Research Updates from NCI Grantees

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University of Washington

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Ohio State University
Research Updates from the National Cancer Institute: Results from the ACCSIS, PROSPR, and SCOLAR Studies

Pamela Marcus and Erica S. Breslau
November 17, 2022
Goal: Advance understanding of how to prevent, detect, and treat CRC.
**Goal:** Generate implementation strategies that substantially improve CRC screening and follow-up rates in populations where baseline rates remain low.

**Consortium:** One Coordinating Center, 5 Research Projects, and 3 American Indian Research Projects.

**Emphasis:** Addresses disparities:
- Underserved racial and ethnic minority populations
- Rural and hard-to-reach populations
- High-risk subgroups

**Goal:** Improve the cancer screening process in community healthcare settings in the United States.

**Consortium:** One Coordinating Center and 10 Research Projects.

**Emphasis:** Multilevel observational research to evaluate factors that affect the quality & outcomes of the screening processes for cervical, colorectal and lung cancers.

**Goal:** Estimate the effectiveness of FIT or colonoscopy in reducing CRC mortality risk using observational data from routine clinical practice in a community-based setting.

**Emphasis:** Evaluate CRC screening outcomes according to race/ethnicity over time in this long-term initiative.
ACCSIS, PROSPR and SCOLAR Study Locations
It’s a Heavy Lift: Implementation of a Colorectal Cancer Screening Program in Rural Areas

SMARTER CRC: An ACCSIS Project
PI's: Gloria Coronado and Melinda Davis

Amanda Petrik, Kaiser Permanente Northwest Center for Health Research
ACCSIS Consortium

Cancer Moonshot℠ Initiative

The overall aim of ACCSIS is to conduct multi-site, coordinated, transdisciplinary research to evaluate and improve colorectal cancer screening processes using implementation science.
ACCSIS Consortium Locations (ACCSIS1, ACCSIS2, ACCSIS AI)
ACCSSIS Sites

ACCSSIS - Appalachia
University of Kentucky
The Ohio State University
Mark Dignan, PhD, MPH
Electra Paskett, PhD

ACCSSIS - Arizona
The University of Arizona Cancer Center
Jennifer Hatcher, PhD, RN, MPH
Peter Lance, MD, FACP

ACCSSIS - Chicago
The University of Chicago Department of Medicine
Karen Kim, MD, MS

ACCSSIS - New Mexico
Comprehensive Cancer Center
Shiraz S. Mehta, MBBS, PhD
Kevin English, DrPH

ACCSSIS - North Carolina
Lineberger Comprehensive Cancer Center
Daniel Reuland, MD, MPH

ACCSSIS - Oklahoma
Oklahoma Health Center
Mark Doescher, MD, MSPH
Dorothy Rhodes, MD, MPH

ACCSSIS - Oregon
OHSU Oregon Rural Practice-Based Research Network
Melinda Davis, PhD
Gloria Coronado, PhD

ACCSSIS - San Diego
UC San Diego Moores Cancer Center
Elisa Martinez, PhD, MPH
Sheila Castañeda, PhD
Samir Gupta, MD, MSIC

National Cancer Institute
Sarah Kober, PhD

Coordinating Center
Sujha Subramanian, PhD

ACCSSIS
Advancing Cancer Screening and Follow-Up Through Implementation Science
Screening More patients for CRC through Adapting and Refining Targeted Evidence-based Interventions in Rural settings
Frontier and Remote (FAR) Disparities

<4% US population;
~46% land
Study Design

**PHASE 1: PILOT**
Adapted mailed FIT and patient navigation for rural and frontier settings

4 pilot clinical practices (1 health plan)

**PHASE 2: INTERVENTION**
Ran collaborative program for mailed FIT and patient navigation for abnormal FIT follow-up

28 rural or frontier clinical practices (3 health plans)

<table>
<thead>
<tr>
<th>Year</th>
<th>Deliver</th>
<th>Deliver</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>SMARTER CRC program (half the clinics)</td>
<td>usual care (half the clinics)</td>
</tr>
<tr>
<td>2022</td>
<td>Deliver SMARTER CRC program (all the clinics)</td>
<td></td>
</tr>
</tbody>
</table>

**PHASE 3: SPREAD**
Scale-up the program to reach additional health plans, clinical practices, and community organizations

