PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

Title (Provisional)

Primary care providers' experience and satisfaction with personalized breast cancer screening risk communication: A descriptive cross-sectional study

Authors

Omeranovic, Arian; Lapointe, Julie; Fortier, Philippe; Bergeron, Anne-Sophie; Dorval, M; Chiquette, Jocelyne; Boubaker, Asma; Eloy, Laurence; Turgeon, Annie; Lambert-Côté, Laurence; Joly, Yann; Brooks, Jennifer D; Walker, Meghan J.; Stockley, Tracy; Pashayan, Nora; Antoniou, Antonis; Easton, Douglas; Chiarelli, Anna Maria; Knoppers, Bartha; Simard, Jacques; Nabi, Hermann

VERSION 1 - REVIEW

1
Thornton, Hazel
University of Leicester, Department of Health Sciences
29-Oct-2024
None

This is a well-thought through study, carefully documented, taking logical steps to reduce the number of women who are being screened unnecessarily, so could be said to be a step in the right direction of reducing the burden on women and to Society. However, the whole project is based on the erroneous assumption that breast screening has contributed to the decline in mortality. It thus completely ignores the findings from Cochrane Systematic Reviews, and other reliable and robust evidence, that the known harms of screening are greater than any possible tiny benefit. Issues of informed consent and poor information availability, only comparatively recently improved, led to the population being led to believe that screening is wholly beneficial, with inducement and encouragement to participate by those `in the business`. Known harms have been brushed under the carpet.

The economic costs of screening are considerable: resources should be deployed where they are of greatest benefit according to need. It is to be noted that there has been a recent update to the Helsinki Declaration of Rights. Paragraph 6 of the updated declaration tackles distributive and global justice, calling on researchers to "carefully consider how the benefits,

risks, and burdens of research are distributed." (See: https://doi.org/10.1136/bmj.q2357) [1]

The main limitation of the study, as mentioned by the researchers, is its relatively low response rate. (`...cannot be deemed to represent the PSP population at large`. p.11, penultimate paragraph.), in addition to other factors affecting its generalisability. This is particularly relevant because the 1,642 participants were PCPs whose women had participated in the PERSPECTIVE I&I study, i.e. not a random selection of PCPs, but those who might have been thought to be more enthusiastic on behalf of their patient(s).

Also, this research is tailored to the Canadian Health Care System which may, or may not be applicable or able to be applied to other types of healthcare provision in other countries. It is, nevertheless, very instructive.

Some general comments on the text:

Introduction: 1st para, last line:

It is important to mention that the decline in mortality has been increasingly affected over the years by the earlier stage presentation of cancers by the women themselves, brought about because of greater openness about cancer; availability of more information; media exposure (not all of it accurate or helpful); and changes in culture generally, resulting in fewer lethal late-stage cancers. Numbers, too, are inflated by the many non-invasive `cancers` found too early by screening which would not have caused a problem had they not been found – mainly DCIS.

The second paragraph begins by affirming that `the current age-based BC screening programmes have been successful in reducing mortality`, contrary to reliable up-to-date evidence – see Cochrane Reviews, leading for calls for population screening by mammography to be stopped. Some nations have done so. However, research such as this, calling for improvements, could be a valuable first step in alerting people to the need to at least stop screening the millions of women who will not benefit, and, indeed some of whom will be harmed. And overdiagnosis is not the only area to have unfortunate consequences: false positives can also cause considerable physical harm with invasive treatments, as well as mental harms. Even the `invitation` itself, requiring a woman to make a decision about whether to be screened, can have unfortunate consequences by causing some women to worry if they have made the `right` decision.

Page 5

Line 7: `raising awareness`. This would not be something that overworked GPs and PCPs would prioritise, nor should it be. Women should be allowed to make up their own minds without any form of persuasion or coercion. The option of declining is one that is rarely, if ever mentioned. Their unfortunate recommendation is unfortunately emphasised in the last paragraph on page 8. PCPs should not be encouraging their patients to be screened (see above). If the topic is raised by the patient, there would be educational value in being able to

expose that only a small minority of women at high risk might possibly benefit from being risk stratified and attend for screening. If, as found, even PCPs awareness of risk was minimal, it is much more likely that the general population's awareness of it is vanishingly small! This is reinforced by the responses to the various statements made about the benefits of personalised risk-stratified approach to BC screening as advised in the first paragraph on page 9.

Repeatedly throughout this report of the study, the PCP participants emphasised their concern about the increase in workload. This suggests an instinctive awareness of the fact that very little value (in terms of benefiting the health of their patients) would be obtained from a great deal of time and effort (and cost) with so little potential gain, instinctively knowing that their time would be better spent on dealing with the sick. See distributive justice – revised Helsinki Declaration.

Near the end of the first paragraph on page 9 under the heading `Qualitative results`, it was stated that some PCP participants raised the need to clarify `which information should be provided to patients`. This is an important ethical issue: few women realise that informed consent is required. For this, clear and sufficient information, with all the pros and cons, must be made available for any person approached to undergo screening. The authors rightly mention `the importance of developing information tools for patients` in the ensuing paragraph.

Discussion

The impact on workload is `deemed as an important barrier`. Rather than it being a barrier, perhaps it could be considered as a valid criticism? Self-management by women is also proposed: women should be encouraged to take personal responsibility for their own health. This presupposes education of the public while they are well, which would be widely beneficial. Public (and doctors!) understanding of risk has been shown to be very poor. [2]

[1] Helsinki Declaration: Rights of study participants are put at the heart of latest update.BMJ 2024;387:q2357 https://doi.org/10.1136/bmj.q2357 (Published 24 October 2024)

[2] Evans I, Thornton H, Chalmers I, Glasziou P. Testing treatments: better research for better healthcare – Second Edition. Pinter and Martin, London. 2011. ISBN 978-1-905177-48-6 Free download from www.testingtreatments.org/the-book/

Reviewer	2
Name	Malmgren, Judith A.
Affiliation	Univ Washington, Epidemiology
Date	10-Nov-2024
COI	None

Please get help with the English in the manuscript especially the abstract.

Some word choices are inappropriate and flowerly. Example: instead of 'vast' majority just use 'majority'. Instead of 'highlighted' say 'indicated'. Don't try and make the language in the paper and abstract say more than the data itself indicates.

Main message is of the doctors surveyed the majority indicated they were interested in individualized patient risk assessment and proposed screening plans.

This makes sense as screening recommendations change often and continue to change and it is hard to keep up with. However it must be noted that mammography screening guidelines continue to change over time so whatever recommendations are current now may not be relevant in the future.

It is concerning that physicians interviewed did not think screening had an impact on mortality. Is that correct?

