Supplemental Online Content

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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**

| 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                              |                      |               |                 |                                   |                   |            |
| **Responsible for notifying patient (%)** |                      |               |                 |                                   |                   |            |
| PCP                               | 2.60 (1.95-3.48)     | 7.67 (5.48-10.7) | 1.72 (1.15-2.57) | 0.44 (0.20-0.96) b                | NS                | 0.40 (0.21-0.77) d |
| Provider performing test          | 3.80 (2.71-5.33)     | 11.43 (7.7-17.0) | 0.67 (0.46-0.96) | -                                 | 4.26 (2.27-8.0) b | -          |
| 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)                 | -                 | -          |
| **Responsible for managing result follow-up (%)** |                      |               |                 |                                   |                   |            |
| PCP                               | NS                   | 1.36 (1.07-1.73) | 2.67 (2.00-3.56) | -                                 | 0.44 (0.21-0.92) b | -          |
| Provider performing test          | 3.32 (2.50-4.40)     | 3.01 (2.31-3.91) | -               | 2.88 (1.48-5.62) b                | -                 | -          |
| 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) b | NS         |
| **Automated report alerts for review to** |                      |               |                 |                                   |                   |            |
| PCP                               | NS                   | 1.13 (1.00-1.28) | NS              | 0.28 (0.09-0.84) b                | -                 | -          |
| Other team member                 | NS                   | NS            | 0.61 (0.48-0.77) | -                                 | 3.45 (1.62-7.35) c | -          |
| **Standard reminder processes**   |                      |               |                 |                                   |                   |            |
| 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         |
| 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) c, 0.14 (0.04-0.47) d | NS         |
| 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                              |                      |              |                 |                                  |                      |            |
| Repeat mammogram or ultrasound    | NA                   | NA           | NA              | -                                | -                    | -          |
| Breast biopsy                     | NA                   | NA           | NA              | -                                | 0.41 (0.24-0.70)     | -          |
| Appointment with breast surgeon   | NA                   | NA           | NA              | NS                               | 0.39 (0.22-0.69)     | -          |
| Colposcopy                        | NA                   | NA           | NA              | -                                | -                    | 0.49 (0.26-0.93) e |
| Appointment with gynecologist     | NA                   | NA           | NA              | -                                | -                    | NS         |
| Colonoscopy                       | NA                   | NA           | NA              | -                                | NS                   | -          |
| Chest/ PET CT                     | NA                   | NA           | NA              | -                                | NS                   | -          |
| Appointment with lung specialist  | NA                   | NA           | NA              | -                                | 2.06 (1.05-4.03)     | -          |

### Ease of scheduling follow-up for abnormal screens, very easy

| Predictor | Cancer Type (breast) | PCP Age (≤50) | PCP Sex (Female) | PCP Specialty (Internal Medicine) | # Patients (<50/week) | Site (MGH) |
|-----------|----------------------|--------------|-----------------|----------------------------------|----------------------|------------|
| 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         |
| 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) | -                    | -          |
| 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) | -                                | -                    | -          |
| 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) c |
| 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                   | -          |
| Patients have insurance/financial barriers | NS                   | 1.53 (1.19-1.97) | 1.64 (1.25-2.14) | -                                | NS                   | 3.53 (1.56-7.98) d |

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| 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 | | | |
| 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) | e |
| 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) | e |
| 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) | e |
| 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 (1.2-5.26) | d |
| 60 year old man with a low dose lung CT with an | NA | NA | NA | NS | - | NS | - | - | 0.49 (0.27-0.89) | e |
| 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) e |

| 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) e |

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

a 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)

b PCP specialty: nurse practitioner/physician assistant

c PCP specialty: family medicine provider

d Site: Dartmouth Health

e 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?”

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

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