120 clinical practices
- Deliver Learning Community ECHO Sessions on CRC Screening Outreach
- Provide Technical Assistance
- Additional Training and Implementation Materials
Rooted in Evidence Based Practices

Mailed FIT

Patient Navigation

Fecal Immunochemical Test (FIT)
Working with Medicaid Health Plans

- Collaborative Model
  - Adaptation to overburdened clinics
  - Further adaptations needed

- Eligible primary care practices:
  1. Located in rural areas per above as defined by RUCA or Oregon Office of Rural Health,
  2. With more than 30 eligible Medicaid or dual-eligible Medicaid/Medicare patients, and
  3. Having a CRC screening rate as reported in claims less than 60% in 2019.
Implementation Challenges: Clinic Recruitment

• Used known strategies to enhance recruitment
• Focused on importance of CRC screening, opportunity to improve patient care
• Offered streamlined intervention with limited burden on clinics
• Extended recruitment - January 17, 2020 through April 28, 2021
• Expand touches – 177 total touches
• External disruptions (Covid-19, wildfires): make it pandemic proof

We’re in a rural area, we don’t have the resources of a large metropolitan area. I will take any additional help that I can get to help work with the clinic to teach us better ways, better options, just to make us better. And like I said, especially being in a rural area where we don’t have the ability to have mass staff to calculate the data and pull the data and work the data, we’ll take any extra help we can get.
## Implementation Challenges: Eligible Patient Identification

<table>
<thead>
<tr>
<th>Total clinics</th>
<th>29</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinic categories</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Federal designation</strong></td>
<td></td>
</tr>
<tr>
<td>Rural Health Clinic</td>
<td>12 (41%)</td>
</tr>
<tr>
<td>Federally Qualified Health Center</td>
<td>5 (17%)</td>
</tr>
<tr>
<td>Tribal Health Center</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>No Federal Designation</td>
<td>11 (38%)</td>
</tr>
<tr>
<td><strong>Clinic network structure</strong></td>
<td></td>
</tr>
<tr>
<td>Hospital-affiliated clinic</td>
<td>14 (48%)</td>
</tr>
<tr>
<td>Health care network-affiliated clinic</td>
<td>4 (14%)</td>
</tr>
<tr>
<td>Clinic with multiple locations</td>
<td>6 (21%)</td>
</tr>
<tr>
<td>Individual clinic (single location)</td>
<td>5 (17%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Electronic Health Record (EHR)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EHR vendor</strong></td>
</tr>
<tr>
<td>Epic (OCHIN and Community)</td>
</tr>
<tr>
<td>Greenway Intergy</td>
</tr>
<tr>
<td>eClinicalWorks</td>
</tr>
<tr>
<td>Athenahealth</td>
</tr>
<tr>
<td>NextGen</td>
</tr>
<tr>
<td>Other (Centricity, Advanced MD, RPMS)</td>
</tr>
</tbody>
</table>
### Implementation Challenges: Eligible Patient Identification

<table>
<thead>
<tr>
<th>Patient Population Characteristic</th>
<th>Clinics able to provide information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(of responding clinics n=28)</td>
</tr>
<tr>
<td>Total number of patients</td>
<td>25 (89%)</td>
</tr>
<tr>
<td>Number of patients aged 50-75</td>
<td>19 (68%)</td>
</tr>
<tr>
<td>Number of Medicaid patients</td>
<td>21 (75%)</td>
</tr>
<tr>
<td>Race of the population</td>
<td>21 (75%)</td>
</tr>
<tr>
<td>Hispanic or Latino (ethnicity of the population)</td>
<td>17 (61%)</td>
</tr>
<tr>
<td>Number of patients ages 50-75 screened for CRC in the prior year</td>
<td>19 (68%)</td>
</tr>
<tr>
<td>Number of patients screened by FIT in the prior year</td>
<td>8 (29%)</td>
</tr>
<tr>
<td>Number of patients with an abnormal FIT, or abnormal FIT with colonoscopy completed w/in 1 year</td>
<td>9 (32%)</td>
</tr>
<tr>
<td>Implementation Challenges: CCO (Health Plan) Challenges</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><em><em>Total Number of Eligible Patients based on Health Plan list</em> (n)</em>*</td>
<td>Health Plan 1</td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>1,705</td>
<td>1,875</td>
</tr>
<tr>
<td><strong>Sex and Age</strong></td>
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<tr>
<td>Female</td>
<td>55%</td>
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<tr>
<td>Age (mean)</td>
<td>58.8</td>
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<tr>
<td><strong>Ethnicity</strong></td>
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<tr>
<td>Hispanic</td>
<td>4%</td>
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<tr>
<td>Unknown Ethnicity</td>
<td>18%</td>
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<tr>
<td><strong>Race</strong></td>
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<tr>
<td>White</td>
<td>73%</td>
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<tr>
<td>Non-White</td>
<td>5%</td>
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<tr>
<td>Unknown Race</td>
<td>22%</td>
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<tr>
<td><strong>Language</strong></td>
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</tr>
<tr>
<td>English</td>
<td>95%</td>
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<tr>
<td>Non-English</td>
<td>4%</td>
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<tr>
<td>Unknown Language</td>
<td>1%</td>
</tr>
</tbody>
</table>
Implementation Challenges: Multi-level Challenges