Reviewer	3
Name	Jacob, Benjamin
Affiliation General Practice	Royal College of Surgeons in Ireland Department of
Date	16-Dec-2024
COI	None

Summary

Overview of methods

This work reports results from a survey of 168 out 763 PCPs in Quebec Province, who had a patient among the 1642 women which underwent personalised breast cancer screening as part of the Perspective I&I study. The survey explored their attitudes to and experience of personalised BC screening, after they received the results and proposed screening plan for their patient as well as a 2page information booklet and website for further information.

The "comprehensive BC risk assessment" included 10-year risk calculation via the BOADICEA model (which uses polygenic risk score and other risk factors).

The survey consisted of 7 closed-questions, as well as 2 optional open-questions about suggestions for improving personalised BC screening and their needs in relation to BC screening.

Overview of results

Less than half of PCPs reported that they knew about personalised BC screening prior to receiving study materials. However, after reading the results and information booklet, there was widespread agreement (80-90%) that personalised screening was a good thing and that the PCP understood and was ready to engage with the proposed screening plan.

Contribution

This work contributes to the literature on the feasibility and acceptability of involving primary care professionals in personalised cancer screening. Uniquely, it surveys PCPs after they have had real world experience of personalised BC screening, due to their recruitment via the Perspective I&I study.

Decision

Major concerns

Accept with major revisions			
Major concerns			
	Concern	Recommendation	
P5L13-16 Represen- tativeness	"The main limitation of this study is related to its relatively low response rate, which resulted in a limited sample size. Such a sample cannot be deemed to represent the PCPs population at large."	Recommendation: Clarify that the main limitation is the non- representativeness of the sample due to, firstly, response bias.	
	 The authors conflate a small sample with a non-representative sample. The problem with a low response rate is that it leads to non-representative sample (due to response bias). A low response rate may or may not lead to a small sample, i.e. underpowered to test a hypothesis — if this is the case it must be demonstrated, it cannot be established from a survey response rate. 	You could (in the full text) add the non-representativeness of the Perspective I&I PCPs compared with PCPs in Canada (or other region). Then clarify separately about the small sample size.	
First peer review Represen- tativeness	In my first peer review I said: "Pg 8 Ln 21: It would be interesting to compare the years of practice and gender of the 22% who responded against 78% who did not" You explained that you don't have this data.	Recommendation: This limitation should be mentioned in accordance with CROSS item 10d.	
P5L16-18 Multi- variable analyses	"Our small sample size also prevented us from conducting more complex multivariable analyses." From your survey data, it looks like you are interested in describing results from eight 3-level survey questions (disagree, ambivalent, agree) and six yes-no survey questions as a function of experience (6 levels) and gender (female, male). You argue elsewhere that because there were only 5 nurse practitioners, you couldn't stratify by profession, but this wouldn't prevent ordinal regression analysis with two predictors. Using the conservative 10 events per predictor rule in the binary survey questions, you would need 10 * 7 = 70 observations in the minority answer. If years of experience was a continuous variable, you could cut this down to 10 *4 observations or 10*5 if an experience- squared term is used. Using the 20-observations-per	Recommendation: Either (1) argue that you did not conduct a multivariable statistical analysis because the external validity issues (population representativeness) would render it meaningless, (2) clarify in your Methods that your intent was descriptive from the outset and inferential analyses (i.e.o the cross-sectional, multivariable analysis) weren't a priority, or (3) conduct an analysis similar to what I have described below.	

	parameter rule-of-thumb, N=168 should be sufficient, even for the 8 parameters for the three-level Likert questions: gender (1), experience (5=6-1), Likert (2=3-1). In short, it's not clear to me that your sample size is too small for a multivariable analysis.	
First peer review Multi- variable analyses	I note that in Recommendation 1.5, from my first peer review, I asked about linear regression. Furthermore, I confused things by saying "simple linear regression", which could be interpreted as linear regression with a single predictor variable—this contradicted the remainder of the sentence "with two input parameters: gender and years of practice". However, in this manuscript, I can see more clearly that the outcome variables are not continuous, but categorical with either 2 or 3 levels. Hence multivariable linear regression wouldn't work. Hence, my updated suggestion is to conduct ordinal logistic regression or equivalent (with less restrictive assumptions). This is superior to bivariate analyses because it allows you to adjust for gender and experience simultaneously. From my original request for clarity (1.4) about sample	Recommendation: Consider conducting some type of regression, probably 14 ordinal logistic regression analyses with two predictor variables (gender and experience).Protect Protect Protect Alternatively, a multivariate regression approach like PERMANOVA or Cumulative Link Mixed Model (CLMM) would allow single simultaneously test results from all 14 questions against two parameters. However, it would hard to satisfy its assumptions, and I do not think its results would be credible or helpful.Protect regression, parameters.Recommendation:to satisfy
review Required sample size	size, you answered that: "this is an exploratory study, and we did not estimate a priori a sample size as we would have done in a randomized clinical trial or an aetiological epidemiological study for instance" However, you have elsewhere claimed that your multivariable analysis was not possible because of small sample size. Thus, the reader must be shown (1) which analyses you were unable to conduct due to an insufficient small sample, and (2) what a sufficient sample size would have been in each case.	Either (1) clarify the desired sample size in your methods with respect to the relevant analyses, or (2) removed any arguments that a particular desired analysis could not be conducted due to "small sample size".
P10L60 Bivariate results	"There was no evidence from our bivariate analysis that years of practice or gender influence the likelihood of encouraging patients to participate in a risk-based BC screening program" — I find it unacceptable that no results are reported on the effect on gender or experience when this is discussed as being important in the methods and discussion section.	Recommendation: Report 14 Fisher Tests for gender and 14 for experience. This could be in the for of a graph which illustrates the apparently non-existent relationship. My argument for why negative results should be reported and illustrated (if only as a supplemental file) is so that the reader can feel confident that due process has been followed.
First peer review	My main issue in the first peer review was the use of the term "cross-sectional study", since no cross- sectional analysis was reported in the Results. In	<u>Recommendation</u> : If you conduct a multivariable analysis, this would constitute a cross-sectional study, so

Cross-	response you removed any references to a cross-	consider reintroducing the term
sectional	sectional design.	cross-sectional.
analysis		
	However, from the updated manuscript, I understand	
	that you conducted bivariate analyses but simply did	
	not report them. Furthermore, I better understand your	
	thwarted intent to conduct a multivariable analysis	
	examining the relationship between PCP attitudes	
	(survey answers) with PCP characteristics (gender and	
	experience), albeit I haven't been presented with good	
	evidence that it couldn't be conducted with a sample	
	size of 163 or 168.	

