

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

### ARTICLE DETAILS

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| <b>TITLE (PROVISIONAL)</b> | "It has saved thousands of lives, so why change it?" Content analysis of objections to cervical screening program changes in Australia |
| <b>AUTHORS</b>             | Obermair, Helena; Dodd, Rachael; Bonner, Carissa; Jansen, Jesse; McCaffery, Kirsten  |

### VERSION 1 – REVIEW

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| <b>REVIEWER</b>        | Stella Heley<br>VCS Ltd<br>Carlton<br>Victoria<br>Australia<br>I am employed by a screening service. |
| <b>REVIEW RETURNED</b> | 15-Sep-2017  |

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| <b>GENERAL COMMENTS</b> | <p>Overall I like this paper and appreciate the validity of concerns of the authors. But I think there are some gaps that should be acknowledged, as I will outline in my comments.</p> <p>I don't think the abstract is balanced or complete as the original petition is only alluded to in phrases. I think it would be useful to see the entire original statement. The response might have been large, but once we see this statement it's almost certain that it will have appealed to a very biased audience. I don't think this point is made strongly enough throughout the paper.</p> <p>As far as the outcomes are concerned, I think the discussion section is generally very good (some individual comments follow) and Table 2 is certainly helpful. But nowhere have the authors acknowledged, or, perhaps more importantly, made suggestions as to how you present a new screening program (with all the inherent lay person misunderstandings of screening, as nicely explained on pages 9-10) which has major changes, while not undermining confidence in the current program. As pointed out on page 4, we have had a very successful screening program since introduction of the NCSP in 1991; we want women to continue in and feel confident in that program, even though a new one (a better one) is planned.</p> <p>I'd also like to suggest that under "Strengths and Limitations of This Study" (p.3 point number 3 ) The President of the AMA, the Australian Government Minister for Health, and Australia's CMO may well have responded NOT because of the "importance ....of the petition", but because the concerns raised in it were unfounded. Many of the statements from the petition quoted in this paper are at best inaccurate, and, at worst, simply untrue.</p> |
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|  | <p>Here are some suggested minor revisions:</p> <p>p.2 L 38 "Screening changes within this selected group were perceived..."</p> <p>p.4 I would suggest re-writing the first couple of sentences: Cervical cancer is caused by chronic cervical infection with oncogenic or "high-risk" human papillomavirus (HPV) types. Contributing factors to the development of cancer include cigarette smoking and immunodeficiency.</p> <p>L 14. This is not accurate and should read ."from 1991 to 2002 where it remained until 2012 when it rose slightly". Same reference (6); p. 27. I think it's important that it's understood that the incidence of cervical cancer under the current screening program has plateaued since 2002.</p> <p>L 16 " recent evidence .....shows.." rather than "suggests" (The evidence is clear)</p> <p>L 22. The evidence is clear for women &lt; 25. Suggest change from 20 to 25.</p> <p>L 38- 39 Ungrammatical. Suggest change to "other countries have also decided to recommend implementation of primary HPV screening..."</p> <p>L 41. Note that the Netherlands have started their program already</p> <p>L 47 The phrase "winding back other components of the program" has negative connotations and, I believe, should be deleted.</p> <p>L 52-59 I think it would be worth quoting the petition in full.</p> <p>p. 5 L 27 I think the abandoning of the petition is certainly worthy of comment/explanation either here or in the discussion. Apart from the responses from the AMA and Australian Government, were the concerns addressed in any other way?</p> <p>L 39 How were the comments randomized?</p> <p>p.7 L 24 The use of "almost" in the sentence "Almost 5% of comments expressed confidence in the current program..." is loaded and should be dropped, I think. You could just as easily write "Only 5%...."</p> <p>p. 8 L 3 Ungrammatical. Change "towards" to "about" (so that it reads "comments and concerns about...")</p> <p>L 50 Change "reflex" to "reflect"</p> <p>p.10 L4-5. Add "We believe much greater efforts..." as this is an opinion.</p> <p>p..11 L2 The register is actually called the National Cancer Screening Register</p> <p>L12-13 I have to add that this has not been the case in Victoria where nearly 600 GP practices have recruited over 60 thousand women into the Compass Trial in which two thirds have a primary HPV test and follow the path of the new Guidelines. Since 2013 several thousand individual doctors and nurses have had face-to-face education concerning this new pathway.</p> <p>L 30 Ungrammatical. Replace "received by" with "from"</p> <p>L 36. Re-write sentence "Evidence supports that..." I suggest "Evidence supports the notion that public information..."</p> <p>In conclusion, I believe this is an important paper which addresses pertinent concerns. But I do think the bias of the petition needs to be acknowledged, and the conclusions are not really helpful. What do the researchers recommend be done in future---keeping in mind that a successful program is in place and should not be undermined. In other words, how do you communicate about an upcoming screening program without undermining the current one? When should education and communication with practitioner and the public start when you are implementing a new program?</p> <p>Thank you very much for this paper.</p> |
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| <b>REVIEWER</b>        | Laurie Smith<br>BC Cancer Agency, and Women's Health Research Institute,<br>Vancouver, Canada.<br>I have worked as a consultant for Roche Molecular. |
| <b>REVIEW RETURNED</b> | 18-Sep-2017  |

