Author's response to reviews

Title: Sociodemographic and health-related predictors of self-reported mammogram, faecal occult blood test and prostate specific antigen test use in a large Australian cohort study

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Author's response to reviews: see over
Dear Dr Xianglin Du,

Thank you for sending us the reviews for our paper entitled “Sociodemographic and health-related predictors of self-reported mammogram, faecal occult blood test and prostate specific antigen test use in a large Australian cohort study”.

We appreciate the time and thought put into our paper by the reviewers and have attempted to address their concerns, as outlined below.

Reviewer 1:  
Wee LE Liang

**Major compulsory revisions**

1. Title: Admittedly the data used is from a cohort study but as it is cross-sectional in nature (derived at baseline), the use of the word "cohort" in the study title may be a bit misleading.

   We have amended the title to, ‘Sociodemographic and health-related predictors of self-reported mammogram, faecal occult blood test and prostate specific antigen test use in a large Australian study’.

2. Methods: Study sample- The participation rate of 18% is a bit concerning, with the possibility of introducing bias. The authors do try to justify this to the reader by mentioning that the sample is reasonably representative of the NSW population; however, it would be more convincing if additional data was provided to substantiate this claim.

   We acknowledge that the participation rate is low, however while representativeness is important for prevalence surveys, which seek to ascertain the prevalence of a specific factor and relate that to the general population, representativeness is not required for unbiased estimates of effect measures within samples. For cohort studies, and studies of the type presented in our paper, the key aim is to obtain generalisable findings, using internal comparisons of data within the cohort. In the case of our study, we compared sociodemographic and health-related characteristics of participants using cancer screening tests in the 45 and Up Study cohort.

   Concerns are sometimes raised about low response rates or other sources of non-representativeness in cohort studies. However, while high response rates are generally required for population prevalence estimates, much of epidemiological knowledge and practice is based on the axiom that representativeness is not required in cohort studies to obtain generalisable findings. Classic examples of this are the British Doctors’ Study, where doctors are clearly not representative of the general population, yet the findings on lung cancer and smoking remain valid,[1] and the UK Biobank, which has a ~6% response rate.[2] Examples relevant to Australia include the AusDiab Study (33% response rate) and Australian Longitudinal Study of Women's Health (44% response rate, or around half of this for linkage studies). Furthermore, pooled analyses incorporating cohort studies, case-control and other study designs tend to find materially similar findings between studies with varying response rates.[3]

   Aside from these general experiences over time, simulation studies and algebraic work indicate the likely validity of internal comparisons in the face of varying response rates. Because this issue had been raised repeatedly, it has been tested empirically in the 45 and Up Study, by comparing relative risk estimates from the 45 and Up Study (a non-representative sample, with a response rate of 18%) with relative risk
estimates based on highly comparable questionnaire items from the NSW Population Health Survey (a sample that is generally considered representative, with a response rate of 62%).[4] It was found that exposure-outcome relationships did not differ materially between the two surveys. We referenced that study in the methods section of our paper. Another key paper in this area published in ANZJPH by Anne-Louise Ponsonby and Terry Dwyer, comes to the same conclusion through a review of classic epidemiological work.[5]

References:

3. Methods: Analyses section- The authors analysed their data by: for men, receiving FOBT only, receiving PSA screening only, receiving both, receiving none at all. Similarly, for females, receiving FOBT only, receiving mammograms only, receiving both, receiving none at all. While an interesting take on the subject (instead of analysing factors for non-participation in FOBT, and factors for non-participation in PSA screening only, etc.), I think the authors need more justification of why they chose to lump these screening modalities together in analysis, as well as also a discussion of the pros and cons of this approach. This can be done in the Discussion or elsewhere. The authors do make a point that they wanted to put across the message that "many people are being screened for one cancer when they should be screened for two."

