3	17	
Cytology gradings, no. (%)					
NILM	51 (37)	70 (25)	0 (0)	3 (18)	
ASCUS	45 (32)	107 (37)	1 (33)	4 (24)	
LSIL	25 (18)	80 (29)	1 (33)	6 (35)	
ASCH	13 (9)	22 (8)	0 (0)	3 (18)	
HSIL	5 (4)	5 (2)	1 (33)	1 (6)	
Anal HPV biopsy					
No. of patients had valid results	134	174	3	12	

(*Continued on next page*)

Table 1. (*Continued*).

	Immuno-competent[A] (*N* = 175)	PWH only (*N* = 313)	SOTR without HIV (*N* = 3)	SOTR with HIV (*N* = 20)	*P* value
Pathology gradings, no. (%)					
NILM	36 (27)	44 (25)	0 (0)	1 (8)	
LSIL	50 (37)	62 (36)	1 (33)	4 (33)	
HSIL	48 (36)	68 (39)	2 (67)	7 (58)	

Abbreviations: NILM, negative for Intraepithelial Lesion or Malignancy; ASCUS, atypical squamous cells of undetermined significance; ASCH, atypical squamous cells, cannot exclude high-grade squamous intraepithelial lesion; LSIL, low-grade squamous intraepithelial lesion; HSIL, high-grade squamous intraepithelial lesion. In the study, the severity of gradings, from low to high, are NILM, ASCUS, LSIL, ASCH, and HSIL.
[A]In this study, immunocompetent individuals refer to patients who were not a transplant recipient, without HIV and had no autoimmune disease.
[B]Persistent HPV 16 is defined as consecutive positive HPV NAT over a span of at least 12 months.

Conclusions: These findings suggest that SOTR with HIV may develop HPV-related dysplasia earlier than current screening guidelines anticipate, supporting consideration of earlier anal cancer screening in this high-risk population.

13. Prevalent anal high-risk human papillomavirus infection and association with histologic diagnosis: a cross-sectional analysis of the ANCHOR study screening population

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Background: Evaluating the epidemiology of anal HPV in a large, demographically representative sample of people with HIV (PWH) will inform primary and secondary anal cancer prevention efforts. Using samples from the largest study of PWH screened with high-resolution anoscopy (HRA)[1], we determined the distribution of high-risk HPV (hrHPV) genotypes by demographics and histology.

Methods: We tested banked residual anal swab material from ANCHOR screening visits for 15 hrHPV genotypes using the Atila AmpFire platform. We examined genotype prevalence by age, sex, and race/ethnicity using Chi-squared tests.

Results: Of 9798 participants, 5000 samples were randomly selected and tested presently (Palefsky laboratory); 4761 independent samples were analyzed. Median age was 52.6 years (IQR 45.7–58.3); 82.3% male, 3.7% self-reported non-cisgender identity; 39.7% Black non-Hispanic, 30.3% White non-Hispanic, 24.6% Hispanic, 5.5% other racial category. hrHPV was detected in 3559 participants (74.8%, 95% CI: 73.5, 76.0); 23.0% had 1, 30.9% had 2-3, and 20.1% had 4+ genotypes detected (Table 1). We detected HPV16 in 1,134 participants (23.8%, 95% CI: 22.6–25.1). hrHPV and HPV16 prevalence decreased with age ($P < 0.001$) and were higher among males versus females ($P < 0.001$). HrHPV prevalence did not vary significantly by racial-ethnic subgroup; however, type-specific prevalence varied by race, with HPV16 higher among White participants. We detected HPV16 among 68% of participants with anal cancer and 37% of those with HSIL.

Table 1. hrHPV positivity by demographic categories.

Characteristic	hrHPV positive[A] *n* = 3559 (74.8%)	*P* value[B]	HPV16 positive *n* = 1134 (23.8%)	*P* value[B]
Age category – no. (%)				
34 to 44	914 (83.2)	<0.001	316 (28.8)	<0.001
45 to 49	593 (79.5)		195 (26.1)	
50 to 54	766 (73.2)		239 (22.8)	
55 to 59	694 (71.7)		198 (20.5)	
60 and older	592 (65.6)		186 (20.6)	
Sex – no.(%)				
Male	2975 (75.9)	<0.001	994 (25.4)	<0.001
Female	584 (69.2)		140 (16.6)	
Self-reported gender identity – no.(%)				
Cisgender	3413 (74.4)	0.005*	1089 (23.7)	0.618*
Transgender	137 (85.1)		43 (26.7)	

(*Continued on next page*)

Table 1. (*Continued*).

Characteristic	hrHPV positive[A] *n* = 3559 (74.8%)	*P* value[B]	HPV16 positive *n* = 1134 (23.8%)	*P* value[B]
Nonbinary or unknown	9 (75.0)		2 (16.7)	
Racial and ethnic category – no. (%)				
Black, not Hispanic	1380 (76.4)	0.246	397 (22.5)	<0.001*
White, not Hispanic	1101 (73.1)		425 (27.5)	
Hispanic, any race	879 (75.1)		253 (21.6)	
Asian or Pacific Islander	49 (75.4)		9 (13.8)	
Other or unknown	150 (76.9)		50 (25.6)	
Histologic diagnosis – no. (%)				
Squamous cell carcinoma (SCCA/SISCCA)	22 (100%)	<0.001	15 (68.2%)	<0.001
High-grade SIL	2264 (91.7%)		908 (36.8%)	
Low-grade SIL	600 (61.1%)		110 (11.2%)	
Atypia, benign or rectal mucosa	466 (49.5%)		60 (6.4%)	
HRA without biopsy or unsatisfactory	207 (60%)		41 (11.9%)	

[A]Exclusions from the sample of 5000 specimens include planned repeats for second screening events (*n* = 209), failed specimens (*n* = 28, 0.6%), and technical errors (*n* = 2). Samples counted as positive on Atila BioSystems AmpFire assay for any of HPV16, 18, 31, 33, 35, 39, 45, 51, 52, 53, 56, 58, 59, 66, 68.
[B]Chi-square test (Fisher's exact test used where observations were sparse, denoted with an asterisk). Significance was assessed using a *P* value of 0.005 (applying a Bonferroni correction for multiple comparisons).

Conclusions: High hrHPV proportions were observed in all demographic subgroups, with HPV16 the most common genotype. Continued implementation of universal HPV vaccination and targeted SCCA screening strategies remain important for reducing anal cancer burden among PWH.

14. Risk of anal intraepithelial neoplasia *in situ* and invasive anal cancer among solid organ transplant recipients in the United States

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Background: Solid organ transplant recipients (SOTRs) are at elevated risk for anal cancer and identified as a high-risk population in anal cancer screening guidelines[1], yet population-level data on anal intraepithelial neoplasia grade III (AIN3; i.e. *in situ* anal cancer) in this group are lacking.

Methods: We used linked data from SOTRs in the United States from 1995–2019. We estimated annual changes in incidence of AIN3 and invasive anal cancer among SOTRs and incidence rate ratios (IRRs) using adjusted Poisson regression. We used adjusted time-varying Fine-Gray models to estimate the hazards subdistribution (HRs) associated with AIN3 and risk of invasive anal cancer and Nelson-Aalen models to estimate the 10-year cumulative incidence of invasive anal cancer following AIN3.

Results: AIN3 incidence increased significantly over calendar time (6% increase per year) (Table 1). Increased incidence of AIN3 was associated with younger age (30–39-year-olds vs. 40–49 IRR = 1.62, 95%CI = 1.02–2.56), longer post-transplant follow-up (>15-years vs. 1–2.99 years IRR = 1.98, 95%CI = 1.18–3.18) and lung transplantation (vs. kidney IRR = 2.56, 95%CI = 1.67–3.78). AIN3 was associated with a 41-fold increased risk of invasive anal cancer among SOTRs (HR = 40.9, 95%CI = 20.2–83.0). Ten-year cumulative incidence of invasive anal cancer following AIN3 was 10% in both females and males (95%CI = 3.4–17%).

Table 1. Incidence rate ratios for associations with in situ and invasive anal cancer in solid organ transplant recipients in the United States, 1995–2019.

Characteristic	*In situ*				Invasive			
	Event *N*	IRR	95% CI	*P*-value	Event *N*	IRR	95% CI	*P*-value
Calendar year	272	1.06	1.04, 1.09	<0.001	572	1.02	1.00, 1.03	0.09
Sex								
Male	115	–	–		240	–	–	
Female	157	2.06	1.62, 2.63	<0.001	332	2.21	1.87, 2.62	<0.001
Age (years)								
20–29	18	1.53	0.85, 2.64	0.1	4	0.14	0.04, 0.34	<0.001
30–39	35	1.62	1.02, 2.56	0.04	18	0.37	0.21, 0.59	<0.001
40–49	39	–	–		92	–	–	
50–59	71	1.09	0.74, 1.63	0.7	160	1.01	0.78, 1.31	>0.9
60–69	79	1.02	0.70, 1.52	>0.9	202	1.06	0.83, 1.37	0.6
70+	30	0.75	0.46, 1.22	0.2	96	0.95	0.71, 1.28	0.7
Time since organ transplant								
0–0.99 years	4	0.12	0.04, 0.28	<0.001	10	0.18	0.09, 0.32	<0.001
1–4.99 years	99	–	–		167	–	–	
5–9.99 years	98	1.49	1.12, 1.97	0.006	198	1.75	1.42, 2.16	<0.001
10–14.99 years	50	1.81	1.26, 2.56	<0.001	132	2.80	2.21, 3.56	<0.001
15+ years	21	1.98	1.18, 3.18	0.006	65	3.80	2.78, 5.16	<0.001
Organ transplanted								
Kidney only	167	–	–		301	–	–	
Liver only	46	0.82	0.58, 1.13	0.2	128	1.04	0.84, 1.29	0.7
Heart only	22	0.91	0.57, 1.40	0.7	52	1.01	0.74, 1.36	>0.9
Lung only	29	2.56	1.67, 3.78	<0.001	67	2.81	2.13, 3.66	<0.001
Other or multiple	8	0.51	0.23, 0.97	0.06	24	0.79	0.51, 1.17	0.3
Race and ethnicity								
White, non-Hispanic	149	–	–		414	–	–	
Black, non-Hispanic	76	1.75	1.31, 2.32	<0.001	116	1.11	0.89, 1.37	0.3
Hispanic	38	1.20	0.82, 1.70	0.3	31	0.41	0.28, 0.59	<0.001
Asian/Pacific Islander	9	0.70	0.33, 1.29	0.3	11	0.33	0.17, 0.58	<0.001

Abbreviations: CI = Confidence Interval, IRR = Incidence Rate Ratio.

Conclusions: Incidence of AIN3 among SOTRs has increased significantly but to less of an extent as other populations.[2] Risk factors for AIN3 were similar to invasive anal cancer, greater implementation of anal cancer screening is needed for SOTRs, though more refined guidelines for screening may be warranted.

Pathogenesis and molecular biology

15. Assessing the diagnostic value of the ASCL1/ZNF582 methylation testing in risk groups beyond MSMLWH

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Background: Treatment of high-grade anal intraepithelial neoplasia (AIN2/3_HSIL) decreases anal cancer incidence,[1] yet only a minority of AIN2/3_HSIL would progress to cancer if left untreated.[2] Methylation testing has emerged as a promising biomarker for cancer risk stratification of AIN2/3_HSIL to support clinical decision-making between active surveillance and treatment. To date most studies focused on men who have sex with men living with HIV (MSMLWH).[3,4] This study aimed to evaluate ASCL1/ZNF582 methylation testing in a non-MSMLWH population.

Methods: We performed ASCL1/ZNF582 methylation testing using quantitative Methylation Specific PCR (qMSP; PreCursor-M AnoGYN) on two retrospective series of anal tissue-samples. 1) cross-sectional biopsies categorized as anal cancer, AIN 3, 2, 1, or no dysplasia to evaluate diagnostic performance, and 2) longitudinal AIN2/3_HSIL biopsies from patients who later developed anal cancer to evaluate prognostic performance.

Results: A total of 138 patients were included in the cross-sectional study. Methylation levels of both ASCL1 and ZNF582 increased significantly with disease severity ($P < 0.001$). A positive methylation results was obtained in 76% of HSIL_AIN3 and 94% of anal cancers versus 10% of no-dysplasia.
A total of 13 progressive HSIL biopsies from six patients were included in the longitudinal study (Fig. 1). HSIL biopsies were taken up to 104 months before cancer diagnosis. All HSIL biopsies were methylation-positive, even when taken from a different anatomical site than the cancer.

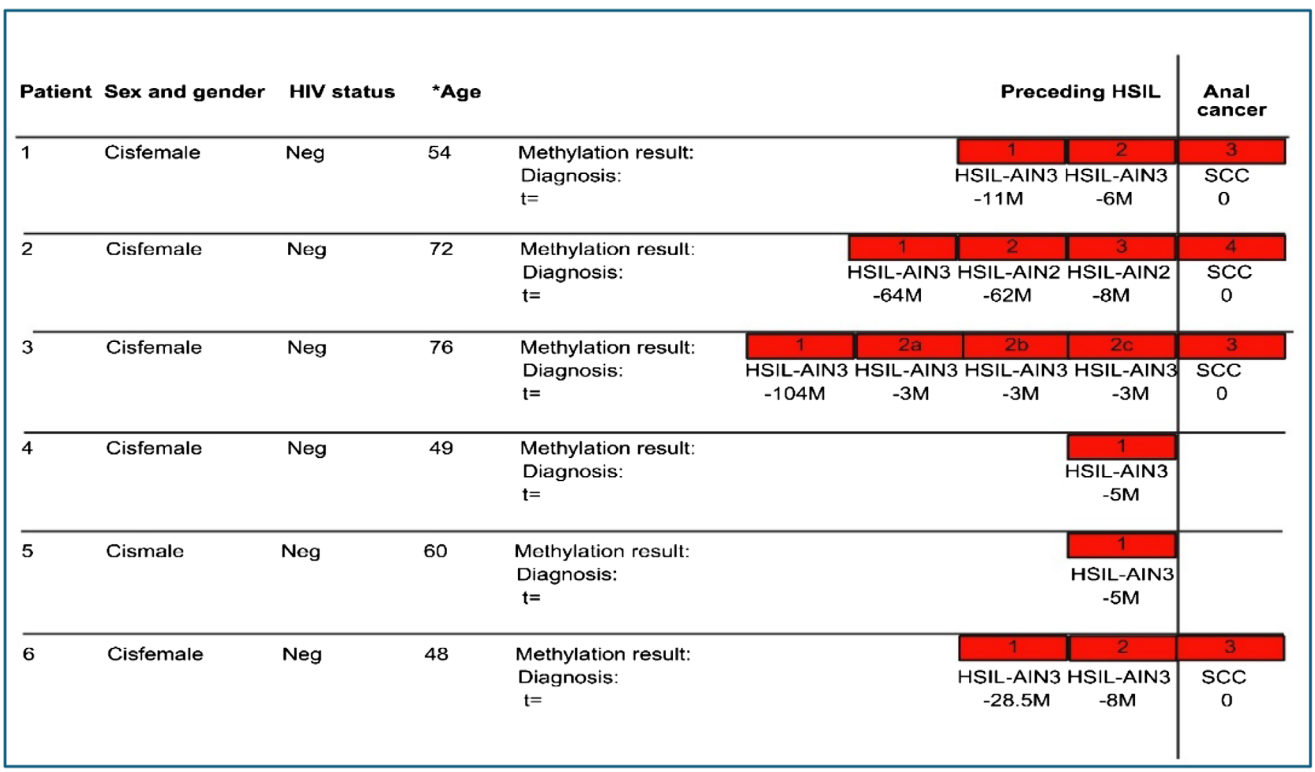

Fig. 1. Methylation test results longitudinal series.

Conclusions: ASCL1/ZNF582 methylation increases with severity of anal disease in non-MSMLWH and detects AIN2/3_HSIL progressing to cancer, supporting its prognostic value for cancer risk stratification. Following prospective validation, methylation testing could reduce unnecessary treatment, decrease psychological burden, lower healthcare costs, and transform AIN management.

16. Spatial multiplex immunophenotyping across the anal squamous neoplasia continuum: an ongoing pilot study

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Background: Human papillomavirus (HPV)-associated anal squamous carcinogenesis spans low-grade and high-grade squamous intraepithelial lesions (LSIL and HSIL) before invasive carcinoma, but marker-specific spatial phenotypes remain incompletely defined. We aim to characterise established markers alongside Stathmin-1 (STMN1) and the squamous differentiation marker Cornulin (CRNN).

Methods: This ongoing retrospective pilot study includes 20 archival formalin-fixed, paraffin-embedded anal specimens: normal mucosa from haemorrhoidectomy, LSIL/anal intraepithelial neoplasia 1, HSIL/anal intraepithelial neoplasia 3, and invasive squamous cell carcinoma (five cases each). Diagnoses will undergo pathology review. Opal multiplex fluorescent immunohistochemistry will assess p16INK4a, Ki-67, p63, STMN1, and CRNN, with 4′,6-diamidino-2-phenylindole counterstaining and PhenoImager acquisition. Planned descriptive analyses include intensity, epithelial-layer localisation, spatial distribution, co-expression, and semiquantitative scoring.

Results: Experimental and image analyses are being completed; definitive results are not yet available, and no observed expression or group-comparison data are reported. Based on previous anal and cervical evidence, we anticipate greater suprabasal extension of p16INK4a, Ki-67, and STMN1 in HSIL than in normal or LSIL samples, with broader tumoural distribution in carcinoma. CRNN is hypothesised to localise superficially in normal mucosa and decline or become restricted with dysplasia and dedifferentiation; this expectation is cautiously extrapolated from cervical and oral evidence. Multiplex analysis is expected to define co-expression within p63-positive basal/squamous compartments.

Conclusions: Spatially resolving this panel may improve biological understanding of anal squamous progression and identify candidate tissue patterns for validation in larger diagnostic and translational studies.

17. Tissue-based prognostic biomarkers in anal squamous cell carcinoma treated with chemoradiotherapy: a systematic review and meta-analysis

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Background: Prognostication in anal squamous cell carcinoma (ASCC) currently relies on clinicopathological staging and does not reflect tumour biology. Tissue-based biomarkers may better reflect the tumour microenvironment, although their clinical utility remains unclear. This systematic review evaluated the prognostic significance of tissue-based biomarkers in ASCC treated with curative-intent chemoradiotherapy (CRT).

Methods: A systematic review and meta-analysis was conducted in accordance with PRISMA guidelines and registered on PROSPERO (CRD42024547045). PubMed, EMBASE and Web of Science were searched to July 2024. Studies reporting overall survival (OS), disease-free survival (DFS), and locoregional control (LRC) in ASCC treated with CRT were included. Conference abstracts and non-tissue biomarker studies were excluded. Hazard ratios (HRs) were pooled using random-effects models where ≥3 studies were available.

Results: Fifty studies comprising 5098 patients were included, with only 15 studies eligible for meta-analysis. PD-L1 expression was associated with improved OS (HR 0.38, 95% CI 0.21–0.70, $P = 0.002$) with no heterogeneity. HPV positivity demonstrated outcome-specific associations, with improved LRC (HR 3.82, 95% CI 1.10–13.21, $P = 0.035$), inferior DFS (HR 3.56, 95% CI 1.79–7.09, $P < 0.001$), and no association with OS. Expression of PD-1 and p16 demonstrated heterogeneous and inconsistent prognostic associations across limited studies.

Conclusions: PD-L1 expression demonstrated the clearest association with improved OS following CRT. However, interpretation of other tissue-based biomarkers was limited by small study numbers, heterogeneous reporting, and inconsistent biomarker cut-offs. HPV-related biomarkers demonstrated complex outcome-specific associations, while p16 alone showed limited prognostic utility as a surrogate marker. Prospective validation and standardisation of biomarker assessment are required before clinical integration.

Post-cancer surveillance

18. Assessing the feasibility of detecting circulating tumor DNA in HPV-related anal cancer

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Background: Anal cancer is rare but rising, particularly among people living with HIV. Like cervical cancer, it is driven by persistent HPV infection and progresses from anal intraepithelial neoplasia to invasive disease. Besides high-resolution anoscopy and imaging, there are limited tools for diagnosis and surveillance. Circulating tumour DNA (ctDNA), a subset of cell-free DNA (cfDNA), offers a minimally invasive monitoring approach. We aim to detect ctDNA from multiple biospecimens for disease monitoring in anal cancer patients.

Methods: A prospective biobank was established at our tertiary referral centre. Blood, urine, anal cytology, and anal swabs were collected at diagnosis and every 6 months over 2 years. Localized cfDNA from anal swabs and systemic ctDNA from plasma and urine were extracted. HPV cf/ctDNA was quantified using droplet digital (dd)PCR targeting the E7 gene of 14 high-risk HPV types, using protocols validated by our group. cf/ctDNA levels were then correlated to clinical findings.

Results: Six anal cancer patients have been recruited, all with baseline samples and three with post-treatment samples. HPV cfDNA was detected in 11/17 (64.7%) baseline samples, with HPV-16 being the most common genotype. In one patient with recurrence, plasma and urine HPV ctDNA became undetectable following surgery (Fig. 1). This correlated with the negative imaging results. Overall, various high-risk HPV strains were identified across collected samples.

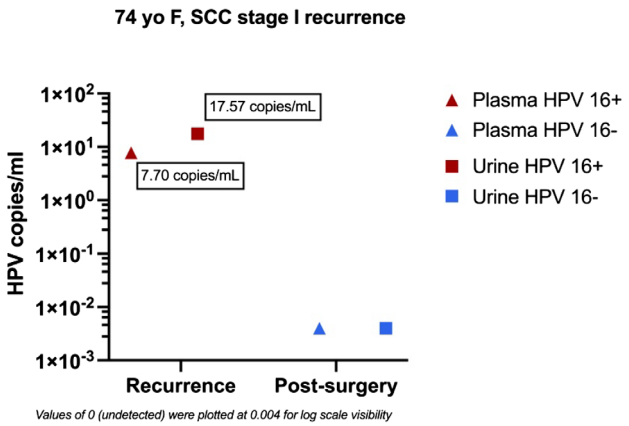

Fig. 1. Longitudinal HPV ctDNA quantification in plasma and urine at recurrence and post-surgery in a patient with recurrent anal SCC. HPV 16 DNA was detected in both plasma (7.70 copies/mL) and urine (17.57 copies/mL) at recurrence, with complete clearance in both biofluids following abdominal perineal resection with permanent colostomy. Y-axis is log-scaled; undetected values plotted at 0.004 copies/mL.

Conclusions: Preliminary data indicate that HPV cf/ctDNA can be detected in different biospecimens and could potentially be used in treatment monitoring using our ddPCR technique for the oncogenic HPV subtypes. Recruitment is ongoing with longitudinal analyses.

19. Early detection of recurrent disease in anal squamous cell carcinoma following treatment

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Background: Treatment of anal squamous cell carcinoma (ASCC) typically involves chemoradiotherapy (CXRT) and/or wide local excision (WLE), with local recurrence rates of 10–30%, often necessitating abdomino-perineal resection (APR). Current follow-up protocols rely on detection of clinically visible or palpable recurrence. High resolution anoscopy (HRA) in combination with cytology and high-risk human papillomavirus (hrHPV) testing may enable earlier detection of microscopic recurrence and high grade squamous intra-epithelial lesion (HSIL), allowing for more timely intervention. This study evaluated the utility of this diagnostic triad in post-treatment ASCC surveillance.

Methods: A retrospective case note review was conducted of patients undergoing post-treatment ASCC follow-up between 5 April 2000 and 18 May 2026. Data collected included demographics, treatment modality, HRA findings, cytology, hrHPV status, and histological outcomes.

Results: A total of 156 cases were included: 117 were men, the majority of whom ($n = 86$, 73.5%) were known to be men who have sex with men and 53.8% ($n = 63$) were HIV-positive. Most patients ($n = 114$, 73.1%) underwent CXRT, while 38 (24.4%) received WLE alone. At first follow-up, 32 (20.5%) had histological and/or cytological HSIL, and 60 (38.5%) had at least one hrHPV genotype detected. On multivariable analysis, WLE as the initial treatment modality and HPV16 detection were significantly associated with the presence of post-treatment HSIL.