Minor concerns

	Index	Issue/Recommendation
Abstr.	P4L4:	"Objective: We aim" — I prefer greater clarity on the distinction between aims and objectives: Aim: "To explore primary care providers' (PCPs) experience and satisfaction" Objective: "To document primary care providers' (PCPs) experience and satisfaction" <u>Recommendation</u> : Removed "We aim", start section with "To document"
	P4L11-13	I think the setting needs to be described more. I appreciate there's been a word count cut, but the key info was present in the prior version of the abstract. <u>Recommendation</u> : Add info "3,750 women from Quebec and Ontario" etc, while replacing redundant words in the Results section (see below)
	P4L20-34	I don't like to see percentages specified to 1 decimal place when the denominator is 168. It implies a degree of precision which doesn't exist. Recommendation: Cite percentages without decimal points.
	P4L20-34	Phrases like "Relatively few (38.1%)" are subjective and contestable and distract from the study results, in my opinion. <u>Recommendation</u> : To save space for more information about the context, report the numerical results without adding a layer of subjective commentary, except where the audience could not interpret the numerical result without such annotations.
	P4L42	"Future qualitative studies may help further characterize PCPs' perspectives." — this statement is non-committal and could have been made without conducting the study. <u>Recommendation 1</u> : In the conclusion section, focus on the implications of the study results on policy or practice — "This study suggests that, if introduced in Canada using in the manner of the Perspective I&I project, risk-based BCS would be endorsed by most PCPs" etc. <u>Recommendation 2</u> : If you are going to comment on the need for future research, ensure that the proposal is specific and based on a study finding.
Intro.	P6L11	"the death rate of from BC"

		<u>Recommendation</u> : Should be corrected to "the death rate from BC."
	P7L9	"Second, to able to effectively interpret and communicate each
		patient's calculated risk level using specific prediction tools"
		Recommendation: Correct grammar
	P7L13	"In definitive, PCPs in this context are expected to have" — "In
		definitive" looks like a mistranslation into English, e.g., from French
		"En definitive" etc.
		Recommendation: "Ultimately" or "In conclusion"
Meth.	P8L11	"and of possible screening action plan"
		Recommendation: Remove "of"
	P8L15	"This includes" — the description of the risk-based screening process
		is otherwise past-tense
		Recommendation: Ensure consistency.
	P9L2	"The survey was based on previous work 15.22.23.40-42"
		The survey's origin remains opague and this is a central component
		of the study
		Recommendation: Please outline in the text what the survey was
		previously used for in France, rather than the background of its
		creators, which is a mere surrogate for this.
	P9L6	"a dozen"
		Recommendation: The tone is too casual: use "12" or "twelve".
	P9L13	"PCPs were invited to provide their experience and satisfaction" —
		"provide" is an unusual choice of word
		Recommendation: "invite to share/report/"
	P9149-56	Your description of how attitude data would be assessed for an
		association with both experience and gender is very clear. We should
		then expect 14 Fisher's Tests for gender and 14 for experience.
		Recommendation 1: Mention briefly that it was initially the intent to
		guantify the effect of profession.
		Recommendation 2: See discussion on bivariate results
	P9153	"Years of practice were classified as follows: less than 5 years, 5-10
		vears. 11-15 years. 16-20 years. 21 years and over."
		In your response to my first peer review you explained that the years
		of experience variable was converted into a categorical variable in
		order to conduct a Fisher's Test
		Recommendation: If you still have the continuous data, use logistic
		regression or ordinal logistic regression with a single continuous input
		variable (or experience + experience^2).
Results		,
Discuss.	P12L9	Recommendation: "in previous studies"
	P12L15	Recommendation: "invest in"
	P13L38	"The main limitation of this study is related to its relatively low
		response rate, which resulted in a limited sample size. Such a sample
		cannot be deemed to represent the PCPs population at large"
		Recommendation: See comment at P5I 13-16
	P13L42	"It also prevented us from conducting more complex multivariable
		statistical analyses"
		Recommendation: See comment at P5L16-18

D42142	
P13L42	"complex multivariable statistical analyses" — the word "complex" obfuscates more than it enlightens; you are referring to well- established frequentist methods.
	<u>Recommendation</u> : Drop the word "complex" throughout; if possible refer precisely to the analysis which you believe you cannot conduct, as different readers will have to make their minds up.
P13L44-49	"Notably we have an over-representation of PCPs identifying themselves as women and of PCPs with more than 21 years' experience, potentially affecting the generalizability of our findings." — this isn't apparent without a comparison to the known gender & experience breakdown in the study region.
	<u>Recommendation</u> : Cite some evidence that the studied proportion of females (73%) and >20y experience (63%) is not representative of PCPs who care for women who undergo breast cancer screening.
P13L51	"Nonetheless, our sample size is within the range of previous similar work" — I absolutely agree with your assertion that your findings "a glimpse into the experience and satisfaction of family physicians". However, this is not due to your sample size being similar to previous studies (and the claim might better fit in the implications section). Too many ideas are being repeated and conflated in this section.
	Recommendation: Your strengths & limitations section could more clearly laid out. E.g.
	 Strength of your survey (PCP's with real-world risk-based screening experience) Non-representativeness issues with the survey (incl. the Covid comment)
	 Small sample size issue with the survey (if you still believe it exists) Strength of your qualitative work Weaknesses of your qualitative work
P13L60	"massive influx of patients" [to primary care] is an inappropriate remark in the absence of a relevant citation."
	Recommendation: This remains to be fixed.

Prior minor concerns

Minor comments from first peer review	Change
Especially in the results and the discussion section, the writing is typified by regular grammatical errors, long- winded sentences with unclear and redundant words. Recommendation: The manuscript should undergo further editing before advice can be given on individual minor errors.	Fixed. Much tidier manuscript.
Pg 5 Ln 45: "training and coaching" [? Coaching redundant, or different to training]	Fixed.
Pg 5 Ln 54: "very few" [? None, as elsewhere claimed]	Unchanged.

	"To our knowledge" alerts the reader to the uncertainty, therefore it is acceptable to say, "To our knowledge, no studies" By saying "very few" or "among the first", you are implying that you know of such studies. And if you know about them, you should mention and discuss them.
Pg 6 Ln 20: Should it say: "which aims to"?	Fixed.
Pg 6 Ln 34: "multiple risk factors" [list all, this is relevant to the reader]	Fixed.
Pg 6 Ln 43: Should it say: "three risk categories"?	Fixed.
Pg 6 Ln 58: Is "risk category letter" really the best way to describe this letter?	Fixed. The name of the letter has been changed, cosmetically. But, more importantly, the paragraph is improved by more details.
Pg 7 Ln 7: The section "survey development" talks about more than the development of the survey. Would "Survey instrument" be better?	Fixed.
Pg 7 Ln 9: Please outline what the survey was previously used for in France (perhaps in preference to the background of its creators, which is a mere surrogate for this)	Argument accepted. Apologies, I read "in French" as "in France".
Pg 7 Ln 22-43: These bullet points are formatted and phrased inconsistently, please rework	Fixed.
Pg 8 Ln 21: It would be interesting to compare the years of practice and gender of the 22% who responded against 78% who did not	Argument accepted. However, this limitation should be mentioned in accordance with CROSS item 10d.
Pg 8 Ln 28: I don't like the subheadings "Quantitative data" and "Qualitative data" "data" suggest the pre-analysed data, rather than the results of your results. Also, your abortive cross-sectional analysis is hidden in the first section. I suggest breaking it up: "Survey results", "Cross- sectional analysis of survey results", "Qualitative results"	Fixed. I would be happy to see the cross-sectional results re-emerge.
Pg 9 Ln 9: As outlined in the major concerns section, the reporting of the cross-sectional results is insufficient (see above for suggestions)	This remains a major concern.
Pg 10 Ln 13: "very few" — it is inappropriate to construct an argument in qualitative research using the notion of frequency; this is a quantitative concept	Fixed.
Pg 10 Ln 20: Rather than the "excellent ratio of", provide a statistic and a citation.	Fixed.
Pg 10 Ln 27-31: Reword this sentence	Fixed.
Pg 10 Ln 47: I don't think "notions" is the correct word	Fixed.
Pg 10 Ln 60: I think "consistent" is meant instead of "coherent"	Fixed.