However, the issue remains that FOBT and PSA screening are still quite different tests (eg. one a mail-in test, one a blood test) and FOBT and mammogram even more different still (mail-in test vs. imaging tests). One could also conceivably imagine very different risk perceptions of these cancers, and very different logistical and access issues (eg. mammograms being much more logistically difficult to arrange compared to FOBT). My concerns are that:

a) The authors need to show more justification for their choice of analysis, i.e that currently in the Australian healthcare setting, there is a potential for promoting screening for two different cancers simultaneously, either at point-of-care or otherwise.

b) As the participation rates for FOBT and PSA (23.1% vs 62.3%) and FOBT and mammography (17.7% vs. 68.2%) are very different, my concern is that by lumping the two modalities together into a "both screenings" option, this pre-supposes that those who have had one type of screening are more likely to have attended another screening program, which may not necessarily be the case. See Park et al (Park, M.J., Park, E.C., Choi, K.S., Jun, J.K., Lee, H.Y., 2011. Sociodemographic gradients in breast and cervical cancer screening in Korea: the Korean National Cancer Screening Survey (KNCSS) 2005–2009. BMC Cancer 11, 257) who did a similar analysis (lumping mammograms and pap smears together), and justified their approach by stating that, "(we) adopted this approach because women who have had one type of screening are known to be more likely to attend another screening program." It would be good if the authors could use their data to demonstrate that this is indeed the case before proceeding to lump two very different screening modalities together in their analysis.

c) I wonder whether it would be simpler and much more straightforward to just present factors associated with going for FOBT; factors associated with going for PSA; and should the authors make their point that screening for FOBT and PSA can be lumped together, then factors associated with going for both cancer screenings, compared to
none/one. There is a difference between factors associated with going for FOBT, and factors associated with choosing to go for FOBT only instead of going for both FOBT and PSA, which is what the authors currently present in their paper. Perhaps that difference should be made clearer. Similarly for mammograms and FOBT.

We have re-written the introduction to include a clearer justification of our analysis plan [Intro, Pg 3, last para]:

‘While there have been a few recent studies examining factors that influence mammography, FOBT and PSA test use in Australia,[11, 14-19] research comparing the use of these different cancer screening tests is sparse. Several studies in the USA have directly compared factors associated with being screened with more than one of these test types [20-25] but only one study (limited to men) has been reported from Australia.[26] These studies have all found that many people are screened for breast and prostate cancer but not for bowel cancer. Although the test types are very different in nature (FOBT is self-administered, mammography is an imaging technique done in a specialist clinic and PSA tests are a blood test ordered by a general practitioner), screening for one cancer type may potentially be a “teachable moment” for screening for another cancer type.[27-29]

The objective of our study was to examine factors related to the use of FOBT, mammography and PSA tests either alone or in combination. These factors included individual-level socio-economic indicators as well as demographic characteristics and health-related factors. We used self-reported, cross-sectional data from The 45 and Up Study in New South Wales (NSW; Australia’s most populous state) from participants aged 50 years and over, who reported that they had never had cancer. In a previous report, we found that 45 and Up Study participants were more than twice as likely to have a FOBT for bowel cancer if they had also had a mammogram or a PSA test [30]. By investigating the use of a range of cancer screening tests within the same population, commonalities and discrepancies in the determinants of cancer screening uptake can be more clearly identified.’

4. Discussion: 4th paragraph, "Interestingly, living in regional and remote areas was not a barrier to cancer screening in our study. Indeed, people in regional and remote areas were more likely to be screened for bowel and breast cancer than those living in a major city". The authors posit that for bowel cancer, people living in regional areas were more likely to be screened for bowel cancer (via FOBT).

As colonoscopy and sigmoidoscopy were not assessed in this study, I wonder whether the higher use of FOBT in regional areas was due to the unavailability of alternatives such as colonoscopy and sigmoidoscopy (which would not have been evident in the study) given limited facilities, and not so much due to higher overall screening per se?

We have added this discussion point to the text [Discussion, Pg 12, end of first Para]:

‘It is also possible that, in the case of bowel screening, people living in major cities are more likely to have a colonoscopy than those in regional areas where accessibility to colonoscopy clinics is more limited (although not explored here).’

5. Discussion: 3rd last paragraph. PSA screening is controversial and I am glad that the authors addressed this issue; however, it is an important issue and I would suggest that the controversy of this screening be highlighted at an earlier point, rather than late in the Discussion. It does negate some of the author’s emphasis on pushing for simultaneous screening for two diseases.