Conclusions: Incorporating HRA, cytology, and hrHPV testing into routine ASCC follow-up may improve early detection of residual or recurrent disease. This approach identified HSIL in 20.5% and hrHPV in 38.5% of patients, findings that would likely be missed using standard surveillance protocols. Broader implementation of this diagnostic triad has the potential to enable earlier intervention and reduce recurrence rates and the need for APR. Longer-term follow-up is required to confirm its impact on clinical outcomes.

Quality of life and sexual health

20. A WISER way to support women with anal cancer

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Background: Anal cancer disproportionately affects women. While significant treatment advances have improved overall survival rates, barriers identified among healthcare professionals (HCPs) including stigma and shame frequently prevent women from receiving person-centred, holistic care. Specifically, information about sexual health, sexual function and intimacy is an important unmet cancer supportive care need.

Methods: An Australian, multi-centre, mixed methods phase II feasibility study was designed to address existing information gaps for women with anal cancer and HCPs involved in their care. This led to the development of the Women's Initiative for Sexual health, Education and Raising awareness of anal cancer (WISER) intervention, co-conceptualised with women with lived experience of anal cancer. It includes:

- A patient information resource designed to address sexual health, sexual function and the intimacy information needs of women with anal cancer
- An HCP toolkit designed to support implementation of the resource

Results: The WISER study was launched at nine radiation oncology units across four Australian states. Preliminary feasibility data will be presented demonstrating that WISER:

- May be feasible within routine care
- Can address women's sexual health, sexual function and intimacy information needs
- Increases HCPs' awareness of and confidence in educating women about the impacts of anal cancer treatment on sexual health

Qualitative findings identified an opportunity to expand the WISER intervention to women with low rectal cancers, who experience similar toxicities to women with anal cancer receiving chemoradiation.

Conclusions: WISER was implemented across several sites. Strong engagement from HCPs may accelerate widespread implementation of WISER and support future scalability for women with other malignancies.

21. Adverse events associated with treatment for anal high-grade squamous intraepithelial lesions: a systematic review

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Background: Anal high-grade squamous intraepithelial lesions (HSIL) are precursors to anal cancer and are treated using multiple modalities, although treatment-related adverse events (AEs) may affect adherence and outcomes. Understanding AE profiles is therefore important for guideline development and clinical decision-making. We conducted a systematic review of the type, severity, frequency, and reporting quality of AEs associated with different anal HSIL treatments.

Methods: We searched Medline, Embase, Cochrane Library, and CINAHL to 11 October 2024 for studies reporting AEs related to anal HSIL treatment. Study quality was assessed using an adapted Newcastle-Ottawa Scale, and data were extracted on study characteristics, treatment protocols, and AEs.

Results: Forty-two studies were included: 8 high quality, 24 moderate quality, and 10 low quality. Most studies were conducted in people living with HIV and evaluated single treatment modalities. No study focussed solely on females. Substantial heterogeneity in AE definitions and collection methods precluded a meta-analysis. Pain and bleeding were the most commonly reported AEs across all treatment modalities. Ablative treatments were frequently associated with pain (80% of studies), with radiofrequency ablation reporting particularly high bleeding rates (>80%). Topical treatments consistently caused anal discomfort, although terminology varied widely. Only 14 studies used a structured approach to AE collection. The ANCHOR study reported unexpectedly fewer AEs compared with other literature.

Conclusions: These findings underscore the need for standardised, validated AE definitions and core outcome sets, alongside standardised treatment protocols and comprehensive AE monitoring. Larger comparative randomised trials are needed to inform optimal treatment strategies.

22. Feasibility and impact of a pelvic floor prehabilitation program on patient-reported functional outcomes and quality of life: a prospective pilot study

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Background: Although cure rates are high for anal squamous cell carcinoma (ASSC), bowel, bladder and sexual dysfunction are common post-chemoradiation. Pelvic Floor Physical Therapy (PFPT) can treat these issues. However, many patients have pre-existing pelvic floor dysfunction before starting chemoradiation. Through this pilot, we evaluated the feasibility of a PFPT prehabilitation program (PFPTPP) to assess and treat any preexisting pelvic floor issues as well as give proactive guidance on how to manage post-treatment toxicities.

Methods: This IRB-approved, prospective pilot study enrolled women with localized SCCA. Participants completed the Fecal Incontinence Quality of Life (FIQOL) Lifestyle Subscore (possible range 1–4, higher is better), International Consultation on Incontinence Questionnaire – Female Lower Urinary Tract Symptoms (ICIQ-FLUTS) (possible range 0–48, higher is better), the Female Sexual Function Index (FSFI) (possible range 2–36, higher is better) and the modified Laycock PERF assessment by a PFPT expert before and 3 months after chemoradiation. The PFPPTPP included a customized exercise program.

Results: Thirty women with non-metastatic ASSC enrolled in the pilot; 28 (93.3%) were white; the median [interquartile range (IQR] was 57 [50–61]. The outcome scores at the pre- and post-treatment timepoints are shown in Table 1. Laycock PERFECT scores pretreatment and at 3 months post-treatment were no different. Eighty-five percent of participants rated the PFPPTPP as 'very' or 'quite a bit' helpful.

Table 1. Bowel, bladder and sexual function outcomes among women with anal squamous cell carcinoma participating in a pelvic floor physical therapy prehabilitation program.

Time points; Median [IQR]	FIQOL Lifestyle Subscore	ICIQ-FLUTS	FSFI
Pre-chemoradiation	3.9 [3.2–4]	10 [5–13]	19.0 [15.7–28.9]
End of chemoradiation	2.8 [1.75–3.7]	7.5 [5–11.5]	17.4 [13.2–19.5]
3 month follow up	3.7 [3.4–4]	10 [6–15.5]	17.6 [15.9–27.4]
6 month follow up	3.6 [3.2–4]	7 [2.5–9.5]	19.4 [17.1–26.1]
12 month follow up	3.8 [3.4–4]	4 [2.5–10]	17.9 [14.5–25.2]

IQR, interquartile range; FIQOL, Fecal Incontinence Quality of Life; ICIQ-FLUTS, International Consultation on Incontinence Questionnaire – Female Lower Urinary Tract Symptoms; FSFI, Female Sexual Function Index.

Conclusions: Women with ASSC often have pre-existing bowel, bladder and sexual dysfunction. Treating existing pelvic floor dysfunction and proactively strengthening the pelvic floor during and after chemoradiation may improve functional outcomes and quality-of-life.

23. Integrating sexual wellbeing into anal cancer screening and HSIL treatment for GBMSM

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Background: Gay, bisexual and other men who have sex with men (GBMSM) experience a disproportionate burden of anal HPV infection and anal cancer and are increasingly targeted for anal precancer screening and treatment. However, little attention has been paid to how surgical encounters for benign anal disease address sexual wellbeing, despite the central role of receptive anal intercourse (RAI) in identity, intimacy and quality of life for many GBMSM.

Methods: We synthesised findings from two complementary Australian studies: (1) a mixed-methods survey and interview study of GBMSM who underwent benign anorectal surgery, exploring sexual, psychological and care experiences; and (2) a cross-sectional survey of colorectal and general surgeons examining practices, comfort and training related to caring for GBMSM, including sexual history taking and counselling around RAI.

Results: GBMSM patients reported significant and sometimes prolonged disruption to sexual function, well-being, and identity following anorectal interventions. Most expected surgeons to enquire about sexual practices and counsel them regarding sexual impacts, yet this rarely occurred. Parallel surgeon data showed that while almost all surgeons recognised the impact of anorectal disease and surgery on GBMSM wellbeing and reported general comfort discussing RAI, fewer than half routinely provided postoperative sexual counselling and only half felt adequately trained to do so. The large majority identified a need for further education.

Conclusions: As anal precancer screening and treatment are expanded, failure to address sexual well-being risks alienating patients and undermining engagement. 'Taking it to the people' requires surgeons to proactively integrate culturally safe sexual history-taking, counselling and shared decision-making into anal precancer care pathways, supported by targeted training and guidelines.

24. Low anal cancer knowledge and high trust in clinicians among people living with HIV participating in a pilot study of electrocautery treatment of persistent anal high-grade squamous intraepithelial lesions: a qualitative analysis

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Background: People living with HIV (PLHIV) are at substantially higher risk of anal cancer than the general population, yet knowledge of anal cancer and its risk factors remains low. As part of an ongoing prospective pilot study of electrocautery treatment of persistent anal high-grade squamous intraepithelial lesions, we explored anal cancer knowledge and awareness among PLHIV.

Methods: Trial participants were invited to participate in semi-structured interviews at two time-points: within 6 weeks of first treatment and 12 months after final treatment. Interviews explored treatment experience, anal cancer awareness, and clinical care. First-round interviews were conducted between June 2024 and March 2026, with second-round interviews ongoing. This analysis focuses on first-round interview data.

Results: Of 40 participants who received initial treatment, 18 completed first-round interviews. All had a history of anal cancer screening and some reported prior participation in anal cancer-related clinical studies. Despite this, most participants reported their awareness of anal cancer was low. Participants generally described trusting relationships with their HIV care providers and relied on them to monitor and communicate anal cancer risk. Views on discussing anal cancer risk in routine HIV care were mixed: some supported inclusion while others felt they could rely on their HIV care providers to proactively raise any concerns.

Conclusions: Anal cancer knowledge was low in this high-risk cohort, and preferences for risk communication within HIV care varied. Second-round interviews will further inform the feasibility, acceptability, and patient-centred approaches to anal cancer risk communication in HIV clinical settings.

25. Pelvic physical therapy in female anal cancer survivors: patterns of utilization and associations with sexual function and quality of life

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Background: Female anal cancer survivors experience long-term sexual, pelvic, bowel, and quality-of-life morbidity. Pelvic physical therapy (PPT) may address late pelvic effects, but counseling, utilization, and perceived benefit are poorly characterized. We evaluated PPT discussion/referral, attendance, perceived helpfulness, and associations with sexual outcomes and quality of life (QoL).

Methods: We analyzed cross-sectional survey data from 308 female anal cancer survivors recruited through survivor support groups and organizations. Measures included the EORTC QLQ-ANL27, symptom-impact questions, and EORTC QLQ-C30 global items assessing overall health and QoL during the prior week on 1–1000 visual analog scales. Descriptive statistics summarized sexual morbidity and PPT use. Exploratory associations were evaluated between PPT variables, sexual activity or interest, and QoL.

Results: Among women with non-missing data, 141/301 (46.8%) reported that PPT was discussed or referral was made. Among those with PPT discussed/referred, 104/141 (73.8%) attended at least one session; among attendees with helpfulness data, 72/103 (69.9%) found PPT helpful. Women with PPT discussion/referral were less likely to report no sexual activity in the prior 4 weeks than those without discussion/referral

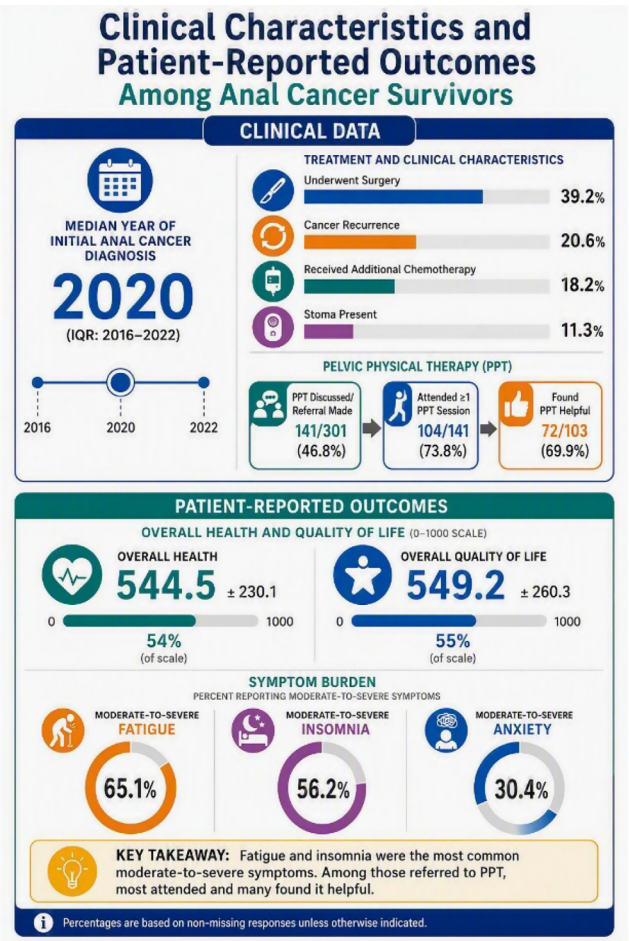

Fig. 1. Clinical and patient-reported outcomes among female anal cancer survivors. Although survivors reported favorable overall health and quality-of-life scores, moderate-to-severe fatigue and insomnia remained common, affecting nearly 6 in 10 survivors. Fewer than half were referred to pelvic physical therapy; however, among those referred, most attended treatment and reported benefit.

(66.4% vs 80.0%; $P = 0.034$). Among PPT attendees, perceived helpfulness was associated with sexual interest ($P = 0.019$) and with a more favorable QoL relative to overall health rating (between-group difference in QoL-health gap: 89.5 points; $P = 0.013$) (Fig. 1).

Conclusions: Fewer than half of female anal cancer survivors reported PPT discussion/referral, although uptake and perceived benefit were high among those referred. Findings highlight a potentially actionable supportive-care gap in survivorship.

26. Sacral neuromodulation in pelvic floor rehabilitation after anal cancer treatment: looking beyond oncologic cure

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Background: Treatment of anal cancer is primarily directed toward achieving oncologic cure through chemoradiotherapy and surgery. However, long-term functional consequences are common and may severely impair quality of life. Fecal urgency, incontinence, obstructed defecation, urinary dysfunction, chronic pelvic pain, and sexual dysfunction are frequently underrecognized during routine oncologic follow-up. In many aspects, these symptoms resemble the complex functional disorders observed in low anterior resection syndrome (LARS), where survivorship care and functional rehabilitation have become increasingly important components of treatment pathways.

Methods: We present a tertiary multidisciplinary approach for evaluation and management of pelvic floor dysfunction following anal cancer treatment. Patients underwent structured assessment of bowel, urinary, pain-related, and sexual symptoms. Management pathways included conservative treatment, pelvic floor rehabilitation, bowel management strategies, treatment of radiation-related complications, and selected surgical interventions including sacral neuromodulation (SNM), which remains a frequently overlooked therapeutic option.

Results: Multidisciplinary evaluation enabled recognition of symptoms that significantly affected daily functioning and quality of life. Integration of functional rehabilitation strategies expanded therapeutic possibilities for these patients. Sacral neuromodulation emerged as a potentially valuable but frequently overlooked option in carefully selected patients with refractory pelvic floor dysfunction.

Conclusions: Successful anal cancer treatment should not be defined solely by disease control. Greater attention must be directed toward functional outcomes and long-term survivorship. A multidisciplinary pelvic floor approach, including consideration of sacral neuromodulation, may offer meaningful improvement for patients whose post-treatment dysfunction remains otherwise insufficiently addressed.

Screening and Diagnostics

27. A cross-sectional study comparing the screening test characteristics of anal human papillomavirus genotyping for anal cancer screening, alone and in combination with anal cytology

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Background: Robust evaluation of anal high-risk human papillomavirus (hrHPV) as a screening test for anal high-grade squamous intraepithelial lesions (aHSIL) and anal cancer is needed to inform anal cancer prevention strategies. We assessed the performance of anal hrHPV genotyping alone, in risk-stratified approaches, and in combination with anal cytology for detecting biopsy-proven HSIL and anal cancer.

Methods: This cross-sectional study tested banked residual anal swab specimens from ANCHOR screening visits for hrHPV using the Atila AmpFire platform. Using histologically confirmed HSIL or anal cancer (hHSIL+) as the disease reference, we evaluated sensitivity, specificity, and positive and negative predictive value (PPV, NPV) for anal cytology, pooled hrHPV (any of 15 genotypes), hierarchical risk-stratified hrHPV grouping and hrHPV-cytology combined strategies. We tested for differences between strategies using McNemar's Chi-squared tests.

Results: Among 4,497 participants with cytology, HRA and HPV results to date, hHSIL+ prevalence was 51.6%. hrHPV testing demonstrated higher sensitivity than cytology (91.6% vs 86.1%) with higher specificity (44.4% vs 35.8%); McNemar's tests comparing sensitivity, specificity, and overall correct results all showed $P < 0.001$. Risk-stratified HPV approaches improved specificity (HPV16: 91.0%, HPV18/45: 91.3%) with reduced sensitivity (HPV16: 37.4%, HPV18/45: 25.6%), and increased PPV (HPV16: 81.5%, HPV18/45: 68.3%). Parallel co-testing maximized sensitivity (98.1%) but had low specificity (18.5%). Sequential HPV-cytology triage improved specificity (61.6%) with attenuated sensitivity (79.6%), correctly classifying more participants compared to cytology or HPV testing alone ($P < 0.001$).

Conclusions: HPV genotyping strategies demonstrated comparable or improved performance relative to cytology. Risk-stratified and sequential hrHPV-based approaches improve specificity and may reduce unnecessary HRA referrals.

28. A prospective comparative study of random anal mapping biopsies and high resolution anoscopy (HRA) guided biopsies in a tertiary centre in Ireland

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Background: The publication of the landmark Anal Cancer/HSIL Outcomes Research (ANCHOR) study provided evidence of the importance of diagnosing and treating anal dysplasia (AIN) to reduce the risk of progression to anal cancer. High-resolution Anoscopy (HRA) is required for accurate diagnosis and is a specialist procedure which requires extensive training.

To date standard practice in Ireland has been to use mapping biopsies to diagnose AIN, as demonstrated in a recent national survey of practice patterns. Historical ACPGBI guidelines didn't recommend the routine use of HRA for practitioners with limited exposure to the disease.

Methods: HRA was carried out on patients with a history of AIN, new patients with an incidental diagnosis of AIN and patients deemed high risk of AIN. Patients with a history of anal cancer were also included. Ethical approval was obtained. HRA was carried out by a single operator, who had completed IANS training, in a single institution.

Results: Between 2024 and 2026, 102 HRAs were performed on 68 patients, mapping biopsies were also obtained in the majority of cases. In accordance with IANS practice standards, 50 cases were performed annually and the rate of HSIL detection was greater than 40%. The sensitivity of HRA for the detection of HSIL was significantly greater than random mapping (87% vs 67%) $P < 0.00001$.

Conclusions: HRA is diagnostically superior to anal mapping. Increased use and uptake of HRA will be essential for optimizing outcomes for this patient population. An adequate number of skilled personnel will be needed to meet screening requirements.

29. Addressing limitations in anal cancer screening: AI-assisted detection of precancerous lesions using high-resolution anoscopy

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Background: Anal cancer incidence is increasing, with screening focused on detecting precursor lesions. The ANCHOR Study demonstrated that treating high-grade squamous intraepithelial lesions (HSIL) reduces cancer progression[1]. However, access to gold-standard high-resolution anoscopy (HRA) is limited by workforce shortages and specialized training requirements, hindering scalable screening.

Methods: We used 205 HRA images across 11 lesion classes from 15 clinical sessions (mean age 57; 7 females, 8 males), with risk factors including HIV, smoking, and men who have sex with men (MSM). All region-level labels were created through manual annotation by specialist clinicians with associated pathological diagnoses; consensus or adjudication was used as determined by the study protocol. A You Only Look Once (YOLOv8) object detection model was implemented. Model performance was assessed using 5-fold cross-validation and an independent hold-out test set ($n = 30$).

Results: The model showed strong and stable discrimination between low-grade squamous intraepithelial lesions (LSIL), HSIL, and malignant lesions. Mean average precision at 0.50 intersection over union (mAP50) was 93.8% (95% CI: 90.0–97.6%) in cross-validation and 95.7% (93.9–97.4%) on the independent test set. Precision was 95.1% (93.0–97.2%) and recall 89.8% (88.0–91.6%), indicating a favourable trade-off between false-positive and false-negative risk for lesion-level detection. Consistent performance across datasets supports robustness and generalisability.

Conclusions: AI-assisted detection represents a promising and scalable adjunct to anal cancer screening programs by supporting the identification of precancerous and malignant lesions. Such tools may improve access to screening, guide treatment, and facilitate training of future operators.

30. AMC certification of clinicians and sites for anal cancer screening in four Latin American cities

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[6]Boston Medical Center.

Background: Few Latin American (LATAM) countries provide anal cancer screening and prevention due to a lack of specialty centers, providers, local guidelines and program funding. To promote anal cancer prevention research, the U.S. National Cancer Institute AMC consortium established high resolution anoscopy (HRA) training and infrastructure development in 4 LATAM cities in Argentina, Mexico and Brazil.

Methods: The AMC provided equipment and training costs for HRA and treatment. Two clinicians per site completed a didactic HRA course followed by onsite and remote mentoring with an AMC- trainer, and observation time at the UCSF Anal Neoplasia Clinic, Research and Education Center. Certification required maintenance of procedure logs, on-site observation of HRA and electrocautery treatments. Site activation required 2 clinicians certified in HRA and 1 in treatment. Training a 3rd clinician was supported but not required.

Results: Onsite trainings/certifications began December 2021 and were completed August 2025. On average each site received 5 onsite visits for training/certification. Initial visits provided training followed by certification in HRA, and then treatment. 13 clinicians began training, 12 completed HRA and 7 treatment certification. Provisional certification was provided to clinicians completing exam competencies but with incomplete logs.

Conclusions: Despite training delays due to the Covid-19 pandemic, all sites successfully completed requirements with 2 certified HRA providers and one in treatment. These AMC-trained clinicians will facilitate research and implementation of anal cancer screening and prevention at their sites. Ultimately, successful expansion of anal cancer screening in LATAM will require regional policies supporting screening for at-risk patients.

31. Anal cancer screening eligibility among patients diagnosed with anal squamous cell carcinoma

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Background: In 2024, the International Anal Neoplasia Society (IANS) published guidelines for anal cancer screening in high-risk populations defined as those with a ten-fold or greater anal cancer incidence compared to the general population (Risk Category A).
Using these criteria, we sought to determine the proportion of patients diagnosed with anal squamous cell carcinoma (SCC) at University of Vermont Medical Center (UVMMC) who would have been eligible for anal cancer screening.

Methods: A retrospective cohort study was performed using patient data collected from the UVMMC electronic medical record and included patients diagnosed with anal SCC from 2015 to 2025. Screening eligibility was based on IANS Risk Category A which include[1]:

- Men who have sex with men (MSM) and transgender women (TGW) with HIV age ≥35 years; all others with HIV age ≥45 years
- Persons with a history of vulvar dysplasia or vulvar cancer
- MSM and TGW without HIV age ≥45 years
- Solid organ transplant recipients ≥10 years post-transplant

Results: Among our cohort ($N = 89$), 12% ($n = 11$) were classified as IANS Risk Category A (Table 1).

Table 1. Anal cancer screening eligibility among patients diagnosed with anal SCC.

IANS Risk Category A[1]	Patients, No. (%) Overall (*N* = 89)
Persons with HIV	4 (4.5%)
Vulvar dysplasia/cancer	3 (3.4%)
MSM/TGW without HIV	4 (4.5%)
Solid organ transplant	0

[1]IANS Risk Category A includes groups with an anal cancer incidence of at least 17 per 100,000, which is ten times higher than the general population's rate of 1.7 per 100,000 person-years.

Conclusions: Only just over a tenth of patients diagnosed with anal SCC would have been eligible for anal cancer screening based on IANS Risk Category A. More work is needed to evaluate anal cancer screening eligibility in other high-risk groups.

32. Anal cancer screening is low among individuals at risk: insights from the MACS/WIHS Combined Cohort Study (MWCCS)

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Background: People with HIV (PWH) are at higher risk for anal cancer (AC) compared to people without HIV (PWoH). AC is preceded by anal high-grade intraepithelial lesions (aHSIL), a screening-detectable precancerous lesion. The ANCHOR trial demonstrated that detection and treatment of aHSIL reduces risk of progression to AC. Anal cytology is the gold standard for screening; however, anal cytology uptake remains underutilized.

