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Supplementary Materials

Anal Cancer Screening Attitudes and Practices in Maryland Healthcare Providers: Implications for National Trends

Sophia Y. Chen MD MPH[1], Ira L. Leeds MD MBA MHS[1], Marcelo Cerullo MD MPH[1], Joyce L. Jones MD MS[2], Ulrike K. Buchwald MD[3], Jonathan E. Efron MD[1], Susan L. Gearhart MD[1], Bashar Safar MBBS[1], Sandy H. Fang MD[1]*

[1]Department of Surgery, Johns Hopkins University School of Medicine, 600 N. Wolfe Street, Blalock 618, Baltimore, MD 21287, USA

[2]Department of Medicine, Johns Hopkins University School of Medicine, 600 N. Wolfe Street, Carnegie 346 ID, Baltimore, MD 21287, USA

[3]Department of Medicine, Division of Infectious Diseases and Institute of Human Virology, University of Maryland School of Medicine, 725 W. Lombard Street, Baltimore, MD 21201, USA

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ABSTRACT

Background: Anal cancer incidence is increasing in the US. Though formally established national anal cancer screening guidelines are nonexistent, many providers advocate screening to avoid late disease presentation. This study assesses the knowledge, attitudes, and practices of anal cancer screening among providers to identify the degree of variation and barriers to screening.

Methods: Healthcare providers from two academic medical centers and a statewide community primary care group were surveyed using a questionnaire adapted from the National Survey of Primary Care Physicians' Recommendations and Practice for Cancer Screening. Descriptive statistics were performed to explore providers' responses and Fisher's exact test to explore variation.

Results: 86 providers completed the questionnaire (response rate 24.2%): 81.4% physicians, 18.6% advanced practitioners. 48.2% of respondents perform anal cancer screening. 5.8% correctly identified all high-risk patient factors. "HIV+ patient" was identified most frequently as high-risk (93.5%), "organ transplant recipient" (42.9%) least frequently. Anal pap test was the most recommended first-line screening test (76.6%) followed by digital anorectal exam (19.2%), HPV test (8.5%), and high-resolution anoscopy (HRA) (6.4%). Clinical evidence (72.3%) and national guidelines (70.2%) were most influential in guiding providers' screening recommendations. Lack of qualified screening providers (34.1%), lack of patient follow-up after positive test results (22.7%), and patient non-compliance to initial screening (15.9%) were identified as "usual" barriers.

Conclusions: Anal cancer screening attitudes and practices vary among providers. Development of national practice guidelines that define a multidisciplinary team approach from primary care anal cancer screening to specialist referral for HRA may reduce screening variability.

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Correspondence to: Sandy H. Fang, MD, Assistant Professor of Surgery, Johns Hopkins University School of Medicine, Department of Surgery, Colorectal Ravitch Division, 600 N. Wolfe Street, Blalock 618, Baltimore, MD 21287 USA; Tel: 410-955-7323; Fax: 410-614-9866; E-mail: sfang7@jhmi.edu

SUPPLEMENT A. Anal cancer screening survey questionnaire

Anal Cancer Screening Knowledge, Attitudes, and Practices Survey

Purpose: This is a survey to assess anal cancer screening knowledge, attitudes, and practices among healthcare providers.

All responses will be recorded confidentially and stored securely. Results will only be presented in aggregate to further protect the privacy of your responses. Your completion of this survey will serve as your consent to be in this study. Thank you for your time and attention. We appreciate your participation!

1. Are you a medical doctor (MD), nurse practitioner (NP), or physician's assistant (PA)?
- ❑ Medical Doctor--Board-Certified/Board-Eligible (1)
- ❑ Medical Doctor--Resident/Fellow (2)
- ❑ Nurse Practitioner (3)
- ❑ Physician's Assistant (4)

2. How many years have you been practicing as an independently-certified provider in your area of practice?
_____

3. What is your practice specialty?
- ❑ Primary Care Physician (1)
- ❑ Infectious Disease Physician (practicing as primary care and/or specialist) (2)
- ❑ OB/GYN (3)
- ❑ Other (specify) (4) _____

4. What state do you practice in?
_____

5. What type of setting is your practice?
- ❑ Academic (1)
- ❑ Community (2)
- ❑ Other: (3) _____

6. What is your gender?
- ❑ Male (1)
- ❑ Female (2)
- ❑ Other (3)

7. What is your age in years?
_____

8. Do you screen patients for anal cancer in your practice?
- ❑ Yes (1)
- ❑ No (2)

9. To the best of your knowledge, which characteristics of patients are considered high-risk for anal cancer? (MAY SELECT MULTIPLE ANSWERS)
- ❑ a. HIV-positive (1)
- ❑ b. Organ transplant recipient (2)
- ❑ c. Men who have sex with men (MSM) (3)
- ❑ d. Female patient with abnormal cervical exam (including cervical pap results) (4)
- ❑ e. History of anal condyloma (5)
- ❑ f. History of vulvar condyloma/dysplasia (6)
- ❑ g. HPV-positive alone (7)
- ❑ h. Unable to respond: the initial risk assessment of anal cancer lies outside my scope of practice. (8)

*NOTE: For all subsequent questions "high-risk" refers to how you defined a high-risk population from the previous question.