• Health Plan (CCO) Challenges
  • Patient information – required clinic scrub
  • Communication
  • CCO Timeline

• Clinic Challenges
  • Staffing
  • Territorial
  • Time
  • Workflow Assessment
  • Champions (and anti-Champions)
Implementation Challenges: Adaptations

- Changes in FIT
- Working with Vendors
- Move to team based or centralized processes
  - Calls and reminders
  - Navigators – Community Health Workers
- Communication
Maintenance & Scale Up

• Reviewing eligible patient lists
• Centralizing processes
• Communication

Invite you all to participate!

SmarterCRC@ohsu.edu
It’s a heavy lift, but it’s important…

- Implemented the pilot DURING COVID
- Expanding mailing to usual care sites now
- We will mail kits to nearly 5,000 patients in 28 rural clinics
- We are “scaling up” activities
Western Colorectal Cancer Consortium Conference
March 6 - 7, 2023
OHSU Knight Cancer Institute
Portland, OR

https://westerncrcconsortium.org
Acknowledgements

- MPIs: Melinda Davis, Oregon Rural Practice-based Research Network (ORPRN) & Gloria Coronado, Kaiser Permanente Center for Health Research (KPCHR)
- Co-I: Michael Leo, Raj Mummadi, Amanda Petrik, Erin Kenzie, Erik Brodt
- SMARTER CRC Team: Jennifer Coury, Katrina Ramsey, Jean Hiebert Larson, Brittany Badicke, Emily Myers, Mackenzie Olson, Maryan Carbuccia Abbott, Anders Herreid-O’Neill Mellodie Seater, Tiff Weekley, Jamie Thompson, Jen Rivelli, Charisma Jenkins

This study was conducted as part of the NCI-funded consortium The Accelerating Colorectal Cancer Screening and Follow-up through Implementation Science (ACCSIS) Program. The overall aim of ACCSIS is to conduct multi-site, coordinated, transdisciplinary research to evaluate and improve colorectal cancer screening processes using implementation science.
Collaboration between…

…and 28 Clinical Practices
Colorectal Cancer Screening Research Center: Optimizing Colorectal Cancer PREcision and outcomes in Community-based populations (PRECISE)

Principal investigators:
Aruna Kamineni & Jessica Chubak
Kaiser Permanente Washington
Doug Corley
Kaiser Permanente Northern California
Joanne Schottinger
Kaiser Permanente Southern California
Celette Skinner & Ethan Halm
University of Texas Southwestern/Parkland Health & Hospital System
Thank You!
Measuring (and Improving!) Colonoscopy Quality and Impact on Outcomes in 2022

Doug Corley, MD, PhD (by video)
Measuring (and improving!) colonoscopy quality and impact on outcomes in 2022

Doug Corley, MD, PhD
Kaiser Permanente, Northern California
TPMG Director, Delivery Science & Applied Research
Thank You!
Risk of Colorectal Cancer and Colorectal Cancer Mortality Among Screen-Eligible Older Adults (76-85y) Who Have Previously Screened

Ronit Dalmat, MPH, PhD
Risk of colorectal cancer and colorectal cancer mortality among screen-eligible older adults (76-85y) who have previously screened

Ronit Dalmat, PhD, MPH
University of Washington
Financial Disclosures

- None.
Adults aged ≥70 years are the fastest growing segment of the U.S. population

(Population by age group, in millions)

Adults aged ≥70 years are the fastest growing segment of the U.S. population

(Population by age group, in millions)

Ages 70-100y

CRC incidence is highest among older adults.
Guidance for screening at ages 76-85 is vague.