Pg 11 Ln 25: "concrete information" is misleading — instead, emphasise the real-world context (as you have done elsewhere)	Fixed.
Pg 11 Ln 34: I agree that the open-ended questions provide "a voice for PCPs who wish to make suggestions on implementation". But I think this is a positive side effect of the study, rather than a research activity, and this should be made clear.	Fixed.
Pg 11 Ln 40: The survey sample need not be representative of PCPs in Quebec; it should be representative of PCPs who care for women who undergo breast cancer screening. If these are equivalent, this should be made clear.	Unchanged.
Pg 11 Ln 54: "massive influx of patients" [to primary care] is an inappropriate remark in the absence of a relevant citation.	Unchanged. Now P13L60.
Pg 12 Ln 2: Should say: "in favour of"	Fixed.
Pg 12 Ln 13: I don't like the mention of prevention recommendations at very last paragraph after little mention of prevention throughout the paper (it feels unjustified)	Fixed.

VERSION 1 - AUTHOR RESPONSE

Response to Reviewer's #1 Comments

Comment 1

Comment1.1: This is a well-thought through study, carefully documented, taking logical steps to reduce the number of women who are being screened unnecessarily, so could be said to be a step in the right direction of reducing the burden on women and to Society. However, the whole project is based on the erroneous assumption that breast screening has contributed to the decline in mortality. It thus completely ignores the findings from Cochrane Systematic Reviews, and other reliable and robust evidence, that the known harms of screening are greater than any possible tiny benefit. Issues of informed consent and poor information availability, only comparatively recently improved, led to the population being led to believe that screening is wholly beneficial, with inducement and encouragement to participate by those `in the business`. Known harms have been brushed under the carpet.

OUR RESPONSE 1.1: We thank the reviewer 1 for the positive and encouraging comments regarding our study. We acknowledge in our manuscript, particularly in the introduction, the ongoing debate regarding the benefits and harms of breast cancer screening. This is why we believe that a breast cancer screening approach based on personalized risk assessment would be preferable to the current approach, which relies solely on age. Thus, we recognize the importance of considering the broader context of the evidence, including findings from Cochrane reviews and other reliable sources. Our focus is on improving personalized risk assessment to minimize unnecessary screening and ensure that women are provided with accurate information to make informed decisions. We further emphasize these considerations in our discussion and highlight the importance of ongoing dialogue around screening practices and their potential harms.

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Comment 1.2: The economic costs of screening are considerable: resources should be deployed where they are of greatest benefit according to need. It is to be noted that there has been a recent update to the Helsinki Declaration of Rights. Paragraph 6 of the updated declaration tackles distributive and global justice, calling on researchers to "carefully consider how the benefits, risks, and burdens of research are distributed." (See: https://doi.org/10.1136/bmj.q2357) [1]

<u>OUR RESPONSE 1.2</u>: Thank you for raising this important point. We fully acknowledge the economic costs associated with screening and the need to allocate resources based on where they will provide the greatest benefit. Again, the risk-based screening approach that we are focusing on aims to achieve this goal.

Comment 1.3: The main limitation of the study, as mentioned by the researchers, is its relatively low response rate. (`...cannot be deemed to represent the PSP population at large`. p.11, penultimate paragraph.), in addition to other factors affecting its generalisability. This is particularly relevant because the 1,642 participants were PCPs whose women had participated in the PERSPECTIVE I&I study, i.e. not a random selection of PCPs, but those who might have been thought to be more enthusiastic on behalf of their patient(s).

OUR RESPONSE 1.3: Thank you for your insightful comment. We acknowledge that the study's relatively low response rate and the non-random selection of participants may limit the generalizability of our findings. The sample of primary care providers (PCPs) involved in the PERSPECTIVE I&I study may indeed have introduced some bias, as they could be more engaged or supportive of the screening initiative. We mentioned this limitation in our manuscript and emphasize the need for further research to explore these findings in a more diverse and representative population of PCPs. (*please see page 11, paragraph 2*)

Comment 1.4: Also, this research is tailored to the Canadian Health Care System which may, or may not be applicable or able to be applied to other types of healthcare provision in other countries. It is, nevertheless, very instructive.

<u>OUR RESPONSE 1.4</u>: We agree with the reviewer and acknowledge in the discussion section that our study is specific to the Canadian healthcare system, and the findings may not be directly applicable to other jurisdictions and encourage further studies.

Comment 2

Introduction: 1st para, last line:

It is important to mention that the decline in mortality has been increasingly affected over the years by the earlier stage presentation of cancers by the women themselves, brought about because of greater openness about cancer; availability of more information; media exposure (not all of it accurate or helpful); and changes in culture generally, resulting in fewer lethal late-stage cancers. Numbers, too, are inflated by the many non-invasive `cancers` found too early by screening which would not have caused a problem had they not been found – mainly DCIS.

OUR RESPONSE 2: We agree with reviewer that the decline in mortality is influenced by various factors, including earlier detection through self-presentation and increased awareness, as well as cultural and attitudinal changes towards cancer. Although this is beyond the scope of our present study, we acknowledge that future research is needed to gain a more comprehensive understanding of the complex factors influencing breast cancer mortality rates.

Comment 3

The second paragraph begins by affirming that `the current age-based BC screening programmes have been successful in reducing mortality`, contrary to reliable up-to-date evidence – see Cochrane Reviews, leading for calls for population screening by mammography to be stopped. Some nations have done so. However, research such as this, calling for improvements, could be a valuable first step in alerting people to the need to at least stop screening the millions of women who will not benefit, and, indeed some of whom will be harmed. And overdiagnosis is not the only area to have unfortunate consequences: false positives can also cause considerable physical harm with invasive treatments, as well as mental harms. Even the `invitation` itself, requiring a woman to make a decision about whether to be screened, can have unfortunate consequences by causing some women to worry if they have made the `right` decision.