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| <b>GENERAL COMMENTS</b> | <p>Globally, cervical cancer screening is undergoing significant paradigm shifts with HPV testing. Development of appropriate communication and education strategies for patients and providers is critical. Cervical cancer screening programs planning for HPV primary testing can learn a great deal from those who commented on the petition. Interesting and timely contribution. Questions/suggestions to the authors included in the attachment below.</p> <p>The reviewer also provided a marked copy with additional comments. Please contact the publisher for full details.</p> |
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### VERSION 1 – AUTHOR RESPONSE

#### Reviewer 1

1. I don't think the abstract is balanced or complete as the original petition is only alluded to in phrases. I think it would be useful to see the entire original statement. The response might have been large, but once we see this statement it's almost certain that it will have appealed to a very biased audience. I don't think this point is made strongly enough throughout the paper.

Response: We appreciate the reviewer's concerns, and have now included the full petition name, "Stop May 1st Changes to Pap Smears – Save Women's Lives" in the 'Objectives' section of the abstract. This sentence now reads, "This study investigated reasons for opposition to the new screening program within the open-ended comments of an online petition, 'Stop May 1st Changes to Pap Smears - Save Women's Lives', opposing the changes, which received over 70,000 signatures and almost 20,000 comments." The petition's appeal to a biased audience has been addressed in the Discussion section (Page 11 Line 44-47), "It is more likely that the petition attracted responses from those with a greater interest in women's health and cancer screening, and may also represent a group with increased personal or family history of cervical cancer."

2. As far as the outcomes are concerned, I think the discussion section is generally very good (some individual comments follow) and Table 2 is certainly helpful. But nowhere have the authors acknowledged, or, perhaps more importantly, made suggestions as to how you present a new screening program (with all the inherent lay person misunderstandings of screening, as nicely explained on pages 9-10) which has major changes, while not undermining confidence in the current program. As pointed out on page 4, we have had a very successful screening program since introduction of the NCSP in 1991; we want women to continue in and feel confident in that program, even though a new one (a better one) is planned.

Response: Thank you for this comment. This is indeed a significant challenge in the revision of any change to screening programs. How to present a new screening program without undermining confidence in the current program is something which we hope to provide clearer suggestions to with our further research, as this issue is beyond the scope of our current findings.

The current study shows what can happen when little information is given to women and community concerns are raised, and we hope to provide some solutions to address this after conducting focus groups with women in the community. In the revised manuscript we have now acknowledged the challenges in communicating changes while not undermining the existing program (page 5) and stated that research is now needed to examine communication strategies in more detail (page 12). On page 5, we have stated, "A significant challenge is how to present a new screening program with major changes so that confidence in the current program is not undermined. This analysis could help inform public information and communication strategies for future changes to cervical screening programs internationally, by pre-emptively addressing specific concerns about the changes." On page 12, we have now added, "This study has practical and international implications for informing the significant challenge of rolling out future screening program changes", and, "Communication must acknowledge emotions involved in this screening wind-back, should anticipate the public's known concerns, and must engage them in the decision-making process of screening changes. Future research will explore the optimum time to involve the public in screening policy." To date, there has not been a clear line of communication to women about the changes to the program and the rationale behind the changes.