We do not advocate for PSA testing as a screening test for prostate cancer. We attempt to express the view that because many men are being tested for prostate cancer regardless of guidelines, this may present an opportunity to promote bowel cancer screening since these men may be open to messages about early detection and cancer prevention. We have now introduced the ‘PSA test controversy’ issue to the introduction, rather than leaving it to the end [Intro, Pg 3, Para 1]:
‘In contrast, although a mortality benefit has been found for the early detection of prostate cancer using prostate specific antigen (PSA) testing,[5] this form of screening is not recommended by the Australian Government because the harms outweigh the benefits.[5, 6] However, PSA tests have been subsidised by the Australian Government since 1989 and PSA testing for the early detection of prostate cancer has received widespread media attention in recent years.[7] Thus, PSA testing is effectively used as a de facto, albeit disorganised, prostate cancer screening program.[8]’

We also attempted to make it clearer throughout the discussion that while we advocate for breast and bowel screening, we do not advocate PSA testing as a screening test for prostate cancer.

Minor essential revisions
Abstract:
1. Methods section- NSW as New South Wales (acronyms not encouraged as first use of term)

   The full use of New South Wales first came in the introduction [Pg 4, Para 2]:
   ‘We used self-reported, cross-sectional data from The 45 and Up Study in New South Wales (NSW; Australia’s most populous state) from participants aged 50 years and over, who reported that they had never had cancer.’

Results:
2. Multinomial logit models- para 2- it would be useful to know what the mean household income in Australia is, this would aid us in interpreting the significance of a household income <$9000 or <$5000.

   We added the mean household income in Australia to the text [Methods, Pg 6, Para 1]:
   (note, the mean annual Australian income in 2009-2010 for people aged 45 years or older was $50,490 [35])’

Discussion:
3. 3rd last para- “the benefits of cancer early detection.” Suggest rephrasing to “the benefits of early detection of cancer.”

   This change has been made [Discussion, Pg 10, last Para]:
   ‘A number of studies have proposed that screening for one cancer type is a potential “teachable moment” for screening of another cancer type, especially given that those having mammograms or PSA tests may be a group that are aware of, and interested in, the benefits of the early detection of cancer.[27-29]’

Discretionary revisions
Introduction:
1. First para- It would be good if the authors included some detail on cancer mortality and morbidity in the study population so that the reader would get a better understanding of the local scope of the problem.

   We have added a description of the state of cancer screening in Australia [Intro, Pg 3, Para 1]:
   ‘Prostate, breast and bowel cancer are the most commonly diagnosed cancers in Australia and apart from lung cancer, also account for the highest number of cancer-related deaths.[1] There is clear evidence that early detection of breast and bowel cancer via screening reduces the mortality associated with these diseases [2-4] and Australia has national, government-funded screening programs for both these cancers (breast since 1992 and bowel since 2006). In contrast, although a mortality benefit has been found for the early detection of prostate cancer using prostate specific antigen (PSA) testing,[5] this form of screening is not recommended by the Australian Government because the harms outweigh the benefits.[5, 6] However, PSA tests have been subsidised by the Australian Government since 1989 and PSA
testing for the early detection of prostate cancer has received widespread media attention in recent years.[7] Thus, PSA testing is effectively used as a de facto, albeit disorganised, prostate cancer screening program.[8]

2. First para- Because the thrust of the article is on socioeconomic predictors of screening, it may also be useful to include information from the literature as to whether there are currently particular socioeconomic strata of society not receiving regular screening - i.e what is the scale of the current problem and what is already known? The authors state that the "relationship between sociodemographic and health characteristic... is sparse" but do not cite a source. It might be helpful to shed more light on this.

We chose to keep the focus of the introduction on studies comparing factors related to test use, rather than correlates of each test individually. However, we did add in more information about previous reports of socioeconomic predictors of screening in the discussion [Discussion, Pg 11, Para 2]:

'The national monitoring reports of the screening programs, which are based on area-level socioeconomic classification, report lower participation for low socioeconomic sub-groups in the bowel cancer screening program but less so in the breast screening program. [9, 12, 15] Correlates of PSA test use have not be widely explored, but one study in Australia found that socioeconomic factors were not strongly associated with PSA test use.[18]

Figure 2: It appears that educational status plays a role in access to FOBT amongst women - this trend is not seen for men or for other screening modalities. Is there a reason for this and might the authors speculate on this in the discussion?

Educational status played a role in access to FOBT for both women and men. We added more on the issue of educational attainment to the discussion [Pg 11, Para 2]:

'Educational status was related to use of FOBT in both men and women, as well as the combined use of FOBT and PSA test/mammography, but was not related to PSA test or mammogram use alone. This finding suggests that low levels of education were specifically related to low levels of bowel cancer screening.'

