Pragmatic Trials of Behavioral Economic Interventions to Increase Colorectal Cancer Screening

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Agenda

• Colorectal cancer (CRC) screening
• Application of behavioral economics to CRC screening
• Pragmatic trials of CRC screening interventions
  – Partnership with clinical operations
  – Waiver of informed consent
  – Leveraging existing clinical workflows and data sources
Limited CRC screening rates

Screening can reduce mortality from CRC by 30-70%

“Cancer Screening — United States, 2010” MMWR
## Predictable biases

<table>
<thead>
<tr>
<th>Bias</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status quo bias</td>
<td>Preference to maintain defaults or status quo</td>
</tr>
<tr>
<td>Loss aversion</td>
<td>Weighing losses more heavily than gains</td>
</tr>
<tr>
<td>Present-time bias</td>
<td>Overestimate costs and benefits of decisions today as compared with future</td>
</tr>
<tr>
<td>Framing effects</td>
<td>Framing of messages can alter response</td>
</tr>
</tbody>
</table>

Mehta SJ et al. Clinical Gastroenterology and Hepatology, May 2014
Behavioral economics

Protection that travels wherever you go

- Yes! Protect my trip for just $9.00 per traveler ($9.00 total). ✓ Highly Recommended
- Compensation: Get back up to 100% for covered trip cancellation and trip interruption
- Peace of mind: Insurance for loss, damage or theft of your belongings
- Receive more: Reimbursement for eligible meals and accommodations when your trip is delayed
- Help when you need it: 24/7 assistance in the event of a travel or medical emergency

“Purchase travel insurance.” – The Boston Globe, Sep 2018

- No, I choose not to protect my trip to Philadelphia. I understand by declining protection I may be responsible for non-refundable expenses.
- Your $57.00 trip is NOT protected. Offer expires when booking is finalized.
- 19,986 customers protected their trip in the last 7 days
Clinical partners

- Academic health system in Philadelphia region
- 43 primary care practices
- 63% CRC screening rate

- Community health center in Philadelphia
- 3 health clinics
- 19% CRC screening rate
Consent for screening intervention trials

27% of eligible patients were unreachable or declined to participate

Waiver of Informed Consent

1. The research involves no more than minimal risk to subjects

2. The waiver or alteration will not adversely affect the rights and welfare of the subjects

3. The research could not practicably be carried out without the waiver

Asch DA, Mehta SJ. NEJM, 2017
Opt-in vs. Opt-out Mailed FIT

314 eligible patients aged 50-74

**Opt in**
Mail FIT kit if respond ‘yes’

**Opt out**
Mail FIT if do not respond ‘no’

3 month response

Mehta SJ et al. American Journal of Gastroenterology, 2018
Opt-in vs. Opt-out Mailed FIT

314 eligible patients aged 50-74

**Opt in**
Mail FIT kit if respond ‘yes’

**Opt out**
Mail FIT if do not respond ‘no’

3 month response
10 % 29 %

Mehta SJ et al. American Journal of Gastroenterology, 2018
<table>
<thead>
<tr>
<th>Clinic</th>
<th>Opt-in</th>
<th>Opt-out</th>
</tr>
</thead>
<tbody>
<tr>
<td>You are overdue for colon cancer screening. To discuss your screening options call us at 215-xxx-xxxx.</td>
<td>Health Annex: You are due for colon cancer screening. Please text back Yes to receive a simple home test kit</td>
<td>Health Annex: You are due for colon cancer screening. We will mail you a free home test, unless you reply ‘No’</td>
</tr>
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CTER/ Patient-Centered Outcomes Research Pilot
# Text messaging and choice architecture

**The Family Practice & Counseling Network**

**Clinic**

You are overdue for colon cancer screening. To discuss your screening options call us at 215-xxx-xxxx.

3%

**Opt-in**

Health Annex: You are due for colon cancer screening. Please text back Yes to receive a simple home test kit.

12%

**Opt-out**

Health Annex: You are due for colon cancer screening. We will mail you a free home test, unless you reply ‘No’

20%

CTER/ Patient-Centered Outcomes Research Pilot
438 eligible patients between ages of 50-74

- **Colonoscopy only**
  - direct phone number to call and make appointment

- **Sequential choice**
  - Colonoscopy only, then mailed FIT

- **Active choice**
  - Colonoscopy number and mailed FIT

Mehta SJ et al. JAMA Network Open, 2019
Choice of Colonoscopy or FIT

4 month response

Concurrent mailed FIT
29.1% at 3 months and 28.9% at 6 months

Mehta SJ et al. JAMA Network Open, 2019
Conclusion

• Behavioral economics offers suggestions for how to increase CRC screening rates, but need to evaluate effectiveness in different contexts

• Pragmatic trials can help evaluate effectiveness in naturalized settings through close partnership with clinical operations
Collaborators

- Catherine Reitz, MPH
- Vikranth Induru, MD
- Tanya Khan, MD
- Timothy McAuliffe, BA
- Jordyn Feingold, BA
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- David Asch, MD, MBA

- Abramson Cancer Center/ Breakthrough Bike Challenge
- National Cancer Institute (K08CA234326)
- National Institute of Aging (Penn Roybal Center, P30AG034546)
- Patient-Centered Outcomes Research Pilot/ Center for Therapeutic Effectiveness Research