Article details: 2020-0186	
Title	Patterns of cost-related medication underuse among Canadian adults with cancer: a cross-sectional study using survey data
Authors	Omar Abdel-Rahman MD, Scott North MD
Reviewer 1	Ms. Stephanie Cheng
Institution	ICES Central, Toronto, Ont.
General comments (author response in bold)	The manuscript is well organized and describes the prevalence of cost-related medication underuse (CRMU) among a cohort of cancer survivors and those currently diagnosed with cancer using CCHS survey data. The authors also report on the factors associated with CRMU using multivariable logistic regression. Minor Revisions: 1. Page 6; line 56: The reference for this statement is a study on cancer survivors in the United States, which has a markedly different health care system than the one the authors are describing (i.e. Canadian), can it be generalized to the Canadian experience? **Thanks. A similar paper from Canada has been cited.** 2. Page 7; line 38: Please briefly the discuss the use of survey weights in the CCHS data either here or in the Statistical Analysis sub-section. **Thanks. added as requested.** 3. Page 7; line 46: The limitations of the CCHS data is acknowledged namely that the site of the cancer and cancer diagnosis date are unknown. However, a sensitivity analysis separately for the two cancer sub0groups could provide more robust and generalizable results. For example, survivors may be on long-term oral hormone therapy that require out-of-pocket payment versus those currently diagnosed with cancer undergoing adjuvant chemotherapy delivered in-hospital. **Thanks. We respectfully disagree with this argument. 1)oral hormonal treatment is not offered to every cancer survivor; but only to a small fraction (those with early breast cancer); 2) in most Canadian jurisdictions (e.g. Alberta where we practice), these hormonal treatments are fully funded by the government. So, patients should not find a financial problem getting them; 3) looking at table-1, actually, there is no difference between these two categories in terms of CRMU.** 4. Page 8; line 6: Please discuss how missing data was handled. **Please see response to comment 17 and comment 28 above.** 5. Page 8; line 15: There appears to be a discrepancy in the definition of ED visit and hospital admissions (past 12 hours vs. past 12 months in Table 1). **Sorry; this was a typographical error which has been corrected.** 6. Page 8; line 45: Please briefly describe how these particular covariates were selected? The authors note that there is a potential of collinearity between the presence of comorbidities and self-perceived health and self-perceived mental health. Was this tested and/or quantified? **Please see responses to comment 16 and comment 10.** 7. Page 9; line 15: Did the authors assess any possibly collinearity between working and insurance status?

	Yes, and results were added in the results. 8. Page 9; line 45: Suggest re-wording "it seems to be highest in British Columbia" to "it is highest in British Columbia". **Modified as requested.** 9. Page 10; line 25: For the two sections on this page "Factors Associated with CRMU Among All Participants" and "Factors Associated with CRMU Among Non-Elderly Participants", for ease of interpretability, please consider re-defining the reference category for categorical variables such that the OR effects are in the same direction throughout. **Please see reply to comment 28.** 10. Page 11; line 45: "…people who are chronically unemployed or underemployed (which include many cancer patients/survivors)". Please provide a reference for this statement. Alternatively (or additionally) please include employment status in Table 1. **Added in Table 1.** 11. Page 11; line 54: "This is probably linked to lower socioeconomic status for these groups and…" Please provide reference for this statement, as it is large generalization. **Thanks. Reference added.** 12. Page 12; line 36: Could the authors please expand clarify if this change in prescribing and dispensing practices based on a single-centre experience or is it a known systemic change in practice across the country? **Thanks. This was added as requested.** 13. Table 1: Please include list of comorbidities that were evaluated, in a footnote. **Added as requested.** 14. Figure 1: For ease of comparison across the two panels, please consider standardizing the legend gradient and including province-specific rates in the figures. **Please see response to comment 25.**
Reviewer 2	Dr. Keerat Grewal
Institution	Mount Sinai Hospital, University of Toronto, Toronto, Ont.
General comments (author response in bold)	Thank you to the authors for this interesting manuscript looking at cost-related medication underuse among adults with cancer in Canada, using data from the CCHS. Because Canada does not have universal drug coverage for the population, this is an issue that requires investigation. The authors focus on cancer patients because this is a specific population that many have many challenges and medical expenses that may prevent them using medications. 1. In the introduction, I think that some direct discussion of prescription medication coverage across Canada is warranted to let the readers know about the landscape of medication coverage in Canada. (i.e., what type of medication coverage is available from the government and who is eligible? What about people who are not covered by public coverage. Are the majority of these individuals covered by private insurance or cover costs by themselves?). Also are there differences in

	provincial drug coverage by province, since you are looking across Canada. **Thanks. This was added as requested.** 2. Methods, data collection, page 5: the variables collected for each participant are described. I would suggest adding some definitions for some of the variables. For example, for insurance coverage, detail what kind of insurance this is (ie. medication, health, home, etc). Similarly for type of insurance, what are the options for the responses (private, public, medical, etc). **Thanks. Definitions added.** 3. Statistical analysis, page 5: the authors describe using a logistic regression model. The CCHS often provides estimates/weighting for the survey data to be representative of the population (not just the sample). Were weights used in the analysis of data? **Please see response to comment 14.** 4. Statistical analysis: page 5: how did the authors determine which variables to include in the model? was this based on significance at the univariate level? **Thanks. Please see response to comment 16 above.** 5. Methods, page 6: in point number 3, looking at working status in non-elderly patients the authors mention that the most elderly individuals should be retired by age 65. I would consider revising this sentence, as there are many people over age 65 who still work: https://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016027/98-200-x2016027-eng.cfm . is there another rationale that can be provided for looking at this group, perhaps because those over 65 likely have provincial drug coverage (i.e., at least in Ontario this is true). **Thanks. Another rationale was added as requested.** 6. Results, page 6: the term 'younger age' is used, but not previously defined - how was this defined? **Thanks. a definition was added.** 7. Results: the authors mentioned that they classified patients are current or past cancer patients. Consider commenting in the text on whether any differences were found with this variable. The number of medications between current vs. past cancer patients likely varies. **Thanks. This comment was added.** 8. Discussion: page 9, the paragraph on data collection pre-covid 19 pandemic, does not necessarily seem relevant. **Thanks. We respectfully disagree. As practicing oncologists, this is something that we are observing every day for cancer patients/ oncologists in Canada.** 9. Table 2: not sure if p-values are needed. **Thanks. Removed as requested.**