Methods: We examined prevalence of self-reported anal cytology screening among men and women with and without HIV between October 1, 2020 and September 30, 2021, using data from the MACS/WIHS Combined Cohort Study (MWCCS), a multicenter, prospective observational US cohort. We calculated descriptive statistics to characterize demographics and prevalence of screening and conducted chi-square tests to compare screening by HIV serostatus and sex.

Results: A total of 3122 participants were included (median age: 57 years [49–64 IQR]; 58% women; with 56.3% identifying as Black, 35.2% White, 12% Hispanic/Latinx; and 61% were PWH). Overall, 280 (9.0%) reported lifetime history of anal cytology screening, while 2,827 (90.5%) reported no prior screening. History of anal cytology screening differed by HIV serostatus (11.7% PWH vs. 4.8% PWoH; $P < 0.0001$) and sex (14.1% Men vs. 5.2% Women; $P < 0.0001$).

Conclusions: In this large, well-characterized cohort of individuals at risk for AC, anal cytology screening was low. Findings provide an important baseline for evaluating screening uptake in the setting of emerging guidelines, highlighting the need to strength awareness and engagement among patients and providers, and identify barriers to AC screening uptake.

33. Anal cancer screening performance and anal HSIL outcomes in HIV-negative women with a history of genital precancer or cancer: baseline and 12-month results of the SWAN study

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Background: Women with a history of HPV-associated genital high-grade squamous intraepithelial lesions (HSIL) or cancer are at increased anal cancer risk, but screening performance in this population is unknown. We report baseline and 12-month results from the Screening Women for Anal Neoplasia (SWAN) study (NIH R01CA256660).

Methods: HIV-uninfected women aged ≥35 years with a history of cervical, vaginal or vulvar HSIL or cancer underwent contemporaneous anal cytology (AC), high-risk HPV (hrHPV) testing and high-resolution anoscopy (HRA) at baseline and 12 months. We estimated anal HSIL (aHSIL) prevalence, 12-month detection, and sensitivity/specificity of AC (≥ASCUS), hrHPV and co-testing.

Results: 238 women underwent baseline HRA (mean age 48 years, range 35–76; 51% Hispanic, 19% Black; 62% reported prior receptive anal sex). Anal hrHPV was detected in 35% (95% CI 29–41%) and HPV16 in 7% (4–11%). Cumulative aHSIL detection was 27% (20%-33%); baseline visit aHSIL prevalence was 19% (14–24%) and among 76 women without baseline aHSIL rescreened at 12 months, aHSIL was newly detected in

9% (5–18%). Baseline sensitivity/specificity for aHSIL were 82%/29% (cytology alone), 58%/71% (hrHPV alone) and 89%/24% (co-testing); combined baseline and 12-month estimates were similar. Inadequate AC specimens were common (17%); 78% were willing to repeat HRA.

Conclusions: aHSIL prevalence is substantial in HIV-negative women with prior genital HPV-associated neoplasia. Cytology and co-testing were sensitive but poorly specific, while hrHPV alone lacked sensitivity but had good specificity, indicating that screening tests may have different performance characteristics from other high-risk populations.

34. Anal cancer screening practices and barriers to widespread implementation: insights from an international anal neoplasia society cross-sectional survey

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Background: Capturing current practices is critical to understanding real-world adoption of the 2024 International Anal Neoplasia Society (IANS) anal cancer screening guidelines, and identifying barriers may inform strategies for workforce expansion and equitable implementation.

Methods: This cross-sectional survey was distributed to attendees of the IANS 2025 Scientific Meeting and IANS members via REDCap from June 7 to August 23, 2025. Questions were based on respondent's reported screening methods (digital anorectal exam (DARE)/cytology/HPV-based screening only, High Resolution Anoscopy (HRA) only, both, or none). We summarized practices, training, and perceived barriers, and compared groups using chi-squared testing.

Results: Of 642 eligible participants, 186 (29%) from 32 countries responded. Among 152 respondents conducting DARE/cytology/HPV-based screening, 85% reported performing DARE, and 68% reported co-testing. The reported age of recommended screening by risk-group is shown in Fig. 1. Reported barriers to screening included lack of HRA referral capacity (53%) and lack of trained staff (47%), with no difference by career stage ($P = 0.155$). Among HRA providers ($n = 141$), 52% reported wait times <2 month, and 77% received referrals from Infectious Diseases/HIV clinics and 57% from gynaecology. Among non-HRA providers ($n = 24$), 65% referred patients for HRA to external facilities and 29% reported wait times >6 months. High interest in HRA training was reported in this group, but lack of experienced mentors at their home institutions (67%) and lack of equipment (54%) were key barriers.

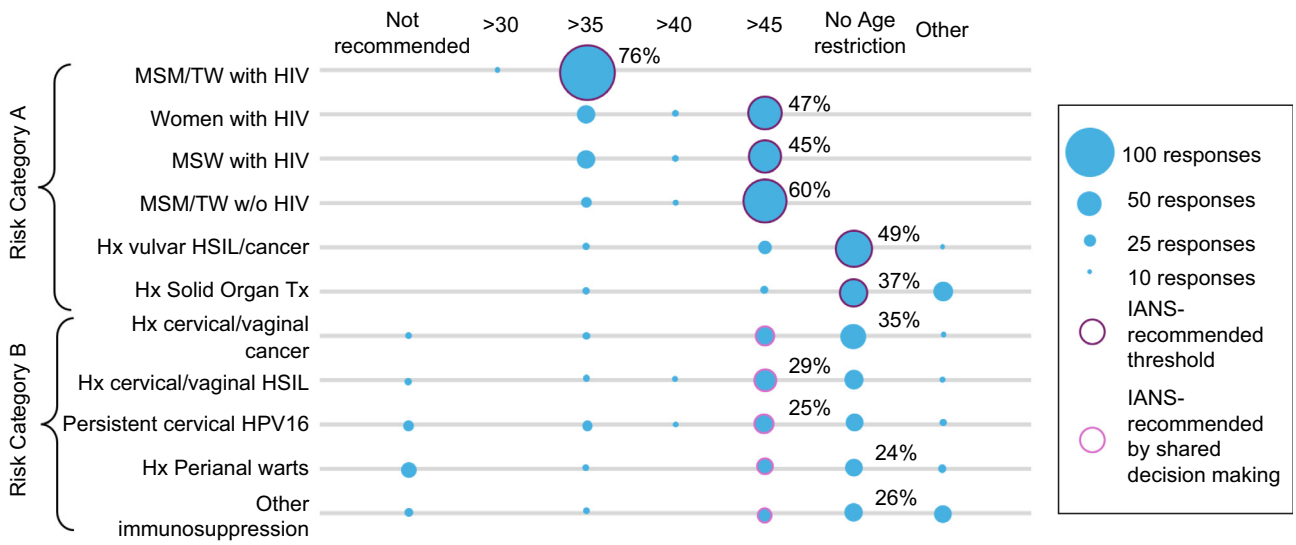

Fig. 1. Age at which survey respondents ($n = 152$) recommend anal cancer screening for specific risk groups, as defined by IANS guidelines. The size of the blue circle represents the number of respondents selecting this choice, and the percent of respondents is shown for the most common response. IANS risk categories and recommended screening age are indicated. MSM, men who have sex with men; TW, transgender women; Hx, history of, HSIL, high grade squamous intraepithelial lesion; Tx, transplant.

Conclusions: These findings highlight the lack of capacity and resources for the current anal cancer screening care continuum and identify priorities to support equitable guideline implementation.

35. Are we DAREing enough? Auditing outcomes of DARE uptake over a nine-year period at a single sexual health clinic

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Background: IANS consensus guidelines recommend annual digital ano–rectal examination (DARE) in lieu of screening tests in the absence of high-resolution anoscopy (HRA). We present the outcomes of medical record audits conducted over a nine-year period to assess DARE uptake and factors associated with refusal in people living with HIV (PLWH) at a sexual health clinic.

Results: DARE acceptance increased from 5% to 70% in those aged ≥45 years, with 57% of those aged 35–44 years accepting. There was no difference in DARE refusal by gender ($P = 0.914$), sexuality ($P = 0.938$) or age ($P = 0.243$). Clinician gender did not affect acceptance of DARE.

Abnormalities on DARE from the last two audit periods were detected in 7/126 (5.5%) of cases, consistent with previously published data, requiring referral for HRA or colorectal review. Subsequent diagnoses included: anal HSIL, HSIL in peri-anal skin lesions and benign fibroepithelial polyps with LSIL. No new cases of anal cancer were identified.

Conclusions: DAREs demonstrated high acceptability and uptake in our service with no clear associations for those who refuse. The abnormalities discovered highlight the need to implement anal hrHPV screening and a HRA service locally to offer adequate follow-up for abnormalities detected.

36. Assessing needs among people living with HIV to inform implementation of anal screening guidelines in Ontario, Canada

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Background: We conducted a needs assessment for equitable implementation of anal cancer screening guidelines in Ontario among people living with HIV (PLHIV) between September 2025 and March 2026.

Methods: We used semi-structured interviews and focus groups with PLHIV, guided by the Theoretical Domains Framework (TDF). Eligible participants were aged 35+ years, living and receiving healthcare services in Ontario. We used thematic analysis to identify barriers and facilitators.

Results: A total of 74 participants (38 women/36 men) completed individual interviews ($n = 20$) and focus groups ($n = 6$; 6–13 participants each); here we present preliminary themes. Over half identified as African/Caribbean/Black (59%; 44/74), and most identified as straight/heterosexual (59%; 44/74) or gay (30%; 22/74). Most participants (58%; 43/74) were not familiar with anal cancer or screening but 42% reported having some or a lot of knowledge, and 30% had some form of screening (anal Pap, digital anal rectal exam or anoscopy). Barriers to screening included a lack of knowledge about screening importance, stigma around HIV and anal cancer, and anticipated embarrassment. However, for most, benefits outweighed the risks, and they identified peers and community organizations as facilitators to education. Many noted they were experienced in advocating for their own health and were confident in requesting screening but also felt that clinicians were responsible for initiating screening.

Conclusions: Our findings indicate the need to increase local awareness and knowledge among PLHIV, facilitate support through community organizations, and reduce stigma around screening. These data will be used to develop interventions to support equitable implementation of anal cancer screening in Ontario.

37. Balancing detection and resource utilization in anal cancer screening for people with HIV: a multi-guideline evaluation

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Background: Several anal cancer screening guidelines for people with HIV (PWH) have been proposed internationally, but comparative performance and high-resolution anoscopy (HRA) utilization across strategies remain poorly characterized.

Methods: We evaluated 1223 PWH undergoing anal cancer screening with cytology, high-risk human papillomavirus (hrHPV) testing, and HRA-guided biopsy at Mount Sinai Health System (2012–2019). Strategies derived from Australian, Brazilian, French, German/Austrian, US Health and Human Services (US HHS), and IANS guidelines were simulated using cytology and hrHPV results. Histologic high-grade squamous intraepithelial lesion (HSIL) served as the primary outcome. Sensitivity, specificity, predictive values, receiver operating characteristic (ROC) area, and HRA referral burden were calculated.

Results: The cohort included 1073 men who have sex with men (88%) and 150 women (12%), median age 45 years; 96% had suppressed HIV viral load. HSIL prevalence was 42% (95% CI, 39%–44%). Strategies showed substantial sensitivity-HRA utilization tradeoffs. IANS hrHPV-alone screening achieved the highest sensitivity (95.9%; 95% CI, 93.7%–97.4%) but required HRA referral in 81% of participants (Table 1). Low-resource ASC-H/HSIL-only strategies minimized referrals (7%) but had poor sensitivity (13.0%). Efficiency frontier analysis identified Australian and several IANS triage-based strategies as optimal, with sensitivities of 83%–89% and HRA referral rates of 64%–70%.

Table 1. Number of HRA referrals and performance characteristics for detection of anal HSIL by country-specific screening strategies and associated HRA referral thresholds.

Country/ Organization	Strategy	HRA Rofsrral Threshold	# HRA Referrals (%)	# Sensitivity (95% CI)	# Specificity (95% CI)	PPV	NPV	ROC Area (95% CI)
Australia	Primary hrHPV testing	Any HPV16 regardless of cytology; for non-18 hrHPV: ASC-H/HSIL only	466 (38.1%)	56.6% (52.2–61.0)	75.0% (71.7–78.1)	61.6%	70.9%	0.66 (0.63–0.68)
Brazil	Standard	ASC-US or greater OR any HPV16	999 (81.7%)	90.9% (88.1–93.3)	24.9% (21.7–28.2)	46.1%	76.5%	0.58 (0.56–0.60)
Brazil	Low-capacity	ASC-H/HSIL only	86 (7.0%)	13.0% (10.2–16.3)	97.2% (95.7–98.3)	76.7%	61.2%	0.55 (0.54–0.57)
France	Primary HPV testing	HPV16 AND ASC-US or greater	374 (30.6%)	48.3% (43.9–52.8)	82.0% (79.0–84.7)	65.5%	69.1%	0.65 (0.63–0.68)
Germany/ Austria	Cytology-only	ASC-US or greater	933 (76.3%)	86.4% (83.1–89.3)	30.9% (27.5–34.4)	46.9%	76.2%	0.59 (0.56–0.61)
Germany/ Austria	Co-testing	ASC-US AND any hrHPV, LSIL or greater. (ASC-US/ hrHPV-negative and NILA/ hrHPV-positive do not trigger HRA)	814 (66.6%)	84.2% (80.8–87.3)	45.9% (42.3–49.7)	52.5%	80.4%	0.65 (0.63–0.68)
USA – HHS	Classic (cytology-only)	ASC-US or greater	933 (76.3%)	86.4% (83.1–89.3)	30.9% (27.5–34.4)	46.9%	76.2%	0.59 (0.56–0.61)
USA – HHS	HPV triage	Any HPV16/18; ASC-US AND any hrNPV: LSIL or greater (NILM non-16/18 hrHPV and ASC-US/hrHPV-negative do not trigger HRA)	880 (72.0%)	88.8% (85.7–91.4)	39.9% (36.3–43.6)	51.1%	83.4%	0.64 (0.62–0.67)
IANS	Cytology-only	ASC-US or greater	933 (76.3%)	86.4% (83.1–89.3)	30.9% (27.5–34.4)	46.9%	76.2%	0.59 (0.56–0.61)
IANS	hrHPV only	Any hrHPV	994 (81.3%)	95.9% (93.7–97.4)	29.1% (25.7–32.5)	48.9%	90.8%	0.62 (0.61–0.64)

(*Continued on next page*)

Table 1. (*Continued*).

Country/ Organization	Strategy	HRA Rofsrral Threshold	# HRA Referrals (%)	# Sensitivity (95% CI)	# Specificity (95% CI)	PPV	NPV	ROC Area (95% CI)
IANS	Cytology with hrHPV triage	ASC-US AND any hrHPV, LSIL AND any hrHPV; ASC-H/HSIL regardless of hrHPV. (ASC-US/hrHPV-negative and LSIL/hrHPV-negative do not trigger HRA)	785 (64.2%)	83.2% (79.7–86.4)	49.3% (45.6–53 0)	53.8%	80.6%	0.66 (0.64–0.69)
IANS	hrHPV with cytology triage	HPV16 regardless of cytology; any hrHPV AND ASC-US or greater	851 (69.6%)	87.8% (84.6–90.5)	43.3% (396–47.0)	52.3%	83.3%	0.66 (0.63–0.68)
IANS	Co-testing	HPV16 regardless of cytology; ASC-US or LSIL AND any hrHPV; ASC-H/HSIL regardless of hrHPV result	856 (70.0%)	87.8% (84.6–90.5)	42.6% (38.9–46.3)	52.0%	83.1%	0.65 (0.63–0.67)

Conclusions: Anal cancer screening strategies vary substantially in performance and resource utilization. hrHPV-based triage strategies provide the most favorable balance between HSIL detection and HRA burden in PWH.

38. Building bridges and breaking language barriers: the first 5 years of the IANS Spanish-Portuguese Task Force

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Background: Anal cancer prevention depends on accessible screening and management of precursors. However, Spanish- and Portuguese-speaking healthcare professionals must overcome linguistic, cultural, training, and implementation barriers that limit the adoption and uptake of international guidelines. IANS established a Spanish & Portuguese Task Force (S&PTF) to shorten this gap. The objective was to describe the development, core activities, and achievements of the S&PTF during its first 5 years.

Methods: A retrospective descriptive analysis was conducted of the S&PTF's strategic activities from its creation in 2020 to the present.

Results: Since its creation, the S&PTF has organized webinars in our languages on prevention and treatment of anal intraepithelial neoplasia and on high-resolution anoscopy, reaching a large number of health-care professionals across Latin America and Iberia. Key international guidelines were translated and contextualized. A structured mapping survey identified critical gaps in HRA equipment and trained personnel. A regional research network was initiated, and patient/provider education tools were developed to overcome linguistic and cultural obstacles. The 'Spanish & Portuguese Corner' was launched on the IANS website to centralize multilingual materials. The number of IANS members from Spanish & Portuguese-speaking countries has increased by 134% since the creation of this working group.

Conclusions: Within 5 years, the S&PTF contributed to expanding access to anal cancer prevention knowledge in Spanish & Portuguese-speaking settings. Its collaborative, language-tailored model demonstrates a viable pathway to reduce global disparities in anal cancer education. Next steps will strengthen the professional network, scale up HRA training, and increase regional scientific output.

39. Circulating HPV DNA detection in anal high-grade squamous intraepithelial lesions

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Background: Anal intraepithelial neoplasia grade 3 (AIN3) is a premalignant high-grade squamous intraepithelial lesion (HSIL) preceding anal cancer. While circulating HPV DNA (cHPV-DNA) has been explored in advanced HPV-associated cancers, its role in premalignant disease

remains unclear but may aid risk-stratification. We investigated cHPV-DNA detection in plasma from patients with anal HSIL using ultrasensitive approaches.

Methods: We analysed 41 patients with biopsy-proven AIN3 (median age 57 years, range 32–82), including 24 living with HIV. Baseline plasma samples were available for all patients, with post-treatment samples in 22. No patients with AIN3 developed anal squamous cell carcinoma (ASCC) during follow-up. Matched formalin-fixed paraffin-embedded (FFPE) biopsies were available in 40 patients. Cell-free DNA was analysed using a HPV16 digital droplet PCR (ddPCR) assay, alongside HPV hybrid capture sequencing for additional HPV types. Tissue biopsies underwent HPV hybrid capture and low-pass whole genome sequencing (lpWGS). A small ASCC cohort ($n = 7$) was analysed for comparison.

Results: cHPV16 DNA was identified in 14/41 (34%) and 6/7 (86%) at baseline in the AIN3 and ASCC cohorts, respectively. Levels were lower in AIN3 than ASCC (median 2.56 vs 7.40 copies/mL, $P = 0.02$). Among 7 AIN3 HPV16-positive patients with post-treatment plasma available, 5 demonstrated HPV16 clearance post-treatment. Matched AIN3 tissue sequencing ($n = 31$) demonstrated HPV presence in 93%, with HPV16 predominance (50%) and additional HPV types detected. Multiple HPV infections were observed in 31.2% of patients.

Conclusions: cHPV16 DNA is detectable in patients with anal HSIL and demonstrates clearance post-treatment, supporting its potential as a non-invasive biomarker for disease monitoring in premalignant anal disease.

40. Comparable diagnostic performance of home self-collected and clinician-collected anal swabs for S5 DNA methylation triage: a feasible study within the randomised PAC self-swab trial

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Background: Anal cancer incidence exceeds 85 per 100,000 among HIV-positive men who have sex with men, yet HRA-based screening is limited by specialist capacity. DNA methylation triage is promising, but prior studies used clinician-collected or biopsy specimens and were prone to verification bias, leaving unclear whether methylation testing performs comparably on self-collected swabs.

Methods: In the randomised PAC Self-Swab Study, 240 sexual and gender minority adults at elevated risk were assigned to self-collection ($n = 120$) or clinician collection ($n = 120$) at baseline and 12 months. All participants underwent HRA-guided biopsy at 12 months regardless of interim results. Specimens were assessed for DNA yield and quality, and tested with the S5 methylation classifier (EPB41L3, HPV16/18/31/33 late-region methylation). S5 changes were evaluated against longitudinal HR-HPV status and diagnostic accuracy against biopsy-confirmed HSIL.

Results: DNA concentration and Genomic Quality Score were comparable between arms. S5 scores rose significantly with incident HR-HPV infection (median 1.245 to 3.240; $P = 0.002$) but not with persistence or clearance, suggesting S5 may capture methylation changes tied to incident infection. Against biopsy-confirmed HSIL ($n = 133$), S5 achieved an AUC of 0.757 (95% CI 0.653-0.862), with comparable performance in self-collected (0.758) and clinician-collected (0.796) arms, and stronger discrimination in HIV-positive participants. At a threshold of 5.0, S5 triage would spare 82% of individuals from HRA referral while maintaining 85.5% NPV.

Conclusions: Home self-collected anal swabs support S5 testing with performance comparable to clinician collection, and S5 responds to incident HPV infection. These findings support evaluating self-collection with S5 triage as a scalable screening strategy.

41. Comparative anal pap screening eligibility in HIV versus non-HIV patients at a US Academic Medical Center

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Background: The IANS consensus guidelines for anal cancer screening include multiple non-HIV populations in Risk Category A and Category B populations.[1] People living with HIV are one of the most heavily targeted demographics for anal cancer screening, with many HIV providers simultaneously serving as HRA practitioners. However, only limited information is available regarding the comparative aggregate need for anal cancer screening in HIV versus non-HIV populations.

Methods: A retrospective analysis was performed on EMR data at a large tertiary academic medical center in southern California (n = 2,844,841 patients), in order to assess comparative prevalence of anal cancer screening eligibility across Risk Category populations. Eligibility was defined according to the International Anal Neoplasia Society's consensus guidelines. Epic SlicerDicer was used to obtain patient demographics and eligibility, using ICD-codes for each IANS-defined condition. Start date was January 2013, corresponding to the earliest date of Epic EMR integration into the medical center system.

Results: A total of n = 3607 patients living with HIV and n = 3809 non-HIV patients were defined as potentially eligible for anal cancer screening, according to IANS Category A Risk (Table 1). A total of n = 2905 patients were defined as potentially eligible for anal cancer screening, according to Category B Risk. Transplant populations in Category A (n = 3502) had a relatively similar aggregate eligibility for anal cancer screening, in comparison to patients living with HIV (n = 3607). Additionally, certain Category B subgroups showed higher aggregate eligibility than Category A groups. As one example, Category B patients on immunosuppression (n = 1505) showed a larger aggregate eligibility than subgroups frequently referred for HRA, including younger men with HIV and transgender patients (n = 444). Female patients with gynecologic conditions (n = 1349) also had a higher aggregate eligibility for HRA, in comparison to younger men and transgender patients. Limitations include poorly defined EMR designations for certain eligible populations, including men who have sex with men, gender-nonbinary patients, patients with remote transplants, patients on specific immunomodulatory therapy, and patients with discrete HPV subtypes (e.g. HPV 16).

Table 1. Eligibility for anal cancer screening across IANS risk subgroups.

Category A			
Patients living with HIV	n = 3208 All > = 45yo	n = 389 Men 35–44yo	n = 10 M-to-F 35–44yo
Non-HIV patients	n = 262 Vulvar dysplasia/cancer	n = 3502 Transplant history	n = 45 M-to-F >=45yo
Category B: >=45yo			
Cervical dysplasia	n = 647 Cervical cancer	n = 440 Moderate dysplasia	
Genital warts	n = 165 Perianal warts	n = 148 Anal warts	
Immunosuppression	n = 264 Longterm steroids	n = 206 Immunomodulators	n = 1035 Immunodeficiencies

Conclusions: This data suggests that a higher aggregate degree of anal cancer screening eligibility is present in non-HIV populations, in comparison to HIV populations. Subgroups of particular note include female patients,[2] post-transplant patients,[3–6] and chronic autoimmune or rheumatologic conditions requiring high-dose immunosuppression.[7,8] Further studies should explore comparative numbers of those actually referred and screened for anal cancer, in HIV versus non-HIV populations. Quality improvement interventions can help to recruit eligible non-HIV patients for further care, and provider education can help to disseminate Category A indications for referral, as well as Category B indications for shared-decision making.

