Anal Cancer/ Dysplasia Screening in HIV Care

February 9, 2026

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Disclosures

- No conflicts of interest to disclose

Objectives

1. **Describe** recent research in anal dysplasia
2. **Identify** key populations who benefit from anal dysplasia screening
3. **Review** DARE and anal pap techniques
4. **Identify** barriers to applying screening guidelines in primary care locally
5. **Summarize** key aspects of anal dysplasia screening guidelines and HPV prevention

CASE

Trevor is a 37 year old man living with HIV for the last 5 years. He is virally suppressed with undetectable VL on Biktarvy (BIC/FTC/TAF) with recent CD4 785 (32%). He is currently in an open relationship with his husband. He is a smoker, about 1 pack a day, for the past 10 years. He previously declined HPV vaccination .

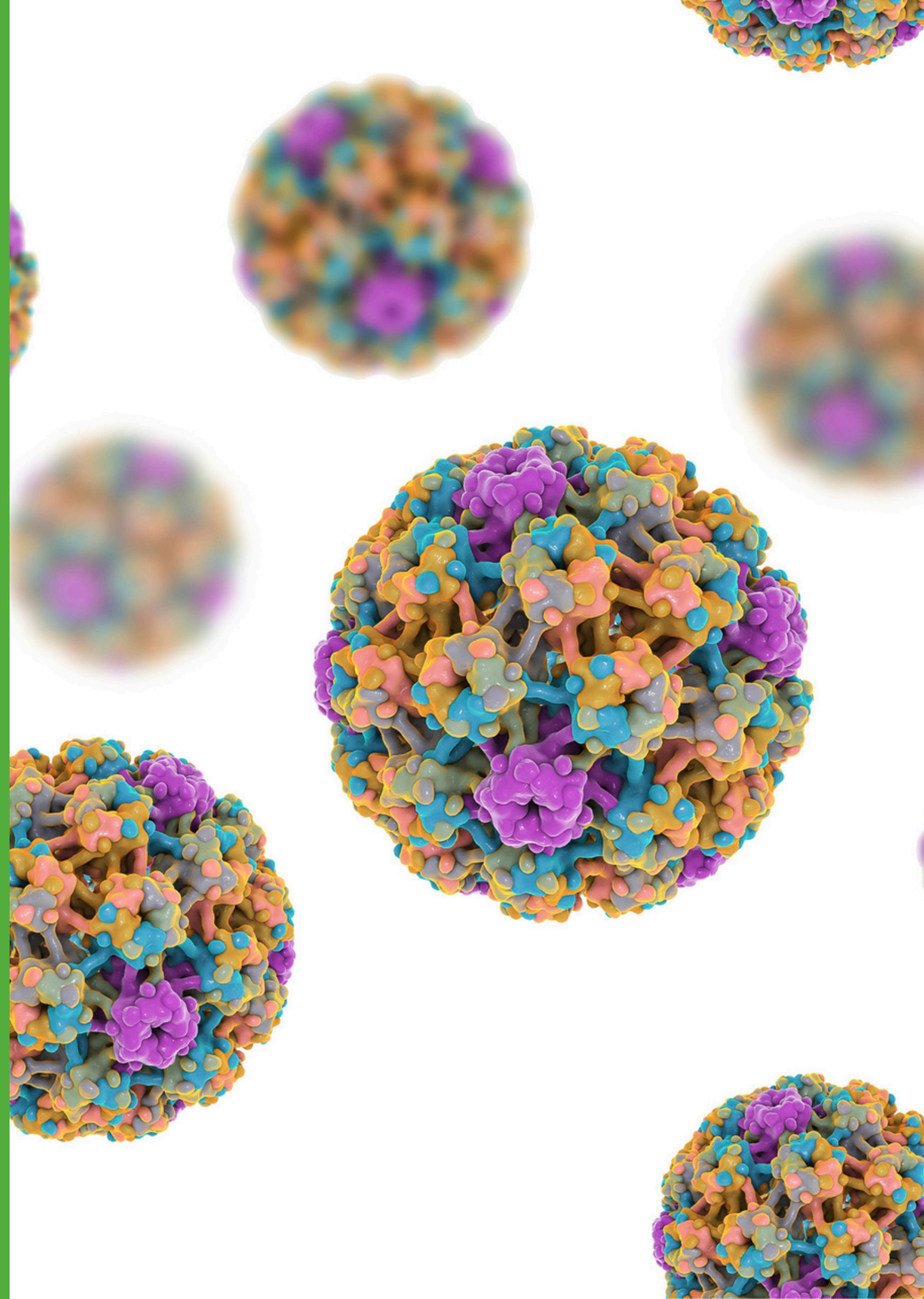
During his annual assessment, he inquired about anal cancer screening. **He is curious about his risk for anal cancer and what the screening would entail.**

Background

- Most anal cancers are caused by human papillomavirus (HPV) infection, notably HPV 16 [1]

- **Similar to cervical cancer**, precancerous dysplasic lesions precede development into invasive lesions [2]

- Previously limited evidence to support ablative treatment for precancerous lesions [3]



the ANCHOR study.org

ANal Cancer/HSIL Outcomes Research Study [4]

- 2022 Phase 3 randomized control trial in the US
- Persons living with HIV who were 35 years of age or older with biopsy proven HSIL
- Treatment group vs active monitoring (control)
  - Treatment groups had HSIL lesions treated immediately with ablation techniques or excision
- Primary outcome: progression to anal cancer in a time-to-event analysis
  - **9 participants in the treatment group** VS **21 participants in the active-monitoring group** developed invasive anal cancer
- Rate of progression to cancer was 173 per 100,000 (95% confidence interval [CI], 90 to 332) person years for the treatment group compared to 402 per 100, 000 person years (95% CI, 262 to 616) in the active monitoring group
  - **The rate was 57% lower in the treatment group**

