

## Supplemental Online Content

Atlas SJ, Tosteson ANA, Burdick TE, et al. Primary care practitioner perceptions on the follow-up of abnormal cancer screening test results. *JAMA Netw Open*. 2022;5(9):e2234194. doi:10.1001/jamanetworkopen.2022.34194

**eTable 1.** Independent Predictors (Cancer Type, PCP and Practice Characteristics) of Questionnaire Responses Using Multivariable Logistic Regression Models

**eTable 2.** Mechanisms to Alert PCPs, Standard Processes to Remind Patients that They are Overdue, and Barriers to Follow-up of Abnormal Screening Results by Cancer Type

This supplemental material has been provided by the authors to give readers additional information about their work.

**eTable 1.** Independent Predictors (Cancer Type, PCP and Practice Characteristics) of Questionnaire Responses Using Multivariable Logistic Regression Models <sup>a</sup>

Predictor (reference), aOR (95%CI)	Cancer Type (breast)			PCP Age (≤50)	PCP Sex (Female)	PCP Specialty (Internal Medicine)	# Patients (<50/week)	Site (MGH)
	Cervical	Colorectal	Lung					
<b>Responsible for notifying patient (%)</b>								
PCP	2.60 (1.95-3.48)	NS	7.67 (5.48-10.7)	-	1.72 (1.15-2.57)	0.44 (0.20-0.96) <sup>b</sup>	NS	0.40 (0.21-0.77) <sup>d</sup>
Provider performing test	3.80 (2.71-5.33)	11.43 (7.7-17.0)	NS	0.67 (0.46-0.96)	-	4.26 (2.27-8.0) <sup>b</sup>	-	-
Provider interpreting test	0.00 (0.00-0.01)	0.05 (0.04-0.08)	0.03 (0.02-0.05)	-	1.58 (1.00-2.51)	-	-	-
<b>Responsible for managing result follow-up (%)</b>								
PCP	NS	1.36 (1.07-1.73)	2.67 (2.00-3.56)	-	-	0.44 (0.21-0.92) <sup>b</sup>	-	0.33 (0.17-0.65) <sup>d</sup>
Provider performing test	3.32 (2.50-4.40)	3.01 (2.31-3.91)	NS	-	-	2.88 (1.48-5.62) <sup>b</sup>	-	-
Provider interpreting test	0.01 (0.01-0.04)	0.08 (0.05-0.12)	0.09 (0.06-0.15)	-	-	0.41 (0.17-1.00) <sup>b</sup>	NS	-
<b>Automated report alerts for review to</b>								
PCP	NS	1.13 (1.00-1.28)	NS	-	-	0.28 (0.09-0.84) <sup>b</sup>	-	-
Other team member	NS	NS	0.61 (0.48-0.77)	-	-	3.45 (1.62-7.35) <sup>c</sup>	-	0.31 (0.11-0.85) <sup>d</sup>
<b>Standard reminder processes</b>								
Reminder letter sent by mail or patient portal	0.80 (0.65-0.98)	0.69 (0.58-0.82)	0.47 (0.37-0.61)	-	-	NS	NS	NS
Automated phone call or text	-	-	-	-	-	NS	-	NS
Population health manager or patient navigator	NS	NS	0.60 (0.47-0.76)	-	-	-	-	0.45 (0.27-0.76) <sup>e</sup> ; 0.14 (0.04-0.47) <sup>d</sup>

Predictor (reference), aOR (95% CI)	Cancer Type (breast)			PCP Age (≤50)	PCP Sex (Female)	PCP Specialty (Internal Medicine)	# Patients (<50/ week)	Site (MGH)
	Cer- vical	Colo- rectal	Lung					
<b>Ease of scheduling follow-up for abnormal screens, very easy</b>								
Repeat mammogram or ultrasound	NA	NA	NA	-	NS	-	-	0.38 (0.18-0.78) <sup>e</sup>
Breast biopsy	NA	NA	NA	-	0.41 (0.24-0.70)	-	-	0.37 (0.21-0.65) <sup>e</sup>
Appointment with breast surgeon	NA	NA	NA	NS	0.39 (0.22-0.69)	-	-	0.16 (0.09-0.30) <sup>e</sup>
Colposcopy	NA	NA	NA	-	-	2.64 (1.15-6.07) <sup>b</sup>	NS	0.49 (0.26-0.93) <sup>e</sup>
Appointment with gynecologist	NA	NA	NA	-	-	3.07 (1.33-7.06) <sup>b</sup>	NS	NS
Colonoscopy	NA	NA	NA	-	NS	-	-	0.44 (0.25-0.76) <sup>e</sup>
Chest/ PET CT	NA	NA	NA	-	NS	-	-	-
Appointment with lung specialist	NA	NA	NA	-	2.06 (1.05-4.03)	-	-	-
<b>Barriers to Follow-up of Abnormal Screens</b>								
Limited EHR tools to facilitate management	1.47 (1.25-1.72)	1.39 (1.18-1.65)	1.38 (1.17-1.63)	-	-	NS	0.44 (0.25-0.76)	-
Limited staff to assist in my practice	1.23 (1.07-1.41)	1.20 (1.02-1.42)	1.30 (1.10-1.54)	0.48 (0.26-0.88)	-	-	-	NS
Limited time to discuss	NS	NS	1.54 (1.23-1.94)	-	-	-	-	-
Patients have social barriers to receiving care	1.20 (1.06-1.36)	5.02 (3.72-6.78)	1.24 (1.06-1.46)	-	-	-	-	-
Guidelines/recommendations difficult/complex	2.39 (1.23-4.65)	NS	2.52 (1.48-4.31)	-	-	-	-	2.68 (1.19-6.05) <sup>d</sup>
Limited availability of specialist	4.09 (1.80-9.30)	2.71 (1.23-5.96)	4.44 (2.05-9.60)	0.35 (0.16-0.75)	-	0.22 (0.05-0.99) <sup>c</sup>	-	-
Patients do not understand importance of timely follow-up	2.16 (1.50-3.11)	2.82 (1.99-4.00)	2.13 (1.50-3.02)	-	-	NS	-	NS
Patients have insurance/financial barriers	NS	1.53 (1.19-1.97)	1.64 (1.25-2.14)	-	NS	-	NS	3.53 (1.56-7.98) <sup>d</sup>

