Improving Follow-Up of Positive Stool-Based Tests with Timely Colonoscopies in Community Health Centers

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In the past year, I have served as a scientific advisor for Exact Sciences and Guardant Health.

These relationships do not influence my talk today.
Presentation Outline

• Background on Colorectal Cancer Screening
• Importance of Timely Colonoscopy Follow-Up of Positive Stool-Based Tests
• An Innovative Data-Driven Solution -- (PRECISE) study
• Conclusion and Next Steps
Colon cancer can be treated if found early
Finding colon cancer early is important

More than

9 of 10
individuals diagnosed with early stage colorectal cancer that has not spread beyond the colon or rectum

**survive 5 years**
(and many live much longer)

Approximately

1 of 10
individuals with advanced stage colorectal cancer that has spread to other organs such as the lungs or the liver

**survives 5 years**

Data Source: American Cancer Society. Colorectal Cancer Facts & Figures 2019
Recommended screening could prevent at least 60% of these deaths
CRC screening rates are particularly low in FQHCs

![Bar chart showing CRC screening rates]

- National (BRFSS) '18: 68.8%
- National FQHC '18: 44.1%

National goal (NCCRT)

CRC Screening Rates are Increasing in FQHCs

Ways to screen for colorectal cancer

- **Fecal test (FIT)**
  - Looks for hidden blood in the stool

- **Colonoscopy**
  - Doctor inserts tube in rectum to view colon

- **Other tests**
  - Sigmoidoscopy; X-ray of colon; fecal plus DNA test
US Preventive Services Task Force Guidelines

- Current recommendations call for screening average-risk adults aged 50-75.
- Draft guidelines issued in 2020 drop the initiation age to 45.
- This change will result in 22 million additional adults due for CRC screening.
The problem

• Millions of adults complete a fecal test each year;
• Yet, not all individuals who test abnormal get a follow-up colonoscopy;
• For these patients, the benefit of fecal testing is nullified!
Why this matters...

As many as **1 in 11** patients

[with an abnormal FIT]

will have colorectal cancer

One in 11 to 1 in 28 individuals with an abnormal FIT have CRC, and 1 in 3 to 1 in 7 individuals have advanced neoplasia.

Outcomes for follow-up colonoscopy delay

31% more likely to get colorectal cancer*

7 times more likely to die from colorectal cancer**

2 times more likely to have advanced stage colorectal cancer*

*Lee et al. Patients who delayed by 6 months or longer versus those who received a FU colonoscopy within 1-3 months.

**Meester et al. Based on modeling for delays of 12 months versus 2-weeks.

**Doubeni 2019. Compared with cancer-free matched controls, patients who died of CRC had 7.26 (95% CI, 5.26–10.03) higher odds of failure to receive follow-up for abnormal results compared with those who were up to date in screening.
In safety net practices, only 37% - 53%* of individuals with an abnormal FIT result obtain a follow-up colonoscopy.

## Previous Literature on Patient Navigation

<table>
<thead>
<tr>
<th>STUDY</th>
<th>DESIGN TYPE</th>
<th>PATIENTS N</th>
<th>CONTROL COLONOSCOPY COMPLETION (%)</th>
<th>INTERVENTION COLONOSCOPY COMPLETION (%)</th>
<th>CHANGE IN PERCENTAGE OF TEST-POSITIVE PATIENTS COMPLETING COLONOSCOPY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green et al, 2014(^{39})</td>
<td>Randomized Trial</td>
<td>140</td>
<td>80</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>Raich et al, 2012(^{40})</td>
<td>Randomized Trial</td>
<td>235</td>
<td>58</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td>Phillips-Angeles et al, 2013(^{48})</td>
<td>Observational Cohort</td>
<td>176</td>
<td>NA</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>Ratner et al, 2016(^{31})</td>
<td>Observational Cohort</td>
<td>14</td>
<td>NR</td>
<td>NR</td>
<td></td>
</tr>
</tbody>
</table>
How to winnow targets for patient navigation

Candidate best practices; select patients who:

• screen abnormal on FIT
• have never had a colonoscopy
• have no upcoming colonoscopy appointment
• have not obtained a colonoscopy after xx months
• are referred by a provider
• are identified using a risk prediction model
Patients with positive FIT tests
Patients with abnormal FIT tests

patients who need navigation
Patients with positive FIT tests

patients who need navigation
Fundamental problem: Follow-up colonoscopy

Standard patient navigation

All patients are offered navigation, whether they need it or not

PRECISE patient navigation

Patients are assessed for adherence probability.

