Anal Dysplasia Screening Cascade within a Single-Center Outpatient HIV Clinic

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TERMINOLOGY

- ASCUS = atypical cells of unknown significance
- HIV = human immunodeficiency virus
- HSIL = high-grade squamous intraepithelial lesions
- HRA = high-resolution anoscopy
- LSIL = low-grade squamous intraepithelial lesions
- MSM = men who have sex with men

BACKGROUND

- Incidence of anal cancer is significantly higher among HIV-positive MSM than the general population[1].
- Anal cancer is preceded by HSIL. Treating HSIL reduces the risk of progression to anal cancer[2].
- Regular screening for HSIL within HIV-positive MSM populations is recommended[3].

OBJECTIVES

- Identify the largest barriers to successful completion of the institutional anal dysplasia screening cascade within a single-center outpatient HIV clinic.
- Assess the pathologic outcomes of the anal dysplasia screening cascade.

METHODS

- Single-center retrospective cohort study at Johns Hopkins Bartlett Clinic between October 1, 2019 and April 30, 2021.
  - This study was declared exempt by the Johns Hopkins Medicine IRB.
- Automated electronic medical record data recognition and extraction was used to identify male patients with at least one in-person clinical encounter. Medical record numbers were cross-referenced with the clinic CareWare database of patient-reported sociodemographic descriptors to identify MSM patients.
- Medical records of MSM patients underwent manual chart review for anal Pap date and results, referral for HRA, and HRA completion date and results.
- The primary outcome was successful navigation of the institutional anal dysplasia screening cascade, defined as:
  (1) anal Pap testing with a normal result, or
  (2) anal Pap testing with interdeterminate result followed by repeat Pap with conclusive pathology and appropriate follow up or
  (3) abnormal anal Pap results with subsequent HRA.

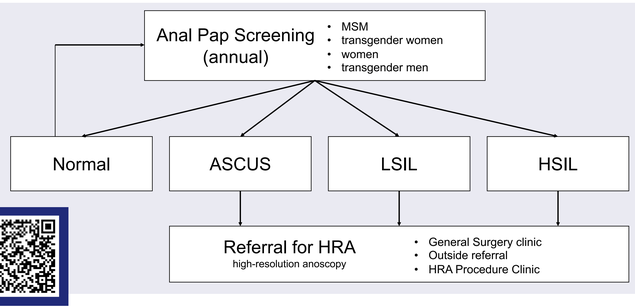

Figure 1. Bartlett clinic anal dysplasia screening cascade.

RESULTS

Table 1. Patient demographics

	Anal Pap	No Anal Pap	p-value
Age (mean, range)	43 (20-82)	48 (18-89)	0.0003
Race/Ethnicity (n, %)			
American Indian or Alaska Native	0	2 (<1%)	n/a
Asian	0	10 (2%)	n/a
Black/African American	141 (74%)	394 (67%)	0.892
Native Hawaiian	0	1 (<1%)	n/a
Pacific Islander	0	0	n/a
White/Caucasian	34 (18%)	155 (26%)	0.700
Other	15 (8%)	26 (4%)	0.369
Choose Not to Disclose/Unknown	0	1 (<1%)	n/a

Table 2. Breakdown of clinical encounter and anal Pap frequency [n].

MSM with a Clinical Encounter	779
MSM with 1 Anal Pap	161
MSM with 2 Anal Paps	29
Indeterminate requiring repeat	4
'Annual' with 2 Paps in study window	25

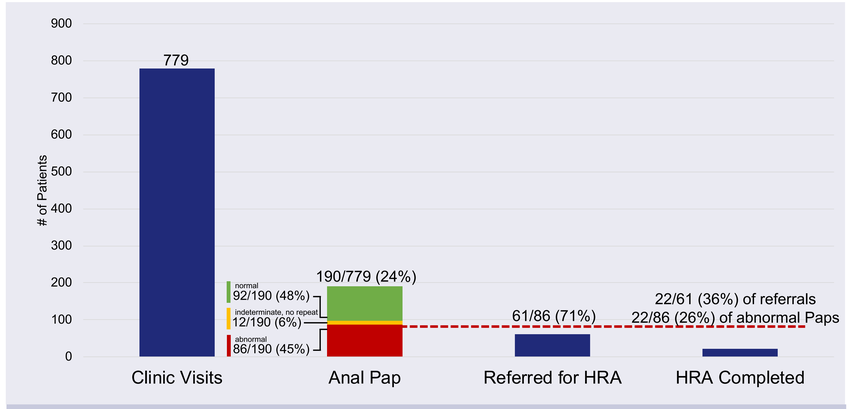

Figure 3. Anal dysplasia screening cascade for HIV-positive MSM patients seen for in-person clinic visits.