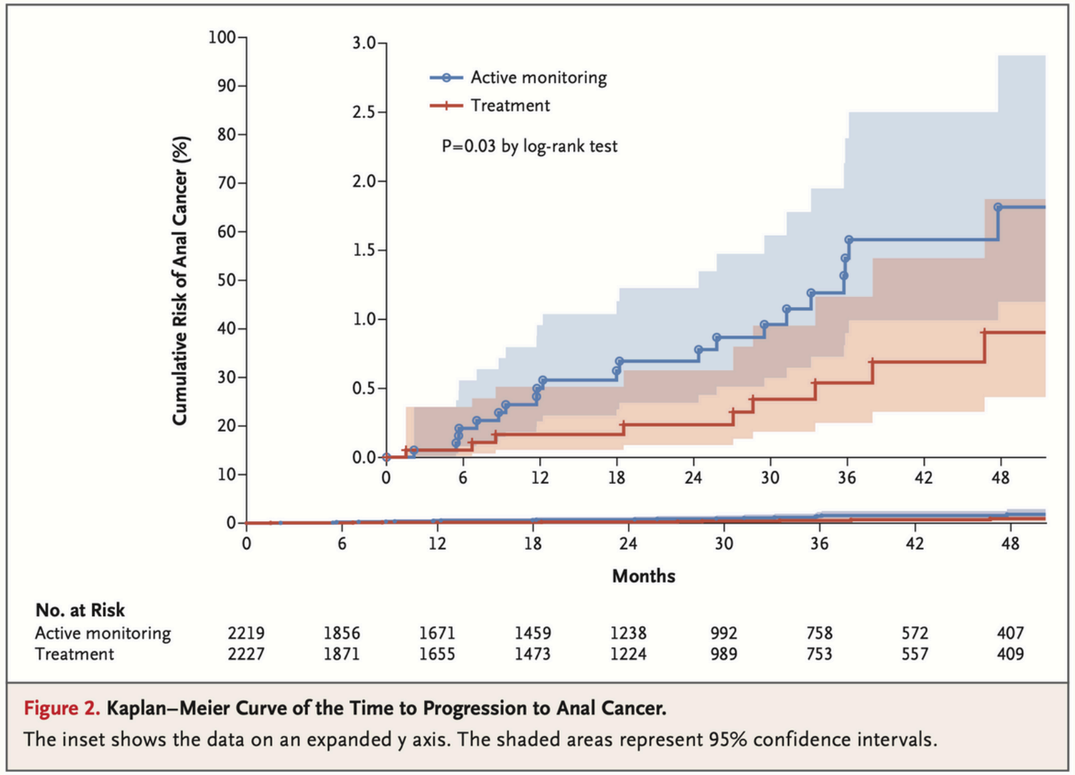


Figure 2. Kaplan–Meier Curve of the Time to Progression to Anal Cancer.
The inset shows the data on an expanded y axis. The shaded areas represent 95% confidence intervals.

The cumulative incidence of progression to anal cancer at 48 months was **0.9% in the treatment group and 1.8% in the active-monitoring groups.**

Who are the highest risk groups?

- persons living with human immunodeficiency virus (HIV)
- solid-organ transplantation
- history of vulvar cancer, cervical HSIL or cervical cancer
- other risk factors:
  - receptive anal intercourse
  - genital warts
  - anal fissures or fistulas
  - smoking [5]

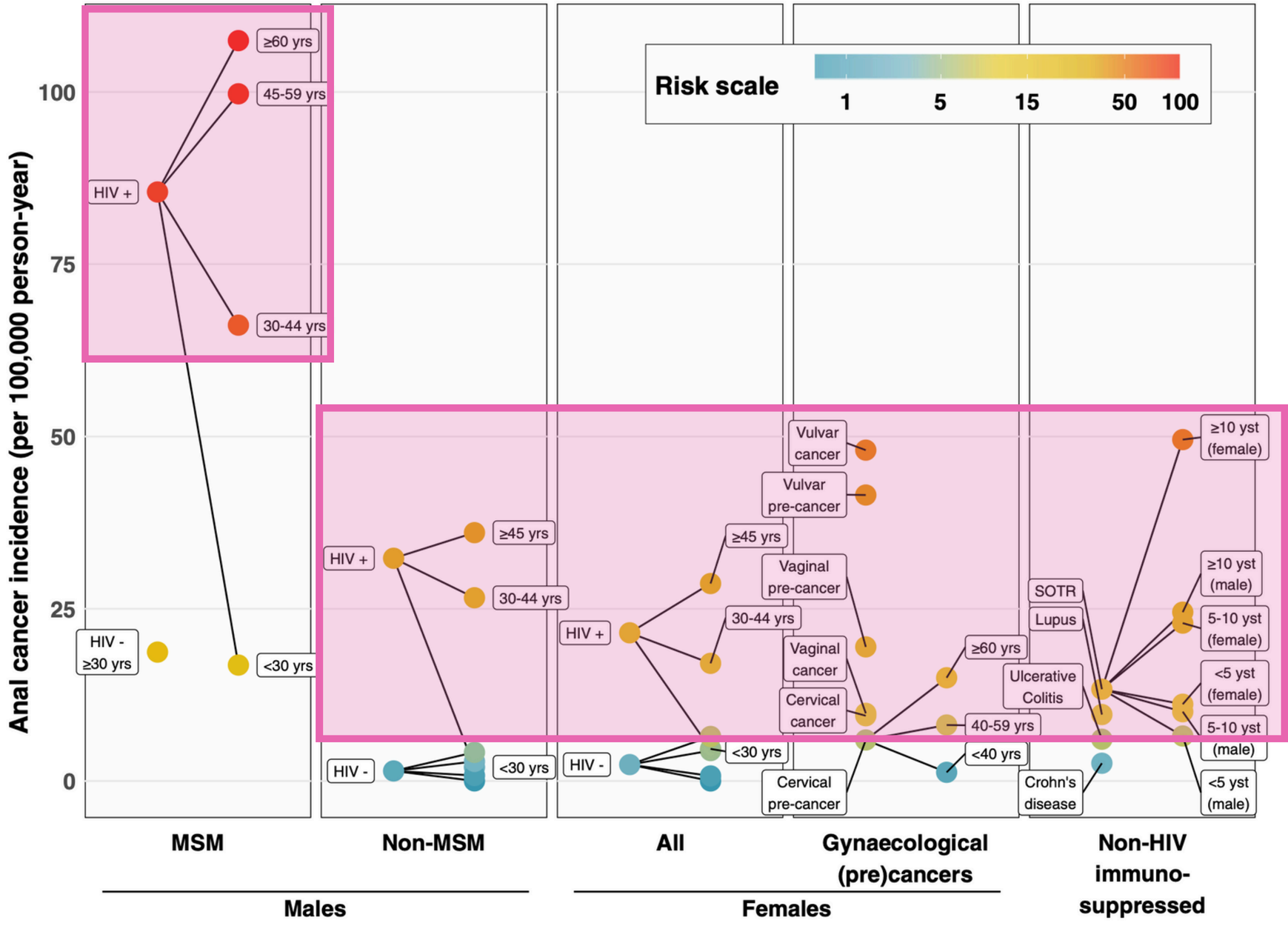


FIGURE 5 Anal cancer risk scale. 95% CIs around the point estimates can be found in the relevant Figures 1-4 and Tables S1 and S2. Estimates for HIV-negative men and men are shown, without labels, for age-groups <30, 30 to 44, 45 to 59, and ≥60 years (see Section 3). CI, confidence interval; MSM, men who have sex with men; MSW, men who have sex with women. yrs, years old; yst, years since transplant