10. How effective do you believe the following screening procedures are in reducing anal cancer mortality in high-risk* patients? (*High-risk as you previously defined in this survey)

	Very effective (1)	Somewhat effective (2)	Not effective (3)	Unaware of effectiveness (4)	Unfamiliar with test (9)
a. Digital anorectal exam	❑	❑	❑	❑	❑
b. Anal pap test	❑	❑	❑	❑	❑
c. HPV testing	❑	❑	❑	❑	❑
d. High resolution anoscopy	❑	❑	❑	❑	❑

11. Which of the following tests or combinations would you recommend as first-line screening for each of the following patients?

	Digital anorectal exam (1)	Anal pap test (2)	HPV testing (3)	High resolution anoscopy (4)	Other (5)	No screening (6)
a. Patient with HIV	❑	❑	❑	❑	❑	❑
b. Patient who is an organ transplant recipient	❑	❑	❑	❑	❑	❑
c. Male patient who has sex with men (MSM)	❑	❑	❑	❑	❑	❑
d. Female patient with abnormal cervical exam (includes cervical pap results)	❑	❑	❑	❑	❑	❑
e. Patient with anal condyloma	❑	❑	❑	❑	❑	❑
f. Patient with vulvar condyloma/dysplasia	❑	❑	❑	❑	❑	❑
g. Patient who is HPV-positive	❑	❑	❑	❑	❑	❑

11.1 If selected "Other" in above question, please specify:
_____

12. When do your patients typically have high-resolution anoscopy (HRA) performed?
❑   Almost never (1)
❑   Only if positive by at least one of the first-line tests above (2)
❑   Only if positive by multiple tests above (3)
❑   All high-risk patients regardless of other screening test results (4)
❑   All patients regardless of other screening test results or their medical history (5)

13. Which of the following *least* restrictive criteria describes your general screening recommendations in you practice? Note: If all the patients you see in your practice are high-risk patients (ex. all HIV patients), please select "high-risk patients" as your answer choice instead of "all patients"
❑   Nearly all my patients (1)
❑   Asymptomatic, high risk (as you previously defined above) (2)
❑   All symptomatic patients (3)
❑   Symptomatic, high risk (as you previously defined above) (4)
❑   Almost no patients (5)

14. How likely are you to recommend anal cancer screening for MSM patients with HIV compared to the general population?
❑   More Likely (1)
❑   Less Likely (2)
❑   Same (3)

15. How often do you discuss with your asymptomatic patients their risk for anal cancer?
❑   Never (1)
❑   < 50% of the time (2)
❑   > 50% of the time (3)
❑   Usually (4)
❑   Almost always (5)

16. To what extent are the following factors influential in your recommendations for anal cancer screening?

	Very influential (1)	Somewhat influential (2)	Not influential (3)	N/A or Not familiar with (4)
a. Clinical evidence in the published literature (1)	❑	❑	❑	❑
b. Consensus national guidelines (2)	❑	❑	❑	❑
c. Availability of reimbursement by 3rd party payers, including Medicare and Medicaid (3)	❑	❑	❑	❑
d. Availability of providers to whom I can refer my patients for screening (4)	❑	❑	❑	❑
e. How colleagues in my practice or local community provide anal cancer screening for their patients. (5)	❑	❑	❑	❑
f. My patients' preferences for anal cancer screening (6)	❑	❑	❑	❑
g. Cost of screening tests for patients with no 3rd party coverage (7)	❑	❑	❑	❑

17. How often did you present more than one test option while discussing first-line anal cancer screening with your asymptomatic, high-risk* patients during the past 12 months? (SELECT ONE)
(*High-risk as you previously defined in this survey)
- ❑   Never (1)
- ❑   Rarely (2)
- ❑   Sometimes (3)
- ❑   Usually (4)

18. Which of the following screening tests do you discuss with your patients during initial counseling?
(SELECT ALL THAT APPLY)
- ❑   a. Digital anorectal exam (DARE) (1)
- ❑   b. Anal pap test (2)
- ❑   c. HPV testing (3)
- ❑   d. High resolution anoscopy (HRA) (4)

19. How often did you recommend any one particular anal cancer screening test or test combination over others while discussing anal cancer screening with your asymptomatic, high-risk* patients during the past 12 months? (SELECT ONE) (*High-risk as you previously defined in this survey)
- ❑   Never (1)
- ❑   Rarely (2)
- ❑   Sometimes (3)
- ❑   Usually (4)