- American Cancer Society
- U.S. Preventive Services Task Force
- U.S. Multi-Society Task Force on Colorectal Cancer
- American College of Gastroenterology
Evidence for ages 76-85 is limited (Lin et al., 2021)

- Microsimulation models: nearly equivalent life years gained by continuing screening until age 85 vs. 75 years (Knudsen et al., 2021)
Research questions

What is the risk of colorectal cancer and colorectal cancer mortality, for screen-eligible adults ages 76-85y:

1. …beginning ten years after a negative colonoscopy

2. …beginning one year after a negative fecal occult blood test
Who are we talking about?

Example:
Patient, age 77
Who are we talking about?
Who are we talking about?

History = Colonoscopy

Example: Patient, age 77

Screening history?

Index date for follow-up (10y after negative colonoscopy)

Negative Colonoscopy

Age 50 60 70
Follow-up
80 90

Follow-up

Age 50 60 70
Who are we talking about?
Who are we talking about?

Example:
Patient, age 77

Screening history?

History = Colonoscopy

History = FIT

1. Negative Colonoscopy
   Index date for follow-up (10y after negative colonoscopy)

2. Negative FIT
   Index date for follow-up (365d after index FIT)
Risk estimates that account for screening history are difficult to study in older adults.

1. Age group exclusion from RCTs
2. Observational studies need:
   - Long follow-up (>12 years)
     - E.g., colonoscopy 10 years past + follow-up for outcomes (2-8y)
   - Detailed information from individual patient records
     - E.g., cancer screenings, prior CRC test results, any symptoms that might indicate they need a diagnostic rather than screening test)
   - Very large cohort
     - Expectation of lower CRC incidence given the prior testing history (...but how much lower?)
**PRECISE cohort**

### (history)
- Prior CRC tests, diagnoses
- Gastrointestinal surgeries
- Healthcare visits

KPWA: 1/1/1993  
PH: 1/1/1995  
KPNC & KPSC: 1/1/2000, earlier

### 2010-2019
- CRC tests, results
- CRC diagnoses
- Gastrointestinal surgeries
- Healthcare visits
- Deaths
(Brief) Methods: Populations

- 76-85 year olds in the PRECISE cohort
- Restricted to screening eligible
  - No recent symptoms, prior dx of CRC, or colectomy/proctectomy

**Population 1 (Colo):** Colonoscopy with negative result (no polyps/adenomas) 10 years ago
  - N=25,974 patients

**Population 2 (FIT):** FIT with negative result 1 year ago
  - N=114,739 patients
(Brief) Methods: Analysis

- Cumulative incidence functions to estimate incidence and mortality from CRC
  - At 2, 5, an 8-years after index date

**Index date:**
- Eligible for screening
  - 10y after neg colonoscopy or
  - 1y after neg. FIT
(Brief) Methods: Analysis

- Cumulative incidence functions to estimate incidence and mortality from CRC
  - At 2, 5, and 8 years after index date

**Outcomes:**
1. CRC diagnosis or
2. CRC-attributed death

**Index date:**
- Eligible for screening
- 10 years after a negative colonoscopy or
- 1 year after a negative FIT
(Brief) Methods: Analysis

- Cumulative incidence functions to estimate incidence and mortality from CRC
  - At 2, 5, and 8 years after index date

**Index date:**
- Eligible for screening
  - 10 years after neg. colonoscopy or
  - 1 year after neg. FIT

**Outcomes:**
- (1) CRC diagnosis or
- (2) CRC-attributed death

**Censoring events:**
- Exit from cohort (not death); colonoscopy with screening indication + 180d;
- FIT + 180d (*mortality outcome only*)
(Brief) Methods: Analysis

- Cumulative incidence functions to estimate incidence and mortality from CRC
  - At 2, 5, an 8-years after index date