3. I'd also like to suggest that under "Strengths and Limitations of This Study" (p.3 point number 3) The President of the AMA, the Australian Government Minister for Health, and Australia's CMO may well have responded NOT because of the "importance ....of the petition", but because the concerns raised in it were unfounded. Many of the statements from the petition quoted in this paper are at best inaccurate, and, at worst, simply untrue.

Response: It is certainly plausible that the President of the AMA, the Australian Government Minister for Health, and Australia's CMO have responded due to unfounded concerns, although we do believe that they would not have responded had this not been such a significant petition with a large audience. We have revised this point in the 'Strengths and Limitations' section to clarify this issue. This section now states, "Responses to the petition by the President of the Australian Medical Association, the Australian Government Minister for Health and Australia's Chief Medical Officer indicate the significance and size of the petition as worthy of comment by key stakeholders in this policy issue. However, it is also plausible that their response was simply motivated because the concerns raised in the petition were unfounded."

4. p.2 L 38 "Screening changes within this selected group were perceived..."

Response: We have revised this line as per the reviewer's comment.

5. p.4 I would suggest re-writing the first couple of sentences: Cervical cancer is caused by chronic cervical infection with oncogenic or "high-risk" human papillomavirus (HPV) types. Contributing factors to the development of cancer include cigarette smoking and immunodeficiency.

Response: We have revised the first sentence of the Introduction as per the reviewer's comment, also incorporating the phrase suggested by Reviewer 2, "strongly associated with". The first sentence of the introduction now reads, "Cervical cancer is strongly associated with chronic cervical infection with oncogenic or "high risk" human papillomavirus (HPV) types. Other contributing factors including cigarette smoking and immunodeficiency."

6. L 14. This is not accurate and should read, "from 1991 to 2002 where it remained until 2012 when it rose slightly". Same reference (6); p. 27. I think it's important that it's understood that the incidence of cervical cancer under the current screening program has plateaued since 2002.

Response: We thank the reviewer for this comment, and have revised this sentence as suggested.

7. L 16 " recent evidence .....shows.." rather than "suggests" (The evidence is clear)

Response: We have revised this sentence as suggested. It now reads, "Compared to cytology-based screening, recent evidence from large international trials shows that HPV testing has increased sensitivity to detect high-grade pre-cancerous Cervical Intraepithelial Neoplasia (CIN) or cervical cancer in all age groups".

8. L 22. The evidence is clear for women < 25. Suggest change from 20 to 25.

Response: We have revised this sentence as suggested.

9. L 38- 39 Ungrammatical. Suggest change to "other countries have also decided to recommend implementation of primary HPV screening..."

Response: We thank the reviewer for this comment, and have revised this sentence to be clearer as suggested.

The sentence now reads, "Other countries have also decided to recommend implementation of primary HPV screening, including New Zealand, Italy, Sweden and the Netherlands."

10. L 41. Note that the Netherlands have started their program already

Response: We thank the reviewer for this comment. We believe that amending the beginning of the sentence will clarify that we have included both countries that have started their program and those that are anticipating starting in the next few years.

11. L 47 The phrase "winding back other components of the program" has negative connotations and, I believe, should be deleted.

Response: This phrase has been deleted.

12. L 52-59 I think it would be worth quoting the petition in full.

Response: To include the whole petition in the manuscript would be very lengthy as it is 744 words. We will include the petition in full as a supplement, which is now referred to in the manuscript on page 5.

13. p. 5 L 27 I think the abandoning of the petition is certainly worthy of comment/explanation either here or in the discussion. Apart from the responses from the AMA and Australian Government, were the concerns addressed in any other way?

