

The Impact of Data Communication Style in Email-Based Quality Reports on Depression Screening in Primary Care

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Introduction: Over 16 million adults suffer from a major depressive episode each year[1], and depression remains a leading cause of disability among people over 15 years of age. An estimated two-thirds of patients with depression are not diagnosed[2]. To address this issue, our national primary care clinic system launched routine depression screening at wellness visits via a quality improvement collaborative model.

In launching this collaborative, we also sought to understand the most impactful method of communicating quality measure data to clinic staff. Two hypotheses emerged during this program design around how to increase the depression screening rate: provide specific and directive information to clinic staff regarding what action is necessary to improve their quality measure rates (e.g., “Screen 70 patients for depression”), versus providing the quality measure rate and associated trend information and allowing the staff to interpret and act accordingly (e.g., “Your depression screening rate is 20%”).

Methods: Study Design. For a three month period starting in September 2018, 72 primary care clinics collectively focused on improving their depression screening rate. Each clinic designated a clinic Quality Champion (QC), who was responsible for facilitating improvement activities and who received weekly email data reports summarizing their clinic’s current performance. Clinics were grouped into geographic districts. Districts were matched based on size of patient population and average patient tenure with the practice. Each matched pair was split, and randomly assigned to a different report.

Intervention. Each report contained the depression screening and follow-up rates for the past 12 months. The interpretive report (Figure 1) also contained the same rates among patients seen in the past 30 days, and a trend arrow indicating a statistically significant change over the previous week. This report only contained rate information, and relied on staff to interpret their performance and necessary actions for quality improvement. In contrast, the directive report (Figure 2) contained the number of patients scheduled in the next week who need to be screened for depression, and the number of patients seen in the previous week who should have been screened for depression. Smiley faces with positive, negative, and neutral emotions gave simple visual feedback on performance in the previous week, as a way to validate behavior or motivate a behavior change. This report focused on sharing the number of patients who need to be screened, thus directing staff on the actions necessary to improve their quality rates without focusing on the rate itself. Reports were sent via email to QCs weekly and included links to retrospective and prospective patient lists, measure definitions, and a report interpretation guide.

Evaluation. Data was collected on patient screening status after their visit, as well as QC utilization (opening, clicking links) of the reports. A logistic regression model predicting completed depression screening was built using stepwise regression with R stats v3.4.1.

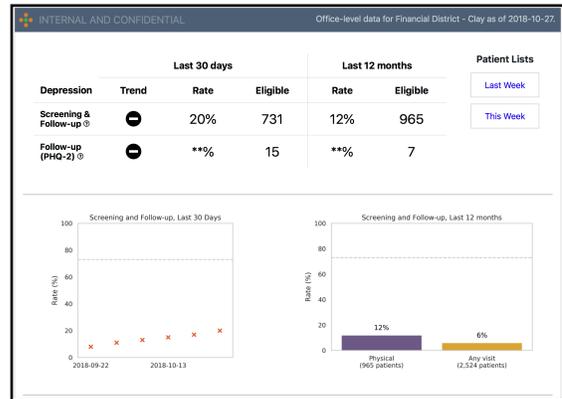


Figure 1. Example of “Interpretive” Report

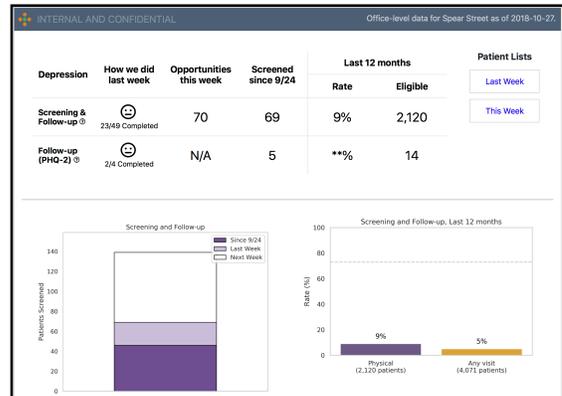


Figure 2. Example of “Directive” Report

Results: On average each week, 78% of the QCs opened their email report. They generally opened the report within two hours of it being sent, and 90% of those opened were opened within the first 48 hours. Click rates among links within the report are shown in Figure 3; on average through the entire period, 31% of offices opened their retrospective patient list (i.e., screening performance on last week's patients) each week, 11% opened their prospective patient list (i.e., screening status on this week's patients), 14% opened the report guide, and 9% opened at least one measure definition link.