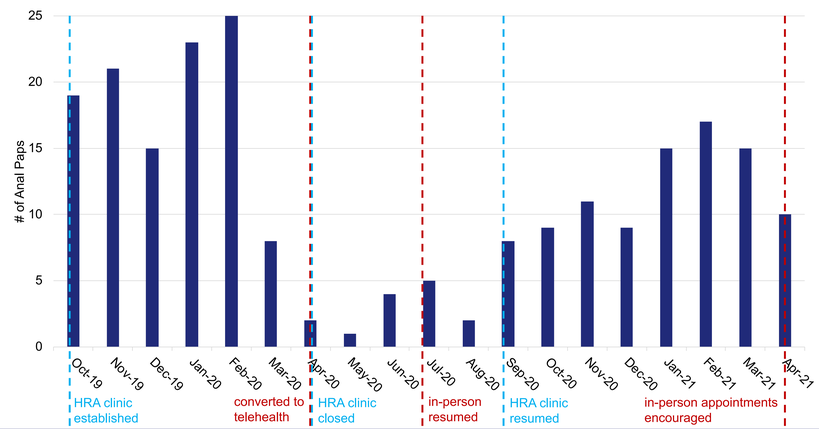

Figure 2. Incidence of anal Pap screening during an in-person clinic encounter, October 1, 2019 through April 30, 2021.

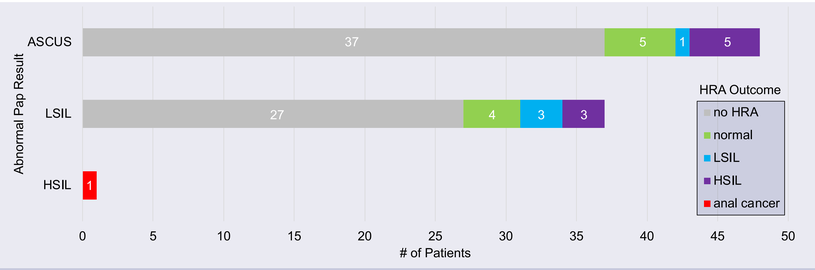

Figure 4. Pathology outcomes of anal Pap screening and subsequent HRA biopsy.

- Successful navigation of the anal dysplasia cascade was completed by 114/779 (15%) of MSM seen for an in-person clinic encounter.
  - 92 patients completed anal Pap screening with a normal result.
    - 90 patients with normal results from first Pap.
    - 2 patients with indeterminate result followed by normal result on repeat.
  - 22 patients with abnormal anal Pap results underwent HRA.
    - 21 patients underwent HRA after abnormal first Pap.
    - 1 patient with indeterminate result followed by abnormal Pap on repeat and HRA.
- 8/22 (36%) of HRAs following an abnormal Pap contained HSIL.

LIMITATIONS

- Small sample size; single-center study.
- COVID-related screening/referral disruption.
- Temporal and provider-specific variation in practice and referral placement.
- Did not assess previous dysplasia history and association with likelihood of receiving anal Pap screening and/or having an abnormal Pap result.

POSSIBLE FUTURE DIRECTIONS

- Qualitative assessment of patients and providers on barriers to completing anal Paps.
- Inclusion of other populations including HIV-positive women.
- Re-evaluation following streamlining of HRA referral and scheduling assistance.
- Provider education on screening and referral for ASCUS and LSIL.
- Evaluation for additional underlying risk factors such as hepatitis B infection, tobacco use, and low CD4 count[3].

CONCLUSIONS

- A minority of HIV-positive MSM patients navigated the anal dysplasia screening cascade successfully.
- Largest step-offs within the screening cascade included:
  (1) Undergoing screening anal Pap during an in-person clinic visit.
  (2) Scheduling a referral placed for HRA.
- Anal Pap pathology does not directly correlate with dysplasia severity when compared to pathology from HRA biopsy. HRA for all patients with an abnormal anal Pap may be indicated.

REFRENCES
[1] D'Souza, G., et al. (2008). Incidence and epidemiology of anal cancer in the Multicenter AIDS Cohort Study (MACS). *JAIDS, 48*(4), 491.
[2] Palefsky, J. M., et al. (2022). Treatment of anal high-grade squamous intraepithelial lesions to prevent anal cancer. *NEJM*, *386*(24), 2273-2282.
[3] Hirsch, B. E., et al. (2022). Screening for Anal Dysplasia and Cancer in Adults With HIV.