OUR RESPONSE 3: We recognize that the impact of screening on breast cancer-related mortality remains vividly debated. We have therefore nuanced our statement to read as follows: *"While current age-based breast cancer screening programs have been associated with a reduction in mortality for certain populations, there are still areas for improvement"*. Furthermore, we agree that improvements in screening approaches, such as personalized risk assessment, are essential to avoid unnecessary harm to women who are unlikely to benefit from screening. *(please see page 4, paragraph 2)*

Comment 4

Page 5, Line 7: `raising awareness`. This would not be something that overworked GPs and PCPs would prioritise, nor should it be. Women should be allowed to make up their own minds without any form of persuasion or coercion. The option of declining is one that is rarely, if ever mentioned. Their unfortunate recommendation is unfortunately emphasised in the last paragraph on page 8. PCPs should not be encouraging their patients to be screened (see above). If the topic is raised by the patient, there would be educational value in being able to expose that only a small minority of women at high risk might possibly benefit from being risk stratified and attend for screening. If, as found, even PCPs awareness of risk was minimal, it is much more likely that the general population`s awareness of it is vanishingly small! This is reinforced by the responses to the various statements made about the benefits of personalised risk-stratified approach to BC screening as advised in the first paragraph on page 9.

OUR RESPONSE 4: Thank for raising this point. We agree that women should have the autonomy to make their own decisions regarding screening, free from persuasion or coercion. We also acknowledge that the option to decline screening is often not emphasized. We therefore removed the words *"raising awareness"*. Nevertheless, our study aims to highlight the importance of informed decision-making, ensuring that both primary care providers and women are better equipped with accurate information to assess their individual risk. Finally, we revised our manuscript to emphasize

that the role of PCPs is to provide balanced information, and to highlight the value of personalized risk stratification in guiding decisions.

Comment 5

Repeatedly throughout this report of the study, the PCP participants emphasised their concern about the increase in workload. This suggests an instinctive awareness of the fact that very little value (in terms of benefiting the health of their patients) would be obtained from a great deal of time and effort (and cost) with so little potential gain, instinctively knowing that their time would be better spent on dealing with the sick. See distributive justice – revised Helsinki Declaration. (https://www.bmj.com/content/387/bmj.q2357)

OUR RESPONSE 5: We recognize that the concern about increased workload voiced by PCP participants in our study reflects a broader understanding of the need to prioritize resources where they will have the greatest benefit for patients. We agree that the principle of distributive justice, as outlined in the revised Helsinki Declaration, should guide the allocation of healthcare efforts, ensuring that time and resources are focused on interventions that offer the most significant health benefits. However, we must acknowledge that this issue goes far beyond the scope of our current research.

Comment 6

Near the end of the first paragraph on page 9 under the heading `Qualitative results`, it was stated that some PCP participants raised the need to clarify `which information should be provided to patients`. This is an important ethical issue: few women realise that informed consent is required. For this, clear and sufficient information, with all the pros and cons, must be made available for any person approached to undergo screening. The authors rightly mention `the importance of developing information tools for patients` in the ensuing paragraph.

<u>OUR RESPONSE 6</u>: Thank you for highlighting this important issue and for recognizing our mention of the need to develop information tools for patients in the manuscript. These tools are essential to ensuring that patients can make fully informed decisions about screening, in line with ethical standards and the promotion of patient autonomy.

Comment 7

Discussion

The impact on workload is `deemed as an important barrier`. Rather than it being a barrier, perhaps it could be considered as a valid criticism? Self-management by women is also proposed: women should be encouraged to take personal responsibility for their own health. This presupposes education of the public while they are well, which would be widely beneficial. Public (and doctors!) understanding of risk has been shown to be very poor. [2] Evans I, Thornton H, Chalmers I, Glasziou P. Testing treatments: better research for better healthcare – Second Edition. Pinter and Martin, London. 2011. ISBN 978-1-905177-48-6 Free download from www.testingtreatments.org/the-book/

<u>OUR RESPONSE 7</u>: We agree that the impact on workload could be seen as a valid criticism, rather than just a barrier, and it is a crucial factor when assessing the feasibility of any healthcare initiative. This is why we highlighted it as a concern (or criticism) raised by PCPs.

As the reviewer rightly pointed out, we also support promoting self-management and public education to empower women to take greater responsibility for their health. Finally, we appreciate the reference to the work on testing treatments, which underscores the importance of better education and informed decision-making. We have now cited this work in the manuscript.

Response to Reviewer's #2 Comments

Comment 1

Please get help with the English in the manuscript especially the abstract.

Some word choices are inappropriate and flowerly. Example: instead of 'vast' majority just use 'majority'. Instead of 'highlighted' say 'indicated'. Don't try and make the language in the paper and abstract say more than the data itself indicates.

OUR RESPONSE 1: Thank you for your suggestions to improve the clarity and precision of the language in the manuscript. We have revised the manuscript with the help of an English-speaking colleague to ensure that the language accurately reflects the data.

Comment 2

Main message is of the doctors surveyed the majority indicated they were interested in individualized patient risk assessment and proposed screening plans. This makes sense as screening recommendations change often and continue to change and it is hard to keep up with. However, it must be noted that mammography screening guidelines continue to change over time so whatever recommendations are current now may not be relevant in the future. It is concerning that physicians interviewed did not think screening had an impact on mortality. Is that correct?

OUR RESPONSE 2: We agree with the reviewer's observations. Mammography screening guidelines do change over time, which could make current recommendations less relevant in the future. The reviewer's point about the impact of screening on mortality is important. There is evidence (references below) indicating that screening is linked to reduced breast cancer-related mortality. However, this aspect was not emphasized by the physicians interviewed, which highlights an area that requires further attention in our future research. **References**:

- van den Broek JJ, Schechter CB, van Ravesteyn NT, et al. Personalizing Breast Cancer Screening Based on Polygenic Risk and Family History. JNCI: Journal of the National Cancer Institute. 2021;113(4):434-442. doi:10.1093/jnci/djaa127.
- Pace LE, Keating NL. New Recommendations for Breast Cancer Screening—In Pursuit of Health Equity. JAMA Netw Open. 2024;7(4):e2411638. doi:10.1001/jamanetworkopen.2024.11638

Response to Reviewer's #3 Comments

MAJOR CONCERNS

Comment 1

P5L13-16

"The main limitation of this study is related to its relatively low response rate, which resulted in a limited sample size. Such a sample cannot be deemed to represent the PCPs population at large." The authors conflate a small sample with a non-representative sample.

• The problem with a low response rate is that it leads to non-representative sample (due to response bias).

• A low response rate may or may not lead to a small sample, i.e. underpowered to test a hypothesis — if this is the case it must be demonstrated, it cannot be established from a survey response rate.

<u>Recommendation:</u> Clarify that the main limitation is the non-representativeness of the sample due to, firstly, response bias. You could (in the full text) add the non-representativeness of the Perspective I&I PCPs compared with PCPs in Canada (or other region). Then clarify separately about the small sample size.