Response: We have added further explanation of why the petition was abandoned at this time. As with most successful social media campaigns, there was an exponential rise in petition signatures and comments due to social media sharing and news media coverage of the petition which then subsequently declined. We have added to the Methods section 'Dataset', "The petition received exponentially fewer comments each day after the 20th of February 2017, but still exists online to this date, receiving minimal signatures and even fewer comments each day." This pattern is reflected in the distribution over time of comment frequency. Further comments to address public concerns aside from the AMA and Australian Government responses are described in the Discussion Paragraph 1 (Page 9), which details mainstream news media coverage. This response was not planned or part of any coordinated communication strategy to women.

Concerns have also recently been addressed by a new NPS Medicinewise Learning Module, 'National Cervical Screening Program', developed as a joint initiative between the Australian, State and Territory governments. (Australian Government Department of Health. (2017). National Cervical Screening Program. NPS MedicineWise Learning. Retrieved from <https://learn.nps.org.au/mod/page/view.php?id=7804>)

14. L 39 How were the comments randomized?

Response: A more detailed explanation of the randomisation procedure has been included in the 'Procedure' section of the Methods. Comments were randomised using Microsoft Excel's random number generator. Each comment was allocated a random number. Then the random numbers were sorted in ascending order, and the top 2000 comments were selected for analysis. This method was also used to randomise 10% of the comments for the second coding.

15. p.7 L 24 The use of "almost" in the sentence "Almost 5% of comments expressed confidence in the current program..." is loaded and should be dropped, I think. You could just as easily write "Only 5%...."

Response: We have amended this sentence to read, "Just under 5% of comments expressed confidence in the current program and argued that, "if something is not broken, don't fix it".

16. p. 8 L 3 Ungrammatical. Change "towards" to "about" (so that it reads "comments and concerns about...")

Response: We thank the reviewer for this comment. We have changed "towards" to "about", which results in the revised sentence being, "This study presents comments and concerns about the 2017 changes to the Australian NCSP expressed by one of Australia's largest petitions on "Change.org".

17. L 50 Change "reflex" to "reflect"

Response: We thank the reviewer for alerting us to this wording error. The word 'reflex' has been replaced with 'reflect', to read, "Opposition to the screening change may reflect status quo bias, and general opposition of people to change".

18. p.10 L4-5. Add "We believe much greater efforts..." as this is an opinion.

Response: This sentence has been revised as suggested, to read, "Much greater efforts are required by public health practitioners to better educate the public about the relative benefits and harms of screening."

19. p..11 L2 The register is actually called the National Cancer Screening Register

Response: The wording of this line has been amended to reflect the reviewer's comments. The sentence now reads, "The rollout of the renewed NCSP was planned for May 2017, but has been delayed until December, as a component of the renewed program, the National Cancer Screening Register, was not ready for implementation."

20. L12-13 I have to add that this has not been the case in Victoria where nearly 600 GP practices have recruited over 60 thousand women into the Compass Trial in which two thirds have a primary HPV test and follow the path of the new Guidelines. Since 2013 several thousand individual doctors and nurses have had face-to-face education concerning this new pathway.

Response: We thank the reviewer for this comment. We acknowledge that through these trials and exposure to other research projects many GPs in Victoria would have been exposed to education about HPV screening. However, to the best of our knowledge, there has not been a consistent education program across the country about the upcoming changes, as would be required to adequately ensure understanding of the upcoming changes by general practitioners and practice nurses across Australia. We have qualified the statement in the Discussion (Page 11), to better reflect that some clinicians and practice nurses would have been exposed to education about the changes, and have referenced the recent publication about the Compass trial to highlight the existence of ongoing education initiatives. The sentence now reads, "While limited education has been provided to GPs through research initiatives such as the Compass trial in Victoria (49), and online education modules for clinicians were released in late 2017 (50), a 2015 article in the Australian Doctor magazine reported that "very little information has been distributed to GPs [about the changes] (51)."

21. L 30 Ungrammatical. Replace "received by" with "from"

Response: "Received by" has been replaced with "from" in this section of the discussion.