42. Delivering a high-resolution anoscopy (HRA) service based on IANS recommendations

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Background: Recent International Anal Neoplasia Society (IANS) guidelines recommend anal cancer screening and HRA for select groups at increased risk of anal cancer.

Methods: We used South Metropolitan Area Health Service (SMAHS) service data, published literature, cancer registry data and population estimates to calculate expected impact of implementing the IANS guidelines on service delivery at our sexual health service.

Results: 613 HIV positive people access HIV care at SMAHS with 366 aged 45 years+. Approximately 35% (n = 128) will require HRA based on prevalent high risk HPV 16 estimates. As the SMAHS HIV database does not collect data on sexuality, we used this more conservative estimate and excluded MSM between 35 and 45 from this calculation. In addition, there are four HIV positive transwomen aged more than 35 years. There are approximately 1459 to 2400 gay and bisexual men aged over 45 years in the SMAHS catchment of whom 189 to 312 would require HRA plus 11 to 17 women with vulva cancer and 7 with VIN3, and approximately 30 new heart and lung transplant recipients and 40–50 new renal transplants per year of whom 357 currently qualify for HRA.

Conclusions: Between 700 and 900 people would qualify for HRA using the IANS guidelines in the SMAHS catchment area. These numbers far exceed our current capacity of 135 HRAs annually.
We recognise an urgent need to train additional high resolution anoscopists and to fund HRA services.

43. Detection of high-grade anal dysplasia by host-cell methylation markers in anal swabs

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Background: Host-cell methylation markers are promising tools for optimizing non-invasive diagnostics to detect anal high-grade squamous intraepithelial lesions (HSIL). Screening is recommended in several countries; however, the capacity of high-resolution anoscopy (HRA) as the diagnostic gold standard is limited. Pre-selection of the target populations prior to HRA is warranted. In this study, we assessed methylation markers in anal swabs to detect histologically confirmed HSIL (hHSIL).

Methods: Men who have sex with men living with HIV undergoing HRA were recruited, and anal swabs were obtained for non-invasive markers, including methylation analysis (ASCL1/ZNF582). Abnormal findings during HRA were biopsied, and the highest grade of dysplasia was used as a reference to calculate diagnostic performance. This abstract comprises a preliminary analysis of samples with completed methylation analysis (268/398).

Results: Two hundred sixty-eight anal swabs with 417 corresponding histological samples were included. ZNF582 achieved an area under the curve (AUC) of 0.60 (95%CI 0.53–0.69), and ASCL1 an AUC of 0.63 (95%CI 0.57–0.70) for detecting hHSIL. The optimal sensitivity and specificity of ZNF538 and ASCL1 in swabs to detect hHSIL were 81.8% and 37.0%, and 84.0% and 39.5%, respectively.

Conclusions: While methylation markers ZNF538 and ASCL1 in anal swabs correspond to anal disease, the test performance for hHSIL was suboptimal in this preliminary analysis. The final results of this study will further explore the interplay between methylation, conventional non-invasive diagnostics (cytology, HPV-typing, E6/E7-mRNA) and anal disease.

44. Development of a comprehensive anal cancer screening and prevention clinical decision support tool at Kaiser Permanente Northern California

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Background: Despite growing evidence supporting anal cancer screening (ACS) among high-risk groups, implementation remains inconsistent due to complex eligibility criteria, result interpretation, and follow-up pathways. A standardized decision support tool is needed to reduce practice variation and improve care delivery.

Methods: A multidisciplinary team at Kaiser Permanente Northern California (KPNC) developed a web-based ACS Clinical Decision Support Tool to guide providers through three clinical domains: (1) screening eligibility; (2) screening result interpretation – distinguishing patients requiring HRA referral from those appropriate for continued or intensified screening; and (3) HRA findings management. The algorithm incorporated current evidence-based guidelines, internal KPNC data, and expert consensus.

Results: Three provider-facing decision pathways address screening eligibility, co-test result interpretation, and HRA findings management (Fig. 1). The eligibility pathway evaluates four high-risk criteria – HIV status, solid-organ transplant, vulvar HSIL or cancer, and MSM or transgender female identity – each with age- or time-based thresholds. The result interpretation pathway integrates HPV strain risk, cytology, prior AIN 2/3 history, immunosuppression, and HRA history to direct patients to HRA referral, intensified co-testing at 12–24 month intervals, or routine screening. A novel intermediate surveillance tier is introduced for patients not meeting HRA referral thresholds but requiring more intensive monitoring than routine screening. The HRA findings pathway guides biopsy interpretation, treatment recommendations, surveillance, de-escalation to routine screening, and oncology referral.

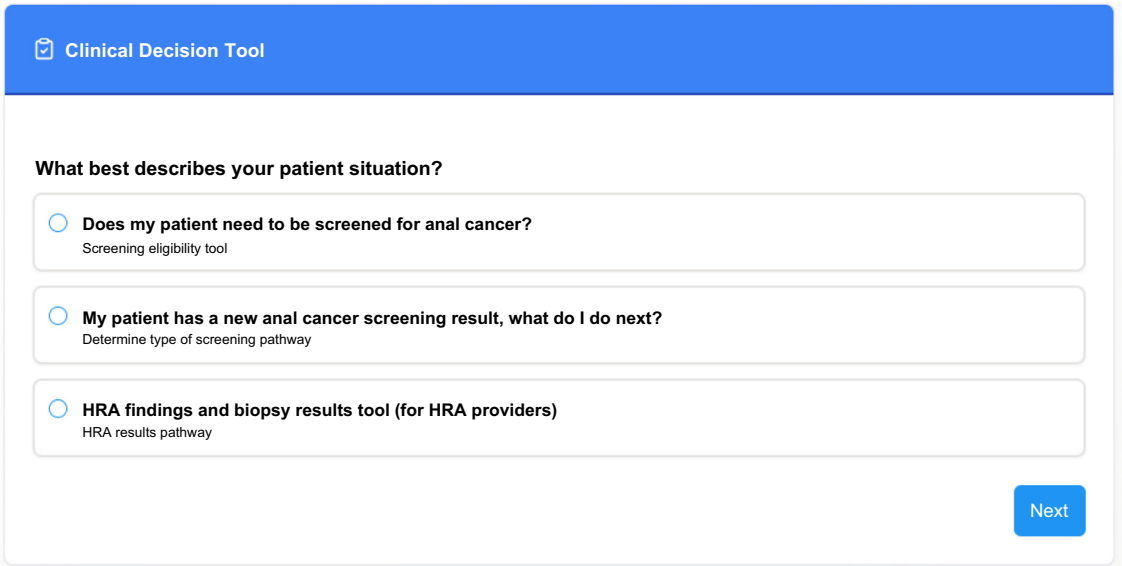

Fig. 1. Entry screen of the KPNC ACS Clinical Decision Support Tool.

Conclusions: This tool offers a practical, scalable approach to standardizing anal cancer screening within a large integrated health system. Prospective evaluation of clinical impact is planned.

45. Development of a locally-adapted tool for implementation of anal cancer screening in primary care

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Background: We developed a learning tool to facilitate adoption of anal cancer screening guidance for people living with HIV (PLHIV) within primary care in Ontario, the province with the largest population of PLHIV in Canada.

Methods: As part of the Anal CanCer Equity in Screening Services (ACCESS) Study, we used an interest-holder-informed approach. We developed an online prototype that walks users through the steps needed for screening practice with guidance from: (1) a Topic Expert Group comprised of four clinicians (primary care physicians in Ontario and experts in anal cancer screening, diagnosis, and treatment); and (2) eight PLHIV. Two international experts reviewed the content. We also conducted one-on-one usability sessions with target end-users (five clinicians, three PLHIV).

Results: Interest-holders attended three sessions to identify resource needs, reviewed drafts and provided feedback on language and clarity on screening procedures. The resulting tool allows the user to click through learning material covering: what, why, when and how to screen; high-resolution anoscopy; conversations on engaging patients in screening; recommended practices on how to screen; referral and follow-up

recommendations; and additional resources. It includes simplified text and visual summaries of the guidelines and their evidence base, with links to other resources including the IANS toolkit and videos.

Conclusions: The tool may overcome previously-identified implementation barriers in Ontario: lack of guideline awareness; skills-building on screening procedures; how to put the guidelines into practice locally and offer screening. Next steps include evaluating the impact and usability of the tool for anal cancer screening practices.

46. Discordance between anal cytology and HRA-guided histology in women with HIV

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Background: Women with HIV (WWH) remain underrepresented in anal cancer screening programs despite elevated risk. Screening strategies still rely heavily on anal cytology, extrapolated from cervical models. We evaluated the ability of anal cytology to predict histologic anal dysplasia in WWH.

Methods: We conducted a retrospective cohort study of WWH in Miami, Florida (2016–2026) undergoing high-resolution anoscopy (HRA) with concurrent anal cytology and biopsy results. Agreement between cytology and histology was assessed using kappa statistics.

Results: A total of 453 women were identified. Median age was 53 years, 45.7% Non-Hispanic Black, 23.6 % Haitian, and 26.0% Hispanic. Most were on combination antiretroviral therapy (cART) (93.4%), with 91.9% having CD4 >200/mm^3 and 90.2% virologically suppressed (<200 copies/mL). Anal cytology was abnormal in 92.7% of women (43.4% ASCUS, 40.1% LSIL, and 9.0% HSIL), and HRA-guided biopsy demonstrated a high burden of disease: 73.7% had biopsy-proven anal dysplasia (33.3% HSIL; 40.4% LSIL) (Table 1). Cytology demonstrated poor overall concordance with HRA histology (kappa = 0.265, 95% CI 0.184–0.348), with high sensitivity (95%) but low specificity (15%), positive predictive value 76%, and negative predictive value 54%. Cytology below the HSIL threshold demonstrated substantial underlying high-grade disease: 12.1% of negative, 20.3% of ASCUS, and 38.5% of LSIL cytology had HSIL on histology, while HSIL cytology (9.0%) showed 90.2% histologic concordance.

Table 1. Histologic outcomes by anal cytology category.

Cytology	No dysplasia	LSIL	HSIL	Total
Negative	18 (54.5%)	11 (33.3%)	4 (12.1%)	33
ASCUS	68 (34.5%)	89 (45.2%)	40 (20.3%)	197
LSIL	32 (17.6%)	80 (44.0%)	70 (38.5%)	182
HSIL	1 (2.4%)	3 (7.3%)	37 (90.2%)	41
Total	119	183	151	453

Abbreviations: ASCUS, atypical squamous cells of undetermined significance; LSIL, low-grade squamous intraepithelial lesion; HSIL, high-grade squamous intraepithelial lesion.

Conclusions: Anal cytology shows poor concordance and limited specificity compared with HRA-guided histology, with frequent under-detection of high-grade disease. These findings support reconsideration of cytology-based screening in high-risk populations.

47. Establishing High–Resolution Anoscopy (HRA) training capacity in the Philippines: outcomes of the first national hands–on workshop

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Background: High-resolution anoscopy (HRA) remains limited in Southeast Asia despite rising HPV-associated anal disease. Prior to 2026, no formal HRA training programs existed in the Philippines. On January 17, 2026, the Philippine Society of Colon and Rectal Surgeons conducted the country's first national HRA workshop to introduce structured training in anal dysplasia evaluation and HRA technique.

Methods: The hybrid workshop included 18 in-person and 10 online participants from 11 colorectal fellowship institutions. Morning didactics covered anorectal sexually transmitted infections, anal condyloma, diagnostic evaluation of anal dysplasia, and guideline updates in anal squamous cell carcinoma. The afternoon consisted of a 5-h hands-on practicum with five live patients, demonstrating anoscopic positioning, acetic acid application, lesion recognition, and biopsy targeting. Real-time HRA video was broadcast via Zoom. Post-event

evaluations assessed knowledge, confidence, skill acquisition, and intent to integrate HRA into practice. Patient characteristics are summarized in Table 1.

Table 1. Clinical characteristics of the five live patients included in the HRA hands-on workshop.

Age/gender	HIV status	Sexual history	Previous treatment
33 M	Negative	On PrEP; single partner (partner HIV status unknown)	6 cycles topical 5–FU
43 M	Positive (VL undetectable)	Single partner	None
26 M	Negative	Receptive anal intercourse; inconsistent condom use	4 cycles topical 5–FU
39 M	Positive (VL undetectable)	History of MSM; currently not sexually active	None
45 M	Positive (VL undetectable)	Single partner; prior multiple partners	None

Results: Participants reported increased confidence in identifying high-risk patients, recognizing HRA findings, selecting biopsy targets, and understanding treatment options for anal intraepithelial neoplasia. Feedback highlighted improved awareness, earlier detection capability, and incorporation of HRA into clinical practice. Barriers included equipment cost, limited trained manpower, and low institutional awareness. Several attendees expressed interest in further HRA training.

Conclusions: This inaugural workshop demonstrates strong national interest and feasibility in establishing HRA capacity in the Philippines. Concentrating early experience at equipped centers and expanding structured training may accelerate adoption of HRA and improve care for patients at risk for anal dysplasia.

48. Evaluating the financial, environmental impact and patient acceptability of a newly developed High-Resolution Anoscopy (HRA) service for surveillance of patients with Ano-genital Intraepithelial Neoplasia

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Background: HRA is the best method for surveillance of anal high grade squamous intraepithelial lesions, yet many UK centres rely on multiple biopsies under GA. Having set up the first Regional Anogenital Intraepithelial Neoplasia Service (RAINS) in Northwest England, this study reports the initial financial and environmental impact of RAINS, and patient acceptability of HRA.

Methods: Patients undergoing HRA May 2024–August 2025 were included. Clinical/demographic data, costs of HRA vs conventional mapping under GA were collected. CO^2 emission for GA was calculated using the destiva.app. Standard questionnaire was used for assessment of pain, overall satisfaction scores measured on a scale of 0 (not happy) to 10 (very happy) and willingness to undergo future HRA examinations.

Results: 92 patients were included (median age 56 years and F:M = 3:1). 89 completed the procedure and 19 women had multi-zonal assessment. Median pain score was 4.5, median satisfactory score was 10 and all interviewed participants expressed willingness to have repeat procedure if required. Compared to 624 mapping biopsies, 56 targeted biopsies were performed in HRA group (positive yield 71.4%) and there was significant cost saving in terms of equipment (£150.65 vs £50.36 per procedure). There was immediate reduction in carbon footprint as emission from GA of a dedicated proctology list was calculated to be 35 total CO^2 eq (kg).

Conclusions: HRA for diagnosis and surveillance of HPV related anogenital precancerous lesions is cost effective, sustainable and acceptable for patients. Longer-term follow up is required to ascertain its clinical efficacy.

49. From consultation to completion: pre-procedure visits and high-resolution anoscopy uptake

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Background: High-resolution anoscopy (HRA) is a specialized procedure with limited availability and low patient familiarity. Data describing conversion from referral to completed HRA are limited. At a large community gastroenterology practice, patients undergo a structured pre-procedure consultation prior to their first HRA. We evaluated HRA completion rates following this visit.

Methods: We conducted a single-center retrospective cohort study of patients who completed a dedicated pre-HRA consultation between January and December 2025. Demographics, HIV status, consultation date, and HRA completion date were extracted. The primary outcome was HRA completion following the pre-procedure visit. Time from consultation to procedure was analyzed using descriptive statistics.

Results: A total of 131 patients completed a pre-HRA consultation and were included. Of these, 126 completed HRA, yielding a completion rate of 96.1%. Mean time from consultation to procedure was 32.6 days (range 1–120). Forty-two percent of patients were living with HIV and 58% were not. Among the five patients who did not complete HRA, three were living with HIV.

Conclusions: In this community cohort, a structured pre-procedure consultation was associated with a 96% HRA completion rate. For a resource-intensive procedure with limited availability, minimizing failed scheduling and no-shows is critical. Individualized education on risk, screening guidelines, and procedural expectations may improve patient engagement and optimize utilization of HRA capacity. Pre-HRA consultations, including telehealth and advanced practice provider–led models, may represent a scalable strategy to improve access and procedural efficiency.

50. From guidelines to practice: early dissemination of the IANS anal cancer screening provider toolkit

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[20]Emory University, USA.

Background: Following the ANCHOR study, which showed the benefit of anal cancer screening, the International Anal Neoplasia Society (IANS) published consensus guidelines, yet uptake remains limited and resources to support implementation are needed. We assessed early global utilization and engagement with the IANS Provider Toolkit to support implementation of anal cancer screening guidelines.

Methods: The IANS Implementation Task Force developed an open-access Provider Toolkit with multilingual materials, including risk-based screening algorithms, instructional videos, FAQs, and patient education materials for diverse settings. Early dissemination was evaluated using website analytics (December 2025–May 2026), including unique users, page views, geographic distribution, and page views per user to quantify repeated access.

Results: The Toolkit recorded 1032 unique users and 2323 total page views from over 50 countries. Highest engagement was from the United States (744 users), followed by Brazil (35), Australia (30), the United Kingdom (29), and Canada (27). Analytics (Fig. 1) demonstrated a large launch-related spike (700–750 views), a smaller increase during a specialty conference activity (50-100 views/day) in late April, and overall, a steady baseline (10–50 views/day) engagement. The ratio of total page views to unique users was 2.25, reflecting multiple visits by some users.

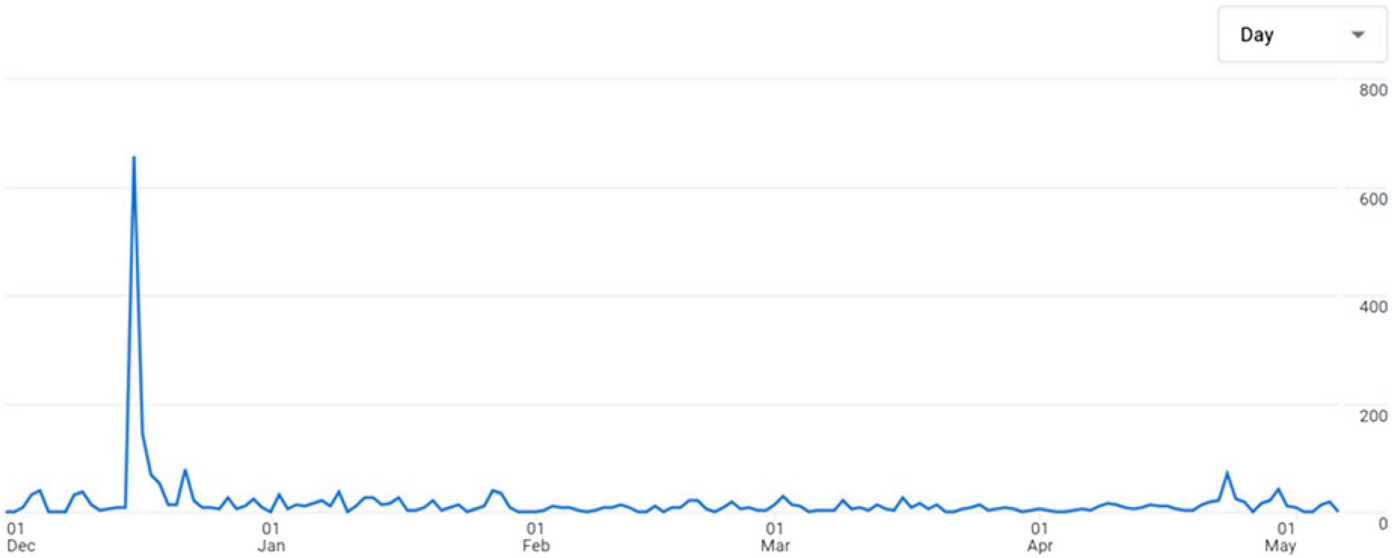

Fig. 1. IANS provider toolkit landing page engagement over time.

Conclusions: Early dissemination of the IANS Provider Toolkit demonstrated measurable international engagement and repeated use. By translating consensus guidelines into clinician-ready resources, the Toolkit may facilitate anal cancer screening, and multilingual availability supports scalability across diverse settings. Future studies are needed to assess its influence on clinical practice.

51. Health system and clinician needs for adoption of anal cancer screening in Ontario, Canada: a qualitative interview study

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Background: We explored barriers and facilitators to implementation of guideline-recommended anal precancer and cancer screening for people living with HIV according to the perspectives of clinicians, support staff, and health system decision-makers in Ontario, Canada.

Methods: The Anal CanCer Equity in Screening Services (ACCESS) Study used a qualitative descriptive design with key informant, semi-structured, virtual one-on-one interviews, guided by the Consolidated Framework for Implementation Research (CFIR) and the Theoretical Domains Framework (TDF). Eligible participants were professionals with experience in the provincial healthcare system involving the provision, administration, or management of services. We deductively and inductively analyzed transcripts to identify emergent themes.

Results: Twenty-eight healthcare professionals were interviewed between November 2024 and June 2025; 85% were clinicians (family and specialist physicians, nurse practitioners, nurses). The most consistently-mentioned barriers were: limited capacity for specialist services for confirmatory diagnosis and treatment using high resolution anoscopy (HRA); inadequate physician compensation for screening activities (notably HRA); lack of knowledge of the guidelines; and anticipation of low acceptance among patients. Common facilitators were: the credibility of the guidelines; opinion leaders; the consistency of screening with local priorities; and beliefs in the importance of early detection and motivation to implement screening.

Conclusions: Multi-level solutions to scale up anal cancer screening in our setting will need to overcome gaps in guideline awareness, capacity, and equity by adapting guidelines for the local context, expanding availability of HRA specialists, and securing sustainable policy and funding. Organizational enablers – aligned programs, champions, and adaptable infrastructure – will be essential for sustainability.

52. Implementation and outcomes of a high-resolution anoscopy program in an inner-city HIV clinic

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Background: Individuals living with HIV are at increased risk for anal dysplasia and progression to high-grade squamous intraepithelial lesions (HSIL), a precursor to anal cancer. Access to high-resolution anoscopy (HRA) remains limited in many high-prevalence urban settings. This study evaluated the outcomes of an HRA screening program embedded within an inner-city HIV clinic.

Methods: A retrospective chart review was conducted of patients referred for high-resolution anoscopy (HRA) between August 1 2021, and December 11 2025, at a high-volume HIV clinic in Baltimore, where procedures were performed by three anoscopists. Data collected included the number of HRAs performed, histopathologic findings, and treatment rates among patients diagnosed with high-grade squamous intraepithelial lesions (HSIL). Descriptive statistics were used for data analysis.

Results: A total of 221 HRAs were performed during the study period (Table 1). Among 49 (22%) patients with HSIL, 34 (69%) underwent treatment, including ablation and excision, either at the outpatient clinic or via referral to colorectal surgery. Among untreated patients, identified barriers included loss to follow-up, scheduling challenges, patient preference, and insurance limitations.

Table 1. HRA findings and HSIL outcomes.

Category	*N* (%)
Total HRAs	221
Findings	
Normal	35 (16%)
LSIL	137 (62%)
HSIL	49 (22%)
HSIL outcomes	
Treated	34 (69%)
Not treated	15 (31%)
Barriers to treatment[A]	
Loss to follow up	9 (60%)
Scheduling barrier	6 (40%)
Patient preference	1 (0.07%)
Insurance limitations	6 (40%)

[A]Certain patients had more than one barrier to treatment.

Conclusions: The program identified a substantial burden of HSIL in a high-risk urban HIV population. Comprehensive evaluation with HRA highlighted the complexity of screening and diagnostic strategies in this population. While HRA was effective in identifying HSIL and facilitating treatment in many cases, gaps in treatment completion persisted, reflecting both systemic and patient-level barriers. Expanding access to HRA and improving linkage to care are essential to optimize outcomes and reduce anal cancer risk in underserved populations.

53. Implementation of an institutional anal cancer screening protocol

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Background: Comprehensive anal cancer screening guidelines were released by the International Anal Neoplasia Society (IANS) for high-risk populations.[1] Clinical decision support tools (CDST) in the electronic medical record (EMR) have been shown to improve adherence to preventive health guidelines.[2,3] We sought to harness the EMR to implement an institutional anal cancer screening protocol.