OUR RESPONSE 1: We thank the reviewer for these valuable comments and recommendations to improve our manuscript. We greatly appreciate the feedback. We agree that the way we presented our main limitation could suggest a conflation between small sample size and non-representative sample. As a result, we have removed the reference to *"small sample size"* in the manuscript. However, we believe the main limitation lies not in response bias, but in selection bias. Indeed, our sampling method may have resulted in the over-representation of participants with a more positive attitudes toward risk-based breast cancer screening, skewing the sample compared to those less favorable to this approach. Therefore, our sample may not be representative of the broader PCPs population. Additionally, we have revised the "Strengths and Limitations" section to better reflect the reviewer's suggestions in comment number 29. *(please see page 11)*

Comment 2

First peer review

In my first peer review I said: "Pg 8 Ln 21: It would be interesting to compare the years of practice and gender of the 22% who responded against 78% who did not"

You explained that you don't have this data.

<u>Recommendation:</u> This limitation should be mentioned in accordance with CROSS item 10d. <u>OUR RESPONSE 2</u>: We thank the reviewer for their recommendation. We have incorporated this information into the limitations section of the manuscript. *(please see page 11, paragraph 2)*

Comment 3

P5L16-18

"Our small sample size also prevented us from conducting more complex multivariable analyses."

From your survey data, it looks like you are interested in describing results from eight 3-level survey questions (disagree, ambivalent, agree) and six yes-no survey questions as a function of experience (6 levels) and gender (female, male). You argue elsewhere that because there were only 5 nurse practitioners, you couldn't stratify by profession, but this wouldn't prevent ordinal regression analysis with two predictors. Using the conservative 10 events per predictor rule in the binary survey questions, you would need 10 * 7 = 70 observations in the minority answer. If years of experience was a continuous variable, you could cut this down to 10 * 4 observations or 10*5 if an experience-squared term is used.

Using the 20- observations-per parameter rule-of-thumb, N=168 should be sufficient, even for the 8 parameters for the three-level Likert questions: gender (1), experience (5=6-1), Likert

(2=3-1). In short, it's not clear to me that your sample size is too small for a multivariable analysis.

<u>Recommendation:</u> Either (1) argue that you did not conduct a multivariable statistical analysis because the external validity issues (population representativeness) would render it meaningless, (2) clarify in your Methods that your intent was descriptive from the outset and inferential analyses (i.e. the cross-sectional, multivariable analysis) weren't a priority, or (3) conduct an analysis similar to what I have described below.

OUR RESPONSE 3: We thank the reviewer for the detailed comment and helpful suggestions. We appreciate your observation regarding the sample size and its potential for multivariable analysis. We agree that the primary limitation for conducting such analyses lies not in the sample size itself, but in the issue of external validity, as our sample may not represent the broader population of PCPs. Therefore, we opted to focus on descriptive analysis to avoid drawing potentially misleading conclusions. In response to your recommendation, we have clarified in the title, abstract, and objective that our primary intention was to describe PCPs' experiences and satisfaction with receiving risk communication documents related to their patients' breast cancer risk assessment and proposed screening action plans

Comment 4

First peer review

I note that in Recommendation 1.5, from my first peer review, I asked about linear regression. Furthermore, I confused things by saying "simple linear regression", which could be interpreted as linear regression with a single predictor variable—this contradicted the remainder of the sentence "with two input parameters: gender and years of practice". However, in this manuscript, I can see more clearly that the outcome variables are not continuous, but categorical with either 2 or 3 levels. Hence multivariable linear regression or equivalent (with less restrictive assumptions). This is superior to bivariate analyses because it allows you to adjust for gender and experience simultaneously.

<u>Recommendation</u>: Consider conducting some type of regression, probably 14 ordinal logistic regression analyses with two predictor variables (gender and experience).

Alternatively, a multivariate regression approach like PERMANOVA or Cumulative Link Mixed Model (CLMM) would allow a single simultaneously test results from all 14 questions against two parameters. However, it would hard to satisfy its assumptions, and I do not think its results would be credible or helpful.

OUR RESPONSE 4: Thank you for your detailed comment. We appreciate your clarification and updated suggestion regarding the appropriate statistical approach. You are correct that the outcome variables are categorical rather than continuous, so multivariable linear regression would not be appropriate. While we value your recommendation to consider multivariate regression methods such as PERMANOVA or Cumulative Link Mixed Models (CLMM), we share your concerns about the assumptions of these models and the challenges they might present in generating reliable results with our data. This further strengthens our decision to focus solely on presenting the results of descriptive analyses.

Comment 5 First peer review From my original request for clarity (1.4) about sample size, you answered that: "this is an exploratory study, and we did not estimate a priori a sample size as we would have done in a randomized clinical trial or an aetiological epidemiological study for instance"

However, you have elsewhere claimed that your multivariable analysis was not possible because of small sample size. Thus, the reader must be shown (1) which analyses you were unable to conduct due to an insufficient small sample, and (2) what a sufficient sample size would have been in each case.

<u>Recommendation</u>: Either (1) clarify the desired sample size in your methods with respect to the relevant analyses, or (2) remove any arguments that a particular desired analysis could not be conducted due to "small sample size".

OUR RESPONSE 5: We thank the reviewer this comment and associated recommendation. We revise the manuscript to remove any claims about being unable to conduct specific analyses due to "small sample size," as suggested.

Comment 6

P10L60

"There was no evidence from our bivariate analysis that years of practice or gender influence the likelihood of encouraging patients to participate in a risk-based BC screening program" — I find it unacceptable that no results are reported on the effect on gender or experience when this is discussed as being important in the methods and discussion section.

<u>Recommendation:</u> Report 14 Fisher's Tests for gender and 14 for experience. This could be in the form of a graph which illustrates the apparently non-existent relationship. My argument for why negative results should be reported and illustrated (if only as a supplemental file) is so that the reader can feel confident that due process has been followed.

OUR RESPONSE 6: We appreciate the reviewer's point. To prevent any confusion and in keeping with our goal of solely describing PCPs' experiences and satisfaction, we have removed this statement from the manuscript.

Comment 7

First peer review

My main issue in the first peer review was the use of the term "cross-sectional study", since no cross-sectional analysis was reported in the Results. In response you removed any references to a cross-sectional design. However, from the updated manuscript, I understand that you conducted bivariate analyses but simply did not report them. Furthermore, I better understand your thwarted intent to conduct a multivariable analysis examining the relationship between PCP attitudes (survey answers) with PCP characteristics (gender and experience), albeit I haven't been presented with good evidence that it couldn't be conducted with a sample size of 163 or 168.

<u>Recommendation</u>: If you conduct a multivariable analysis, this would constitute a cross-sectional study, so consider reintroducing the term cross-sectional.