Screening Guidelines

IANS 2024 Concenus Guidelines

Stier, E. et al. International Anal Neoplasia Society's consensus guideline for anal cancer screening. Int. J. Cancer. 2024;154:1694–1702

New York State Department of Health AIDS Institute (NYSDOH AI) 2025

Hirsch, B. et al. Clinical Guidelines Program. Screening for Anal Dysplasia and Cancer in Adults With HIV. February 2025. www.hivguidelines.org

Population – Risk category	When	Anal cancer incidence per 100,000 person-years
Risk Group A: incidence ≥ 10-fold compared to the general population		
MSM and TW with HIV	Age 35	>70/100,000 age 30–44 >100/100,000 age 45+
Women with HIV	Age 45	>25/100,00 age 45+
MSW with HIV	Age 45	>40/100,000 age 45+
MSM and TW not with HIV	Age 45	>18/100,000 age 45–59 >34/100,000 age 60+
History of vulvar HSIL or cancer	Within 1 year of diagnosis	>40/100,000
Solid organ transplant recipient	10 years post-transplant	>25/100,000

Incidence among the general population: 1.7 per 100,000 [7]

Population – Risk category	When	Anal cancer incidence per 100,000 person-years
Risk Group B: incidence is up to 10-fold higher compared to the general population		
Cervical/vaginal cancer	Shared decision age 45	9/100,000
Cervical/vaginal HSIL	Shared decision age 45	8/100,000
Perianal warts (male or female)	Shared decision age 45	Unknown
Persistent cervical HPV 16 (>1 year)	Shared decision age 45	Unknown
Other immunosuppression (e.g., Rheumatoid arthritis, Lupus, Crohn's, Ulcerative colitis, on systemic steroid therapy)	Shared decision age 45	6/100,000

Incidence among the general population: 1.7 per 100,000 [7]

Shared Decision Making

- **Regardless of age, direct and open discussion of the benefits, risks and process of screening including follow up is important.**
- **Screening with DARE and anal pap is generally safe**
  - However, discomfort during procedure, previous history of trauma and potential for false positives may exacerbate stress and anxiety.
- Potential follow up with HRA and biopsies is also important to discuss as also generally safe, there may be more discomfort and pain if biopsy is needed.
- Patients may also experience anxiety while waiting for or learning their test results.
- There is no set upper age limit to discontinue screening, however recomendation is to engage in shared decision making, especially if life expectancy is <10 years

CASE

You both agree that you will start anal cancer/dysplasia screening. You confirm he does not have any symptoms including itching, bleeding, palpable masses or nodules, pain, tenesmus or feeling of rectal fullness.

You take a moment to review the procedure with him.

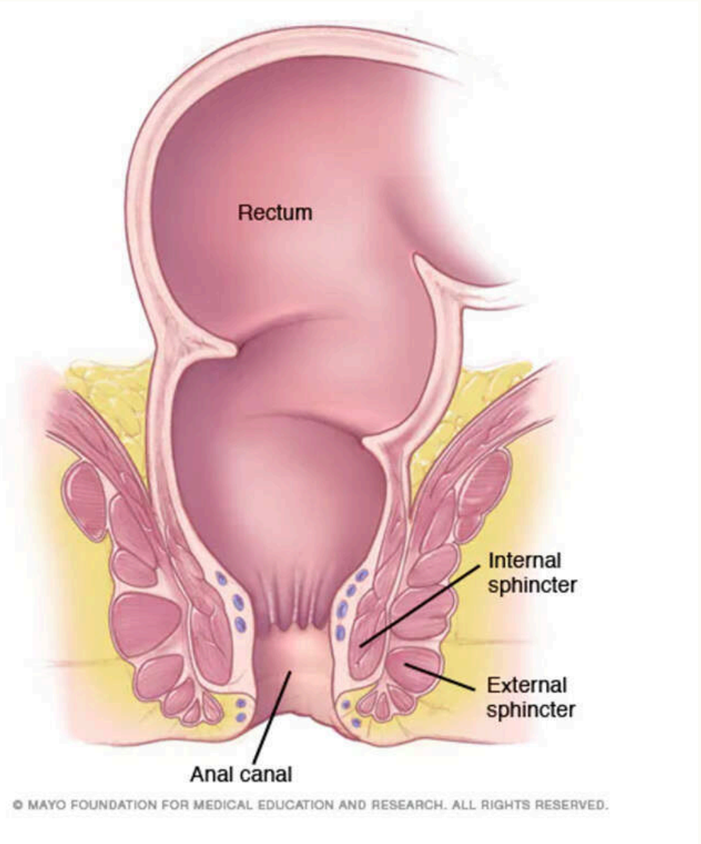
Screening

The two components, DARE and anal cytology are related but distinct parts of screening process:

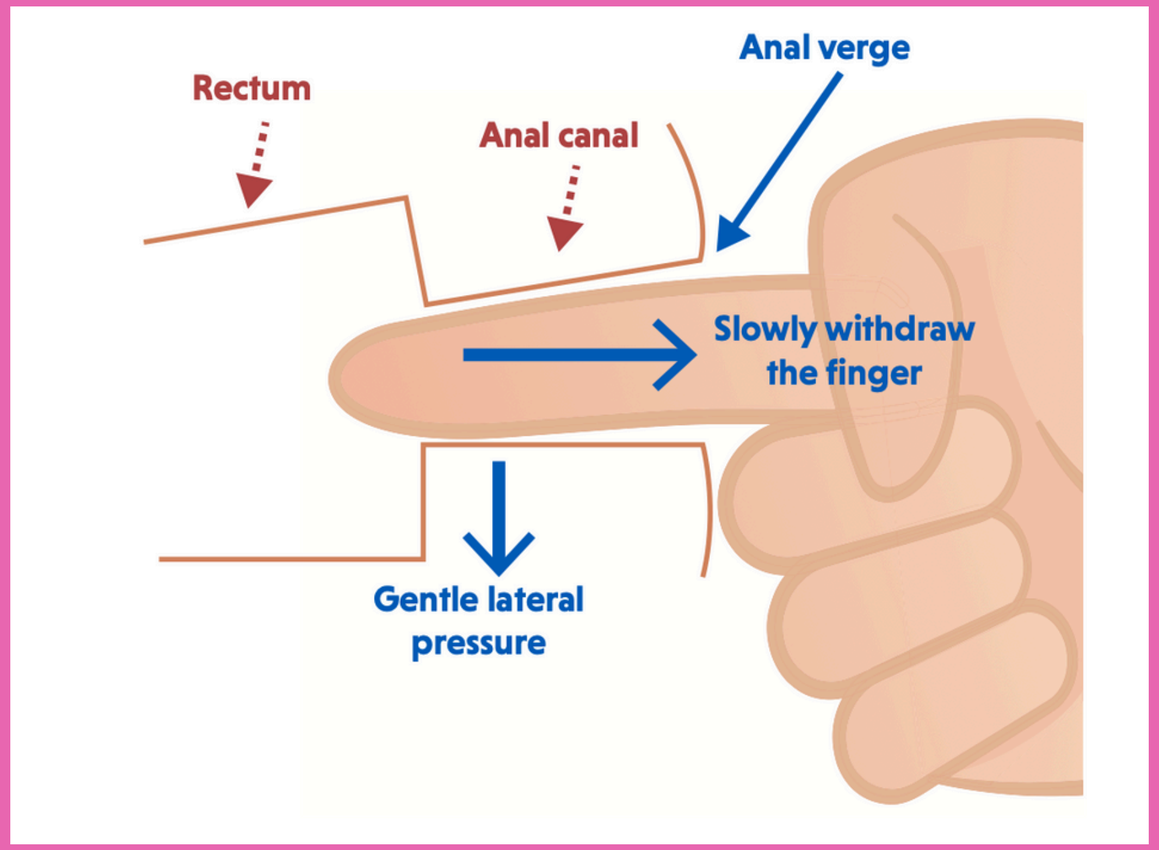
- Anal cancer screening:
  - DARE
  - Palpitation of invasive lesions
- Anal dysplasia screening:
  - Cytology
  - +/– HPV triage or co-testing (not done in Ontario currently)