22. L 36. Re-write sentence "Evidence supports that..." I suggest "Evidence supports the notion that public information..."

Response: This section has been amended to reflect the reviewer's comment. It now reads, "Evidence supports the notion that public information exposure through social media has tangible impacts on health practices."

23. In conclusion, I believe this is an important paper which addresses pertinent concerns. But I do think the bias of the petition needs to be acknowledged, and the conclusions are not really helpful. What do the researchers recommend be done in future---keeping in mind that a successful program is in place and should not be undermined. In other words, how do you communicate about an upcoming screening program without undermining the current one? When should education and communication with practitioner and the public start when you are implementing a new program?

Response: We appreciated the reviewer's comment that this is an important paper. In order to acknowledge the bias of the petition, we have added the title of the petition into the abstract. We have also acknowledged in the Discussion section, Paragraph 8 (Page 12) that these commenters may not be representative of the majority of Australian women. We have also mentioned in the Discussion, Paragraph 1 (Page 9), that many comments displayed significant misconceptions and misinformation about the screening changes. Although the comments may not be representative of the majority of Australian women, we cannot disregard the impact that petitions such as this can have on changes to public policy and in the case in the US where the recommendations for changing their breast screening program received such a backlash that the US Preventive Services Task Force had to redact the recommendations. The strong views of a minority of vocal community members can be very powerful in the area of cancer screening and has been observed in both breast and prostate screening.

As per the reviewer's previous comments, we have now acknowledged the challenges in presenting a new screening program which has major changes, while not undermining confidence in the current program and called for further research to develop strategies to achieve this (page 12), reading, "Developing an understanding of the public's awareness of the benefits and harms of screening is crucial in the development of information about these changes."

Reviewer 2

1. Globally, cervical cancer screening is undergoing significant paradigm shifts with HPV testing. Development of appropriate communication and education strategies for patients and providers is critical. Cervical cancer screening programs planning for HPV primary testing can learn a great deal from those who commented on the petition. Interesting and timely contribution.

Response: We thank the reviewer for their positive comment.

2. Page 4 L1 - "strongly associated with" more reflective of the association than "closely related to"; "with an oncogenic type of ..."

Response: We have revised the first sentence of the Introduction as per the reviewer's comment, also incorporating phrase suggested by Reviewer 1. The first sentence of the introduction now reads, "Cervical cancer is strongly associated with chronic cervical infection with oncogenic or "high risk" human papillomavirus (HPV) types. Other contributing factors including cigarette smoking and immunodeficiency."

3. Page 4 L16 - Several trials have "confirmed" not just "suggested"

Response: We have revised this sentence as suggested by both reviewers. It now reads, "Compared to cytology-based screening, recent evidence from large international trials shows that HPV testing has increased sensitivity to detect high-grade pre-cancerous Cervical Intraepithelial Neoplasia (CIN) or cervical cancer in all age groups". We believe this adds more clarity about the strength of the evidence.

4. Page 4 L47 - Winding back is a poor choice of words. It sounds to the reader as though the program is scaling back, vs. updating and "upgrading" screening

Response: This phrase has been deleted.

5. Page 4 L49 - Shouldn't this say 74?

Response: We thank the reviewer for identifying this, and we have corrected this to age 74.

6. Page 5 L5 - The reference to how these findings can be addressed to other screening programs isn't mentioned elsewhere. Based on how specific the comments were, not relevant to apply to other screening programs. Remove this.

Response: This phrase has been deleted to reflect the reviewer's comments.

7. Page 5 L39 - Authors should explain/justify why 10% of responses was chosen. Why not 20 or 30%? This needs to be explained to the reader

Response: The sample size was large (almost 20,000 comments) and analysing 10% of comments was a manageable and sizable amount. As social media research is relatively new, there are a limited number of studies that have analysed the comments of online petitions and so we had to choose a proportion which we felt was appropriate both in terms of manageability and sufficiently representative of comments made. We randomly sampled the comments to ensure a good cross-section of comments were captured. One previously published paper with a similar aim, analysed all the comments from the petition, but the sample of comments was much smaller (n=247) (<https://doi.org/10.2217/pme.13.69>). We believe that analysis of 2000 comments was sufficient for the aims of our study.