Methods: Stakeholders in Information Services, Cytopathology, and specialties that care for patients at increased risk of anal cancer were identified. We created an updated anal cytology order, implemented a CDST called an OurPractice Advisory (OPA), and added anal cancer screening to Health Maintenance in the EMR. We built a report to perform quality control of the OPA, test volume, and screening results. Education was provided, and educational material was linked in the order and OPA.

Results: We conducted 12 educational sessions with different provider groups. In 1 month, the OPA fired 2185 times for 1288 patients, with a true positive rate of 68%. The true positives increased to 90% following refinement of firing criteria (Table 1). An average of 38 anal cytology tests per month from 3 different clinic locations were performed before this screening initiative, compared to 51 per month from 10 locations after implementation. Of 124 tests performed with the new order, 56 were abnormal (45%; 2 high-grade, 30 low-grade, 24 atypical squamous cells of undetermined significance), 53 normal, and 15 non-diagnostic. 100% of abnormal results were appropriately triaged by the performing provider.

Table 1. Clinical decision support tool (CDST) firing criteria. When the person entering the patient chart is in an outpatient context, these criteria within the patient medical record trigger activation of a CDST.

	Initial OPA	Revised OPA	Reason for revision
Criteria	No anal cytology in the past year	No anal cytology in the past year	
	Age 35+ **AND**	Age 35+ **AND**	
	- HIV+ **AND**	- HIV+ **AND**	
	- MSM/TW	- MSM/TW	
	Age 45+ **AND**	Age 45+ **AND**	
	- MSM/TW **OR**	- MSM/TW **OR**	
	- HIV+ male without male sexual partners **OR**	- HIV+ male without male sexual partners **OR**	
	- HIV+ female	- HIV+ female	
	Age 45+ **AND**	Age 45+ **AND**	Excluded patients not currently on immunosuppression
	- Immunosuppression for >10 years **OR**	- Immunosuppression for >10 years **AND** currently active **OR**	
	- Perianal warts **OR**	- Perianal warts **OR**	Updated to include only squamous cell carcinoma
	- Vaginal or cervical HSIL or cancer	- Vaginal or cervical HSIL or squamous cell carcinoma	
	History of transplant >10 years ago	Age 18+ **AND** current immunosuppression for >10 years	Excluded transplant patients that lost a graft
	History of vulvar cancer **OR** vulvar HSIL	History of vulvar squamous cell carcinoma **OR** vulvar HSIL	Updated to include only squamous cell carcinoma
True Positive Firing Rate*	68%	90%	

*Defined as firing for a patient, and the patient correctly meeting screening criteria. MSM = men who have sex with men; TW = transgender women; HSIL = high grade squamous intraepithelial lesion.

Conclusions: Implementation of an institutional anal cancer screening protocol is feasible through a multi-faceted approach.

54. Independent clinical predictors of HSIL in patients undergoing high-resolution anoscopy

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Background: Anal cancer is predominantly driven by high-risk HPV; HPV-16 causes over 80% of cases. People living with HIV (PLWH) bear the greatest burden. High-grade squamous intraepithelial lesions (HSIL) are the direct cancer precursor; high-resolution anoscopy (HRA) is the detection gold standard. HSIL treatment cuts anal cancer incidence by 57%. HRA access in Mexico is limited and regional HSIL predictor data are scarce.

Methods: Cross-sectional retrospective study of adults with HIV undergoing HRA at a Mexico referral clinic (January–April 2026); 98 of 99 enrolled patients with completed biopsies were analysed. Variables collected:

- Sociodemographic and clinical: age, sex, smoking, STI and condyloma history.
- HIV parameters: CD4 count, viral load, time since diagnosis.
- Virological: HPV genotyping (types 16, 18, 31, 45; pools 33/58, 56/59/66, 35/39/68).
- HRA: lesion extension as proportion of anal circumference.

Primary outcome: biopsy result (HSIL/LSIL/no neoplasia/inflammation). Fisher exact and Mann–Whitney U tests; variables with $P < 0.20$ entered binary logistic regression (adjusted OR, 95% CI; SPSS).

Results: Cohort: 99% cisgender male, median age 38.5 years, median CD4 500 cells/μL. HSIL: 29.6%; LSIL: 41.8%; no neoplasia: 19.4%; other: 9.2%. HPV-16: 69.0% HSIL vs 33.3% non-HSIL (Table 1). Lesion extension >50%: 79.3% HSIL vs 8.7% non-HSIL. Multivariable regression confirmed lesion extension >50% ($P < 0.001$) and HPV-16 ($P = 0.011$) as independent predictors (McFadden $R^2 = 0.516$).

Table 1. Clinical and virological characteristics by HSIL status.

Variable	HSIL ($n = 29$)	Non-HSIL ($n = 69$)
Median age (years)	40	37
Male sex at birth	28/29 (96.6%)	69/69 (100%)
Active smoker	10/29 (34.5%)	30/69 (43.5%)
Recreational drug use	11/29 (37.9%)	20/69 (29.0%)
History of STI	16/29 (55.2%)	46/69 (66.7%)
History of anal condyloma	10/29 (34.5%)	25/69 (36.2%)
HPV-16 detected	20/29 (69.0%)**	23/69 (33.3%)
HPV-18 detected	6/29 (20.7%)	4/69 (5.8%)
Lesion extension >50%	23/29 (79.3%)***	6/69 (8.7%)
Median CD4 count (cells/μL)	491	508

Data are presented as median values or number (percentage). Non-HSIL includes low-grade squamous intraepithelial lesions (LSIL), no neoplastic findings, and other diagnoses. *$P < 0.05$; **$P < 0.01$; ***$P < 0.001$.

Conclusions: HPV-16 and lesion extension >50% independently predict HSIL in PLWH undergoing HRA. The 29.6% HSIL prevalence highlights urgent screening need in Mexico. These predictors support risk-stratified HRA referral in resource-limited settings and inform a national screening algorithm.

55. Lesion extent during high-resolution anoscopy and histologically confirmed anal HSIL in a Mexican referral population

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[2]UMC Amsterdam.
[3]University of Michigan Medical School.
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[5]Universidad Autónoma de Zacatecas.

Background: Morphological assessment during high-resolution anoscopy (HRA) guides targeted biopsy, but interpretation is operator-dependent. Lesion extent documented by anal octants may provide a simple additional descriptor for identifying high-grade squamous intraepithelial lesions (HSIL). We evaluated the association between lesion extent ≥50% and histologically confirmed anal HSIL and assessed its diagnostic performance in a Mexican referral population

Methods: This single-center, retrospective, cross-sectional study analyzed consecutive adult men undergoing HRA and directed biopsy at Hospital General Dr. Fernando Quiroz Gutiérrez, Mexico City, using records from February–June 2026. Eligibility required a suspicious lesion, documented extent, and an interpretable histopathological result. Patients with prior or current invasive anal cancer, recent treatment at the evaluated site, or incomplete records were excluded. Lesion extent was classified as ≥50% when four or more of eight documented anal octants were involved, and <50% otherwise. Histopathology was categorized as HSIL or non-HSIL, comprising low-grade lesions and negative findings. Bivariate analyses assessed lesion extent, age, previous anal condyloma, and lifetime sexual partners. A parsimonious binary logistic regression model included lesion extent and ≥10 versus <10 lifetime sexual partners. HIV status was excluded because of minimal variability. Diagnostic performance was evaluated against histopathology.

Results: Among 99 patients, mean age was 39.6 ± 11.2 years; 98 (99.0%) were living with HIV, 40 (40.4%) had previous anal condyloma, and 82 (82.8%) reported ≥10 lifetime sexual partners. Histopathology showed HSIL in 29 (29.3%), low-grade lesions in 41 (41.4%), and negative findings in 29 (29.3%). Extent ≥50% was documented in 30 patients. HSIL was detected in 23/30 (76.7%) patients with extent ≥50% versus 6/69 (8.7%) with extent <50% (unadjusted odds ratio [OR] 34.5; 95% confidence interval [CI] 10.49–113.45; $P < 0.001$, Fig. 1)). Sensitivity was 79.3%, specificity 90.0%, positive predictive value 76.7%, negative predictive value 91.3%, and accuracy 86.9%; the area under the receiver operating characteristic curve for the binary extent marker was 0.847. After adjustment for lifetime sexual partners, extent ≥50% remained associated with HSIL (adjusted OR 29.9; 95% CI 9.0–99.7; $P < 0.001$). The association with ≥10 partners did not remain statistically significant (adjusted OR 3.54; 95% CI 0.33–37.9; $P = 0.29$). Age and previous condyloma were not significantly associated with HSIL in bivariate analyses.

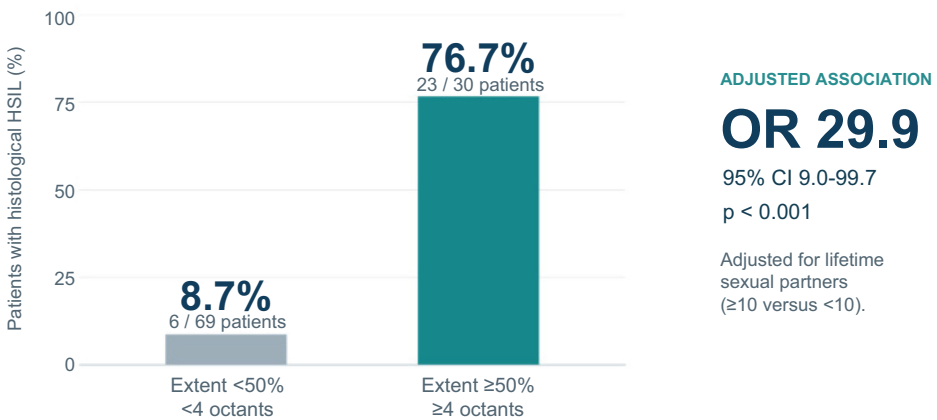

Fig. 1. HSIL by anal lesion extent ($n = 99$).

Conclusions: In this predominantly HIV-positive male referral population, involvement of at least four anal octants was strongly associated with histologically confirmed HSIL after adjustment for lifetime sexual partners. Recording lesion extent may complement morphological assessment during HRA but does not replace biopsy or exclude HSIL in less extensive lesions. The single-center design, selected population, limited adjustment, and wide confidence interval constrain generalizability. External validation and assessment of interobserver agreement and incremental biopsy yield are needed before routine clinical application as a predictive marker.

56. Methylation markers to support objective anal cancer screening: training and validation of a genome-wide discovery-derived multiplex PCR-test on anal swabs

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Background: Screening and treatment of anal cancer precursors, high-grade squamous intraepithelial lesions (HSIL_AIN2/3), can prevent anal cancer. Current guidelines recommend anal swab-based screening and emphasize the need for objective biomarkers to improve risk stratification. By genome-wide methylation profiling on anal swabs of men who have sex with men living with HIV(MSMLWH) undergoing anal cancer screening, we identified a novel 3-gene methylation classifier for detection of HSIL_AIN3 and anal cancer. This study aimed to train and validate a newly developed multiplex PCR-based test targeting these 3 methylation biomarkers and a reference gene.

Methods: A cross-sectional series of 97 anal swabs, 84 of MSMLWH participating in screening and 13 of anal cancer patients, were analyzed using the multiplex methylation test. Data were analyzed by ordinal regression analysis and leave-one-out cross validation (LOOCV) using histology endpoints. Test validation on an independent series of anal swabs is ongoing.

Results: Methylation test scores in anal swabs increased with severity of underlying histological disease. In the training series, an AUC of 0.80 and LOOCV-AUC of 0.76 were obtained for detection of HSIL_AIN3 and anal cancer. All anal cancers were detected at 70% specificity. Independent validation results will be presented.

Conclusions: The newly developed multiplex methylation test derived from anal swab-based methylation profiling shows good diagnostic potential for detecting underlying anal HSIL_AIN3 and anal cancer. Combined with high-risk HPV testing and/or cytology, the methylation test is expected to improve effective identification of patients needing referral for high resolution anoscopy and to enhance anal cancer screening.

57. Negative predictive value of a negative high-resolution anoscopy with concurrent negative hrHPV testing: a time-to-event analysis in a high-risk cohort

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Background: Minimal evidence exists to inform safe de-escalation to co-testing (hrHPV & cytology) after successful HRA-guided treatment of HSIL, straining access to limited HRA services. We aimed to define an evidence-based threshold for safe de-escalation in a high-risk cohort.

Methods: Participants for this retrospective study were identified from a single clinical site. Index HRA was defined as negative hrHPV with no evidence of HSIL on exam, pathology, or cytology; follow-up as a subsequent HRA. Time was calculated from first eligible index HRA to first event (hrHPV+ or HSIL) or last follow-up. Kaplan-Meier analysis estimated point NPVs with 95% CIs at 18, 24, 36, and 48 months for two outcomes: hrHPV positivity and HSIL (pathology or cytology). Log-rank tests compared NPV by HIV status, HSIL history, and vaccination status.

Results: 153 participants had index HRA: median age 58 years, 88% male, 71% PWH, 72% HPV-vaccinated, and 77% prior HSIL history. No hrHPV or HSIL events occurred within 18 months of a negative index HRA. hrHPV NPV was 96.5% (91.9–98.5%) at 24 months and 86.2% (78.3–91.4%) at 36 months. HSIL NPV was 99.3% (95.5–99.9%) at 24 months and 94.7% (87.4–97.9%) at 36 months (Table 1). NPV did not differ by prior HSIL history ($P = 0.238$), vaccination status ($P = 0.305$), or HIV status ($P = 0.320$).

Table 1. NPV estimates, Kaiser Permanente Northern California, Oakland Anal Dysplasia Clinic ($N = 153$, 460 PY follow-up).

Follow-up	*N* at Risk	hrHPV NPV (95% CI)	HSIL NPV (95% CI)
18 months	150	100% (—)	100% (—)
24 months	132	96.5% (91.9–98.5%)	99.3% (95.5–99.9%)
36 months	67	86.2% (78.3–91.4%)	94.7% (87.4–97.9%)
48 months	30	78.7% (67.7–86.4%)	91.9% (80.9–96.7%)

NPV, negative predictive value; PY, person-years. Maximum follow-up 6.6 years; no additional events beyond 48 months.

Conclusions: Negative HRA confers durable protection against hrHPV positivity and HSIL, regardless of prior HSIL history, HIV status, or vaccination status. Return to routine screening with an interval of at least 2 years appears safe. This approach could reduce follow-up burden on previously screen individuals with negative HRA, and in a setting of provider shortage, could free HRA capacity for the large population of unscreened high-risk individuals.

58. Not a follow-up problem: transgender women with HIV engage once connected

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Background: Limited data exist on transgender women's (TGW) engagement in anal cancer (CA) screening and treatment. Existing studies often include small numbers of TGW participants or combine their data with men who have sex with men (MSM). There are no published incidence rates specific to TGW living with HIV (LWH) for anal CA. Current guidelines and epidemiologic data classify TGW with HIV in the same high-risk category as MSM with HIV, recommending annual screening beginning at age 35.

Methods: We conducted a retrospective chart review of TGW LWH aged ≥35 years presenting for care at an FQHC in New York City during calendar year 2025. Data were collected and analyzed using internal data requests and the EPIC Slicer-Dicer tool. Patients were screened with anal cytology and high-risk human papillomavirus (hrHPV) co-testing. Those with abnormal cytology and/or positive hrHPV were referred for HRA. Patients with biopsy-confirmed anal intraepithelial neoplasia grade 2 or 3 (AIN2/AIN3, equivalent to high-grade squamous intraepithelial lesions [HSIL]) were referred for ablation treatment. Screening uptake, HRA completion, dysplasia detection, and treatment return rates were calculated and compared to clinic-wide averages.

Results: Of 4,453 patients LWH aged ≥35 years seen at an FQHC in 2025 who qualified for anal cancer screening, 11.0% (N = 492) were TGW. Among TGW, 24.8% (N = 122) were screened with anal cytology and hrHPV co-testing, compared to a clinic-wide screening rate of 33.3% (N = 1484). Among the 122 TGW screened, 57.4% (N = 70) had abnormal cytology with positive hrHPV and were referred for HRA. Of those referred, 61.4% (N = 43) completed HRA. Among those who underwent HRA, 27.9% (N = 12) were found to have biopsy-confirmed HSIL (AIN2/AIN3), compared to a clinic-wide dysplasia detection rate of 42%. Of the 12 TGW with HSIL, 75.0% (N = 9) returned for ablation treatment, compared to a clinic-wide treatment return rate of 40% (Fig. 1).

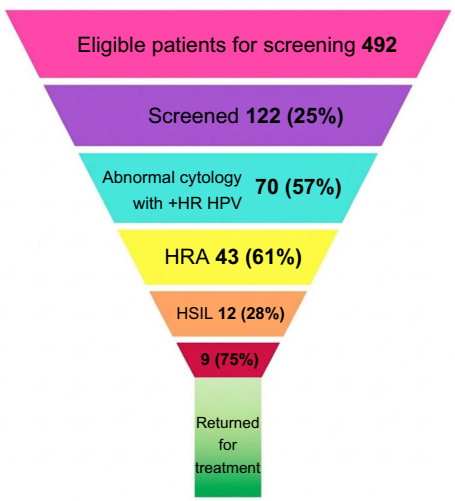

Fig. 1. Cascade of Care for TGW LWH in an Anal CA Screening Program.

Conclusions: TGW LWH represents a substantial proportion (11%) of the HIV-positive population eligible for anal CA screening at our center. The 25% screening rate among TGW, lower than the clinic-wide average of 33%, represents the most actionable finding and highlights a gap in screening engagement for this high-risk population. Notably, even at a large, LGBTQI-focused FQHC with an established anal cancer screening program, one of the highest-risk populations remains underscreened. However, the high treatment return rate of 75% suggests strong engagement once patients are connected to care. Targeted interventions to reduce barriers and improve initial screening uptake among TGW may significantly reduce disparities in anal CA prevention in this population.

59. Performance of HSIL, ASC-H, and LSIL-H in anal cancer screening

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Background: Anal cancer screening and prevention programs are increasingly being implemented worldwide, with cytology serving as the primary screening modality. In this study, we compared the screening performance of three commonly used high-grade cytologic diagnoses (HSIL, ASC-H < And LSIL-H) to help guide subsequent clinical management.

Methods: The anal dysplasia clinic database was reviewed for the period 2022–2024 to identify patients with cytologic diagnosis of high-grade squamous intraepithelial lesion (HSIL), atypical squamous cells, cannot exclude HSIL (ASC-H), and LSIL cannot exclude HSIL (LSIL-H). Only patients who underwent high-resolution anoscopy (HRA)-guided biopsy within 3 months of cytology were included. High-risk HPV testing was performed on cytology samples using the Cobas® 4800 system, which detects HPV16, HPV18, and 12 other types.

Results: A total of 903 individuals met the inclusion criteria. Cytologic diagnoses were HSIL in 361 participants, LSIL-H in 244, and ASC-H in 298. The frequency of cytologic HSIL diagnoses steadily increased from 2022 to 2024. ASC-H diagnoses initially declined followed by an increase, while LSIL-H diagnoses showed the opposite trend. Histologic HSIL was identified on the first HRA in 90% in the HSIL group, significantly higher than ASC-H and LSIL-H (70% and 66%, $P < 0.001$, Table 1). Concurrent high-risk HPV and HPV16 positivity were observed in 96% and 48% of HSIL group, 86% and 37% of ASC-H group, and 94% and 31% of LSIL-H group, respectively.

Table 1. Histologic HSIL and high-risk HPV results following high-grade anal cytologic diagnoses.

Cytological diagnosis (n = 903)	HRA-guided biopsy proven HSIL	PPV (95% CI)	Positive for HPV16
Cytology HSIL (n = 361)	327	90% (87–93%)[A]	171 (48%)
ASC-H (n = 298)	209	70% (64–75%)	108 (37%)
LSIL-H (n = 244)	161	66% (59–71%)	74 (31%)

[A]The PPV of cHSIL for hHSIL was significantly higher than that of ASC-H and LSIL-H (both $P < 0.001$). There was no statistically significant difference between LSIL-H and ASC-H ($P > 0.05$).

Conclusions: All three high-grade cytologic categories (HSIL, ASC-H, and LSIL-H) demonstrated high predictive value for HPV16-associated histologic HSIL. Among them, HSIL showed the highest predictive performance, whereas LSIL-H and ASC-H exhibited substantial overlap. Given that LSIL-H is not a standard diagnostic category in the Bethesda system and provides limited discriminative value, its use should be discouraged to avoid redundancy and confusion in clinical management.

60. Personalised risk prediction after curative intent chemoradiotherapy for anal squamous cell carcinoma

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Background: Current staging guidelines lack precision in predicting outcomes following chemoradiotherapy (CRT) for anal squamous cell carcinoma (ASCC). Tumoral expression of *p16* has recently emerged as a potential prognostic biomarker, though it has yet to be integrated into existing staging criteria.

Objectives: To define the prognostic significance of *p16* expression in ASCC and integrate it with other significant parameters to generate a novel nomogram model to individually predict overall survival (OS), disease free survival (DFS), locoregional free survival (LRFS) and distant metastatic free survival (DMFS) for patients post CRT.

Methods: Patients who underwent CRT for ASCC at Peter MacCallum Cancer Centre from 1983–2023 were identified. Retrospective chart review was undertaken to collect relevant information. Multivariate Cox regression analysis identified independent prognostic factors to be integrated into prediction nomograms. Model calibration and internal validation were undertaken to assess for the nomogram's accuracy.

Results: 654 patients were included, with a median follow up of 57 months. Median survival was 169 months. Multivariate analyses identified the following prognostic variables were associated with all outcomes: age, sex, tumour stage, nodal status and *p16* status. *p16*-ve patients fared worse than p16 + ve patients on all outcome measures. Individualised risk nomograms were developed (OS and DFS, Fig. 1). Decision curve analysis demonstrated the nomograms had superior prognostic predictive accuracy to the American Joint Committee on Cancer (AJCC) system.

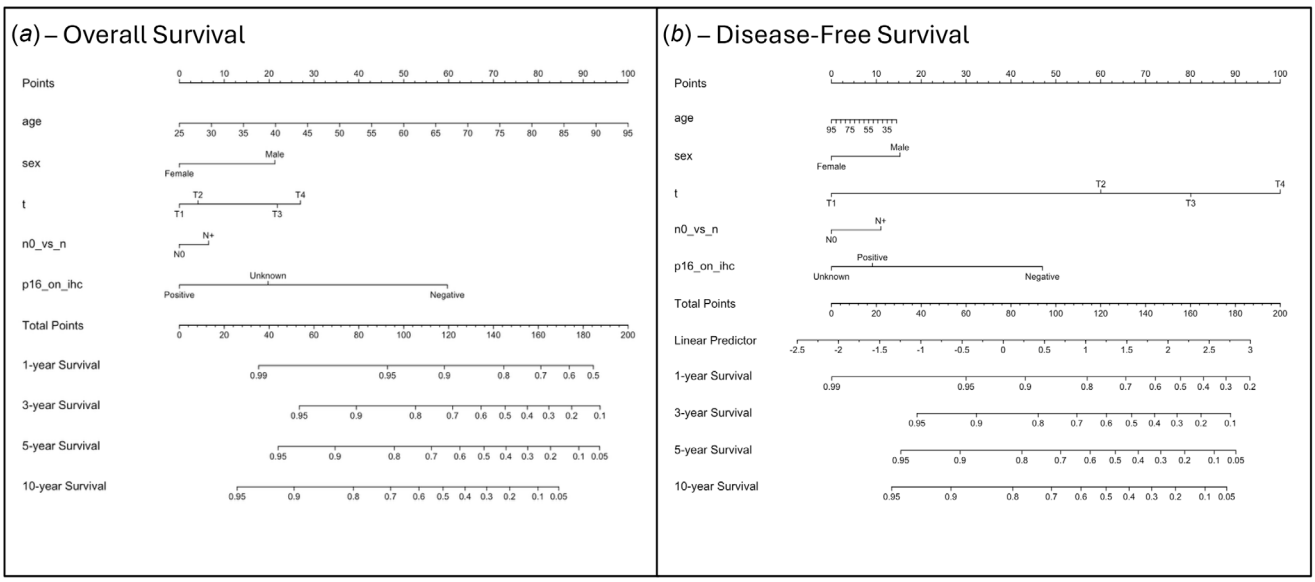

Fig. 1. Predictive nomograms for (*a*) overall survival (OS) and (*b*) disease free survival (DFS) for ASCC patients post CRT.