**Index date:**
- Eligible for screening
  - 10y after neg colonoscopy or
  - 1y after neg. FIT

**Outcomes:**
1. CRC diagnosis or
2. CRC-attributed death

**Censoring events:**
- Exit from cohort (not death); colonoscopy with screening indication +180d;
- FIT +180d (*mortality outcome only*)

**Competing events:**
- Deaths from non-CRC cause
Risk beginning 10y after negative colonoscopy

(Population 1)

Published:
### Characteristics at index date

#### All Ages (N=25974)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age group (years)</strong></td>
<td></td>
</tr>
<tr>
<td>76-80</td>
<td>14,220 (54.7)</td>
</tr>
<tr>
<td>81-85</td>
<td>11,754 (45.3)</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>10,914 (42.0)</td>
</tr>
<tr>
<td>Female</td>
<td>15,060 (58.0)</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
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<tr>
<td>Hispanic or Latinx</td>
<td>3,489 (13.4)</td>
</tr>
<tr>
<td>Not Hispanic or Latinx</td>
<td>12,891 (49.6)</td>
</tr>
<tr>
<td>Missing (assumed not Hispanic or Latinx)</td>
<td>9,594 (36.9)</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>19,593 (75.4)</td>
</tr>
<tr>
<td>Black</td>
<td>2,433 (9.4)</td>
</tr>
<tr>
<td>Asian</td>
<td>3,074 (11.8)</td>
</tr>
<tr>
<td>Native American/Alaska Native</td>
<td>127 (0.5)</td>
</tr>
<tr>
<td>Native Hawaiian/Other Pacific Islander</td>
<td>116 (0.4)</td>
</tr>
<tr>
<td>Multiple or not otherwise specified</td>
<td>142 (0.5)</td>
</tr>
<tr>
<td>No race information</td>
<td>1,019 (3.9)</td>
</tr>
<tr>
<td><strong>Charlson Comorbidity Index score</strong></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>6,193 (23.8)</td>
</tr>
<tr>
<td>1</td>
<td>5,164 (19.9)</td>
</tr>
<tr>
<td>2</td>
<td>4,834 (18.6)</td>
</tr>
<tr>
<td>3</td>
<td>3,001 (11.6)</td>
</tr>
<tr>
<td>4</td>
<td>2,423 (9.3)</td>
</tr>
<tr>
<td>5</td>
<td>3,785 (14.6)</td>
</tr>
<tr>
<td>Missing</td>
<td>574 (2.2)</td>
</tr>
</tbody>
</table>

- Skewed to younger ages in the range
- More females than males
- Vs. 7.8% in US population 75-84y
- Similar to US population 75-84y
- Comorbidity burden varied in the population.

[Colonoscopy (negative) + 10y][Dalmat et. al, CEBP. 2022]
Cumulative CRC incidence (A) and CRC mortality (B)

Colonoscopy (negative) + 10y

[Dalmat et. al, CEBP. 2022]
Results: Estimates (76-85y)

- **Cumulative CRC incidence:**
  - 0.39% (95% CI: 0.31-0.48%) at 2y
  - 1.29% (95% CI: 1.02-1.61%) at 8y

- **Cumulative CRC mortality:**
  - 0.04% (95% CI: 0.02-0.08%) at 2y
  - 0.46% (95% CI: 0.30-0.70%) at 8y

Colonoscopy (negative) + 10y

[Dalmat et. al, CEBP. 2022]
Results: Estimates (76-85y)

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- **Cumulative CRC mortality:**
  - 0.04% (95% CI: 0.02-0.08%) at 2y
  - 0.46% (95% CI: 0.30-0.70%) at 8y

- **No evidence of differences by patient characteristics:** age group (76-80 vs. 81-85), sex, comorbidity, ethnicity, or race
Results: Estimates (76-85y)

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- **Cumulative CRC mortality:**
  - 0.04% (95% CI: 0.02-0.08%) at 2y
  - 0.46% (95% CI: 0.30-0.70%) at 8y

- **No evidence of differences by patient characteristics:** age group (76-80 vs. 81-85), sex, comorbidity, ethnicity, or race

- **Cumulative mortality from non-CRC causes**
  - 8.24% (95% CI: 7.83-8.66%) at 2y
  - 41.45% (95% CI: 38.74-43.16%) at 8y
Results: Estimates (76-85y)

