Article details: 2021-0051
Title: Patterns of up-to-date status for colorectal cancer screening in Alberta: a cross-sectional study using survey data
Authors: Kamala Adhikari PhD, Huiming Yang MD MSc, Gary Teare PhD

Reviewer 1: Dr. Fahima Dossa
Institution: St. Michael's Hospital
General comments (author response in bold)

Summary: Adhikari et al. present the results of a cross-sectional survey examining the use of colorectal cancer screening in Alberta and its association with having a family doctor. Using data from 4,600 respondents of the Canadian Community Health Survey, they show 63% of respondents were undergoing screening and that screening rates were lower among respondents without a family doctor. The manuscript is well written and easy to follow. It would benefit from greater clarity in a few areas

Comments:

- In the introduction, can the authors please explain how patients access screening in Alberta. This is touched upon in the discussion but the information is important to understanding the study results. I.e. is the only avenue for screening through referral by a family doctor? If so, how do individuals without family doctors get screened (the study suggests some of those getting screening did not have a family doctor)

Thank you for the opportunity to revise this manuscript. We agree with your comments. How the patients (with and without primary care providers) access screening in Alberta have been added in background (page-6, paragraph-2).

- Why was 2015-2016 data used instead of more contemporary data?

The CCHS 2017 and 2019 measured the CRCS component in Alberta. However, the PUMFs of the CCHS 2017 and 2019 data are not available. A description of infeasibility of access to those data, as well as how the use of the CCHS 2015-16 can serve our study purpose, has been added in methods/data sources and discussion/limitation (page-8, paragraph-1; page-18, paragraph-1).

- The study included respondents aged 50-74 – those age 50 will be having their first screening; however, the questions focused on seem more related to continuing to be up to date (FOBT/FIT in last 2 years, endoscopic assessment in last 5 years). These timelines are less relevant for those aged 50. Are there any differences if the individuals aged 50 are excluded?

We appreciate your advice. There was no way we could exclude this age group from our analysis as the CCHS PUMF data on age are on a categorical form (12-14, 15-17, 18-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80+ years).

- Table 1 is difficult to follow: 1) Can the authors provide raw numbers as well as the proportions? 2) The authors report 62.6% had FIT/FOBT and/or colonoscopy. While I understand that 15.75% had both, it seems the proportion who had fecal-based AND/OR endoscopic screening should be the sum of the two (45% + 34%). Perhaps the authors actually mean those who had at least one form of screening.

Raw numbers (weighed for target population) have been provided as suggested. 45% + 34%, each % includes those 15.75% who had used both. Hence, if we subtract 15.75% (we need to count them but not twice), we get ~63% who had

FIT/FOBT and/or colonoscopy. Addition of raw numbers in the table helps to make this clear.

- Can the authors provide a table with the baseline demographics for all participants?

This has been provided in Supplementary Table 1.

- Table 2: The authors report column percentages but row percentages may actually be more helpful

This has been revised (Table 2)

- Table 4: it is unclear what to make of the subgroup of respondents who do not have a regular primary care provider but saw a family doctor within the last 12 months. Can the authors elaborate on this? Are these individuals who would have attended walk in clinics, for example?

We have now removed the subgroup analysis by GP consultation status as we realized that this stratification does not really address our research question. The subgroup of respondents with no regular primary care provider but saw a family doctor within the last 12 months were these who would have attended walk in clinics. How the patients (with and without primary care providers) access screening in Alberta have been now added in background (page-6, paragraph-2).

- How certain are the authors about the distinction between colonoscopy done for diagnostic vs screening purposes?

The questions on the CCHS asked specifically about FOBT and colonoscopy/sigmoidoscopy for screening. The description has been added in methods/measures (page-8, paragraph-2). We were not able to exclude those with CRC diagnosis who need frequent colonoscopy/sigmoidoscopy for disease management, has been acknowledged in interpretation/limitations (page-17, paragraph-1).

- How do the participation numbers in this survey compare to other provinces where screening is administered in other ways (e.g. kits mailed to screen-eligible individuals)?

CCHS 2015-2016 includes CRCS data of Prince Edward Island (PEI), the only additional province that included the CRCS component questionnaire in this cycle. PEI uses mailed letter invitation, physician referral, and self-referral strategies for patient recruitment in CRCS, but patient must travel to lab to pick up the FIT kit. We have commented on the CRCS participation status in Prince Edward Island in the interpretation section (page- 13, paragraph-1).

Reviewer 2: Dr. Kevork Peltekian
Institution: Queen Elizabeth II Health Sciences Centre, Dalhousie University Faculty of Medicine
General comments (author response in bold)

Answering the questions identified by the authors of this manuscript is important and clinically relevant. The authors have completed a methodologically sound article but there are concerns that the knowledge translation piece has not been worked up.

1. The authors should clearly indicate upfront that the current colon cancer surveillance for most average risk Canadians between the ages 50 and 75 is the FIT testing every two years but there are significant variations across Canadian provinces in

the implementation of the recommendations from the Canadian Task Force on Preventive Health Care. The study is not to determine which one of those approaches are better but simply to find out whether a cohort of Albertans followed at minimum the recommended by the Taskforce. Also important to indicate that the recommendation is for flexible sigmoidoscopy but full colonoscopy was considered a surrogate and also many centres have completely stopped using the gFOBT for the more specific and sensitive FIT but again for the purposes of compliance gFOBT was used as a surrogate for compliance. This will ensure avoidance of confusion by readers of the Journal when working in different environments that emphasizes different approaches for example FIT testing every 2 years is the appropriate current process for colorectal cancer but many organizations came up with guidelines when FIT testing was no available.
Thank you for the opportunity to revise this manuscript. We agree with your comments. We have incorporated this in background (page-5 paragraph-1).

