Impact of COVID Pandemic on FIT Use, Colonoscopy, and Neoplasia Detection: Lessons from Kaiser Permanente, Northern California

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Funding

- Garfield Foundation
- National Cancer Institute (PROSPR II)
COVID-19 Shutdown – March 2020
CRC Screening Recommendations: March 2020

March 13, 2020: US declared national emergency due to COVID-19

March 14, 2020: Surgeon General advised hospitals to postpone all elective surgeries

March 15, 2020: Gi societies recommended Gi's to “strongly consider rescheduling elective non-urgent endoscopic procedures”

March 25, 2020: ACS recommended “no one should go to a healthcare facility for routine cancer screening until further notification”
Cancer Screening in the US: Epic Healthcare Records

End of March 2020

Delayed Cancer Screenings. Epic Health Research Network May 2020
Cancer Screening in the US: PROSPR Sites
COVID-19 Consequence: Delays in Cancer Diagnosis

Pandemic effect: Missed cancer diagnoses

CISNET model: approximately 10,000 excess deaths in the US alone from breast cancer and CRC

Sharpless NE. Science 2020;368:1290

Note: Estimates of diagnostics modeled from relevant tumor epidemiology sources. Three-month period ending June 5 compared with baseline month of February 2020.

Source: IQVIA Institute for Human Data Science
Pace of return to ‘normal’ will determine magnitude of impact

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Factors affecting scenario</th>
<th>Relative # cancer deaths from baseline trajectory</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Rapid return to screening trajectory within 6–12 months • No further COVID-19 shutdowns of clinical capacity • Unrestricted screening capacity</td>
<td>~1,000 annually</td>
</tr>
<tr>
<td>B</td>
<td>Delayed return to trajectory over 1–3 years • Restricted/delayed screening capacity due to COVID-19 testing (preventing some screening services) and social distancing</td>
<td>1,000–5,000 annually</td>
</tr>
<tr>
<td>C</td>
<td>Prolonged return to trajectory over several years • Prolonged screening capacity restraints due to large backlogs of delayed screening • Potential public and individual awareness for screening wanes • Exacerbation of fears for clinic settings due to ongoing pandemic</td>
<td>≥5,000–10,000 annually</td>
</tr>
</tbody>
</table>

KPNC Mitigation Efforts for Resuming Elective Procedures

Telehealth

Pre-procedural Testing

PPE
## COVID-19’s Effect on Colorectal Cancer Care: 2020 vs 2019

<table>
<thead>
<tr>
<th>Country</th>
<th>FIT Screening</th>
<th>Colonoscopy</th>
<th>Advanced Adenoma</th>
<th>Colorectal Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
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<tr>
<td>Netherlands</td>
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<td>France</td>
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<tr>
<td>Taiwan</td>
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<tr>
<td>Hong Kong</td>
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<tr>
<td>Los Angeles</td>
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</table>

Aim

- Evaluate the impact of COVID-19 pandemic on FIT screening, colonoscopy services, and colorectal neoplasia detection in a large, community-based health care setting in the United States
Methods: Study Setting

- Kaiser Permanente Northern California
- Integrated health care delivery system
- 26 Medical Centers
- >4.5 million members
- Commercial Insurance, Medicare, Medicaid
Methods: Eligibility Criteria and Outcomes

- KPNC members 18-89 years during 2019 and 2020
  - 2019: 3,366,771
  - 2020: 3,464,128

- Outcomes of Interest
  - FIT mailings, FITs completed, FIT positives
  - Colonoscopies performed in total and by indication (i.e., screening, surveillance, diagnostic)
  - Adenomas, Advanced adenomas, and CRCs detected by colonoscopy
Demographic Characteristics

<table>
<thead>
<tr>
<th></th>
<th>FITs Completed 2019</th>
<th>FITs Completed 2020</th>
<th>Colonoscopies Performed 2019</th>
<th>Colonoscopies Performed 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total persons, n</td>
<td>614,051</td>
<td>558,810</td>
<td>110,594</td>
<td>80,863</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Mean, SD</td>
<td>61 (7)</td>
<td>61 (7)</td>
<td>60 (12)</td>
<td>60 (13)</td>
</tr>
<tr>
<td>Median, IQR</td>
<td>60 (55-66)</td>
<td>60 (55-67)</td>
<td>61 (53-69)</td>
<td>61 (52-69)</td>
</tr>
<tr>
<td>Female, %</td>
<td>328,801 (53.5)</td>
<td>296,682 (53.1)</td>
<td>56,645 (51.2)</td>
<td>41,285 (51.1)</td>
</tr>
<tr>
<td>Race and Ethnicity, %</td>
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<tr>
<td>Asian or Pacific Islander</td>
<td>129,809 (21.1)</td>
<td>120,712 (21.6)</td>
<td>19,922 (18.0)</td>
<td>14,043 (17.4)</td>
</tr>
<tr>
<td>NH Black</td>
<td>44,576 (7.3)</td>
<td>42,301 (7.6)</td>
<td>8,202 (7.4)</td>
<td>6,561 (8.1)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>94,988 (15.5)</td>
<td>86,083 (15.4)</td>
<td>16,630 (15.0)</td>
<td>12,886 (15.9)</td>
</tr>
<tr>
<td>NH White</td>
<td>319,662 (52.1)</td>
<td>283,461 (50.7)</td>
<td>63,034 (57.0)</td>
<td>44,937 (55.6)</td>
</tr>
<tr>
<td>Other</td>
<td>25,016 (4.1)</td>
<td>26,253 (4.7)</td>
<td>2,806 (2.5)</td>
<td>2,436 (3.0)</td>
</tr>
</tbody>
</table>
Number of FITs Mailed in 2020 Compared to 2019

9%
Number of FITs Completed in 2020 Compared to 2019

9% decrease from 2019 to 2020.
Number of Positive FITs in 2020 Compared to 2019

- Number of Positive FITs in 2020 Compared to 2019

10% decrease from 2019 to 2020.
Number of Colonoscopies Performed in 2020 Compared to 2019

27%
Number of Colonoscopies by Indication 2020 vs 2019
Number of Advanced Adenomas in 2020 Compared to 2019

27%
Number of Colorectal Cancers in 2020 Compared to 2019

- Decrease of 9%
Summary

- Dramatic decline in FIT mailings and colonoscopy services in March / April 2020
- Gradual recovery FIT mailings and colonoscopy services in the latter half of 2020

<table>
<thead>
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<th>FITs mailed</th>
<th>FITs completed</th>
<th>Positive FITs</th>
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<tr>
<td>9%</td>
<td>9%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Summary

Colonoscopies: 27%
Advanced Adenomas: 27%
Colorectal Cancer: 9%
Conclusion

- In 2020 we saw an initial sharp reduction in FIT screenings, colonoscopy services, and the detection of CRC and advanced adenomas during April and May.

- FIT and colonoscopy volumes began to reach pre-pandemic levels by September 2020, but backlogs persisted. Some patients still were either unwilling or unable to complete FIT or colonoscopy in 2020 due to the complexity of scheduling or concerns about infection.

- The observed decline in CRCs and advanced adenomas validates concerns about the potential for delayed CRC diagnosis and shift to more advanced stage.

- The use of FIT may have mitigated some of the decline in cancer diagnosis seen in settings that rely more heavily on colonoscopy for CRC screening.
Thank you

- Jeff Lee MD
- Douglas Corley MD, PhD
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Thank you!