- **Cumulative CRC incidence:**
  - 0.39% (95% CI: 0.31-0.48%) at 2y
  - 1.29% (95% CI: 1.02-1.61%) at 8y

- **Cumulative CRC mortality:**
  - 0.04% (95% CI: 0.02-0.08%) at 2y
  - 0.46% (95% CI: 0.30-0.70%) at 8y

- **Cumulative mortality from non-CRC causes**
  - 8.24% (95% CI: 7.83-8.66%) at 2y
  - 41.45% (95% CI: 38.74-43.16%) at 8y

- **SEER (75-84y)**
  - 0.58% (2y)
  - 2.28% (8y)

- **No evidence of differences by patient characteristics:** age group (76-80 vs. 81-85), sex, comorbidity, ethnicity, or race
Risk beginning 1y after negative FIT

(Population 2)

[Draft results. Manuscript in progress]
### Characteristics at index date

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>All Ages (N=114,739)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age group (years)</strong></td>
<td>n (%)</td>
</tr>
<tr>
<td>76-80</td>
<td>107,222 (93.4)</td>
</tr>
<tr>
<td>81-85</td>
<td>7,517 (6.6)</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>49,331 (43.0)</td>
</tr>
<tr>
<td>Female</td>
<td>65,407 (57.0)</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
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</tr>
<tr>
<td>Hispanic or Latinx</td>
<td>19,115 (16.7)</td>
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<tr>
<td>Not Hispanic or Latinx</td>
<td>37,190 (32.4)</td>
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<tr>
<td>Missing (assumed not Hispanic or</td>
<td>58,434 (50.9)</td>
</tr>
<tr>
<td>Latinx)</td>
<td></td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>81,646 (71.2)</td>
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<tr>
<td>Black</td>
<td>8,907 (7.8)</td>
</tr>
<tr>
<td>Asian</td>
<td>15,202 (13.2)</td>
</tr>
<tr>
<td>Native American/Alaska Native</td>
<td>652 (0.6)</td>
</tr>
<tr>
<td>Native Hawaiian/Other Pacific</td>
<td>677 (0.6)</td>
</tr>
<tr>
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<tr>
<td>Multiple or not otherwise</td>
<td>394 (0.3)</td>
</tr>
<tr>
<td>specified</td>
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<tr>
<td>No race information</td>
<td>8,363 (7.3)</td>
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<tr>
<td><strong>Charlson Comorbidity Index score</strong></td>
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<td>0</td>
<td>44,297 (38.6)</td>
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<tr>
<td>1</td>
<td>20,859 (18.2)</td>
</tr>
<tr>
<td>2</td>
<td>17,184 (15.0)</td>
</tr>
<tr>
<td>3</td>
<td>7,899 (6.9)</td>
</tr>
<tr>
<td>4</td>
<td>7,409 (6.5)</td>
</tr>
<tr>
<td>≥ 5</td>
<td>7,702 (6.7)</td>
</tr>
<tr>
<td>Missing</td>
<td>9,148 (8.0)</td>
</tr>
</tbody>
</table>

- **Heavily skewed to younger ages in the range**
- **More females than males**
- **Vs. 7.8% in US population 75-84y**
- **Similar to US population 75-84y**

<table>
<thead>
<tr>
<th>Prior FIT (&lt;5 years)</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 FIT (test 1y ago</td>
<td>45,477 (39.5)</td>
</tr>
<tr>
<td>only)</td>
<td></td>
</tr>
<tr>
<td>1 FIT – Age 76-80y</td>
<td>37,923 (33.1)</td>
</tr>
<tr>
<td>1 FIT – Age 81-85y</td>
<td>7,354 (6.4)</td>
</tr>
<tr>
<td>≥ 2 FIT</td>
<td>69,462 (60.5)</td>
</tr>
<tr>
<td>≥ 2 FIT – Age 76-80y</td>
<td>69,299 (60.4)</td>
</tr>
<tr>
<td>≥ 2 FIT – Age 81-85y</td>
<td>303 (0.1)</td>
</tr>
<tr>
<td>FIT count (mean)</td>
<td>2.6</td>
</tr>
</tbody>
</table>

- **Majority were regular screeners**

- **Few comorbidities**

PROSPR

National Colorectal Cancer Round Table 2022
Cumulative CRC incidence (A) and CRC mortality (B)
Results: Estimates (76-85y)