Those with low/moderate probability are offered navigation.
Predicting and Addressing Colonoscopy non-Adherence in Community Settings (PRECISE)

• Partnership between KP Center for Health Research and Sea Mar Community Health Centers; 2-phase, patient-randomized trial of Patient Navigation vs. Usual care
• Enroll ~1200 patients across 28 Sea Mar clinics
• 5-year R01 study funded by the National Cancer Institute
Partnering Health Center

- Serves about 300,000 patients in 32 primary care clinics in Western Washington (40% Latino);
- Mailed FIT outreach program
- ~700 patient who screen abnormal on FIT each year.
- Follow-up colonoscopy rate ~43%

*In 2019, Sea Mar patients were referred to 180 GI practices; 107 of which only had ONE referral each
Time to Colonoscopy, Sea Mar Community Health Centers

Benchmark set by PROSPR

- 2.7% 30 days
- 13.0% 60 days
- 22.9% 90 days
- 37.1% 180 days
- 42.8% 360 days

*among patients with a colonoscopy data in their medical record
Steps in obtaining a follow-up colonoscopy

1. Abnormal FIT result
2. Referral to Gastroenterology
3. Pre-procedure visit
4. Colonoscopy
Steps in obtaining a follow-up colonoscopy

- Abnormal FIT result (n = 715)
- Referral to Gastroenterology (n = 635, 89%)
- Pre-procedure visit (n = 369, 52%)
- Colonoscopy (n = 315, 43%)

*Data from Sea Mar chart abstraction, Assumes that pre-procedure visits were required for all patients*
Risk prediction model

Variables

- Age
- Race
- Insurance status
- N missed clinic appointments
- Gagne co-morbidity score
- Body mass index
- Marital status
- Prior CRC screening
- Gender, mammogram
- Language
- County
NH Colorectal Cancer Screening Program

- Timed, 6-topic area, phone-based patient navigation program delivered by a registered nurse
- Average 120 min. per patient of navigated time

New Hampshire Colorectal Cancer Screening Program
NH Patient Navigation program outcomes

Results of the comparison study showed that the navigated patients were:

11 times more likely to complete colonoscopy than non-navigated patients.

40 times less likely to miss the colonoscopy appointment.

6 times more likely to have adequate bowel prep than non-navigated patients.

## NH Patient Navigation program outcomes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Navigated (n = 131) %</th>
<th>Control group (n = 75) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonoscopy completed</td>
<td>97.3</td>
<td>69.3</td>
</tr>
<tr>
<td>Adequate bowel preparation quality</td>
<td>99.1</td>
<td>87.5</td>
</tr>
<tr>
<td>Missed appt/no-show without prior cancellation</td>
<td>0.0</td>
<td>15.6</td>
</tr>
<tr>
<td>Cancellation &lt;24 hours prior to appt</td>
<td>0.7</td>
<td>16</td>
</tr>
<tr>
<td>Results communicated to patient</td>
<td>100</td>
<td>96.2</td>
</tr>
<tr>
<td>Results communicated to provider</td>
<td>100</td>
<td>48.1</td>
</tr>
</tbody>
</table>

Rice et al. *Cancer* 2017
Conclusion and next steps

• Risk prediction modeling shows promise for selecting patients for navigation;
• Upcoming changes to USPSTF guidelines underscore need for precision tools.
Who would you give a hat to...
Who would you give a hat to?
Give a hat to all...
Some programs give hats to those who already have one...
Give a hat to those who need one...
Acknowledgements

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MailedFIT.org
Partnership with Lyft...

- On-demand transportation service
Fact Sheet | PRECISE Patient Navigation

Supporting You in Getting a Colonoscopy

1. INTRODUCTIONS AND SCHEDULING
   We will talk about what a colonoscopy is, why it is important, and what to expect. I can help you schedule the appointment if you have not done so yet.

2. CARE AND SUPPORT
   We will talk about giving you and your family instructions and other details. I will take you through the procedure and address any concerns you may have.

3. BOWEL PREPARATION
   Bowel prep can be confusing, but it is important for a successful procedure. We will review the instructions and answer your questions. You may have:
   - Pre-Colonoscopy Check-in
   - Colonoscopy
   - Results

4. Take control of your health.
   How do I get tested?
   - A simple at-home test called a FIT kit for hidden blood in your stool. If blood is found, your doctor will recommend a colonoscopy.

5. How can I prepare for my colonoscopy?
   - How do I prepare for my colonoscopy?
   - What are the steps to prepare for a colonoscopy?
   - How do I prepare for a colonoscopy at home?

6. DAYS BEFORE
   - Stop eating solid foods. You may be on a clear liquid diet by your doctor.
   - Drink more fluids.
   - Keep your bowel prep supplies, such as Epsom salts, in your colonoscopy kit.
   - Add colonoscopy to your other health checks.

7. STOP existing fluids like milk and seeds, raw vegetables, grains, and high
   - Food
   - Drink

Questions?
My name is Debrah Brown
Coordinator

Your Colonoscopy Appointment:

Date: ______________________
Time: ______________________
Location: ____________________

Find your life!