Conclusions: Integrating *p16* status into risk stratification models for ASCC greatly improves outcome prediction accuracy. The nomograms developed in this study are an invaluable clinical tool for personalised risk estimation.

61. Prevalence and distribution of high-risk HPV genotypes in people living with HIV at Instituto Nacional de Cancerología, México

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Background: The complex interplay between HIV and HPV necessitates a deep understanding of the HPV-related cancer burden in people living with HIV (PLWH) to integrate effective prevention strategies. However, data regarding anal high-risk HPV (hr-HPV) distribution remains limited in Latin American cohorts. Therefore, this study aims to describe the prevalence and distribution of hr-HPV genotypes in anal samples of patients managed at a tertiary care center in Mexico.

Methods: A retrospective study was conducted at the High-Resolution Anoscopy service of INCan between August 2025 and February 2026. PLWH with available anal hr-HPV polymerase chain reaction (PCR) results were included. Statistical analysis utilized descriptive statistics.

Results: Out of 321 patients, overall hr-HPV prevalence was 76.94% (n = 247; median: 2 genotypes, range 1–8). Stratified, prevalence was 79.92% in M (n = 274; median 2), 61.53% in F (n = 39; median 2), and 50.00% in MTF (n = 8; median 3) (Table 1). Cohort-wide, the most prevalent genotypes were HPV-68, 39, 16, and 56. Biopsy-confirmed high-grade squamous intraepithelial lesions (HSIL) were reported in 28.34% (n = 91) of the total cohort; among these HSIL cases, 90.10% (n = 82) were hr-HPV positive (median: 3 genotypes), with HPV-16, 31, 58, 52, and 56 being the most frequent.

Table 1. Summary of hr-HPV prevalence and most frequent genotypes by cohort characteristics.

Population group	*n* (%)	hr-HPV positive (%)	Most frequent genotypes
Total cohort	321 (100%)	247 (76.94%)	HPV-68, 39, 16, 56
Male (M)	274 (85.36%)	219 (79.92%)	HPV-68, 39, 16, 56
Female (F)	39 (12.15%)	24 (61.53%)	HPV-16, 31, 52
Male-to-Female (MTF)	8 (2.49%)	4 (50.00%)	HPV-16, 18, 51
HSIL subgroup	91 (28.34%)	82 (90.10%)	HPV-16, 31, 58, 52, 56

Conclusions: The prevalence of hr-HPV among PLWH at the INCan anoscopy service was high, with a notable presence of multi-genotype infections. Crucially, the most frequent genotypes in this population (HPV-68, 39, 16, and 56) differ from those described in the general population. However, in patients with biopsy-confirmed HSIL, HPV-16 remains the predominant genotype, followed closely by HPV-31, 58, 52, and 56.

62. Provider willingness to implement high-resolution anoscopy: key determinants across clinical speciality

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Background: The lack of trained HRA providers is a barrier to the widespread and equitable implementation of anal cancer screening in U.S. We applied Normalization Process Theory (NPT) to identify correlates of HRA implementation willingness among untrained providers from four specialities.

Methods: A cross-sectional survey was administered to 87 U.S.-licensed providers across four specialties (colorectal surgery, gynecology, gastroenterology, infectious disease; $n \approx 21$/group) who do not currently perform HRA. Measures included behavioral willingness to implement HRA, NPT constructs (coherence, legitimation, workability, individual appraisal), perceived facilitators and barriers, self-efficacy, and motivation. One-way ANOVAs examined specialty differences; multivariable regression identified independent correlates of willingness.

Results: Among 87 providers, only 32% were aware of anal cancer screening guidelines and HRA was available in 31% of practices. Overall, there were moderate beliefs related to implementation determinants (Fig. 1). Willingness to implement HRA was moderate-to-high ($M = 3.59$), while self-efficacy was lowest ($M = 3.02$) and the only determinant differing significantly by specialty ($P = 0.024$), with infectious disease providers reporting higher self-efficacy than OB/GYN ($P = 0.024$). A multivariable model explained 64% of variance in HRA willingness; NPT beliefs were the strongest independent correlate ($\beta = 0.56$, $P < 0.001$), followed by perceived facilitators ($\beta = 0.35$, $P < 0.001$). Qualitative analyses of open-ended responses identified five categories of barriers to HRA: scope of practice, time and workflow, cost and reimbursement, infrastructure, and patient factors.

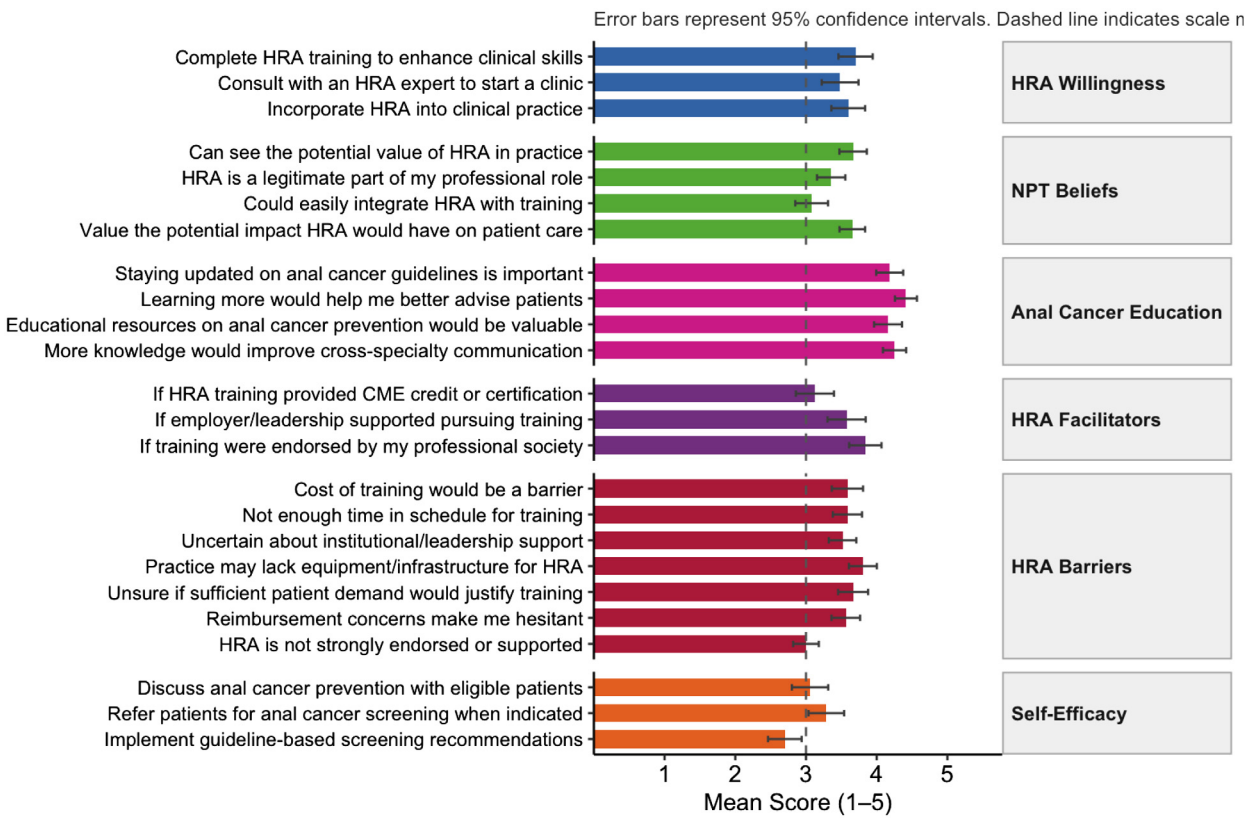

Fig. 1. Scale items from implementation survey. Higher values related to stronger endorsement of the stated item.

Conclusions: Interventions targeting NPT beliefs and structural facilitators offer the most promising pathway to increasing HRA implementation across specialties.

63. SAVE THE BOTTOMS!!! Results from 3 years performing on-site anal cancer screening at LGBTQ+ community events

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Background: Men who have sex with men (MSM) are at increased risk for anal cancer, yet screening rates remain low. We report 3 years of results from an onsite anal cancer screening program at an LGBTQ community event as well as results of follow-up HRA.

Methods: From 2023 to 2025, we performed anal cancer screening for MSM at a Pride festival in a midwestern US city. Anal swabs were obtained onsite for cytology/HPV via self or clinician collection (participant preference). Positive screens (abnormal cytology or high-risk HPV) were invited for HRA. Each year we increased visibility of our unit with improvement in the façade, development of a dedicated 'recruitment' team of LGBTQ+ community members, and pre-Pride educational outreach events.

Results: 351 screenings were performed over 3 years. Participants age 35+ increased with each year (43, 81, and 106 participants, respectively). A minority (18%) had previously discussed risk with a provider or underwent screening (15%). 85 participants (24%) screened positive (13 (2023), 39 (2024), 33 (2025)). The majority (90%) chose to self-swab with satisfactory results comparable to clinicians' performance in clinic (79%) (Table 1). 6 of 13 positive screens (46%) in 2023 underwent HRA; 3 had HSIL. 25 of 39 positive screens (66%) in 2024 underwent HRA, with 11 having HSIL. 18 of 33 (56%) in 2025 underwent HRA, with 8 having HSIL.

Table 1.

Characteristic	2023	2024	2025*	Cumulative (3 years)
Total screened	101	144	106	351
Age, mean (range)	39 (18–75)	40 (18–76)	49 (35–77)	43
Race: White	89 (89%)	122 (85%)	90 (86%)	301 (86%)
Cisgender male	85 (85%)	139 (97%)	101 (96%)	325 (93%)
Living with HIV	10 (10%)	12 (8%)	12 (11%)	34 (10%)
Previously discussed anal cancer with provider	–	18 (13%)	26 (25%)	44 (18%)
Prior anal cancer screen	–	15 (11%)	21 (20%)	36 (15%)
Self-collection (vs clinician collection)	99 (98%)	123 (85%)	94 (89%)	316 (90%)
Self-collection satisfactory for cytology	77 (78%)	104 (85%)	70 (74%)	251 (79%)
Positive screen	13 (13%)	39 (27%)	33 (31%)	80 (23%)
HRA follow-up completed	6 (46%)	25 (66%)	18 (56%)	49 (61%)
HSIL detected on HRA	3	11	8	22

Conclusions: On-site anal cancer screening at LGBTQ+ events shows feasibility, acceptability, and preliminary efficacy. Follow-up of positive screens is reasonable and mirror follow-up rates after clinic-based screening.

64. Targeted anal cancer screening in MSM: evidence gaps limiting UK policy

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Background: MSM living with HIV experience anal cancer incidence 40–50 times higher than the general population, yet the UK lacks an organised screening programme. In 2022, a proposal to introduce targeted screening for MSM was submitted to the UK National Screening Committee (UK NSC), which commissioned a formal evidence map to determine whether full evidence synthesis was warranted.

Methods: Searches were conducted across MEDLINE, Embase, Scopus, and Web of Science (2017–2025), supplemented by an international guidelines search. Evidence was mapped across four questions: guideline availability; test accuracy; acceptability; and harms and benefits. Of 472 de-duplicated references, 30 met inclusion criteria.

Results: Six guidelines were identified, including the IANS (2021) framework; recommendations varied widely and were largely consensus-based. Nine diagnostic accuracy studies found cytology sensitivity 74–100%, specificity 33–64% for AIN2+; hrHPV testing sensitivity 90–100%, specificity 36–58%. Co-testing improved sensitivity at the cost of increased HRA referral burden. Eleven acceptability studies reported generally high willingness to participate, though uptake was lower where barriers were not actively reduced. Three harms and benefits studies suggested potential cost-effectiveness in HIV-positive MSM but also risks of overtreatment and short-term psychological

harm following abnormal results. No UK-based studies met inclusion criteria. The UK NSC concluded that no further evidence synthesis should be commissioned.

Conclusions: Four barriers to UK implementation were identified: absence of trial evidence; an unresolved sensitivity/specificity trade-off generating substantial HRA referral burden; a lack of UK-specific data; and undefined management thresholds for screen-detected lesions. Progress in biomarker development and UK-specific implementation research will be essential for future policy consideration.

65. The ASSETS-NY coalition: leveraging a community-driven coalition to improve the anal cancer screening continuum in New York City

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Background: Now that ANCHOR has established aHSIL treatment efficacy, the task ahead has shifted from demonstrating clinical evidence to understanding how to implement screening effectively in real-world settings. Even where digital anorectal examination, anal cytology, and high-resolution anoscopy are available, provider adoption and patient uptake remain low.

Methods: In recognition that addressing low adoption and uptake requires cross-institutional coordination, over 50 stakeholders from more than 20 organizations in New York City recently formed the Anal Dysplasia Screening, Surveillance, Education, and Treatment Services Coalition of New York (ASSETS-NY). As participant-observers in ASSETS-NY, we plan to conduct a rapid, longitudinal ethnographic implementation science study using Community Coalition Action Theory, the COM-B Model, and the Core Functions and Forms paradigm. We aim to: (1) examine mechanisms of action and moderators through which the coalition enables change; (2) specify and catalog implementation strategies that arise organically among coalition members to improve screening; and (3) co-develop shared screening metrics and assess their feasibility and adoption.

Results: ASSETS-NY has identified four early priorities: closing referral gaps, addressing high-resolution anoscopy workforce shortages, reducing stigma, and strengthening data monitoring (Fig. 1). Study activities will produce pragmatic outputs: real-time feedback to improve coalition processes and enhance scalability; an online library that details community-driven implementation strategies to accelerate dissemination; and agreed-upon screening metrics to support decision-making within and across institutions.

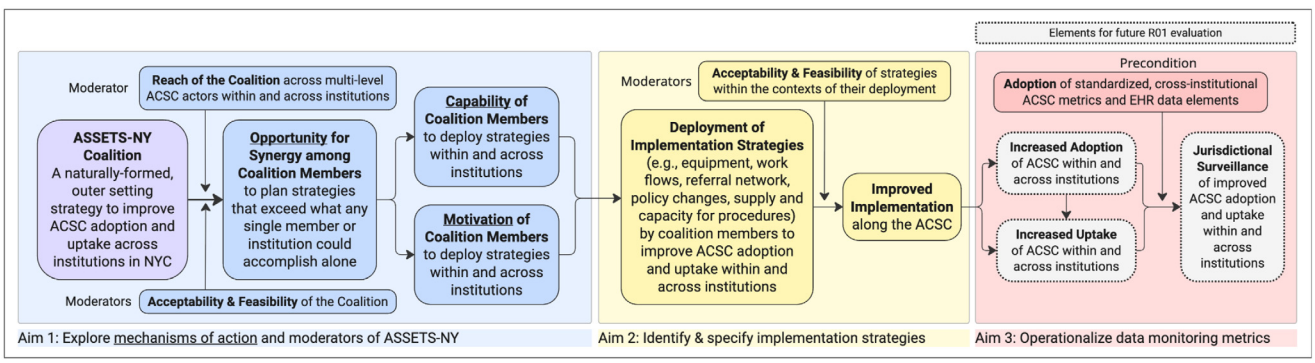

Fig. 1. Conceptual Model of evaluation of a community-driven coalition to improve the anal cancer screening Continuum (ACSC) in NYC.

Conclusions: By embedding implementation science methods within a community-driven coalition, the study will produce high-impact, generalizable knowledge for coordinated improvement of anal cancer screening, paving the way for replication in other jurisdictions.

66. Training and validation of the *ASCL1/ZNF582* methylation assay on anal swabs

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Background: Anal cancer develops through high-grade squamous intraepithelial lesions (HSIL/AIN2-3) and international guidelines recommend screening with anal swabs for at-risk populations. Current screening strategies based on cytology and/or high-risk HPV detection have limited ability to identify lesions with the highest risk of progression to cancer, creating a need for objective molecular triage biomarkers. Longitudinal data show that elevated *ZNF582* and *ASCL1* methylation levels in anal smears are associated with progression to anal cancer.[1] The aim of this study is to train and validate the *ZNF582/ASCL1* DNA methylation assay (PreCursor-M AnoGYN) for detection of HSIL_AIN3 and anal cancer (HSIL_AIN3 +) in anal swabs.

Methods: A cross-sectional series of 96 anal swabs, 83 of men who have sex with men living with HIV (MSMLWH) in screening and 13 of cancer patients, were tested with the PreCursor-M AnoGYN assay. Data were analyzed by ordinal regression analysis and leave-one-out cross validation (LOOCV) for HSIL_AIN3 + .

Results: In the training set an AUC of 0.73 and an LOOCV AUC of 0.69 was obtained for detection of HSIL_AIN3 + . The cancers had elevated methylation levels. HSIL_AIN3 + sensitivity was 66.7% at 70% specificity. Validation on independent series of anal swabs will be presented at the conference.

Conclusions: The *ZNF582/ASCL1* methylation assay demonstrates good clinical performance in anal swabs for histological HSIL_AIN3 + detection. The assay can support current screening strategies to better stratify for patients in need of HRA and treatment.

67. Training to prevent anal cancer: an anal cancer screening curriculum for gynecology providers

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Background: Although the rates of anal cancer incidence continue to increase, there remains a shortage of high-resolution anoscopy (HRA) providers. We sought to develop an anal cancer screening curriculum for Gynecology providers.

Methods: Six gynecologists and a public health researcher from six academic institutions developed a curriculum in anal cancer screening geared towards women's health providers. The group successfully authored an R25 grant to fund the development of the curriculum. Training modules were developed, including PowerPoint didactic presentations, an anal cancer screening game, and tactical anal cancer screening models for cytology and digital anal rectal exam. A primer of the curriculum was presented at multiple national professional society meetings. The audience was surveyed regarding anal cancer screening experience. A post-session evaluation of the presentation was provided to audience members, to assess their understanding and further interest in anal cancer screening.

Results: At the beginning of one of the presentations, 28% of audience members reported prior training in anal cancer screening. A total of 52 post-evaluations were returned. 100% of participants either agreed or strongly agreed that sessions were informative, while 98% reported increased understanding of the feasibility of incorporating anal cancer screening into practice. Ninety-six percent felt that the information was relevant to Ob/Gyn practice. The majority were interested in learning more about anal cancer screening and provided their information for further engagement.

Conclusions: Gynecology providers are interested in learning more about anal cancer screening. The 'Training to Prevent Anal Cancer' curriculum has the potential to train many gynecology providers.

68. Turning the tide: projected long-term impact of anal cancer screening among men who have sex with men with HIV

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[*]Presenting author.

Background: Anal cancer screening coverage remains low (~5% in the prior year) among people with HIV in the USA. We evaluated the long-term (through 2050) impact of increased screening coverage on anal cancer incidence among men who have sex with men (MSM) with HIV.

Methods: Using a validated mathematical model of anal cancer natural history, screening, and treatment among MSM with HIV, we projected long-term screening impact. We compared no screening versus three annual screening strategies: anal cytology alone, cytology with hrHPV triage, and cytology with HPV16 triage. Scale-up scenarios assumed coverage increasing from 2026 to 2030, reaching target levels of 25%, 50%, 75%, and 100% (Fig. 1).

Results: Without screening, projected anal cancer incidence was 85/100,000 (95% UI = 72–96). All strategies meaningfully reduced incidence, with greater reductions at higher coverage. Cytology with hrHPV triage and cytology alone yielded similar incidence reductions, but hrHPV triage substantially lowered HRA burden and false positives (e.g. at 75% coverage, cytology alone resulted in ~7 million cumulative HRAs and 4.4 million false positives versus 4.3 million HRAs and 2 million false positives with hrHPV triage). Cytology with HPV16 triage further reduced procedural burden, though with comparatively smaller incidence gains. Ongoing enhancements will incorporate HPV vaccination impact and identify the minimum coverage threshold needed to achieve the benefits of universal screening.

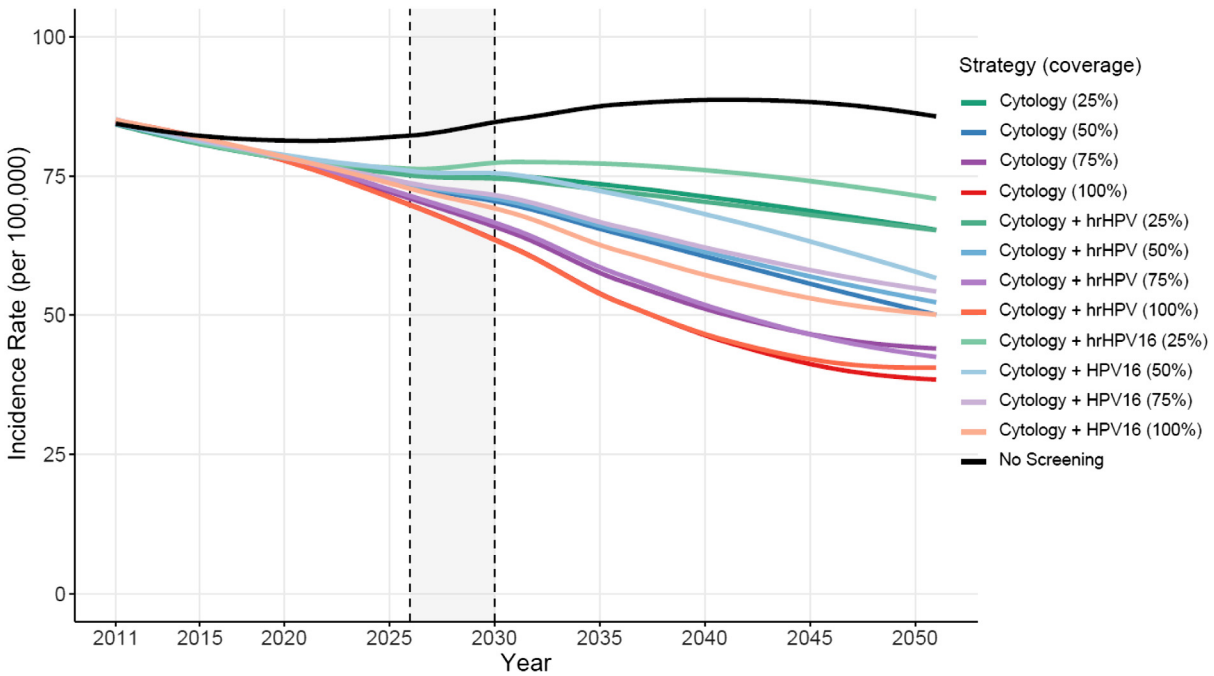

Fig. 1. Projected long-term impact of anal cancer screening scale-up scenarios among men who have sex with men with HIV. Incidence rates were age-adjusted to the 2010 US HIV population. Primary hrHPV testing and co-testing strategies were excluded based on prior cost-effectiveness analysis showing that these strategies were neither efficient nor cost-effective (*Ann Intern Med* 2025). *N* = Screening age-eligible current and future population size of MSM with HIV.

Conclusions: Increased screening uptake could substantially reduce anal cancer incidence among MSM with HIV, with cytology plus triage options offering the best balance of incidence reduction and procedural burden – underscoring the need to expand screening access.

69. What factors are associated with inadequate anal cytology or HPV testing?

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Background: Anal cytology (AC) with high-risk HPV (HR-HPV) co-testing is recommended for people at risk for anal cancer, including transgender women and cisgender men who have sex with men (MSM).[1] Current guidance for AC collection is based on expert opinion and recommend including clinician collection, and avoidance of douching or anal sex for 24 h.[2] This study evaluated factors associated with AC and HR-HPV specimen adequacy and cytologic outcomes.