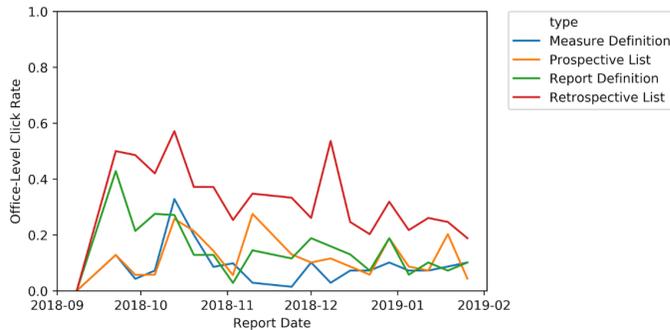


Figure 3. Click Rates by Link Type

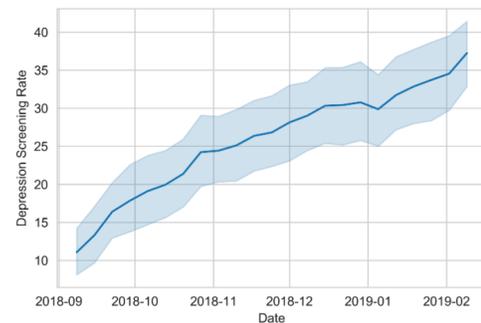


Figure 4. Depression Screening over Time

During the collaborative, depression screening rates improved from 12% to 39% ($p < 0.0001$). Two-thirds of clinics saw at least a 20 percentage point increase in their depression screening rates; Figure 4 shows the average clinic screening rate over time, with 95% confidence shown in shaded region. Receiving the interpretive report was associated with an 18% decreased odds of completing depression screening (AOR=0.82; 95% CI=0.78-0.85). Other factors predictive of completed depression screening included: staff opening weekly data report (AOR=1.13; 95% CI=1.03-1.23), staff viewing patient-level data provided in report (AOR=1.12; 95% CI=1.06-1.18), patients seeing their primary care provider as opposed to other providers in the practice (AOR=2.50; 95% CI=1.61-2.72), and patient complexity as measured by the Charleston comorbidity index (AOR=0.89; 95% CI=0.87-0.92).

Discussion: After adjusting for report usage and provider characteristics, the directive report was associated with a statistically and clinically significant increase in odds of screening for depression during a visit. It is not clear why this is the case; one explanation is that clinic staff are busy and want simple actions they can take to improve their clinical care. Further, keeping the reporting focused on the patient instead of rates allows the staff to also stay focused on the patients instead of the rates. Further study is necessary to understand why this phenomena exists.

This analysis comes with certain limitations. It is difficult to properly measure clinic engagement with quality improvement initiatives. This study found that, even when adjusting for opening the report (a proxy for engagement), the report design remained a significant predictor. However, further efforts to understand the interaction between clinic engagement and report design should be undertaken. This is particularly true given that these data reports were deployed in conjunction with quality improvement coaching: it is difficult to disentangle the role improvement coaching had from the role of the data reports. This work also focuses solely on depression screening, it remains unclear if directive communication is as impactful for other types of screening (e.g., cancer screening), as well as other clinical activities (e.g., hypertension control).

This finding could have implications for quality improvement initiatives: the feedback methodology used in sharing data may independently impact performance. Directive reports, like those specifying the number of patients to screen for depression in the next week, appear to increase screening rates when compared to interpretive reports which only specify measure rates. This suggests that clinic staff may be more motivated by actionable, patient-centric data than simple quality measure rates. Thus, communication style is an important design consideration in data reporting.

References

1. National Institute of Mental Health (2017). Major Depression. Retrieved March 11, 2019, from <https://www.nimh.nih.gov/health/statistics/major-depression.shtml>.
2. Chizobam A, Bazargan M, Hindman D, et al. Depression Symptomology and Diagnosis: discordance between patients and physicians in primary care settings. *BMC Family Practice* 2008; 9:1.