<u>OUR RESPONSE 7</u>: We thank the reviewer for this comment. As per the editor's request, we have included the study design in the title, abstract, and methods section, referring to it as a descriptive cross-sectional study. We respectfully believe that the type of analyses conducted (descriptive, univariable, or multivariable) does not define the study design (Aggarwal &

Ranganathan P. Study designs: Part 2 - Descriptive studies. Perspect Clin Res. 2019 Jan-Mar;10(1):34-36).

MINOR CONCERNS

Comment 8 – Abstract

P4L4

"Objective: We aim..." — I prefer greater clarity on the distinction between aims and objectives: Aim: "To explore primary care providers' (PCPs) experience and satisfaction..." Objective: "To document primary care providers' (PCPs) experience and satisfaction..."

Recommendation: Removed "We aim", start section with "To document..."

<u>OUR RESPONSE 8</u>: We thank the reviewer for his suggestion. To make the study design clear for readers, we start instead the section by "to describe".

Comment 9 – Abstract

P4L11-13

I think the setting needs to be described more. I appreciate there's been a word count cut, but the key info was present in the prior version of the abstract.

<u>Recommendation</u>: Add info "3,750 women from Quebec and Ontario" etc, while replacing redundant words in the Results section (see below)

<u>OUR RESPONSE 9</u>: We agree with the suggestion from the reviewer. We modified the sentence in the abstract to read as follows: "A survey was distributed to all 763 primary care providers (PCPs) linked to 1,642 women participating in the PERSPECTIVE I&I research project in Quebec, approximately one to four months after the delivery of the risk communication documents. The recruitment phase took place from July 2021 to July 2022." (please page 2)

Comment 10 – Abstract

P4L20-34

I don't like to see percentages specified to 1 decimal place when the denominator is 168. It implies a degree of precision which doesn't exist.

Recommendation: Cite percentages without decimal points.

<u>OUR RESPONSE 10</u>: We thank the reviewer for his suggestion. We removed the decimal points in the percentages in the abstract.

Comment 11 – Abstract

P4L20-34

Phrases like "Relatively few (38.1%)" are subjective and contestable and distract from the study results, in my opinion.

<u>Recommendation</u>: To save space for more information about the context, report the numerical results without adding a layer of subjective commentary, except where the audience could not interpret the numerical result without such annotations.

<u>OUR RESPONSE 11</u>: We thank the reviewer for his suggestion. We revised the "Results" section of the abstract accordingly. **(please see pages 2)**

Comment 12 – Abstract

P4L42

"Future qualitative studies may help further characterize PCPs' perspectives." — this statement is non-committal and could have been made without conducting the study.

<u>Recommendation 1</u>: In the conclusion section, focus on the implications of the study results on policy or practice — "This study suggests that, if introduced in Canada using in the manner of the Perspective I&I project, risk-based BCS would be endorsed by most PCPs" etc.

<u>Recommendation 2</u>: If you are going to comment on the need for future research, ensure that the proposal is specific and based on a study finding.

OUR RESPONSE 12: First, we agree with the importance of addressing the implications of our study results on policy and practice in the conclusion section, and we have incorporated the statement suggested by the reviewer into the abstract. Second, we have revised the reference to the need for a qualitative study, highlighting the importance of exploring training needs and the balance between a risk-based approach and workload. **(please see page 2)**

Comment 13 – Introduction

P6L11 "the death rate of from BC" <u>Recommendation:</u> Should be corrected to "the death rate from BC." <u>OUR RESPONSE 13</u>: We have corrected the typo as suggested by the reviewer.

Comment 14 – Introduction

P7L9

"Second, to able to effectively interpret and communicate each patient's calculated risk level using specific prediction tools"

Recommendation: Correct grammar

<u>OUR RESPONSE 14</u>: We thank the reviewer for his vigilance. We corrected the sentence as follows: *"Second, to be able to effectively interpret and communicate each patient's calculated risk level using specific prediction tools". (please see page 5, paragraph 1)*

Comment 15 – Introduction

P7L13

"In definitive, PCPs in this context are expected to have" — "In definitive" looks like a mistranslation into English, e.g., from French "En definitive" etc.

Recommendation: "Ultimately" or "In conclusion"

<u>OUR RESPONSE 15</u>: We thank the reviewer for his suggestion. We changed "In definitive" for *"Ultimately". (please see page 5, paragraph 1)*

Comment 16 – Methods

P8L11 "and of possible screening action plan" Recommendation: Remove "of" **OUR RESPONSE 16**: We have corrected the typo as suggested by the reviewer.

Comment 17 – Methods

P8L15

"This includes" — the description of the risk-based screening process is otherwise past-tense <u>Recommendation</u>: Ensure consistency.

OUR RESPONSE 17: We have corrected the grammatical error and put the word in the past tense.

Comment 18 – Methods

P9L2

"The survey was based on previous work 15,22,23,40-42" The survey's origin remains opaque and this is a central component of the study.

<u>Recommendation</u>: Please outline in the text what the survey was previously used for in France, rather than the background of its creators, which is a mere surrogate for this.

<u>OUR RESPONSE 18</u>: It seems there may be some confusion regarding the phrase "in French," which you noted in your review. As we clarified in the previous "Response to Reviewer," the survey was created and administered in French, but not in France. Our research team is based in the French-speaking Canadian province of Quebec.

Comment 19 – Methods

P9L6 "a dozen" <u>Recommendation:</u> The tone is too casual; use "12" or "twelve". <u>OUR RESPONSE 19</u>: We agree with the reviewer and revised the wording accordingly.

Comment 20 – Methods

P9L13

"PCPs were invited to provide their experience and satisfaction" — "provide" is an unusual choice of word

<u>Recommendation</u>: "invite to share/report/..."

OUR RESPONSE 20: We thank the reviewer for the suggestion. We change the word "provide" for "share". (*please see page 7, paragraph 1*)

Comment 21 – Methods

P9L49-56

Your description of how attitude data would be assessed for an association with both experience and gender is very clear. We should then expect 14 Fisher's Tests for gender and 14 for experience.

<u>Recommendation 1</u>: Mention briefly that it was initially the intent to quantify the effect of profession.

Recommendation 2: See discussion on bivariate results

OUR RESPONSE 21: Please refer to our responses 3, 4 and 6.

Comment 22 – Methods

P9L53

"Years of practice were classified as follows: less than 5 years, 5-10 years, 11-15 years, 16-20 years, 21 years and over." In your response to my first peer review you explained that the years of experience variable was converted into a categorical variable in order to conduct a Fisher's Test.

<u>Recommendation</u>: If you still have the continuous data, use logistic regression or ordinal logistic regression with a single continuous input variable (or experience + experience^2). **OUR RESPONSE 22**: Please refer to our response 3, 4 and 6.

Comment 23 – Discussion

P12L9 <u>Recommendation</u>: "in previous studies" <u>OUR RESPONSE 23</u>: We have added the missing word identified by the reviewer.