Methods: A cohort of 100 transgender individuals (TGI) and 50 MSM was recruited from two community clinics in Baltimore, Maryland, and Washington, DC. Anal swabs were collected at baseline and 12 months, placed in ThinPrep media, and submitted for cytology and HPV co testing. Swabs were clinician or self-collected per patient preference following standardized instructions. Chi square or Fisher's exact tests assessed associations with specimen adequacy and cytologic abnormalities.

Results: Among 206 anal swabs, 192 (93%) were adequate for cytology: 50% normal, 37% ASCUS, 11% LSIL, and 1% HSIL/ASC-H. Living with HIV was associated with abnormal cytology (62% of those without HIV vs 41% of those with HIV had normal AC; $P = 0.01$). HPV16 testing was adequate in 196 (95%) samples and was significantly associated with adequate cytology (Table 1). Douching and method of collection were not associated with adequacy or abnormal results.

Table 1. Factors associated with adequate anal cytology and HPV16 testing.

	Anal cytology			Anal HPV16 testing		
	Adequate (*N* = 192)	Inadequate (*N* = 14)	*P*-value	Adequate (*N* = 196)	Inadequate (*N* = 10)	*P*-value
HPV16 testing						
Adequate	186 (94.9%)	10 (5.1)	0.002**			
Inadequate	6 (60%)	4 (40)				
Method of collection						
Clinician	133 (94.3%)	8 (5.7)	0.48	135 (95.7%)	6 (4.3%)	0.50
Self	57 (90.5%)	6 (9.5)		59 (93.7%)	4 (6.3%)	
Missing	2	0		2		
Anal sex in the last 6 months						
No	78 (94.0%)	5 (6.0)	0.90	79 (95.2%)	4 (4.8%)	1.00
Yes	111 (92.5%)	9 (7.5)		114 (95.0%)	6 (5.0%)	
Missing	3	0		3	0	
Douching in the last 6 months[A]						
No	26 (89.7%)	3 (10.3)	0.45	28 (96.6%)	1 (3.4%)	1.00
Yes	85 (93.4%)	6 (6.6)		86 (94.5%)	5 (5.5%)	
Douching in the last 24 h[B]						
No	62 (93.9%)	4 (6.1)	0.66	62 (93.9%)	4 (6.1%)	1.00
Yes	22 (91.7%)	2 (8.3)		23 (95.8%)	1 (4.2%)	
Missing	1	0		1	0	

TG, transgender; MSM, men who have sex with men.
[A]Among those who had anal sex.
[B]Among those who douched in the last 6 months.

Conclusions: In this cohort of TGI and MSM, douching and self-collection for AC were not associated with significant differences in specimen adequacy indicating these factors may not compromise cytologic quality. Further studies are warranted to better define determinants of adequate AC, particularly as screening is increasingly implemented and facilitation of access to is needed.

70. Widening the net: lessons from a single-centre anal HSIL screening programme in sydney

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Background: High-resolution anoscopy (HRA) with targeted biopsy remains the gold standard for diagnosing anal high-grade squamous intraepithelial lesion (HSIL), the precursor to squamous cell carcinoma (SCC). The ANCHOR trial showed HSIL treatment reduces cancer progression by 57% in people living with HIV. However, structured HRA screening remains uncommon in Australia. We describe a single-centre, single-surgeon HRA screening experience, comparing HSIL detection within and outside International Anal Neoplasia Society (IANS) screening criteria.

Methods: We retrospectively reviewed all patients referred for HRA at a single centre by a single surgeon, 2020–2026. Sixty-two patients were analysed. Continuous variables were presented as median with range, while dichotomous and categorical data were presented as frequencies (%). Patients were stratified by IANS high-risk screening eligibility. Analyses were performed in R (version 4.3.1).

Results: Median age was 59.5 years (28–84). Forty-three (69.4%) were female and 58 (93.5%) were HIV-negative. Most patients (71.0%) had HSIL incidentally identified on specimen histology, rather than risk-based screening, and 53% of women had prior cervical, vulval or vaginal HSIL or cancer history. HSIL was detected in a comparable proportion within (26.7%) and outside (25.0%) IANS criteria, with SCC detected in 3.3% and 6.2%, respectively (Table 1). Resolution to HRA-negative status required a median of one visit (0–5). Five patients (8.1%) were diagnosed with SCC during HRA.

Table 1. Detection of HSIL and SCC on baseline high-resolution anoscopy, stratified by IANS high-risk screening eligibility.

HRA finding	Meets IANS criteria (*n* = 30)	Does not meet IANS criteria (*n* = 32)
SCC	1 (3.3%)	2 (6.2%)
HSIL	8 (26.7%)	8 (25.0%)
LSIL	6 (20.0%)	7 (21.9%)
Negative	14 (46.7%)	11 (34.4%)
Not done	1 (3.3%)	4 (12.5%)

SCC, squamous cell carcinoma; HSIL, high-grade squamous intraepithelial lesion; LSIL, low-grade squamous intraepithelial lesion.

Conclusions: In our experience, most HSIL was identified incidentally rather than risk-based screening, and detection rates were comparable within and outside current IANS criteria. Restricting screening to high-risk groups may miss a significant proportion of anal HSIL, supporting broader screening in Australia.

Social Determinants of Health

71. Digital platforms: cancer prevention – or fear – to the people

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[3]University of Michigan Medical School.
[4]Universidad Autónoma de Aguascalientes.
[5]Universidad Autónoma de Zacatecas.
[6]Universidad Cuauhtémoc Aguascalientes.

Background: Digital cancer prevention requires strategies that connect scientific accuracy with audience relevance, content accessibility, and dissemination. Visibility alone cannot establish educational value, particularly for stigmatized topics such as human papillomavirus (HPV)-related anal neoplasia. Fear, unfamiliar terminology, and anticipated judgment may limit engagement with accurate information. Favorable reach therefore requires attention to who receives a message, how it is presented, and what responsible action it enables. This work proposes a practical framework to support reach and meaningful engagement with evidence-based prevention content on social media and other digital platforms.

Methods: A conceptual, practice-oriented framework was developed from literature on health literacy, digital health communication, public health campaigns, stigma, and cancer misinformation, including the CDC social media toolkit. The IANS screening consensus guidelines and ANCHOR trial informed the anal neoplasia examples. Communication principles were translated into content-production tools and guidance for

interpreting digital metrics. Preliminary IANS Junior Members experience informed the practical discussion. No systematic search strategy, comparative campaign analysis, or quantitative evaluation of effectiveness is reported.

Results: The proposed framework integrates seven principles: evidence, empathy, clarity, context, actionability, responsibility, and measurability. To support audience relevance, it prioritizes defining the intended audience, addressing common questions and misconceptions, and adapting language to health literacy and cultural context (Fig. 1). To support attention and retention, it recommends one main message per post, clear definitions, visually consistent presentation, subtitles, and openings based on a recognizable concern rather than a threat. An eight-slide carousel sequences the concern, explanation, clinical relevance, nuance, reassurance, and next action. A 45-s video template similarly combines early reassurance, concise explanation, and a responsible call to action. Dissemination is supported through invitations to save or share useful information, links to reliable resources, and participation by clinicians and scientific societies in sharing evidence. A pre-publication checklist, caption structure, and tone guide preserve accuracy, confidentiality, and professional boundaries. Evaluation distinguishes reach, the number of unique users exposed, from impressions, the total number of displays. Engagement indicators include saves, shares, substantive comments, link clicks, watch time, and completion rate. Saves and shares may signal perceived usefulness; clicks indicate access to additional resources; retention describes sustained viewing. None independently establishes learning. Audience questions and misconceptions identified in comments can inform subsequent topics, while personal clinical concerns require appropriate referral rather than public diagnosis. The metrics guide proposes reviewing high reach with low retention as a possible content-delivery problem, and low reach with frequent saves as a possible distribution problem. These interpretations guide iterative revision but are not validated indicators of understanding. Anal neoplasia examples clarify the differences between HPV, precursor lesions, and cancer, explain specialized diagnostic procedures, and preserve risk-based screening messages. The framework and tools are the outputs; no measured increases in reach, engagement, or screening uptake are presented.

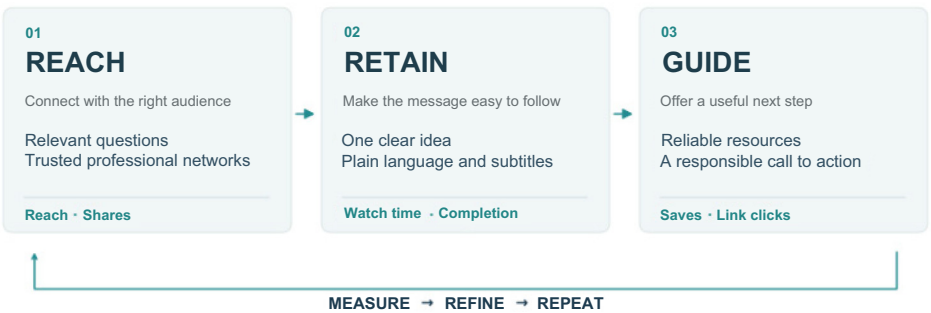

Fig. 1. Proposed workflow for digital cancer prevention.

Conclusions: The framework organizes digital prevention around audience definition, accessible content, responsible dissemination, and metric-informed refinement. It offers a structured approach for pursuing reach while preserving clinical nuance and trust. The proposed process links audience needs to message design, dissemination, monitoring, and revision; it requires adaptation to the clinical topic and cultural setting. Prospective evaluation should determine whether these strategies improve audience reach and retention and, separately, knowledge, stigma, trust, and appropriate prevention-seeking behavior. Digital engagement should not be interpreted as evidence of clinical effectiveness.

72. PEACHES 2.0: a package of implementation strategies to increase provider adoption and patient uptake of anal sex-related HIV services in Mississippi

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Background: Stigma limits provider adoption and patient uptake of anal sex-related HIV services (ASHS), including screening for STIs and anal cancer, and access to biomedical prevention like doxycycline post-exposure prophylaxis and HIV pre-exposure prophylaxis. PEACHES 2.0 is a package of multilevel implementation strategies to address stigma and improve ASHS adoption and uptake.

Methods: PEACHES 2.0 is informed by findings from PEACHES 1.0 pilot. Mixed-methods evaluation of PEACHES 1.0 demonstrated high acceptability, feasibility, and appropriateness among clinic staff, along with improvements in knowledge, comfort, and skills to proactively address stigma. Providers reported increased adoption of ASHS; one pilot clinic achieved 50% increase in screening. Divergent uptake at a parallel clinic highlighted implementation variability and informed refinement and standardization of the intervention components for PEACHES 2.0.

Results: To evaluate PEACHES 2.0, we are conducting a hybrid type 1 effectiveness-implementation study using an interrupted time-series design across eight clinics in Mississippi. The intervention includes four coordinated strategies: (1) capacity building for clinical and non-clinical staff through an interactive "Anal Pleasure and Health" workshop; (2) peer-to-peer clinical skill development via a virtual learning collaborative; (3) environmental restructuring and patient activation through visual cues directing patients to PleasureAndHealth.org, a sex-positive resource hub; and (4) quality improvement through structured coaching supported by an EHR-based audit-and-feedback dashboard, which also serves as the primary outcome assessment tool.

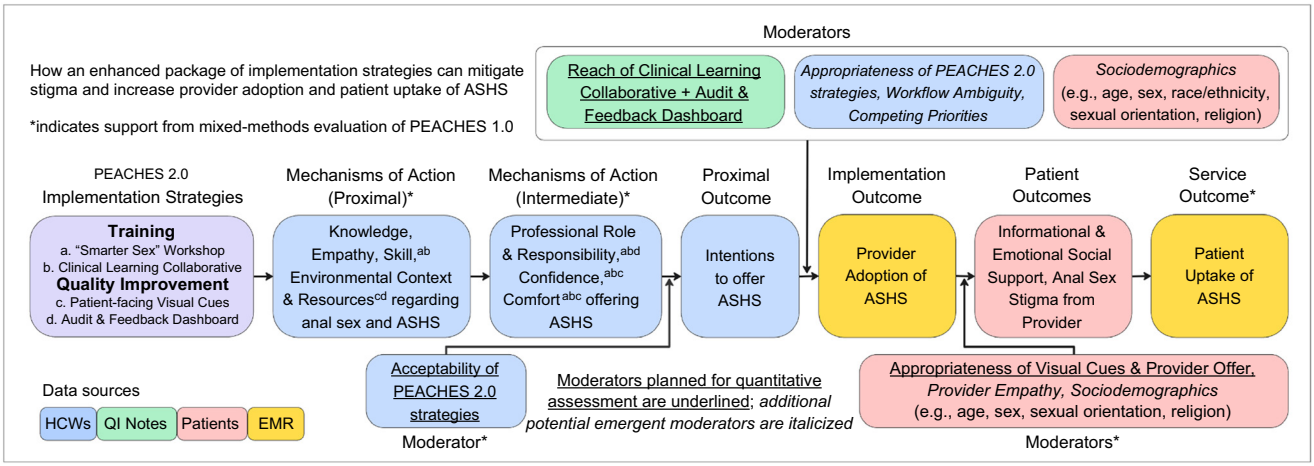

Fig. 1. PEACHES 2.0 conceptual model.

Conclusions: PEACHES 2.0 represents a novel, scalable approach to reducing anal sex stigma as a barrier to ASHS; if effective, it could advance equitable access to ASHS.

73. Social vulnerability and home-based self-sampling vs. clinician sampling for anal precancer screening: the prevent anal cancer self-swab study

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Background: Little is known about how to make anal cancer screening programs equitable, a goal needing attention given inequity in cervical cancer screening over the last 75 years that led to disparities in cervical cancer incidence today. We aimed to assess if anal self-sampling might increase screening equity among sexual and gender minorities regardless of socioeconomic status.

Methods: This ancillary analysis of a randomized clinical trial examined the impact of socioeconomic status on screening engagement among individuals assigned to home-based self-sampling vs. those assigned to clinic-based clinician-sampling. Socioeconomic status was measured by the Social Vulnerability Index (SVI) which ranks individuals on their vulnerability to negative outcomes using four categories: low vulnerability, low-medium vulnerability, medium-high vulnerability, and high vulnerability.

Results: The analysis included 236 individuals. Among those with high vulnerability, a similar proportion screened in both self-sampling (78%) and clinician sampling (74%) arms (Fig. 1). Screening engagement for individuals doing home-based self-sampling was non-significantly higher than in the clinician sampling arm in other SVI categories accept for those with low-medium vulnerability in which the self-sampling arm was more likely to engage in screening compared to the clinician-sampling arm (96% and 73%, respectively, $P = 0.02$). The proportion screening in the self-sampling arm increased nonsignificantly from low vulnerability (90%) to medium-high vulnerability (100%) ($P = 0.11$). No significant association was observed between SVI and screening engagement in regression models after adjustment for confounding.

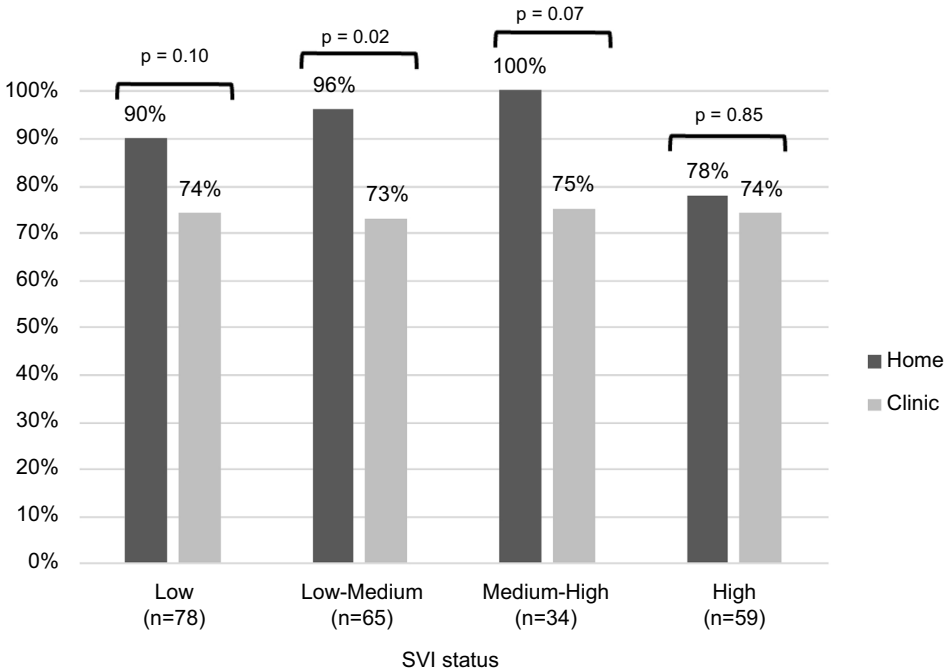

Fig. 1. Screening engagement among individuals in the home-based sampling arm compared to those in the clinician-sampling arm by social vulnerability index category, Milwaukee, Wisconsin, USA 2000–2022.

Conclusions: These results support further exploration of home-based self-sampling as anal cancer screening programs are developed for sexual and gender minorities.

74. The impact of socioeconomic status on anal cancer outcomes: a contemporary systematic review

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Background: Anal cancer is a relatively uncommon malignancy, yet its incidence has risen in recent decades. Socioeconomic status (SES) is a key determinant of health outcomes and may influence cancer risk, stage at diagnosis, access to treatment, and survival. This systematic review examines how SES affects anal cancer treatment and survival outcomes.

Methods: A systematic search of PubMed, Scopus, and Embase was conducted. The results were filtered to include articles published in English only, involving human subjects, and published between 2005 and 2025. Eligible studies assessed associations between SES indicators, namely income, education, insurance status, or area-level deprivation, and anal cancer outcomes, including overall and cancer-specific survival. Study selection and data extraction were performed in accordance with PRISMA guidelines. Due to heterogeneity in study design and outcome measures, a meta-analysis was not conducted, and a narrative review was performed.

Results: Thirteen studies met inclusion criteria. Across these studies, lower SES was consistently associated with worse disease-related metrics. Patients from lower SES backgrounds were more likely to present with advanced disease and to experience delays in diagnosis and treatment. Survival outcomes were worse in lower SES groups, with reduced overall or disease-specific survival, although the magnitude of the effect varied across studies. Contributing factors included disparities in healthcare access, comorbidities, and treatment utilization.

Conclusions: SES significantly influences anal cancer outcomes, with disadvantaged populations experiencing worse survival rates. Addressing socioeconomic disparities by improving access to screening, timely diagnosis, and equitable treatment pathways is essential to improving outcomes.

Treatment

75. 13 years of experience in treating HSIL with CO_2-laser

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Background: We present a 13-year follow-up study of patients diagnosed with peri- and intra-anal high-grade squamous intraepithelial lesions (HSIL) treated with CO_2-laser at our centre.

Methods: Between 2011 and 2024, 75 patients diagnosed with HSIL, assessed by high-resolution anoscopy (HRA) and 3% acetic acid staining, were included. Treatment consisted of CO_2-laser excision, histological examination and CO2-laservaporization of the excision margins. We analysed the recurrence rates of 148 perianal and 79 intra-anal HSIL in loco (clock face position) with a median follow-up of 4 years (range: 1–13 years follow-up).

Results: Patient characteristics shifted throughout the study period: between 2011 and 2014, 95% of the patients diagnosed were living with HIV (PLWH), whereas between 2014 and 2024 the rate of PLWH decreased to 77%. The mean age at diagnosis decreased from 59,5 years overall to 54 years over the last 2 years. The proportion of female patients rose from an overall of 13% to 17% in the final 2 years.
Although 70% of the patients had recurrence of HSIL different from the primary site, the in-loco free recurrence rates after CO2-laser treatment for perianal lesions were 75% at 1 year, 60% at 5 years and 45% at 13 years. Intra-anal HSIL showed recurrence-free rates of 84% (1 year) and 71% (5 years) and 42% (13 years).

Conclusions: This detailed long-term follow up analysis was monitoring HSIL lesions after CO2-laser treatment. The low in-loco recurrence rates after 1 year substantiate CO2-laser treatment as an effective treatment of HSIL, but long-term follow up is necessary for the patients.

76. Function following laser ablation of anal HSIL

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Background: The treatment of anal high grade squamous intraepithelial lesions (aHSIL) reduces progression to cancer,[1] however function after aHSIL ablation is not well studied.

Methods: Anorectal function before and ≥6 months after first laser ablation for aHSIL was undertaken with paired measurements of anorectal physiology, endoanal ultrasound and detailed questionnaires.

Results: 21 men who have sex with men (MSM), 20/21 living with HIV, median age 52 (range: 24–72) undertook baseline questionnaires, and 20 underwent baseline functional studies; 19 attended for follow up studies after laser ablations of median 2 octants (range 1–8) over median 1 (range 1–3) visits. At baseline, St Marks incontinence score was median 2/24 (range: 0–14) and Cleveland Clinic constipation score 3.8/30, with no significant difference at 6/12 (FI median 1/24 range 0–24; constipation 3.4/30) however 1 patient with incontinence baseline score 14/24 scored 24/24 at 6/12. Of the baseline sexually active (12/19), 8/19 were sexually active post-treatment but 2 developed AIN-related anxiety, 1 pain, 1 no answer, 1 lost interest. Nonetheless, 1 had newly re-started sex post-ablation.

There were 19 paired endoanal ultrasound results with no internal anal sphincter defects noted. Of 18 valid manometry readings, resting pressure was overall unchanged post-ablation (Wilcoxon signed-rank test, $z = 0.41$, $P = 0.68$), with considerable variability in response at 6/12 (Fig. 1, Table 1).

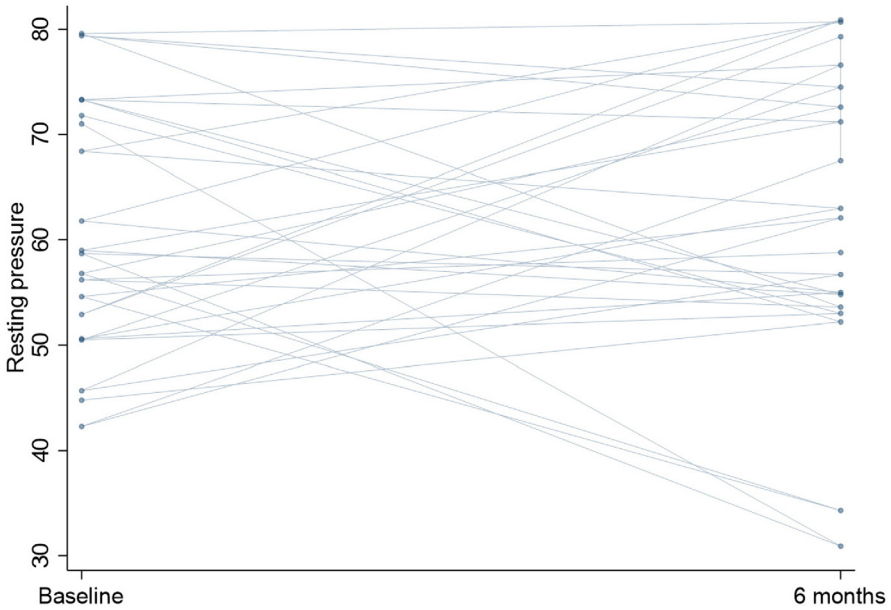

Fig. 1. Resting pressure before and at least 6 months after anal HSIL ablation.

Table 1. Wilcoxon for anal resting pressure (RP) before and at least 6/12 after laser ablation anal HSIL.

Column heading	Obs	Sum ranks	Expected
Positive baseline-6+ months	11	95	85.5
Negative baseline-6+ months	7	76	85.5

Zero patients had zero change in RP.

Conclusions: It was feasible to measure function after anal ablation and no clear evidence was found of changes in this pilot study, however occasional worsening of anal resting pressure and new anxiety requires research.

77. HPV-16–based sequential triage improves biopsy efficiency for anal HSIL in non-HIV-infected women

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Background: Most anal cancer screening evidence focuses on people living with human immunodeficiency virus (HIV), while optimal approaches for non-HIV-infected women remain poorly defined. We evaluated predictors of anal high-grade squamous intraepithelial lesions (HSIL) and a risk-stratified strategy for high-resolution anoscopy (HRA) referral.