8. Page 5 L45 - Authors should include a brief description of what content analysis is in qualitative research.

Response: Thank you for this suggestion. We have now included a brief description of content analysis in the analysis section (page 5). It reads 'Content analysis combines both qualitative and quantitative methods, allowing both the frequency of categories to be reported, as well as the content (Weber, 1990).'

9. Page 5 L57 - Authors should explain why the second author only coded 10% of the 2000 responses. Justify why this was sufficient

Response: A random sample of 10% was taken from the 2000 responses for the second coder to code against the framework and as a Cohen's kappa score of 0.95 (indicating inter-rater reliability was very high) was achieved between the two coders, it was felt that the coding framework was therefore highly reproducible and adequately reflected the comments in the petition.

10. What statistical software was used?

Response: This study used only descriptive analysis. As such, Microsoft Excel was sufficient to calculate the percentage of comments which included each code. SPSS was used to calculate the Cohen's Kappa for inter-rater reliability between the primary and secondary coder. More detail on statistical analysis methods have been added to the 'Analysis' section of the Methods.

11. Page 6 L9 - Suggest authors describe how the themes were arrived at/determined

Response: Thank you for your comment. We have now provided a description of how the themes were arrived at in the methods 'Analysis' section (page 6). It now reads 'HO first became familiar with the content of the comments by reading through all the comments and making notes of recurring themes. After an initial coding scheme was discussed with all authors and evaluated to have appropriate inter-rater reliability (i.e. Kappa >0.8), it was further refined resulting in 19 categories. Two authors (HO, RD) then applied the coding scheme to the final selection of 2000 random comments. Each comment was allocated up to six codes based on its content.', and in the following paragraph, 'The codes were synthesised into four main themes through discussion with all authors once code frequency had been established.'

12. Page 10 L26 - Writers state <3% of the comments were about the change in technology itself. This is very important. Providers should also focus on the DIFFERENCE between the two tests to help inform why HPV testing is preferred to cytology. Ex: The pap is not very sensitive, hence why it's done every 2-3 yrs and it only detects changes to the cells of the cervix AFTER they've occurred. HPV testing can identify women at risk for pre-cancer or cancer often before cell changes occur. It's very informative that <3% of respondents expressed concern about the technology. This is valuable to communication and education strategies

Response: We thank the reviewer for this comment and agree that this finding is important and can inform future screening communication and education strategies. We have added an additional sentence to Table 2 to reflect the reviewer's comments. This section of Table 2 now reads, "Increased sensitivity of the new HPV screening test compared to cytology to detect pre-cancerous cervical abnormalities and cervical cancer means that screening can be less frequent while still detecting almost all cervical abnormalities (8).

Risk of cervical abnormalities over five years is lower for a HPV negative finding than a negative result from cytology over a two or three year interval. HPV testing can identify women at risk often

before cell changes occur, whereas Pap smears detect changes to cervical cells after they have occurred.”

13. Page 10 L35 – “than from a negative result from cytology over a 2 or 3 yr interval”

Response: We have amended the sentence to read, “Risk of cervical abnormalities over five years is lower for a HPV negative finding than a negative result from cytology over a two or three year interval.”

14. Page 11 L22 - Awkward sentence. Move "in the wider population" to after "reasons" and before "for"

Response: This sentence has been amended to reflect the reviewer’s comment. The sentence now reads, “To the best of our knowledge, this is the first study to analyse reasons in the wider population for opposition to the 2017 Australian cervical screening changes since their announcement and public discussion.”

15. Page 11 L56 - Remove this term and change with something more reflective of the enhancements made to cervical cancer prevention by changing to primary HPV testing

Response: We thank the reviewer for this comment, and have amended the sentence by removing this phrase. The sentence now reads, “It highlights the importance of effective communication to the public, of changes which involve longer screening intervals, later age of first invitation to screen and change in screening technology.”