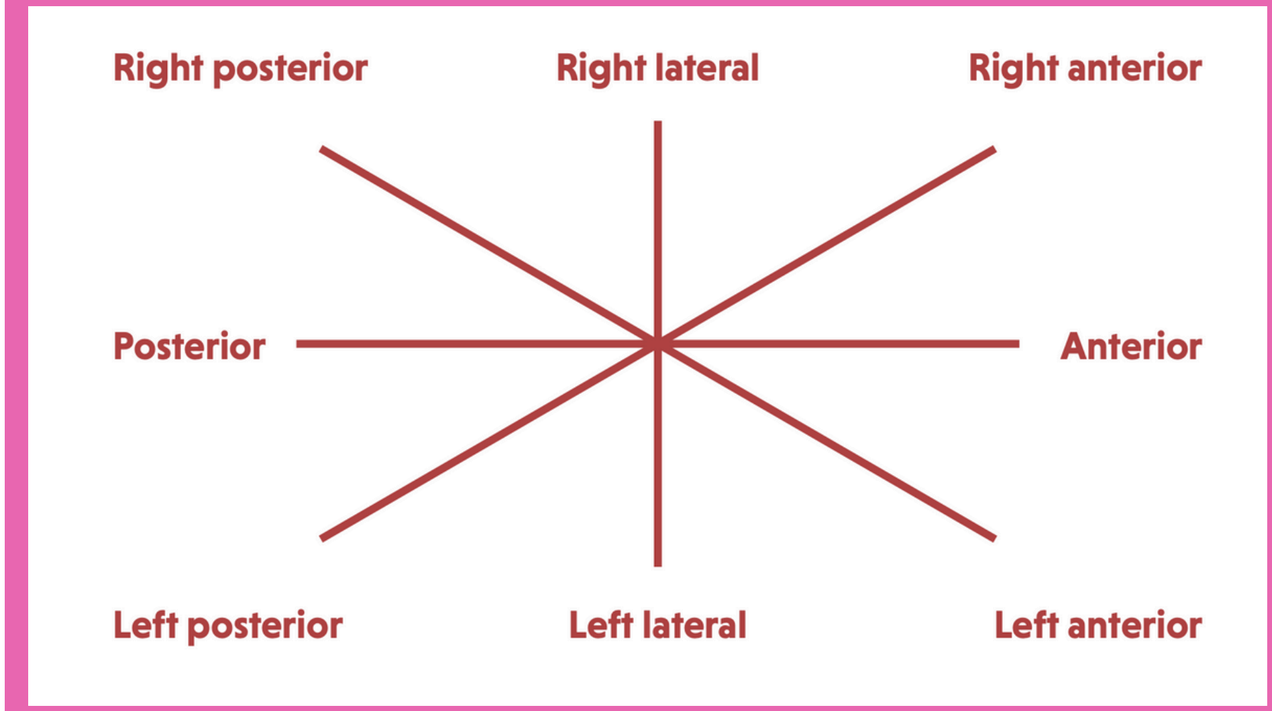
Anal Pap Collection

1. Advise not to douche or have an enema or insert anything into their anus for 24 hours prior to an anal cytology exam.
2. Lubricants should not be used prior to obtaining a cytology sample.
3. The buttocks are retracted to visualize the anal opening
4. **Using a Dacron or polyester tipped swab moistened in tap water is inserted for approximately 2 to 3 inches into the anus.**
5. The swab is rotated 360 degrees with firm lateral pressure applied to the end of the swab, such that it is bowed slightly and then it is slowly withdrawn over a period of 15 to 30 seconds from the anus, continuing to rotate the swab in a circular fashion.
6. The swab is placed in Hologic ThinPrep vial and vigorously agitated to disperse the cells for liquid based cytology. [8, 11]



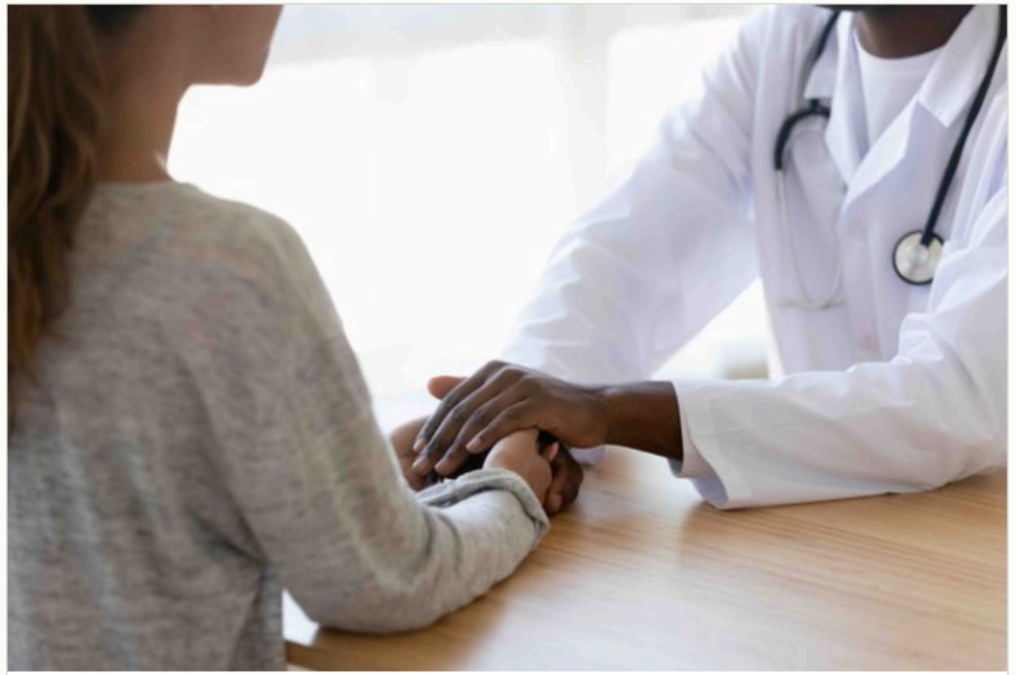
DARE – digital anal rectal exam





[10]

Video Demo of DARE + anal pap



Anal Cancer: A Primary Care Guide to Risks and Screening - UCSF MedConnection

Infectious disease specialist Cristina Brickman, MD, MSCE, explains how common anal cancer really is, which HPV types are associated, which patient populations should be screened and when to start – a...