Reviewer 2:
Tomi Akinyemiju

Discretionary Revisions
In the Ascertainment of socioeconomic, demographic and health characteristics section of the Methods, it will be helpful to list the variables used in the analysis for readers. It may be helpful to provide a brief description of the current healthcare system in the study region for the international audience. e.g. do most people visit private or public clinics for healthcare? Is healthcare accessible for most people especially in the rural regions? Is healthcare free or are there co-pays that may affect healthcare utilization rates?

We have now listed the variables used for analysis and provided a brief description of the Australian health system [Methods, Pg 6, Para 1]:

'All factors were obtained from the self-administered questionnaire and are listed in Tables 1 and 2. These included age, education, annual household income from all sources (note, the mean annual Australian income in 2009-2010 for people aged 45 years or older was $50,490 [35]), married or living with a partner, language spoken at home, country of birth, need help with daily tasks due to illness or disability, psychological distress as measured by the Kessler 10 scale [36], and ever used hormone replacement therapy (HRT; women only). We also examined health insurance status, categorised as having 1) a health care concession card (subsidised care for low income earners), 2) a Department of Veterans’ Affairs card (subsidised care for current and past members of the Australian defence force and their spouses), 3) private health insurance without extras (covers ambulance and hospital services only), 4) private health insurance with extras (i.e. covers dental treatments and specialist services such as physiotherapy), or 5) no concession card or health
Insurance. It should be noted, however, that all Australian’s have free universal access to hospital treatment in public hospitals and subsidised out-of-hospital medical treatment and medications. Those with concession cards receive larger subsidies and those with private health insurance are covered (to varying degrees, depending on the policy) for treatment in private hospitals.

The categorization of many of the variables in the analysis seem to be unnecessarily detailed. For example, having 10 sub-categories for employment and 9 for income seems too much. I doubt that much will be lost by re-categorizing employment into 4 groups e.g. employed (full time, part time, self-employed), unemployed (unemployed, look after home/family, unpaid work), retired (full or partial), unable to work (sick/disabled).

We chose not to condense the categories of our variables. One of the features of our study is the large sample size, which allowed for a very detailed breakdown of each of these variables.

Reviewer 3
Ben Hudson

Minor essential revisions.

1. In the Background section of the Abstract the authors state that they examined the proportions of participants who had received screening tests in the previous 2 years. However, in the Methods section it appears that participants were asked whether they had ever been screened using each of the tests in question. This apparent discrepancy should either be corrected or clarified.

   Participants were asked how long ago they had each test. We have made this clearer in the methods by changing the text from [Methods, Pg 5 Para 4]:
   ‘Respondents were also asked to indicate how long ago (in years) they had used each test type’, to:
   ‘For all tests, respondents were asked to indicate how long ago (in years) they had used each test type and the analysis focussed on tests received in the previous two years.’

2. Tables 1 and 2 include participants’ psychological distress levels. It would be helpful to mention in the Methods section what instrument was used to obtain these results.

   We used the Kessler 10 scale and have now added this detail to the methods, as described in response to Reviewer 2’s request for more detailed information about the factors measured [Methods, Pg 6, Para 1].

3. In paragraph 1 of the Discussion section, the authors suggest that there are “…different barriers to cancer screening depending on the test…” The word “barrier” implies that, in an ideal world, all participants would have availed themselves of both applicable tests. This assumption fails to allow for the fact that some participants may have made a valid decision not to be tested. I suggest that the authors should acknowledge this possibility and that they consider using a different word than “barrier”. Another example of this problem is in para 5 of the Discussion section, where it is noted that “…men and women who reported needing help with daily tasks because of illness or disability had low levels of screening use. This is probably explainable in terms of access issues and the ability to get to a mammography clinic/doctor, or to perform a FOBT at home.” This finding might be better explained by the fact that these participants are more likely to have immediate health problems, possibly a shorter life expectancy, and have therefore made a reasonable decision that the small long-term benefits of screening are not relevant for them.

   We take the point that the word “barrier”, as it was used in this sentence, made assumptions that are not directly tested in our report. Thus, we have changed “barriers” to “factors” [Discussion, Pg 10, Para 1]:
The 45 and Up Study is the largest population-based cohort study in Australia and the results presented here, using uniform outcome measures, suggest that there are different factors related to cancer screening depending on the test.

