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Messing About COVID-19 Safety Measures Is Counterproductive in Cancer Screening Outreach: Results of a Pragmatic Randomized Trial

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TO THE EDITOR

The initial COVID-19 surge in the United States resulted in a dramatic decrease in cancer screening due to avoidance of nonessential in-person ambulatory visits and elective procedures. To encourage patients to obtain timely cancer screening, some health care organizations implemented strategies to reassure patients about measures being taken to minimize the risk of health care–associated SARS-CoV-2 infection when receiving in-person preventive care services. The effect of such messaging is not known. We conducted a randomized trial of the effect on screening uptake of incorporating a message about COVID-19 safety measures into an automated telephonic outreach program for patients overdue for cancer screening.

METHODS

We conducted a prospective patient-level randomized trial over a three-week period in December 2020. We enrolled patients who receive primary care at UCSF Health and were overdue for breast, cervical, or colorectal cancer screening. We previously reported the effectiveness of using an automated telephone call system to close cancer screening gaps. Patients on the list for outreach calls during the study period were randomized 1:1 to receive either the standard outreach call or a modified call that included a 20-second recorded message intended to inform patients about COVID-19 safety measures. The additional script for the intervention message is show in Box 1. The primary outcome was whether a patient requested to schedule one or more overdue cancer screening tests at the end of the call. We chose this intermediate outcome because our prior research demonstrated that 79% of patients requesting scheduling assistance followed through and obtained the overdue cancer screening exam. We hypothesized that

patients receiving an automated call with the COVID-19 safety measure message would be more likely to request scheduling of a preventive service. Outcomes were analyzed using chi-square test. Our study was conducted as a quality improvement project using a low-risk intervention and assessed by the UCSF Institutional Review Board as Not Human Subjects Research. The study was discussed at a meeting of a Patient and Family Advisory Council.

RESULTS

Automated calls were made to 295 patients in the intervention script group and 303 patients in the standard script group (Table 1); 198 patients (67.1%) and 207 patients (68.3%) in the intervention and standard script groups, respectively, answered the call. Contrary to our hypothesis, the COVID-19 safety measure messaging resulted in significantly fewer patients requesting scheduling of preventive services relative to the standard call script group. In the intervention group, 136 of the 196 patients reached (69.4%) requested scheduling of a service, compared with 165 of 207 patients (79.7%) in the control group ($p = 0.01$) (Figure 1). The result was similar when the denominator was restricted to only patients reached who confirmed that they were still an active patient and did not terminate the call before entering a response in the automated call system to request or decline scheduling a preventive service. Subsequent audit of medical records showed a trend consistent with the initial results, with 56.1% of patients reached in the intervention group and 60.4% of patients reached in the control group documented as having completed at least one of the overdue screening tests in the 12 months after receiving the call ($p = 0.19$).

DISCUSSION

A communication intended to reassure patients about measures implemented to prevent health care–associated exposure to SARS-CoV-2 had a counterproductive effect and appears to have deterred patients from scheduling needed cancer screening services. Although the counterproductive
Table 1. Demographic Characteristics of Participants by Script Group

| Patient Characteristic                  | Intervention Script Group (N = 295) | Standard Script Group (N = 303) | p Value* |
|----------------------------------------|-------------------------------------|--------------------------------|----------|
| Age in years, mean (SD)                | 52 (14.5)                           | 52 (13.9)                      | 0.99     |
| Gender, n (%) female                   | 257 (87.1)                          | 261 (86.1)                     | 0.36     |
| Race/ethnicity, n (%)                  |                                     |                                | 0.41     |
| White                                  | 133 (45.1)                          | 126 (41.6)                     |          |
| Asian                                  | 70 (23.7)                           | 85 (28.1)                      |          |
| Black or African American              | 33 (11.2)                           | 36 (11.9)                      |          |
| Latinx                                 | 33 (11.2)                           | 29 (9.6)                       |          |
| Native Hawaiian or Other Pacific Islander | 6 (2.0)                        | 3 (1.0)                        |          |
| Multi-Race/Ethnicity                   | 5 (1.7)                             | 8 (2.6)                        |          |
| American Indian or Alaska Native       | 3 (1.0)                             | 0 (0.0)                        |          |
| Other/Unknown/Declined                 | 12 (4.1)                            | 16 (5.3)                       |          |
| Insurance, n (%)                       |                                     |                                | 0.20     |
| Commercial                             | 190 (64.4)                          | 172 (56.8)                     |          |
| Medicaid                               | 43 (14.6)                           | 47 (15.5)                      |          |
| Medicare                               | 36 (12.2)                           | 41 (13.5)                      |          |
| Other                                  | 12 (4.1)                            | 24 (7.9)                       |          |
| Missing                                | 14 (4.7)                            | 19 (6.3)                       |          |

* p values were calculated using t-test for age and chi-square tests for other variables.

Figure 1: This bar graph compares the percentage of patients who received automated calls with the intervention script (with COVID-19 message) and with the standard script (without COVID-19 message) who requested scheduling of a cancer screening service.

Outcome was somewhat attenuated when actual completion of tests over the subsequent 12 months was examined, many experiences over the follow-up period, such as conversations with their primary care clinicians, may have helped patients overcome their initial hesitation to schedule tests. The significantly lower expression of interest in scheduling tests among the intervention group resulted in UCSF Health terminating the intervention after three weeks. Our finding is consistent with some studies of other health issues, which demonstrated that reassurance increased, rather than decreased, patient distress.\textsuperscript{5,6} Other intervention effects, such as prolonging the length of the phone message, may have reduced patient engagement. Our study not only has implications for communications intended to reassure patients about the safety of obtaining in-person health care services during the COVID-19 pandemic, but also highlights the importance of carefully evaluating quality improvement communication strategies to detect potential unintended consequences.

Box 1. COVID-19 Safety Measures Script for Intervention Group Calls

Before we proceed, we want you to know that UCSF is doing everything we can to stop the spread of COVID-19 and keep everyone who comes to our medical facilities safe. We avoid mixing patients who may be infected with COVID-19 with those who are receiving other kinds of medical care, such as the preventive services you are due for. We disinfect all materials between patient appointments. All staff, patients, and visitors are screened before their appointments for COVID-19 symptoms, and people who do not pass the screening questions are not permitted to enter. All patients, visitors, and staff must wear a face mask and follow physical distancing rules. We want to make sure you get the care you need in the safest possible way.

Acknowledgments. The authors thank Sachin Shah, MD, for his review and comments on this manuscript, and Brian Taylor, PhD, for his assistance with data analysis.

Conflicts of Interest. All authors report no conflicts of interest.

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REFERENCES

1. Health Care Cost Institute. The Impact of COVID-19 on the Use of Preventive Health Care. Martin K, et al. (Updated: Apr 16, 2021.) Accessed Nov 9, 2022. https://healthcostinstitute.org/search?q=impact+of+covid-19.

2. Song H, et al. Disruptions in preventive care: mammograms during the COVID-19 pandemic. Health Serv Res. 2021;56:95–101.

3. Gagliardi KS, et al. An automated telephone call system improves the reach and cost-effectiveness of panel management outreach for cancer screening. J Ambul Care Manage. 2020;43:148–156.

4. Finkelstein JA, et al. Oversight on the borderline: quality improvement and pragmatic research. Clin Trials. 2015;12:457–466.

5. Coia P, Morley S. Medical reassurance and patients’ responses. J Psychosom Res. 1998;45:377–386.

6. McDonald IG, et al. Opening Pandora’s box: the unpredictability of reassurance by a normal test result. BMJ. 1996 Aug 10;313:329–332.