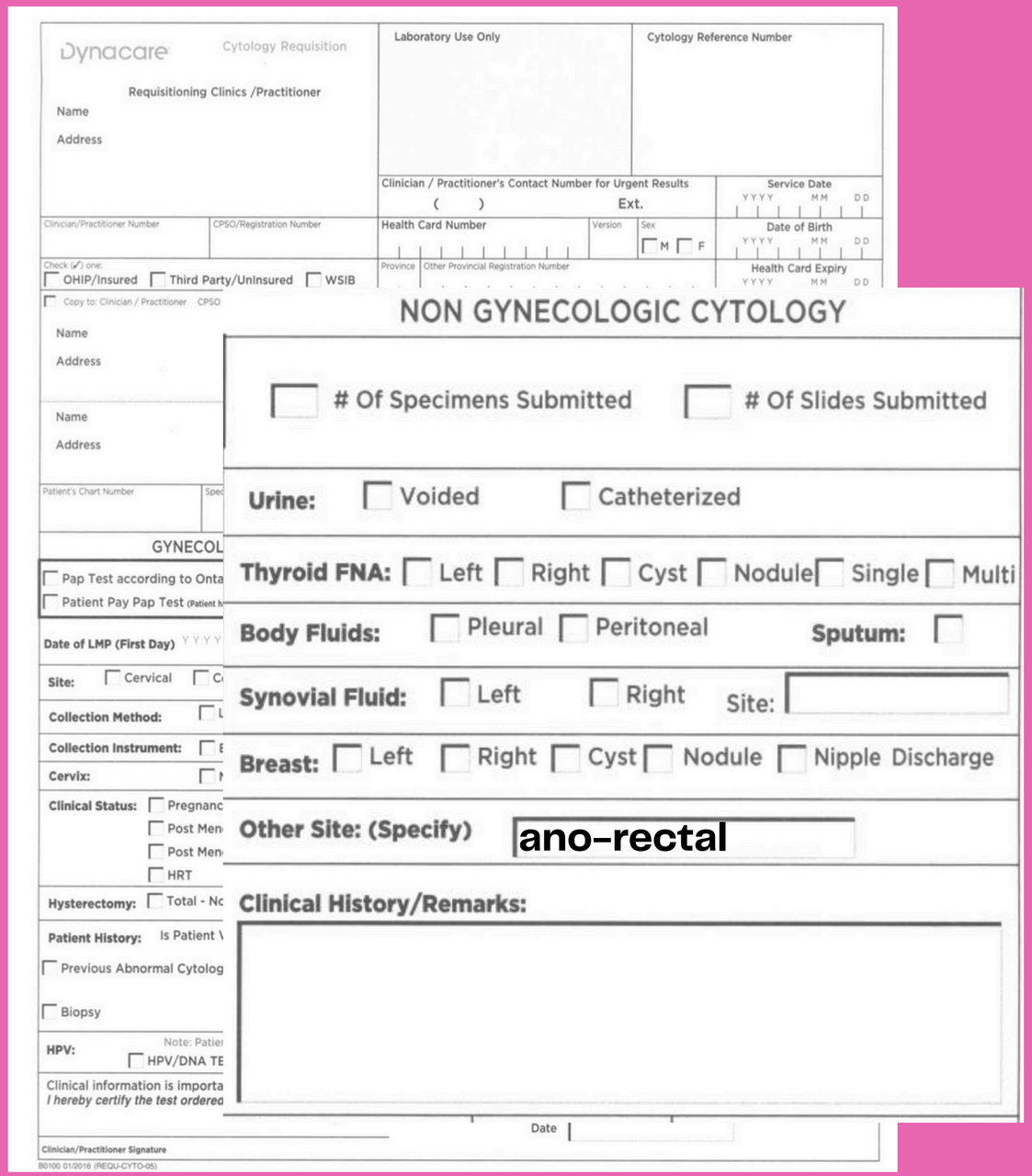
ucsfhealth.org / Feb 22, 2021

Go to 15:19 for video of demonstration

Note on Anal Pap Self-Collection

- Recent evidence shows no significant difference in the adequacy of the sample between self and provider collected specimen [12,13]
- Benefit of more patient autonomy and increased acceptability of screening
- Draw back is that while DARE can be performed by the patient, it requires a lot of training and careful patient selection
  - Therefore does not replace full clinical examination [10]
- Currently offered at HQ Toronto as an option for screening

Dynacare



Dynacare Cytology Requisition

Requisitioning Clinics /Practitioner

Name

Address

Laboratory Use Only

Cytology Reference Number

Clinician / Practitioner's Contact Number for Urgent Results ( ) Ext.

Service Date YYYY MM DD

Clinician/Practitioner Number

CPSO/Registration Number

Health Card Number

Version

Sex M F

Date of Birth YYYY MM DD

Check (✓) one: OHIP/Insured Third Party/UnInsured WSIB

Province

Other Provincial Registration Number

Health Card Expiry YYYY MM DD

Copy to: Clinician / Practitioner CPSO

Name

Address

Name

Address

Patient's Chart Number

GYNECOL

Pap Test according to Onta

Patient Pay Pap Test (Patient

Date of LMP (First Day) YYYY

Site: Cervical C

Collection Method:

Collection Instrument:

Cervix:

Clinical Status: Pregnanc

Post Men

Post Men

HRT

Hysterectomy: Total - No

Patient History: Is Patient

Previous Abnormal Cytolog

Biopsy

HPV: Note: Patie

HPV/DNA TE

Clinical information is importa

I hereby certify the test ordered

Date

Clinician/Practitioner Signature

B0100 01/2016 (REQU-CYTO-05)