We also added in the suggested explanation for the lower use of screening tests by participants who needed help with daily tasks [Discussion, Pg 12, Para 2]:

“This may be explained in terms of access issues and the ability to get to a mammography clinic/doctor, or to perform a FOBT at home. Alternatively, it may be the case that these participants have more immediate health problems, possibly a shorter life expectancy, and have therefore made a reasonable decision that the small long-term benefits of screening are not relevant for them.”

4. In paragraph 6 of the Discussion section the authors suggest that there is a “clear role for general practice in encouraging participation in the National Bowel Cancer screening programme...” and in the final paragraph they suggest that “Strategies aimed at using one test as a ‘teachable moment’ for promoting another...may help in closing the gap in...” These statements require further consideration. Do the authors really believe that it is for GPs (or anybody else) to encourage or promote participation in screening programmes? The fine balance of benefits and harms of screening programmes means that the decision to take part in one should be made by a well-informed individual, and that we should strive to provide the necessary information in an accessible way. There is an emerging consensus that we should be moving away from a position of promoting screening to one of providing high quality decision aids which individuals can use to make their own decisions on whether or not to participate. [1, 2]

Evidence to date supports the existence of screening programs for breast and bowel cancer and because the effectiveness of the programs increases with increased participation, we do not have a problem suggesting that they should be promoted by GPs. Indeed, the guidelines for preventive activities in general practice (http://www.racgp.org.au/your-practice/guidelines/redbook/) recommend encouraging patients in the target groups to participate in the breast and bowel screening programs.

5. In the Discussion section in para 6, the authors also suggest that “there is a clear role for general practice.....inviting those not currently in the eligible age groups for the program to have a FOBT.” This could be read to mean that the authors are recommending GPs encourage ad hoc or haphazard screening outside the organised screening programme. Such haphazard screening has a number of well recognised risks: a lack of an organised system of call and recall, no agreed protocol for testing and follow up, and no programme quality control. Haphazard screening risks exposing participating individuals to screening-related harms that may exceed screening’s benefits, and may exacerbate health inequalities by directing resources away from those with greatest need, it is therefore generally discouraged. [3] I’m not clear that this is what the authors intended, perhaps this could be clarified?

We have now excluded this sentence from the text.

6. Finally, the authors use the word “foecal” in the title and elsewhere. This may be an Australian spelling, but I don’t believe it is standard elsewhere and suggest they use either “faecal” or, if they must, “fecal”.

We have changed “foecal” to “faecal” throughout the paper.

**Discretionary revisions**

1. In paragraph 2 of the Discussion section the authors suggest that “Increasing government-funded bowel cancer screening so that all people are screened biennially would go a long way towards increasing participation overall”. It’s not clear whether such a policy change would increase uptake, and the authors provide no explanation as to why they think it would. (Offering people more of something they don’t appear to want very much doesn’t seem to me a guaranteed way of encouraging them to have more of it). In any case, they then go on to
rather undermine this argument in the following paragraph, where they remind us that “Barriers to cancer screening among low socio-economic groups are not limited to cost and accessibility”.

We take the point that increasing coverage of the NBCSP will not necessarily increase the participation rate. However, increasing coverage will increase the overall number of people being screened, and based on evidence from screening trials, will therefore increase the number of bowel cancer deaths avoided. Nevertheless, we have deleted this remark from the text.

2. I wonder whether the authors could make a little more of the fascinating finding that 63% of their male participants had had a PSA test? This seems surprisingly high, especially given the RACGP and USPSTF guidance against this form of screening.[4, 5]

We were not surprised by the high proportion of men reporting a PSA test. Previous studies have also demonstrated high levels of testing in Australia and as we say in the discussion [Pg 10, Para 2], ‘PSA testing is not currently recommended as a population-based screening tool for prostate cancer, but is subsidised by the government, has had considerable media attention and is an easy test to administer.’


Reviewer 4
Traci LeMasters

Major Compulsory Revisions
1. The introduction only provides one reference and could be strengthened by providing a more informative background on what is already known about the topic. It would help to include some statistics or findings from previous studies that describe 1) what proportion of cancers diagnosed a year are breast, prostate, and colorectal cancers and 2) the ranges for the previous measures of screening attendance (even though the authors stated in the first sentence that the proportion of people who attend screening vary widely). If there is no existing literature about socio-economic and sociodemographic characteristics association with cancer screening in Australia, then perhaps discussing some common characteristics identified in countries where cancer screening is strongly advocated and practiced (U.S. or U.K.).

