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Title	**The risk of colonoscopy in a population-based colon screening program: an observational cohort study**
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Reviewer 1	Dr. Catherine Dubé
Affiliation	University of Ottawa Faculty of Medicine, Ottawa, Ont.
Reviewer comments and author response (in bold)	In this paper, authors describe the colonoscopy-related complication rates in a large population of individuals screened through the British Columbia colorectal cancer screening program (BCCSP), over 4 years (2013-17). Data on complication rates were prospectively and systematically collected via direct contact with the patients, 14 days after the colonoscopy. The authors and the BCCSP deserve to be commanded for such a dedicated evaluation of patient outcomes post colonoscopy. As stated. Although the abstract qualifies the BCCSP as a FIT-based program, it does also include individuals at increased risk of CRC, either due to a family history of CRC or personal history of colorectal polyps. As such, the cohort of individuals undergoing colonoscopy is mixed and the complication rate cannot be directly generalizable to other FIT-based program. It would therefore be important for the authors to report complication rates by indication for colonoscopy and to also report the proportion of individuals undergoing colonoscopy by indication. Since post-colonoscopy complications are rare events, it is possible that findings may not be interpretable for some rarer indications. **We have modified the study cohort to only include colonoscopy performed to follow-up apositive FIT**. Another limitation of the generalizability of the findings is the FIT cut off used by the BCCSP, which is the lowest among all Canadian provinces. A lower cut-off is associated with lower positive predictive value for advanced colorectal neoplasia, which, in turn, may lead to a relatively lower rate of polypectomy than other programs. In order to help the generalizability of the findings, it would be helpful to report the detection rate for advanced neoplasia by indication for colonoscopy. Similarly, it would be helpful to report the rate of post polypectomy complications for small vs large polyps. It is assumed that the complication rates in colonoscopies performed in FIT+ would be greater than for average risk screening, since FIT+ individuals are most likely to present with advanced colorectal neoplasia. **We have included a discussion of the FIT cut-offin the Interpretation as a possible limitation. In addition, we have included the proportion of colonoscopies that had a polyp removed and the proportion of colonoscopies with at least one polyp $\geq$ 10mm. Our intent is to aid other programs in using our data in the context of their individual FIT cut-off/positive predictive value.** Considering the detailed data collection on complications, it would be helpful to document the proportion of events occurring at the time of the procedure as opposed

	to delayed events. It also would be helpful to provide more details on bowel-preparation related events, as well as other rare events. Although Table 1 lists these other events, not providing more qualitative description of these events seems like a missed opportunity. **We have added the distribution of SAEs that occurred at the time of colonoscopy and at the14-day follow-up. We have also provided moredetails in the text of the manuscript regarding less common SAEs.** An important proportion of individuals (18%) could not be tracked at two weeks. This is a major weakness of the study. As suggested by the authors, data linkage with hospital administrative databases should be performed. **We agree and have noted this in the Limitationssection of the Interpretation. The ability of the Patient Coordinators to contact participants after colonoscopy is a quality metric that we follow. This varies quite widely through the different regions. One region had an unable to contact rate of 3% and through shared learning,the other regions have adopted the same follow-up procedures. We hope to see this rate decrease in the future as a result. For this reason, we do not believe this group has a higher rate of adverse events but cannot know for certain. We have applied for Discharge Abstract Data and hope to be able to validate both our current method of SAE ascertainment as well as the follow-up period of 14 days.** **Depending on the results and the province's support in supplying hospital discharge abstractdata on an ongoing basis, we may use this method to identify patient's for chart review.** In summary, this report is unique in the comprehensive and systematic post-colonoscopy follow up performed by the program. Through this labor-intensive process, the program was able to collect data on bowel preparation related events as well as other rare events. This information should constitute an important part of the report. The report as it stands is not representative of FIT-based program, because an unknown proportion of patients also underwent colonoscopy as primary screening or for post-polypectomy surveillance. The report should specify the rate of complications by indication. Ideally, cross-linkage with hospital databases should be performed, since an important proportion of subjects could not be assessed.
Reviewer 2	Dr. Clarence Wong
Affiliation	University of Alberta, Cross CaAncer Intitute, Edmonton, Alta.
Reviewer comments and author response (in bold)	I commend the authors for conducting this quality based research. As far as I'm aware, this is the first Canadian study looking at the risks of colonoscopy from a FIT based, provincial colon cancer screening program. It highlights that colonoscopy for colon cancer screening has potential adverse events, and the importance of appropriate patient selection (such as FIT positivity). The methodology was performed with rigor and incorporated a priori criteria. The data adds to the literature and shows that even with current practice and newer equipment, the risks of colonoscopy have remained relatively similar over time. Last, looking at adverse events of screening needs to be built into all existing screening programs. Often, the focus is on cancer detection, and not the potential risks of the screening modality. **We thank the reviewers for their insightful comments and suggestions to the**