- Cumulative CRC incidence:
  - 0.19% (95% CI: 0.17-0.22) at 2y
  - 1.17% (95% CI: 1.09-1.27) at 8y

- Cumulative CRC mortality:
  - 0.02% (95% CI: 0.01-0.03) at 2y
  - 0.28% (95% CI: 0.23-0.34) at 8y

- No evidence of differences by patient characteristics: sex, comorbidity, ethnicity, or race

- Higher incidence among 81-85y compared to 76-80y

- Cumulative mortality from non-CRC causes:
  - 1.94% (95% CI: 1.85-2.04) at 2y
  - 21.84% (95% CI: 21.39-22.29) at 8y

FIT (negative) + 1y

National Colorectal Cancer Round Table 2022

[Draft results. Manuscript in progress]
Results: Estimates (76-85y)

- Cumulative CRC incidence:
  - 0.19% (95% CI: 0.17-0.22) at 2y
  - 1.17% (95% CI: 1.09-1.27) at 8y

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- No evidence of differences by patient characteristics: sex, comorbidity, ethnicity, or race
  - Higher incidence among 81-85y compared to 76-80y

CRC causes
- 5-2.04) at 2y
- -22.29) at 8y
Results: Estimates (76-85y)

- Cumulative CRC incidence:
  - 0.19% (95% CI: 0.17-0.22) at 2y
  - 1.17% (95% CI: 1.09-1.27) at 8y

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- **No evidence of differences by patient characteristics:** sex, comorbidity, ethnicity, or race
  - Higher incidence among 81-85y compared to 76-80y

- **Cumulative mortality from non-CRC causes**
  - 1.94% (95% CI: 1.85-2.04) at 2y
  - 21.84% (95% CI: 21.39-22.29) at 8y

**SEER (75-84y)**
- 0.58% (2y)
- 2.28% (8y)
- 0.20% (2y)
- 0.78% (8y)

FIT (negative) + 1y

National Colorectal Cancer Round Table 2022
Results summary

- In both screen-eligible populations with prior negative tests (colonoscopy 10 years ago and FIT 1 year ago), patients were:
  
  - >= 20 times more likely to die of a non-CRC cause than be diagnosed with CRC
    - Cumulative risk of CRC in subsequent 8y: 1-2%
    - Cumulative risk of CRC death in subsequent 8y: <0.5%
    - Cumulative risk of death from non-CRC causes: 22-42%
  
  - 160-200x times more likely to die of a non-CRC cause than CRC
What this research adds

- Population-level risks of CRC incidence and mortality for patients expected to be at lower risk: screen-eligible patients with prior screening
- Accounts for death from other causes (and allows comparison)
- Quantified using high-quality, long-term patient-level data from the PRECISE cohort
Limitations

- Limited representation of some racial groups
- Population-level estimates
- Screen-eligible older adults (not applicable to those with prior history of CRC or adenomas)
Future research

- Impact of empirical risk estimates and treatment burdens on individuals’ screening decisions
- Use of observational data to observe absolute effectiveness of screening
- Application to older adults with a history of adenoma or CRC (surveillance population)
Thank you!

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- Jessica Chubak
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- Aruna Kamineni
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- Noel Weiss
- Erica S. Breslau
- Douglas Corley
- Beverly Green
- Ethan Halm
- Theodore Levin
- Joanne Schottinger

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- PROSPR/PRECISE Consortium (UM1CA222035)
- 3DCR training grant (T32CA009168)
Colorectal Cancer Screening Research Center: Optimizing Colorectal Cancer PREcision and outcomes in Community-based populations (PRECISE)

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7.7 million people
Ages 40-95y
11 million fecal tests
2.3 million colos
222k flex sig
36k colorectal cancers

Data through 2020
Thank You!
Association Between Improved Colorectal Screening and Racial Disparities

Chyke Doubeni, MD, MPH (by video)
Improving Screening Delivery and Racial Disparities in Rates of Colorectal Cancer Diagnosis and Death

Chyke A. Doubeni, MD, MPH
Professor of Family Medicine, College of Medicine
Director of the Center for Health Equity
Chief Health Equity Officer/AD, DEI for Comprehensive Cancer Center
Wexner Medical Center at The Ohio State University, Columbus, OH
Thank You!
Q&A
Thank You!

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