2. It would be good to compare the data for those under age 50 years. What percentage of these had gFOBT and/or colonoscopy/flexible sigmoidoscopy. These individuals are not high risk unless they have specific family history of colon cancer for those under age 60 or have one of the familial syndromes. In most circumstances, these patients are being done for investigation of lower GI symptoms. This will help decide the background "noise" for routine clinical work.

[Editorial note: We don't think the CRCS component was administered to this group, but please confirm.]
The CRCS questions were asked to the respondents at the age of 40 and more. Hence, we were able to analyze the percentage of those between the age of 40-49 who had FOBT and/or colonoscopy/flexible sigmoidoscopy. The overall CRCS participation rate on this group was 18%. We have commented on this in the interpretation section (page-14 paragraph-1).

3. The authors may add in their discussion section issues in regards to potential saving of resources; for example why would you waste doing gFOBT or FIT testing screening before 5 years for malignancy if the colonoscopy was negative in the first place. The order in which these gets done may provide insight.
This has been added in interpretation section (page-14 paragraph-1).

4. CT colonography not mentioned in this article. These maybe highlighted in the discussion section and how that may change the numbers. If someone had CT colonography and it was negative they would not need gFOBT or Colonoscopy.
CT colonography was not measured in the CCHS. Hence, we were unable to consider them in our analysis. Non-inclusion of this modality would mean that our study would underestimate up-to date status in Alberta. However, this group of people are likely to be minimal as CT colonography for CRCS is not recommended in Alberta and its cost is not covered by provincial insurance. Therefore, we think exclusion of this group is of little consequence for our results. This has been now described in interpretation/limitation (page-18, paragraph-1).

5. It was not clear if the authors excluded anyone with diagnosis of colon or rectal cancer just prior to the study period. These individuals would require additional monitoring.
The CCHS 2015-2016 did not ask whether the respondents had a diagnosis of colon or rectal cancer prior to the survey. Using the CCHS data, there was no way

we could distinguish this group of people; hence, we were unable to exclude this group. This has been acknowledged in the discussion/limitation section (page-17, paragraph-1).

6. It would be great of the Tables and reconfigured based on those who have vs do not having primary care providers or family physicians.
Response: This has been organized as suggested.

Reviewer 3: Dr. Chien-Kuo Liu
Institution:
General comments (author response in bold)

1.This assay is based on a life experience ; to investigate if they adhere to the Alberta CRCS program guideline. As the author mentioned "The guideline recommends repeating the FIT every 1- 2 years if the test result is negative. Colonoscopy every 10 years or sigmoidoscopy every 5 years is recommended for people with increased risk for CRC (such as family history of CRC). The provincial target for CRCS participation was 70%….". Please provide the reference of this guideline.
Thank you for the opportunity to revise this manuscript. We agree with your comments. The reference is provided.

2.This survey or questionnaire seemed to be designed by author. Please demonstrate the reliability and validity of it.
The survey or questionnaire was designed by Statistics Canada for the CCHS which was initiated from 2001. The CRCS questionnaire has been used by Statistics Canada as an CCHS-optional module for the provinces to include in any year of the annual survey that they choose.

MANUSCRIPT REQUIREMENTS

• Please include study type in your title.
This is revised as suggested

• Abstract: CMAJ Open requires a structured abstract of no more than 250 words that contains the following sections:
o Background: Includes a clear statement of the study aim and research question. (2 sentences)
o Methods: Includes the research design, setting of the study, and participants, including number participating and criteria for selection, entry and exclusion. The interventions, if applicable, should be clearly outlined, as well as primary and secondary outcome measures.
o Results: The main findings should be quantified with 95% confidence intervals and the number needed to treat or harm, if applicable. Absolute, rather than relative, risks are preferable.
o Interpretation: This should include the main conclusions and implications. (2 sentences) o Trial registration: Registry and number should be included for clinical trials and, if available, for other study types.
our abstract meets these criteria.

• Introduction: Please ensure this is no longer than 2 paragraphs. A statement of the study aim and research question should be included at the end of the introduction.

The introduction is revised to meet the criteria.

• Methods: Subheadings (e.g., setting, design, sources of data, statistical analysis) are helpful for readers; these will vary depending on the study type.
This is updated as suggested, as appropriate to our study type.

• Interpretation. Include the following 5 main categories: main findings (discuss implications; do not repeat results); comparison with other studies; future directions; limitations; and conclusions (include implications for practice).
The interpretation is revised as suggested. Limitations and conclusion are provided as subheadings suggested by previous reviewer/editor.

• Please ensure your final word count is below 2500 words.
The manuscript has been shortened/tightened for this purpose.

• Data-sharing statement: Please supply a statement that indicates (1) whether any, all or portions of the data are available to others; (2) where, through whom, when and on what terms data will be available; and (3) how data may be accessed.
This has been added.

• Abbreviations: For only the most standard abbreviations (i.e., 95% CI, SD, OR, RR, HR), please spell out at first mention and include the abbreviation in parentheses. The abbreviations may be used throughout the remainder of the manuscript. Please remove all other abbreviations.
This has been ensured as suggested

• Please include up to 1 academic and 1 professional degree after each author's name.
This is updated as suggested

• Please include a reporting guideline checklist (if applicable for your study type) from the appropriate reporting guideline. For more information, see the Equator Network (www.equator-network.org/)
This has been revised to reflect the revised manuscript.