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	Cer- vical	Colo- rectal	Lung					
<b>Knowledge of Recommended Timing of Follow-up</b>								
55 year old woman with a mammogram with a BIRADS 5 result: 3 months	NA	NA	NA	-	0.29 (0.14-0.63)	-	-	0.36 (0.16-0.83) <sup>e</sup>
55 year old woman with a mammogram with a BIRADS 3 result: 6 months	NA	NA	NA	NS	NS	-	-	-
60 year old man with positive FIT/FOBT: 3 months	NA	NA	NA	NS	-	NS	-	0.22 (0.07-0.65) <sup>e</sup>
65 year old man with 10 or more adenomatous polyps: 1 year	NA	NA	NA	-	-	NS	-	-
70 year old man with a single 1.5cm adenomatous polyp: 3 years	NA	NA	NA	-	-	-	-	0.54 (0.31-0.94) <sup>e</sup>
33 year old woman with HSIL Pap, HPV+ and no history of abnormal screening results: 3 months	NA	NA	NA	-	0.19 (0.10-0.37)	-	-	NS
23 year old woman whose first Pap shows ASCUS with a negative HPV test: 1 year	NA	NA	NA	-	-	-	-	2.32 (1.02-5.26) <sup>d</sup>
60 year old man with a low dose lung CT with an	NA	NA	NA	NS	-	NS	-	0.49 (0.27-0.89) <sup>e</sup>

LRADS 4b result: 3 months								
60 year old man with a low dose lung CT with an LRADS 3 result: 6 months	NA	NA	NA	NS	-	NS	-	0.39 (0.23- 0.69) <sup>e</sup>
Satisfaction with the Process of Managing Abnormal Screens Results, very satisfied	0.30 (0.22- 0.40)	0.38 (0.29- 0.51)	0.32 (0.24- 0.42)	NS	NS	-	1.77 (1.09- 2.86)	0.44 (0.27- 0.74) <sup>e</sup>

aOR – adjusted odds ratio; PCP – primary care practitioner; MGH – Massachusetts General Hospital; “-” variable did not meet criteria for model entry; NS – Variable entered into model but not statistically significant; NS – cancer type not included in model; PET CT – Positron emission tomography computerized tomography; EHR – electronic health record; BIRADS – Breast Imaging Reporting and Data System; FIT/FOBT – fecal immunochemical test/fecal occult blood test; HSIL – high grade squamous intraepithelial lesion; HPV – human papilloma virus; ASCUS – atypical squamous cells of undetermined significance; CT – computerized tomography; LRADS - Lung Imaging Reporting and Data System

<sup>a</sup> Logistic regression with GEE models including potential predictors significant at 0.15 level in the bivariate analysis presented as adjusted odds (aOR) ratio with 95% confidence intervals (95%CI)

<sup>b</sup> PCP specialty: nurse practitioner/physician assistant

<sup>c</sup> PCP specialty: family medicine provider

<sup>d</sup> Site: Dartmouth Health

<sup>e</sup> Site: Brigham and Women’s Hospital

**eTable 2.** Mechanisms to Alert Primary Care Practitioners, Standard Processes to Remind Patients that They are Overdue, and Barriers to Follow-up of Abnormal Screening Results by Cancer Type

Mechanisms to Alert PCPs, N (%)	Breast cancer	Cervical cancer	Colorectal cancer	Lung cancer
Automated report alerts for review to <sup>a</sup>				
PCP	36 (13.1)	40 (14.5)	40 (14.5)	34 (12.4)
Other team member	68 (24.7)	72 (26.2)	66 (24.0)	46 (16.7)
Standard reminder processes <sup>b</sup>				
Reminder letter sent by mail or patient portal	99 (36.0)	86 (31.3)	78 (28.4)	60 (21.8)
Automated phone call or text	7 (2.5)	5 (1.8)	5 (1.8)	4 (1.5)
Population health manager or patient navigator	92 (33.5)	94 (34.2)	98 (35.6)	65 (23.6)
Barriers to follow-up, <sup>c</sup> responding “major barrier”				
Guidelines/recommendations difficult/complex	12 (4.5)	28 (10.4)	13 (4.9)	29 (10.9)
Limited availability of specialist	5 (1.9)	19 (7.1)	13 (4.9)	20 (7.5)
Patients do not understand importance of timely follow-up	25 (9.3)	47 (17.7)	60 (22.4)	46 (17.6)
Patients have insurance/financial barriers	29 (10.9)	24 (9.0)	41 (15.3)	43 (16.3)

PCP – primary care practitioner

<sup>a</sup> “Does your practice have a mechanism that alerts you or other care team members when a patient is overdue for follow-up of an abnormal result?”

<sup>b</sup> “Does your practice have a standard process to remind patients that they are overdue for follow-up of an abnormal result?”

<sup>c</sup> “In your practice, are the following factors barriers to ensuring the follow-up of an abnormal result for your patients?”