16. Page 12 L11 - The reasons for older starting age and longer intervals are BECAUSE of the change in primary testing. Perhaps change to "....because of the change in technology"

Response: The sentence has been amended to reflect the reviewer’s suggestion. The sentence now reads, “GPs, gynaecologists and other healthcare professionals who will discuss cervical screening with patients should be aware of public concern, and be prepared to discuss the reasons for the older starting age and longer screening intervals because of the change in testing technology.”

We are grateful for the opportunity to revise and resubmit our manuscript. We hope that this paper will now be suitable for publication in BMJ Open.

### VERSION 2 – REVIEW

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| <b>REVIEWER</b>         | Laurie Smith<br>BC Cancer Agency/Women's Health Research Institute, Vancouver<br>Canada.<br>I have worked as a consultant for Roche Molecular.  |
| <b>REVIEW RETURNED</b>  | 25-Oct-2017   |
| <b>GENERAL COMMENTS</b> | Thank you for the opportunity to re-review this manuscript. As indicated previously, we can't ignore the importance of planning appropriate communication and education strategies for stakeholders in cervical cancer screening---other programs can learn from the Australia experience and the findings from this paper are informative. |

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|  | <p>It is clear the authors have responded to both reviewers questions and feedback from the initial review. This version of the manuscript is improved. Attached are additional comments/suggestions to the authors. Thank you.</p> <p>The reviewer also provided a marked copy with additional comments. Please contact the publisher for full details.</p> |
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## VERSION 2 – AUTHOR RESPONSE

### Reviewer 2

1. Page 2 L42 - As indicated in the initial review, I think the authors should not generalize these findings to future changes to other screening programs. Keep this about cervical.

Response: We thank the reviewer for their comment. We have revised the sentence as suggested, to read, "This analysis may inform public education and communication strategies for future changes to cervical screening programs internationally, to pre-emptively address specific concerns about the changes."

2. Page 3 L30 - There are other demographic factors that could have weight in the kinds of responses---age, ethnicity, geographic locations. SES and education aren't the only significant ones. Authors may want to consider stating simply it is unknown if the sample is representative of all screen eligible women

Response: We have revised this bullet point in the Strengths and Limitations section as suggested by the reviewer. This now reads, "A limitation of this study is the absence of demographic information about petitioners, so it is unknown if the sample is representative of all women eligible for screening".

3. Page 4 L39 The USPSTF has recently released new draft recommendations. Please ensure this is updated. The USPSTF recommends either screening every 3 years with cervical cytology alone or every 5 years with high-risk human papillomavirus (hrHPV) testing alone in women ages 30 to 65 years. <https://www.uspreventiveservicestaskforce.org/Page/Document/draft-recommendation-statement/cervical-cancer-screening2>

Response: We have revised this sentence as suggested by the reviewer to reflect the updated USPSTF recommendations. The sentence now reads, "In the USA, the American Cancer Society, U.S. Preventive Services Task Force and American College of Obstetricians and Gynecologists have recommended three-yearly cytology from age 21 to 29, then either three-yearly cytology alone, or five-yearly HPV testing, from age 30 to 65".

4. Page 4 L41 - Suggest changing to "...decided to recommend, or have already implemented primary...."

Response: This phrase has been changed as per the reviewer's recommendations. The sentence now reads, "Other countries have also decided to recommend, or have already implemented primary HPV screening, including New Zealand, Italy, Sweden and the Netherlands."

5. Page 4 L49 - For the reader not familiar with the Australian program, the authors should indicate what the current program standard of care is.

Response: We thank the reviewer for this comment, and have included the current program specifications in this sentence. The sentence now reads, "Replacing the current two-yearly cytology-based cervical screening program from ages 18 to 69, both HPV-vaccinated and unvaccinated women aged 25 to 74 years will now be screened five-yearly using primary HPV testing."

6. Page 5 L10 - "...to identify themes in the objections and concerns..."

Response: This phrase has been altered to reflect the reviewer's suggestion. This sentence now reads, "The aim of this study was to analyse the petition content of the open-ended comments to identify themes in the objections and concerns to the renewed NCSP."