Methods: Women undergoing lower anogenital tract screening were assessed using anal liquid-based cytology (LCT), human papillomavirus (HPV) genotyping, clinical history, and gynecologic pathology. Histologically confirmed anal HSIL was the reference outcome. Screening and sequential triage strategies were compared using diagnostic discrimination and biopsy efficiency.

Results: Among 1054 screened women, 53.1% were high-risk HPV positive. Among 525 women with histologic evaluation, anal HSIL prevalence was 19.2%. HPV-16 was the dominant independent predictor of anal HSIL (adjusted odds ratio 8.49, 95% confidence interval 3.78–19.04; $P < 0.001$). HPV-16 testing discriminated anal HSIL substantially better than overall high-risk HPV testing (area under the curve 0.741 vs 0.586; $P < 0.0001$; Table 1). A sequential strategy using primary HPV-16 testing, reflex LCT, and vulvar HSIL history achieved a number needed to biopsy of 1.78.

Table 1. Diagnostic performance of standalone and co-testing modalities for the detection of anal high-grade squamous intraepithelial lesions.

Screening modality (*N* = 485)	Screen-positive, *n*	Detected anal HSIL, *n* (PPV %)	Sensitivity % (95% CI)	Specificity % (95% CI)	AUC (95% CI)	*P* value
HR-HPV	378	89 (23.5%)	91.8 (84.4–96.4)	25.5 (21.3–30.2)	0.586 (0.541–0.631)	<0.0001**
HPV-16	168	71 (42.3%)	73.2 (63.2–81.7)	75.0 (70.4–79.2)	0.741 (0.700–0.779)	<0.0001**
HPV-52	56	18 (32.1%)	18.6 (11.4–27.7)	90.2 (86.8–93.0)	0.544 (0.498–0.589)	0.0390*
LCT (≥ASC-US)	199	57 (28.6%)	58.8 (48.3–68.7)	63.4 (58.4–68.2)	0.611 (0.566–0.654)	0.0001**
HR-HPV or LCT (≥ASC-US)	406	90 (22.2%)	92.8 (85.7–97.0)	18.6 (14.8–22.8)	0.557 (0.511–0.601)	0.0006**
HPV-16 or LCT (≥ASC-US)	280	79 (28.2%)	81.4 (72.3–88.6)	48.2 (43.1–53.3)	0.648 (0.604–0.691)	<0.0001**
HPV-52 or LCT (≥ASC-US)	226	63 (27.9%)	65.0 (54.6–74.4)	58.0 (52.9–63.0)	0.615 (0.570–0.658)	<0.0001**

Note: For co-testing strategies, a positive screening outcome is defined by an abnormality in either the virological or cytological assay. *P* values indicate the statistical significance of the Area Under the Curve (AUC) for each screening modality against the null value of 0.5 (random chance). *$P < 0.05$, **$P < 0.01$. Abbreviations: HSIL, high-grade squamous intraepithelial lesion; PPV, positive predictive value; CI, confidence interval; AUC, area under the receiver operating characteristic curve; HPV, human papillomavirus; HR-HPV, high-risk human papillomavirus; LCT, liquid-based cytology test; ≥ASC-US, atypical squamous cells of undetermined significance or worse.

Conclusions: In non-HIV-infected women, HPV-16 identifies a high-risk subgroup for anal HSIL more effectively than broad high-risk HPV testing. An HPV-16-based sequential triage strategy may improve HRA prioritization and biopsy efficiency, providing a practical approach where HRA capacity is limited.

78. Location of anal high-grade squamous intraepithelial lesions (HSILs) in patients with recurrent disease

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Background: The ANCHOR study established the effectiveness of treatment for anal HSIL in people living with HIV. However, there are limited studies evaluating anal/perianal HSIL location and comparing metachronous versus local anal HSIL recurrence after ablation.

Methods: A retrospective chart review of patients ($N = 54$) with initial HSIL on high resolution anoscopy (HRA) between August 2021 and December 2024 who completed electrocautery ablation treatment were included. Anal/perianal HSIL locations for both initial and surveillance HRA were determined by octant. This study investigates the frequency of anal/perianal HSIL at each octant, and local, metachronous, or simultaneous metachronous and local (combined) HSIL recurrence. Local HSIL recurrence was defined as HSIL in the same octant, while metachronous was defined as a different octant than the original HSIL. One perianal biopsy lost in transit was included in the biopsy count but excluded from analysis.

Results: At initial HRA, the most frequent octants with HSIL were the RA SCJ (19.37%), LL SCJ (19.37%), LA SCJ (13.95%), and LA perianus (27.27%). Surveillance HRA identified the RA SCJ (20.62%), LP SCJ (14.43%), RL SCJ (13.40%), and the RL, Posterior, and LL perianus (each 33.33%) as the octants with the most recurrent HSIL (Table 1). Patients had more metachronous recurrence (44.44%) than combined recurrence (29.63%) and local recurrence (25.93%).

Table 1. Mean biopsies and percentage of HSIL biopsies in the anal canal and perianus of both the initial and surveillance HRA of patients with recurrent HSIL.

	Initial HSIL	Surveillance HRA
Mean Biopsies (Anal Canal)	3.91	3.54
Mean Biopsies (Perianus)	0.59	0.07
Anal Canal	Anterior SCJ (9.30%)	Anterior SCJ (7.22%)
	RA SCJ (19.38%)	RA SCJ (20.62%)
	RL SCJ (13.18%)	RL SCJ (13.40%)
	RP SCJ (6.98%)	RP SCJ (10.31%)
	Post SCJ (8.53%)	Posterior SCJ (10.31%)
	LP SCJ (9.30%)	LP SCJ (14.43%)
	LL SCJ (19.38%)	LL SCJ (12.37%)
	LA SCJ (13.95%)	LA SCJ (11.34%)
Perianus	Anterior perianus (0%)	Anterior perianus (0%)
	RA perianus (0%)	RA perianus (0%)
	RL perianus (18.18%)	RL perianus (33.33%)
	RP perianus (18.18%)	RP perianus (0%)
	Posterior perianus (0%)	Posterior perianus (33.33%)
	LP perianus (18.18%)	LP perianus (0%)
	LL perianus (18.18%)	LL perianus (33.33%)
	LA perianus (27.27%)	LA perianus (0%)

Conclusions: Anal and perianal HSIL were observed mostly in RA SCJ in both initial and surveillance HRA. Metachronous HSIL recurrence was more common than local recurrence or combined recurrence. Including adjacent octants to allow for rotation may change the proportions of local vs. metachronous recurrence.

79. Not all high-risk groups follow the same disease trajectory: a Mayo Clinic cohort study

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Background: HRA is a key element in the detection and treatment of anal dysplasia. In 2023, Mayo Clinic established an HRA program following IANS standards. This study evaluates disease trajectory in high-risk patients managed within our program.

Methods: Patients undergoing HRA at Mayo Clinic (September 2023–March 2026) were identified from a prospectively maintained database. Lesions concerning for HSIL were biopsied and treated with electrocautery. Risk factors, demographics, and lesion histology were collected. Disease trajectory was assessed using the highest-grade biopsy per visit. Improvement was defined as HSIL/cancer downgrading to at least LSIL at last biopsy; worsening as LSIL/normal upgrading to HSIL/cancer. Discordance was evaluated using McNemar's exact test.

Results: 87 patients were categorized as high risk (categories are not mutually exclusive): PHLIV (n = 44), MSM (n = 54), solid organ transplant recipients (n = 10) and patients with vulvar dysplasia/cancer (26), 4 transgender women, none with HSIL, were excluded. Median time from first to last biopsy was 13.4 months. A statistically significant reduction in HSIL/cancer was observed in PHLIV (71.4 to 35.7%, $P < 0.001$) and MSM (76.9 to 38.5%, $P < 0.001$). No significant change occurred in transplant recipients or patients with vulvar dysplasia/cancer. Of 10 transplant patients, 5 maintained HSIL at last biopsy, with 2 upgrading (Fig. 1).

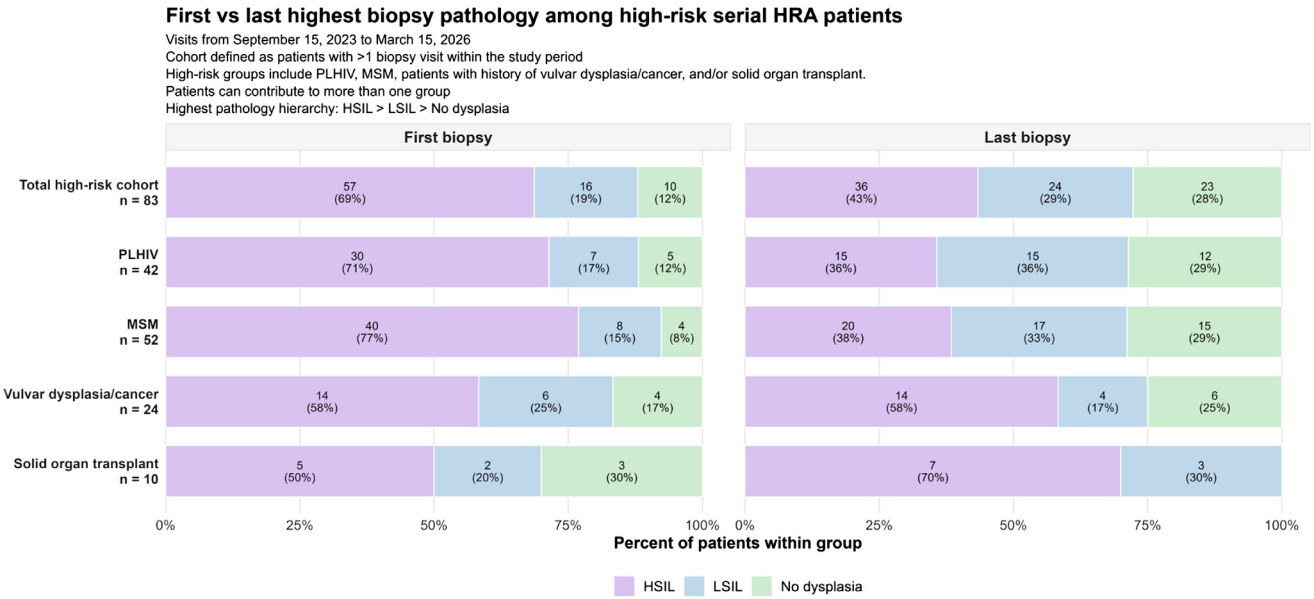

Fig. 1. Disease trajectory for high-risk groups.

Conclusions: HRA surveillance achieved meaningful HSIL/cancer clearance in most high-risk groups. Dysplasia burden decreased in PLHIV and MSM. Solid organ transplant recipients and patients with vulvar dysplasia/cancer showed no significant disease change, they represent a large and growing proportion requiring HRA per 2024 IANS guidelines. Optimized, scalable surveillance protocols at high-volume transplant centers are needed.

80. Patient-reported outcomes following the use of radio frequency ablation in the treatment of anal HSIL

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Background: High-resolution anoscopy (HRA)–targeted electrocautery reduces progression of anal high-grade squamous intraepithelial lesions (HSIL) to cancer but requires precise lesion delineation and often multiple treatments. Radiofrequency ablation (RFA) is well established for oesophageal HSIL and has been successfully trialled for intra-anal HSIL. RFA may allow circumferential treatment in a single session, without operative HRA. We report patient-reported adverse events following RFA for anal HSIL.

Methods: A single-site, single-arm prospective trial of RFA for persistent anal HSIL commenced in 2022. Eligibility required a prior diagnosis of persistent intra-anal HSIL. Participants underwent initial circumferential RFA (cRFA). If residual intra-anal HSIL was detected on HRA at 3 months, targeted RFA (tRFA1) was offered. Ongoing HSIL at a further 3-month HRA prompted a second targeted RFA (tRFA2), followed by repeat diagnostic HRA. Participants completed a 14-day symptom diary following each RFA.

Results: 97 participants completed their symptom diary after their 1st treatment, with a median age of 60 years (IQR: 53–66), 79% were male and 52.1% HIV positive. Anal pain was the most common symptom; 42% reported pain severity as 'very much' or 'quite a lot' at peak on Day 4 post-RFA (Fig. 1). There were no differences in pain by age, sex, and HIV status, but older people were less likely to report bleeding (OR = 0.91, $P = 0.002$). Symptom severity was lower following second RFA sessions. All participants agreed to repeat RFA when residual HSIL was detected.

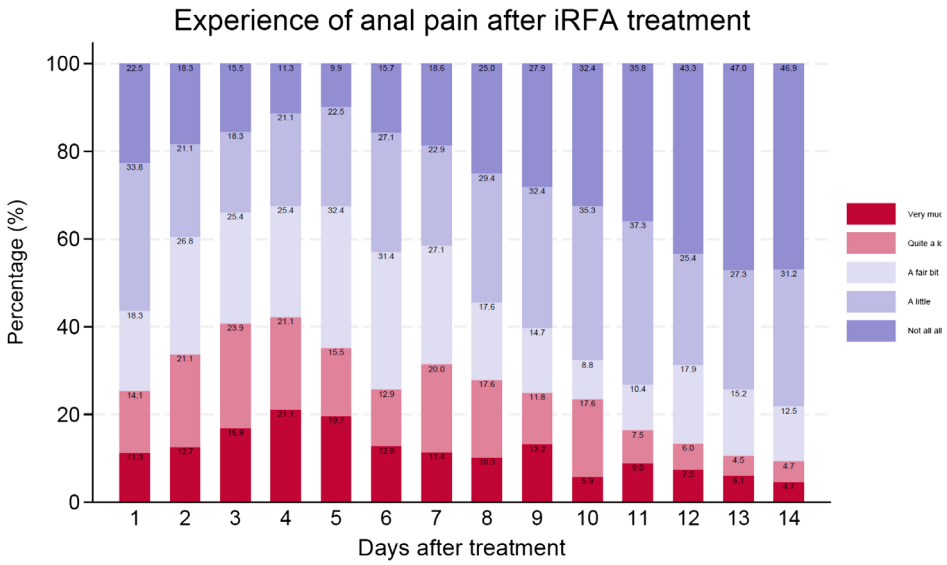

Fig. 1. Experience of anal pain during the 14 days following initial radiofrequency ablation (RFA) treatment.

Conclusions: RFA is generally well tolerated, with symptoms comparable to haemorrhoidectomy. Participants were willing to undergo repeat RFA when indicated. Follow-up is ongoing.

81. Predictive accuracy of high-resolution flexible endoscopy for grading anal canal dysplasia

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Background: Anal squamous cell carcinoma develops from precursor anal squamous intraepithelial lesions (ASIL). High-resolution flexible endoscopy of the anal canal (HR-FEA) enables ASIL detection and treatment, but differentiation between dysplasia grades remains challenging. Image-enhanced endoscopy may improve lesion characterisation through assessment of vascular and surface patterns.

Methods: Adults undergoing HR-FEA for ASIL treatment were prospectively recruited. Before resection and histopathology, lesions were documented with TXI and NBI images and videos and assessed for morphology, two Intrapapillary capillary loops (IPCL) classifications, mosaic pattern, size. Two blinded endoscopists independently reviewed the recordings: Reviewer 1 specialised in anal dysplasia and Reviewer 2 in oesophageal dysplasia.

Results: Among 190 lesions, the two IPCL classifications predicted increasing histopathological grade, with ORs of 59.50 and 9.21 for Reviewer 1 and 43.08 and 2.39 for Reviewer 2. Suspected high-grade-dysplasia (HSIL) was also strongly associated with higher grade (OR 368.70 and 21.75, respectively). Overall exact agreement was 74.2% and 38.4%. Both reviewers identified 77.1% of histologically confirmed HSIL. Binary HSIL agreement with histopathology was significant for Reviewer 1 ($\kappa = 0.63$, $P < 0.001$) but not Reviewer 2 ($\kappa = 0.02$, $P = 0.35$). False-positive HSIL assessments were 19.0% and 56.2%, respectively (Table 1). Interobserver agreement for the vascular classifications was poor.

Table 1. Agreement between endoscopic assessments and histopathological diagnoses for two independent reviewers evaluating 190 anal canal lesions, including overall and grade-specific exact agreement and the proportion of endoscopic HSIL assessments that were false-positive. HSIL, high-grade squamous intraepithelial lesion; LSIL, low-grade squamous intraepithelial lesion.

Exact agreement	Reviewer 1, *n*/*N* (%)	Reviewer 2, *n*/*N* (%)
Overall	141/190 (74.2%)	73/190 (38.4%)
HSIL	64/83 (77.1%)	64/83 (77.1%)
LSIL	61/67 (91.0%)	7/67 (10.4%)
No dysplasia	15/39 (38.5%)	2/39 (5.1%)
False-positive HSIL	15/79 (19.0%)	82/146 (56.2%)

Note. Overall exact agreement required an identical endoscopic and histopathological diagnostic category. HSIL agreement was calculated among the 83 histologically confirmed HSIL lesions. False-positive HSIL assessments were calculated among lesions classified endoscopically as HSIL. Both reviewers assessed the same 190 lesions. HSIL, high-grade squamous intraepithelial lesion; LSIL, low-grade squamous intraepithelial lesion.

Conclusions: HR-FEA combined with vascular pattern analysis predicts dysplasia grade in anal lesions. Interobserver variability highlights the need for standardised criteria and targeted training. Next, international endoscopists will assess lesions across dysplasia grades for reproducibility and diagnostic performance.

82. Prognostic significance of tumour volume and systemic inflammation in anal squamous cell carcinoma

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Background: Tumour stage is the primary determinant of prognosis in anal squamous cell carcinoma (ASCC) but may not fully reflect tumour burden or host response. This study investigated associations between tumour volume, systemic inflammation and outcomes following chemoradiotherapy (CRT).

Methods: A retrospective analysis included 206 patients with stage I–III ASCC treated with curative-intent CRT from 2016–2020 in the West of Scotland. CT-derived primary and nodal gross tumour volumes (GTV), clinicopathological features and systemic inflammation measured by the modified Glasgow Prognostic Score (mGPS) were analysed. Survival outcomes were assessed using Kaplan-Meier and Cox regression.

Results: Most patients were female (77%) and <65 (62%). Complete response at 6 months occurred in 86%. Persistent disease was associated with larger primary GTV (105.8 vs 50.9 cm^3, $P = 0.005$) and elevated mGPS (30% vs 7%, $P < 0.001$). Despite similar primary GTV in T3 and T4 disease (median GTV 100.9 vs 106.6 cm^3, $P = 0.344$), T4 tumours demonstrated higher persistence rates (30% vs 11%, $P = 0.021$). On multivariable analysis, inferior 5-year overall survival (OS) was independently associated with elevated mGPS (HR 3.71, $P < 0.001$) and nodal GTV (HR 1.01, $P = 0.03$). Inferior 5-year disease-free survival was independently associated with mGPS (HR 3.673, $P < 0.001$), and nodal GTV (HR 1.014, $P = 0.003$). Combined primary GTV and mGPS identified four prognostic groups, with distinct 5-year OS outcomes ($P < 0.001$) (Fig. 1).

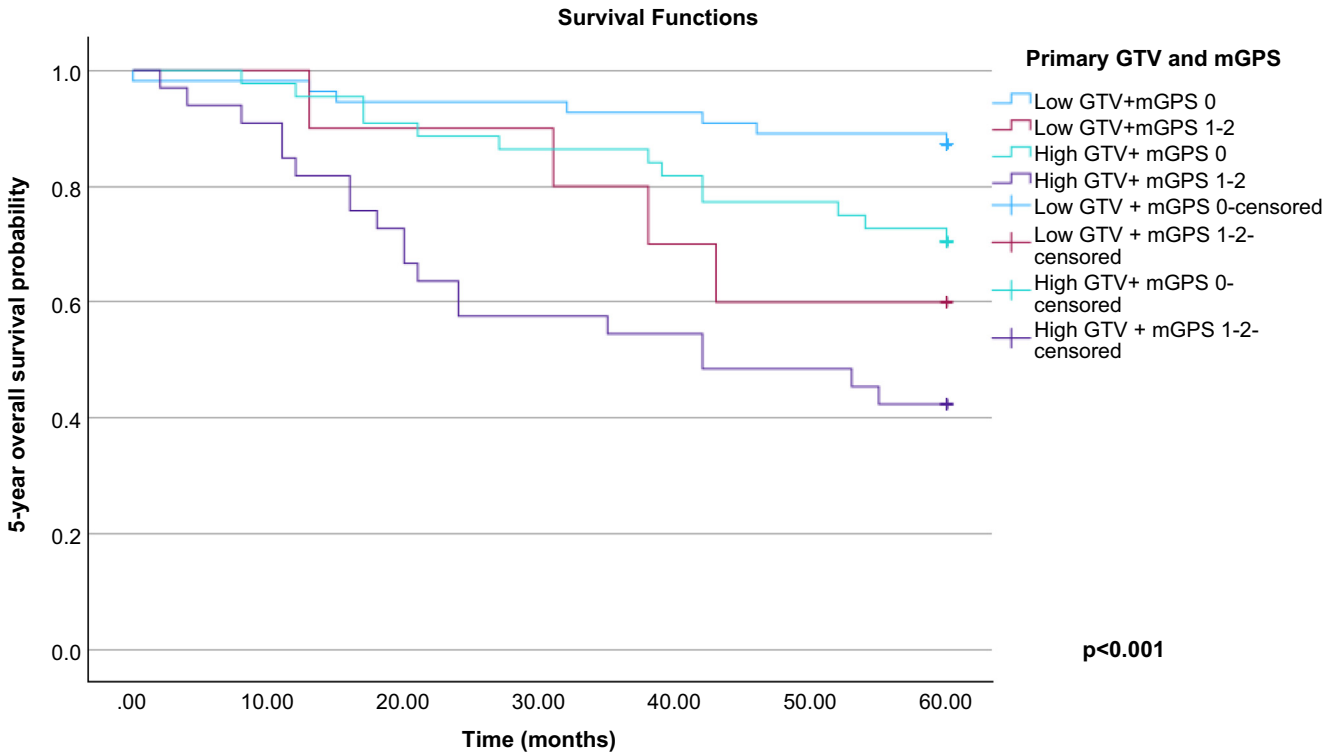

Fig. 1. 5-year OS by primary GTV and mGPS.

Conclusions: Tumour burden and systemic inflammation independently contribute to treatment response and survival in ASCC. Combined inflammatory and volumetric stratification may improve prognostication beyond TNM staging.

83. Radiofrequency ablation produces sustained clearance of anal high-grade squamous intraepithelial lesions

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Background: High-resolution anoscopy (HRA)-directed electrocautery for anal high-grade squamous intraepithelial lesions (HSIL) is associated with high recurrence rates (~60%). Radiofrequency ablation (RFA) delivers controlled thermal energy with limited mucosal injury and is well established in the treatment of oesophageal dysplasia. This study evaluates the efficacy of intra-anal RFA for the treatment of anal HSIL.

Methods: 102 participants with persistent intra-anal HSIL were enrolled in an ongoing study from August 2022. A total of 156 RFA procedures have been performed, including 96 initial circumferential RFAs (iRFAs). This interim analysis includes the first 85 participants who underwent at least one follow-up HRA after iRFA. A maximum of two subsequent targeted RFA were used to treat residual HSIL, as required. Outcomes assessed included HSIL clearance, disease extent, and changes in high-risk HPV (hrHPV) status. Three-year follow-up data will be presented.

Results: Among the 85 participants, 80% were male and 56% were living with HIV. The median baseline extent of HSIL involvement was three octants, and HPV16 was detected in 65% of cases. Following iRFA, complete HSIL clearance was achieved in 42% of participants, increasing to 85% at 12 months, with additional targeted treatment(s). Complete hrHPV clearance occurred in 31% of initially hrHPV-positive participants after initial circumferential RFA. Persistence of HSIL was significantly associated with baseline HPV16 positivity ($P = 0.014$).

Conclusions: RFA achieved high rates of HSIL clearance, with most participants attaining disease resolution. These findings suggest that RFA is a promising treatment modality for anal HSIL, with potential for durable clearance of both HSIL and hrHPV.