NON GYNECOLOGIC CYTOLOGY

☐ # Of Specimens Submitted ☐ # Of Slides Submitted

Urine: ☐ Voided ☐ Catheterized

Thyroid FNA: ☐ Left ☐ Right ☐ Cyst ☐ Nodule ☐ Single ☐ Multi

Body Fluids: ☐ Pleural ☐ Peritoneal **Sputum:** ☐

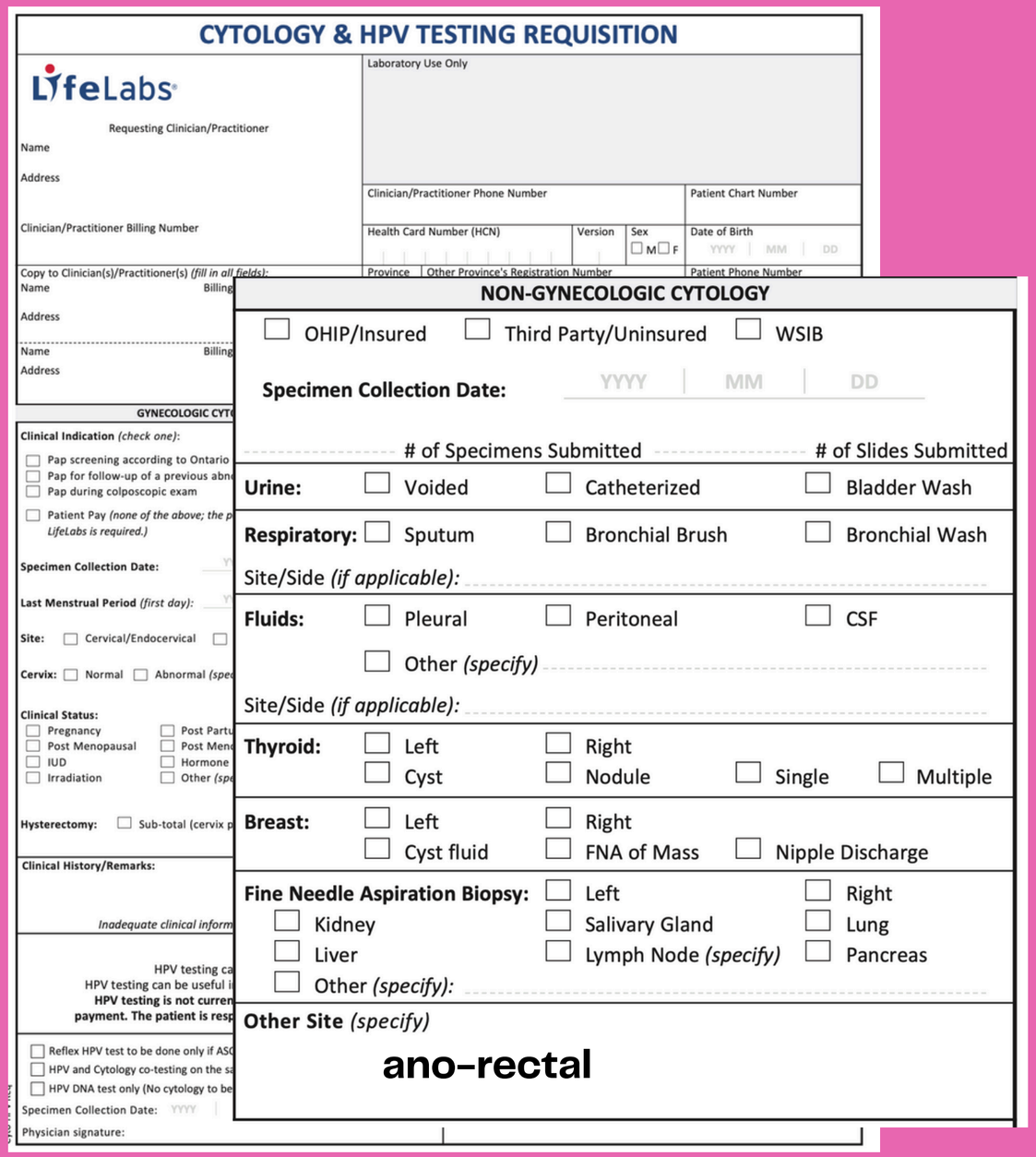
Synovial Fluid: ☐ Left ☐ Right Site:

Breast: ☐ Left ☐ Right ☐ Cyst ☐ Nodule ☐ Nipple Discharge

Other Site: (Specify) ano-rectal

Clinical History/Remarks:

LifeLabs



CYTOLOGY & HPV TESTING REQUISITION

LifeLabs

Requesting Clinician/Practitioner

Name

Address

Clinician/Practitioner Billing Number

Laboratory Use Only

Clinician/Practitioner Phone Number

Patient Chart Number

Health Card Number (HCN)

Version

Sex M F

Date of Birth YYYY MM DD

Province

Other Province's Registration Number

Patient Phone Number

Copy to Clinician(s)/Practitioner(s) *(fill in all fields)*:

Name Billing

Address

Name Billing

Address

GYNECOLOGIC CYT

Clinical Indication *(check one)*:

Pap screening according to Ontario

Pap for follow-up of a previous abn

Pap during colposcopic exam

Patient Pay *(none of the above; the p*

LifeLabs is required.)

Specimen Collection Date:

Last Menstrual Period *(first day)*:

Site: Cervical/Endocervical

Cervix: Normal Abnormal *(spec*

Clinical Status:

Pregnancy Post Partu

Post Menopausal Post Men

IUD Hormone

Irradiation Other *(spe*

Hysterectomy: Sub-total (cervix p

Clinical History/Remarks:

Inadequate clinical inform

HPV testing ca

HPV testing can be useful i

HPV testing is not curren

payment. The patient is resp

Reflex HPV test to be done only if ASC

HPV and Cytology co-testing on the sa

HPV DNA test only (No cytology to be

Specimen Collection Date: YYYY

Physician signature:

NON-GYNECOLOGIC CYTOLOGY

☐ OHIP/Insured ☐ Third Party/Uninsured ☐ WSIB

Specimen Collection Date: YYYY | MM | DD

# of Specimens Submitted | # of Slides Submitted

Urine: ☐ Voided ☐ Catheterized ☐ Bladder Wash

Respiratory: ☐ Sputum ☐ Bronchial Brush ☐ Bronchial Wash

Site/Side *(if applicable)*:

Fluids: ☐ Pleural ☐ Peritoneal ☐ CSF

☐ Other *(specify)*

Site/Side *(if applicable)*:

Thyroid: ☐ Left ☐ Right ☐ Cyst ☐ Nodule ☐ Single ☐ Multiple

Breast: ☐ Left ☐ Right ☐ Cyst fluid ☐ FNA of Mass ☐ Nipple Discharge

Fine Needle Aspiration Biopsy: ☐ Left ☐ Right

☐ Kidney ☐ Salivary Gland ☐ Lung

☐ Liver ☐ Lymph Node *(specify)* ☐ Pancreas

☐ Other *(specify)*:

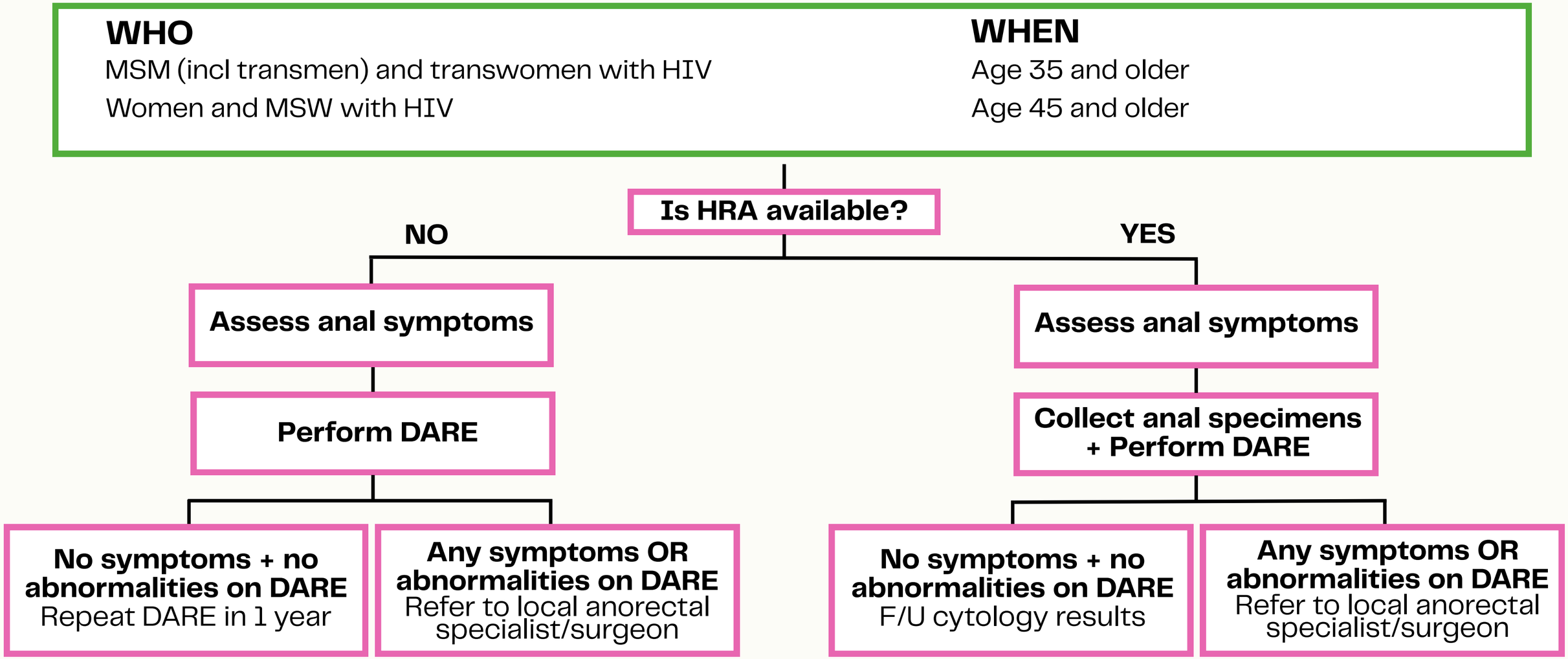
Other Site *(specify)*

ano-rectal

HRA – high resolution anoscopy

- Like colposcopy, HRA involves visualizing the anal canal under magnification.
- Acetic acid and iodine are used to help distinguish normal and abnormal tissue.
- Biopsies and treatment of high-grade squamous intraepithelial lesions (HSILs) may be done if needed.
- Treatment of HSILs may include [8]:
  - Topical medications (e.g., topical trichloroacetic acid, imiquimod, and fluorouracil)
  - Local destruction, such as electrocautery ablation (hyfrecation)
  - Surgical excision
- Generally people return to regular screening after being discharged from HRA however there may be exceptions with recommendations from the specialist.

Screening Algorithm for Anal Dysplasia in Asymptomatic Patients Living with HIV



[7-9]

CASE

DARE is normal and anal pap cytology is sent. A few weeks later the results show **high grade squamous intraepithelial lesion (HSIL).**

What is the next step in terms of explaining the results and further referral?

Anal Pap Cytology Interpretation

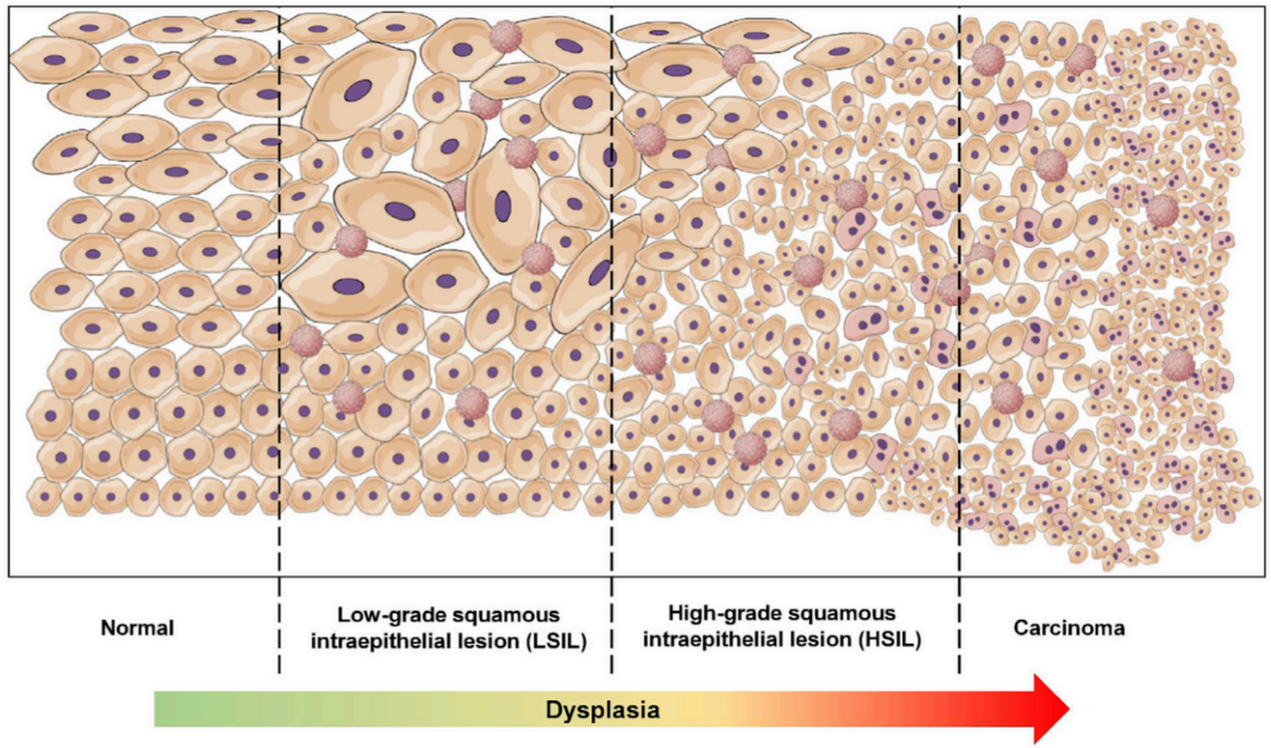


FIGURE 1 Continuum of anal dysplasia. Schematic of the progression of anal dysplasia. Starting on the left, normal epithelium is displayed. Further right, HPV-induced changes, including koilocytes,- occur increasingly and atypical keratinocytes can be found in the upper layers of the epithelium.