7. Page 5 L12 - This sentence seems randomly placed here and doesn't flow in the paragraph. It is an important statement but perhaps better in the discussion section.

Response: Thank you for this suggestion. We have now moved the sentence to page 10, "Opposition to the screening changes may reflect status quo bias, and general opposition of people to change (39). A significant challenge is how to present a new screening program with major changes so that confidence in the current program is not undermined."

8. Page 9 L33 - This sentence is awkward. Suggest something such as: "...or reflective of the lack of understanding regarding the differences between cytology and HPV testing that lead to the changes in screening interval and age". It's important to state how these two tests are different. It's why the changes are so significant (they are entirely different tools).

Response: Thank you for this suggestion. We have changed this sentence to reflect the reviewer's comments, and it now reads, "This may be reflective of the information and education material provided to the community in promoting the change, which focused on explaining HPV, or reflective of the lack of understanding regarding the differences between cytology and HPV testing that lead to the changes in screening interval and age."

9. Page 9 L45 - Another opportunity for the authors to potentially address why a longer screening interval with HPV testing is recommended. This is addressed in the table may be worth mentioning here.

Response: We thank the reviewer for this comment, and have revised the final sentence in this paragraph to read, "Internationally, publications similarly report that while HPV testing is generally accepted by women, longer screening intervals face opposition. It is therefore essential to educate women about the rationale for the change to screening intervals and age of first invitation to screen, namely the increased sensitivity of the HPV test and the harms of over-diagnosis and overtreatment".

10. Page 12 L19 - Authors may also want to state that they don't know if other variables, such as age, ethnicity, or geographic location are factors.

Response: The first sentence in this paragraph has been revised to reflect the reviewer's comment that other demographic variables are also unknown from this sample. This sentence reads, "Nevertheless, a limitation of this study is the absence of demographic information about petitioners, including age, gender and ethnicity." We have not included geographic location, as this was a factor that was known about petitioners, but that was not included in this study due to requirements of ethics approval.

11. Page 12 L 22 - In the results section, it was noted that 3 HCPs made comments. Please define "several" (what %)

Response: As specified in the results section, three Health-care practitioners made comments, where they identified their health-care role. In accordance with the results, we have altered this sentence to reflect this, which now reads, "It should also be noted that three commenters (<1%) self-identified as health care providers opposed to the changes, which may indicate that concern is spread across socio- economic and educational status, and that there is a need to address both professional and public concerns."

12. Page 12 L29 - Authors should consider modifying this first sentence: "...implications for screening programs, for informing the significant challenge of changing from cytology to HPV-based cervical cancer screening".

Response: We thank the reviewer for this comment and have revised this sentence as suggested, which now reads, "This study has practical and international implications for informing the significant challenge of rolling out future screening program changes, informing the significant challenge of changing from cytology to HPV-based cervical cancer screening."

13. Page 12 L47 – Suggest modifying last sentence to similar: "...to discuss the reasons for the change in technology from cytology to HPV testing which result in the longer screening interval and older starting age to screening".

Response: We thank the reviewer for this comment and have revised this sentence as suggested, which now reads, "GPs, gynaecologists and other health-care professionals who will discuss cervical screening with patients should be aware of public concern, and be prepared to discuss the reasons for the change in technology from cytology to HPV testing which result in the longer screening interval and older starting age to screening."

We are grateful for the opportunity to revise and resubmit our manuscript. We hope that this paper will now be suitable for publication in BMJ Open.

### VERSION 3 – REVIEW

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|-------------------------|---|
| <b>REVIEWER</b>         | Laurie Smith<br>BC Cancer Agency, Vancouver Canada.<br>I have worked as a consultant for Roche Molecular.   |
| <b>REVIEW RETURNED</b>  | 15-Dec-2017   |
| <b>GENERAL COMMENTS</b> | The authors have taken the time to address the suggestions/comments to both the initial and second review. I have no further suggestions or comments at this time. Thank you. |