Comment 24 – Discussion

P12L15 Recommendation: "invest in" **OUR RESPONSE 24**: We thank the reviewer for his vigilance. We corrected the grammatical error.

Comment 25 – Discussion

P13L38

"The main limitation of this study is related to its relatively low response rate, which resulted in a limited sample size. Such a sample cannot be deemed to represent the PCPs population at large"

<u>Recommendation</u>: See comment at P5L13-16 **OUR RESPONSE 25**: Please refer to our response 1.

Comment 26 – Discussion

P13L42 "It also prevented us from conducting more complex multivariable statistical analyses" <u>Recommendation</u>: See comment at P5L16-18 <u>OUR RESPONSE 26</u>: Please refer to our response 3, 4 and 6.

Comment 27 – Discussion

P13L42

"complex multivariable statistical analyses" — the word "complex" obfuscates more than it enlightens; you are referring to well-established frequentist methods.

<u>Recommendation</u>: Drop the word "complex" throughout; if possible refer precisely to the analysis which you believe you cannot conduct, as different readers will have to make their minds up.

OUR RESPONSE 27: We agree with the reviewer and have remove the word *"complex"* from the manuscript.

Comment 28 – Discussion

P13L44-49

"Notably we have an over-representation of PCPs identifying themselves as women and of PCPs with more than 21 years' experience, potentially affecting the generalizability of our findings." — this isn't apparent without a comparison to the known gender & experience breakdown in the study region.

<u>Recommendation</u>: Cite some evidence that the studied proportion of females (73%) and >20y experience (63%) is not representative of PCPs who care for women who undergo breast cancer screening.

OUR RESPONSE 28: We thank the reviewer for the helpful suggestion. We have added a citation to the 2021 Census of Population from Statistics Canada, which provides information about the gender of family physicians. Since we were unable to find data on the years of experience for PCPs, we have removed the related statement. The revised text now reads as follows: "Notably, there is an over-representation of female family physicians and an overall under-representation of primary care nurse practitioners (ref), which may impact the generalizability of our findings." (please see page 11, paragraph 2)

Reference: Statistics Canada. 2021. 2021 Population Census. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/dv-vd/occ-pro/index-fr.cfm

Comment 29 – Discussion

P13L51

"Nonetheless, our sample size is within the range of previous similar work..." — I absolutely agree with your assertion that your findings "a glimpse into the experience and satisfaction of family physicians...". However, this is not due to your sample size being similar to previous studies (and the claim might better fit in the implications section). Too many ideas are being repeated and conflated in this section.

<u>Recommendation</u>: Your strengths & limitations section could more clearly laid out. E.g.

- Strength of your survey (PCPs with real-world risk-based screening experience)
- Non-representativeness issues with the survey (incl. the Covid comment)
- Small sample size issue with the survey (if you still believe it exists)
- Strength of your qualitative work
- Weaknesses of your qualitative work

OUR RESPONSE 29: We thank the reviewer for his recommendation. As stated in our response 1, we have changed the structure of the "Strengths and limitations" section according to your recommendation.

Comment 30 – Discussion

P13L60

"massive influx of patients" [to primary care] is an inappropriate remark in the absence of a relevant citation."

Recommendation: This remains to be fixed.

OUR RESPONSE 30: We thank the reviewer for the suggestion. We have revised our statement and added the relevant citation. The updated text now reads as follows: "However, it is important to note that the survey was launched during the midst of the third wave of the COVID-19 pandemic, a time when healthcare professionals were under significant stress and facing an increased workload" (please see page 11, paragraph 2)

PRIOR MINOR CONCERNS

OUR RESPONSE TO THE PRIOR MINOR CONCERNS: We would like to express our gratitude for the feedback on the old concerns raised by the reviewer. We are pleased that most of them have been considered fixed. For the others, you'll find our response below.

Comment 32

Pg 5 Ln 54: "very few" [? None, as elsewhere claimed] Unchanged.

"To our knowledge" alerts the reader to the uncertainty, therefore it is acceptable to say, "To our knowledge, no studies..." . By saying "very few" or "among the first", you are implying that you know of such studies. And if you know about them, you should mention and discuss them.

<u>OUR RESPONSE 32</u>: Thank you for your comment. We appreciate your point about the potential ambiguity created by the phrases "very few" or "among the first." We agree that using "To our knowledge" more clearly indicates the uncertainty, and we have revised the manuscript accordingly to reflect this more precise wording

Comment 33

Pg 8 Ln 21: It would be interesting to compare the years of practice and gender of the 22% who responded against 78% who did not. Argument accepted. However, this limitation should be mentioned in accordance with CROSS item 10d.

OUR RESPONSE 33: Please refer to our response 2.

Comment 34

Pg 9 Ln 9: As outlined in the major concerns section, the reporting of the cross-sectional results is insufficient (see above for suggestions)

This remains a major concern.

OUR RESPONSE 34: Please refer to our response 7.

Comment 35

Pg 11 Ln 40: The survey sample need not be representative of PCPs in Quebec; it should be representative of PCPs who care for women who undergo breast cancer screening. If these are equivalent, this should be made clear.

Unchanged.

OUR RESPONSE 35: As noted in response to the reviewer's previous comment, we acknowledge that the survey sample is not representative of primary care providers in Quebec. We have therefore identified this as a limitation of our study.

Comment 36

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Pg 11 Ln 54: "massive influx of patients" [to primary care] is an inappropriate remark in the absence of a relevant citation. Unchanged. Now P13L60. **OUR RESPONSE 36**: Please refer to Response 30.

VERSION 2 - REVIEW

Reviewer	1
Name	Thornton, Hazel
Affiliation	University of Leicester, Department of Health Sciences
Date	13-Feb-2025
COI	

This revision, taking note of all the detailed reviewing, now clearly sets out the possible impact of introducing risk-based screening in a real-life scenario. It is thus much more likely to achieve an appreciation of the need to curb the current excessive, wasteful screening of the majority of women in which there is little possibility of benefit, but known production of harms as shown in the Cochrane systematic review, and others, of mammography screening – unfortunately still not referenced in this revision.

(As an aside, it is alarming that so few PCPs were unaware.)

It is pleasing that the authors have provided detailed comments on reviewers` suggestions, elaborating their reasoning, as well as involving an English speaking colleague to improve the account of your valuable work.

It is regrettable that no citizen or patient – individual or group - was included in this work. Their inclusion might have produced an even more rapid adoption of such a system and spread enthusiasm even more widely.

Turning to your Response 7 concerning education of the public and informed shared decision-making, thank you for referencing Testing Treatments, but please could you use the form of words provided, i.e.

Evans I, Thornton H, Chalmers I, Glasziou P. Testing treatments: better research for better healthcare – Second Edition. Pinter and Martin, London. 2011. ISBN 978-1-905177-48-6 Free download from www.testingtreatments.org/the-book/