These details have been included in the introduction [Pg 1, Para 1 - 3]:
‘Prostate, breast and bowel cancer are the most commonly diagnosed cancers in Australia and apart from lung cancer, also account for the highest number of cancer-related deaths.[1] There is clear evidence that early detection of breast and bowel cancer via screening reduces the mortality associated with these diseases [2-4] and Australia has national, government-funded screening programs for both these cancers (breast since 1992 and bowel since 2006). In contrast, although a mortality benefit has been found for the early detection of prostate cancer using prostate specific antigen (PSA) testing,[5] this form of screening is not recommended by the Australian Government because the harms outweigh the benefits.[5, 6] However, PSA tests have been subsidised by the Australian Government since 1989 and PSA testing for the early detection of prostate cancer has received widespread media
attention in recent years.[7] Thus, PSA testing is effectively used as a de facto, albeit disorganised, prostate cancer screening program.[8]

Among Australian women, participation in the breast cancer screening program is around 55% (in the target age group of 50-69 years).[9] However, screening mammograms are also commonly accessed through the private sector on a user-pays basis and so the participation rate is more likely to be around 75%. [10, 11] In the bowel cancer screening program the participation rate among those invited is around 38.4% (currently only people turning 50, 55 and 65 are invited via a mailed, faecal occult blood test; FOBT).[12] FOBTs are also available outside the program, but are not widely used and so the overall participation rate in the target age group remains similar to the program participation rate.[10] The prevalence of PSA testing for prostate cancer screening purposes in Australia is unknown but estimated to be quite high. A nationally representative study ten years ago found that 63% of men aged >50 years had ever had a PSA test [13] and this proportion is likely to have risen significantly since then.[8, 14]

While there have been a few recent studies examining factors that influence mammography, FOBT and PSA test use in Australia,[11, 14-19] research comparing the use of these different cancer screening tests is sparse. Several studies in the USA have directly compared factors associated with being screened with more than one of these test types [20-25] but only one study (limited to men) has been reported from Australia.[26] These studies have all found that many people are screened for breast and prostate cancer but not for bowel cancer. Although the test types are very different in nature (FOBT is self-administered, mammography is an imaging technique done in a specialist clinic and PSA tests are a blood test ordered by a general practitioner), screening for one cancer type may potentially be a “teachable moment” for screening for another cancer type.[27-29]

**Minor Essential Revisions**

1. Second sentence in the Methods, “Ascertainment of socioeconomic, demographic and health characteristics” section, did you mean “heart” instead of “other heard disease”?

   This change has been made [Methods, Pg 6, Para 2]

2. First sentence of Results, “Descriptive statistics” section, paragraph needs indention.

   Paragraph has been indented.

3. Maybe this is my misunderstanding but regarding odds ratios presented in Figures 1 & 2, why do some ORs not have confidence intervals shown around them while others do?

   95% confidence intervals are shown for every odds ratio, however some are very narrow due to the large sample size.

**Discretionary Revisions**

1. It may add to the discussion to suggest an explanation as to why individuals in rural areas had higher screening rates, than individuals in urban areas

   We added the following potential explanation for higher levels of screening in regional areas [Pg 12, Para 1]:

   ‘Higher levels of cancer screening in regional areas could possibly be due to a greater level of community strength and engagement in regional areas, leading to a greater community awareness of cancer screening. For example, the Breast Screening Program in NSW is largely operated out of a mobile van that travels from town to town. This event is likely to be much more salient in a small town with a single central shopping centre than in the urban sprawl of the city, and indeed, in some Australian cities the program is run entirely from clinics. Thus, the presence of the mobile van may facilitate a level of awareness of the program in rural and regional
areas that may be lacking in urban areas. Moreover, limited research has shown that community strength is greater in rural Australia than in the cities,[45] and higher levels of social integration are positively related to cancer screening uptake.[46] It is also possible that, in the case of bowel screening, people living in major cities are more likely to have a colonoscopy than those in regional areas where accessibility to colonoscopy clinics is more limited (although not explored here).

Please do not hesitate to contact me at mariannew@nswcc.org.au or +61 2 93341415 if you require anything further.

With best wishes,

Yours sincerely,

Marianne Weber
On behalf of the authors: Michelle Cunich, David Smith, Freddy Sitas, Glenn Salkeld and Dianne O’Connell.