https://researchonline.lshtm.ac.uk/id/eprint/4677353/1/Chromy-etal-2025-German%E2%80%90austrian-guideline-on.pdf

Anal Cytology w/o HPV testing

High resource setting with access to HRA less than a 6 month wait

- **NILM** → **Repeat screening in 12 months**
- **ASC-US or higher** → **HRA referral**

Low resource setting with access to HRA more than a 6 month wait

- **NILM** → **Repeat screening in 12–24 months**
- **ASC-US or higher**
  - **ASC-US OR LSIL** → **Repeat screening in 12 months**
  - **ASC-H OR HSIL** → **HRA referral**

Abbreviations

NILM – negative for intraepithelial lesion or malignancy;
ASC-US – atypical squamous cells of undetermined significance;
LSIL– low-grade squamous intraepithelial lesion;
ASC-H atypical squamous cells cannot exclude high grade;
HSIL – high-grade intraepithelial lesion

[7]

CASE

You explain the results to the patient and refer to your local HRA provider for assessment.

You notice in the chart that Trevor, 37 years old, has not previously received a HPV vaccine. He does have private coverage, do you recommend vaccination for him?

Preventing HPV + Reducing Risk of Persistent Infection

- HPV Vaccination
- Smoking Cessation
- Optimize virologic suppression
- Barrier protection with condoms

HPV Nonavalen Vaccination

- For people with HIV aged **9 to 45 years** who are not adequately vaccinated:
  - Recommend the 3-dose nonavalent HPV vaccine series **regardless of:**
    - **CD4 cell count**
    - **Prior cervical or anal screening results**
    - **HPV test results**
    - **HPV-related cytologic changes**
    - **History of HPV related lesions [8]**

- Older than 45 years old, shared decision making including ongoing risk.

- Additional vaccination of nonavalent HPV vaccine not routinely recommended but may be discussed with patient [8,9].

Challenges integrating anal cancer/ dysplasia screening into regular practice

- **Workflow:**
  - Competing priorities within HIV care
  - Adminsitrative burden
  - Relationship with local laboratories

- **Provider-related:**
  - Lack of confidence with DARE and/or anal pap
  - Lack of guidance on appropriate patient selection and results management

- **Resources:**
  - Cost of supplies
  - Time
  - Limited local HRA referral access – for example even a well resourced region like Toronto is considered “low resourced” in terms of HRA access

Summary

- People living with HIV are at increased risk for anal cancer [1–3,5,6]
- Identifying and treating high-grade lesions helps to prevent progression to invasive lesions [5]
- IANS 2024 [7] provides guidance on anal dysplasia screening for asymptomatic patients
- Guideline is risk stratified, including age, and modified depending on HRA availability [7]
- HPV vaccination remains the cornerstone of anal cancer prevention

Local Context

Specific to Toronto, ON

Prioritize high risk groups

HRA access is limited and considered low-resource

HPV co-testing/triage not yet available

Local laboratories, community or hospital based

Screening Algorithm for Anal Dysplasia in Asymptomatic Patients – Local

WHO	WHEN
MSM (incl transmen) and transwomen with HIV	**Age 35 and older**
Women with HIV	**Age 45 and older**
MSW with HIV	**Age 45 and older**
MSM (incl transmen) and transwomen without HIV	Age 45 and older
History of vulvar HSIL or cancer	Within 1 year of diagnosis
Solid organ transplant recipient	10 years post-transplant

Assess anal symptoms, collect anal specimen and perform DARE

No symptoms + no abnormalities on DARE

NILM

Repeat in 12–24 months

ASC-US OR LSIL

Repeat in 12 months

ASC-H OR HSIL

HRA referral

Any symptoms OR abnormalities on DARE

Colorectal surgeon/specialist referral

Abbreviations

MS(M/W) – men who have sex with men/women
NILM – negative for intraepithelial lesion or malignancy
ASC-US – atypical squamous cells of undetermined significance
LSIL– low-grade squamous intraepithelial lesion
ASC-H – atypical squamous cells cannot exclude high grade
HSIL – high-grade intraepithelial lesion

[7-9]

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- Dr. Amy Bourns
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- Dr. Ann Burchell

Thank you! Questions?

Extra slide if needed to answer questions

Table 1: Anal Cancer Screening Strategies [a]			
Screening Strategy	**Sensitivity [b]**	**Specificity [b]**	**Benefits and Limitations**
Anal cytology alone	88% (95% CI, 85–90)	30% (95% CI, 27–33)	Has a high sensitivity but relatively low specificity and generates a large number of HRA referrals
Anal cytology with hrHPV triage	85% (95% CI, 82–88)	47% (95% CI, 44–50)	Generates fewer unnecessary HRAs than some other strategies but includes the second step of hrHPV determination
hrHPV alone	96% (95% CI, 95–97)	27% (95% CI, 25–30)	Has the highest sensitivity but lowest specificity and triggers the most HRA referrals
hrHPV with anal cytology triage	85% (95% CI, 82–88)	48% (95% CI, 44–51)	Generates fewer unnecessary HRAs than some other strategies but includes the second step of cytology
Anal cytology with hrHPV cotesting	89% (95% CI, 86–91)	40% (95% CI, 37–44)	An efficient strategy but requires coordination with laboratory services

Abbreviations: ASC-US, atypical squamous cells of undetermined significance; CI, confidence interval; HRA, high-resolution anoscopy; hrHPV, high-risk human papillomavirus.

Notes:

a. Adapted from [Liu, et al. 2024].
b. For predicting anal high-grade squamous intraepithelial lesions.

Cumulative Risk for Anal Cancer from 2012–2020 in ON, Canada

By age 65 years for people with and without HIV infection

People Living with HIV	People Not Living with HIV
1.8% (1.3–2.3)	0.02% (0.0–0.1)

[6]