20. Indicate the one screening test or test combination that you recommended over others to your high-risk* patients.(*High-risk as you previously defined in this survey)
- ❑   a. Digital anorectal exam (DARE) (1)
- ❑   b. Anal pap test (2)
- ❑   c. HPV testing (3)
- ❑   d. High resolution anoscopy (HRA) (4)
- ❑   e. Other (specify): (5) _____

21. What is your next step if a patient has an anal pap test that shows high-grade squamous intraepithelial lesion (HSIL)? (SELECT ALL THAT APPLY)
- ❑   Repeat anal pap test (1)
- ❑   Perform reflex high resolution anoscopy (HRA) (2)
- ❑   HPV testing (3)
- ❑   Referral to a specialist (4)
- ❑   Other (specify) (5) _____

22. How often do you encounter the following barriers to anal cancer screening for asymptomatic, high-risk* patients in your practice? (SELECT ONE FOR EACH ROW)(*High-risk as you previously defined in this survey)

	Never (1)	Rarely (2)	Sometimes (3)	Usually (4)
a. My patients do not follow through to complete anal cancer screening tests (1)	❑	❑	❑	❑
b. There is a shortage of trained providers in my geographic area of practice to conduct screening (2)	❑	❑	❑	❑
c. Follow-up of positive screening tests (3)	❑	❑	❑	❑
d. Other (specify): (4)	❑	❑	❑	❑

23. Over the past 3 years, has the volume of anal cancer screening procedures that you order, perform, or supervise:
(SELECT ONE FOR EACH ROW)

	Increased >20% per year (1)	Increased <20% per year (2)	Stayed same (3)	Decreased >20% per year (4)	Decreased <20% per year (5)	Don't know (6)
a. Digital anorectal exam (1)	❑	❑	❑	❑	❑	❑
b. Anal pap test (2)	❑	❑	❑	❑	❑	❑
c. HPV testing (3)	❑	❑	❑	❑	❑	❑
d. High resolution anoscopy (4)	❑	❑	❑	❑	❑	❑

24. How often do you personally perform/supervise anal cancer screening?
❑   Never (1)
❑   Rarely (2)
❑   Sometimes (3)
❑   Usually (4)

25. What is the most common test you perform/supervise?
❑   Digital anorectal exam (DARE) (1)
❑   Anal pap test (2)
❑   HPV testing (3)
❑   High resolution anoscopy (HRA) (4)
❑   Other (specify): (5) _____

26. During a typical month, how many times do you perform the following screening tests?
(SELECT ONE FOR EACH ROW)

	0 (1)	1-5 (2)	6-10 (3)	11-20 (4)	> 20 (5)
a. Digital anorectal exam (1)	❑	❑	❑	❑	❑
b. Anal pap (2)	❑	❑	❑	❑	❑
c. HPV testing (3)	❑	❑	❑	❑	❑
d. High resolution anoscopy (4)	❑	❑	❑	❑	❑

27. What is your preferred surveillance interval following patient diagnosis of high-grade anal dysplasia?
❑   Please Specify: (1) _____
❑   Don't Know (2)

28. What is your preferred surveillance interval following patient diagnosis of anal cancer?
❑   Please Specify: (1) _____
❑   Don't Know (2)

SUPPLEMENT B. Provider preferences of first-line screening tests for specific high-risk populations.

		Academic 30 (81.1)			Community 7 (18.9)			
Patient Risk Factor	DARE	Anal pap test	HPV	HRA	DARE	Anal pap test	HPV	HRA
HIV	8 (26.7)	21 (70.0)	7 (23.3)	2 (6.7)	3 (50.0)	3 (50.0)	2 (33.3)	0 (0.0)
Organ transplant	8 (21.1)	15 (39.5)	8 (21.1)	0 (0.0)	4 (57.1)	2 (28.6)	2 (28.6)	0 (0.0)
MSM	10 (33.3)	28 (93.3)	7 (23.3)	2 (6.7)	3 (42.9)	4 (57.1)	2 (28.6)	0 (0.0)
Abnormal cervical exam	7 (23.3)	21 (70.0)	6 (20.0)	1 (3.3)	3 (42.9)	1 (14.3)	3 (42.9)	1 (14.3)
Anal condyloma	10 (33.3)	27 (90.0)	8 (26.7)	3 (10.0)	3 (42.9)	2 (28.6)	1 (14.3)	2 (28.6)
Vulvar condyloma	6 (20.0)	17 (15.4)	6 (20.0)	2 (6.7)	2 (28.6)	2 (28.6)	2 (28.6)	1 (14.3)
HPV[a]	4 (13.8)	15 (51.7)	2 (6.9)	2 (6.9)	3 (42.9)	4 (57.1)	0 (0.0)	0 (0.0)

[a]Missing data: HPV, n=36