## 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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| **TITLE (PROVISIONAL)** | Primary goals, information-giving and men's understanding: a qualitative study of Australian and UK doctors' varied communication about PSA screening |
| **AUTHORS** | Pickles, Kristen; Carter, Stacy; Rychetnik, Lucie; McCaffery, Kirsten; Entwistle, Vikki |

## VERSION 1 – REVIEW

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| **REVIEWER** | Chunhuan Lao<br>NIDEA, University of Waikato, Hamilton, New Zealand |
| **REVIEW RETURNED** | 22-Jun-2017 |

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| **GENERAL COMMENTS** | The authors have published two other papers from a different perspective from this interview. This study covers some interesting and important topics: how, why and when GP communications with men about PSA test vary.<br><br>The introduction is well written and very detailed, and the methodologies are sound and valid.<br><br>Though it is a qualitative study, I would like to know what are the numbers when the authors used majority, minority and few. How many GPs out of the 69 practice this way?<br><br>The first four paragraphs of the discussion are repetitive of the results. They are summary of the results rather than discussion. Limitations were discussed in the article summary but were not included in the discussion. |

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| **REVIEWER** | Dr Julian Treadwell<br>Hindon Surgery, Wiltshire. SP3 6DJ<br>Nuffield Dept of Primary Care Health Sciences, Oxford. OX2 6GG<br>I should declare a (non-pecuniary) intellectual interest - I am Vice-Chair for the RCGP Standing Group on Overdiagnosis and have an interest in the harms of over testing/screening an treatment.<br>No other Competing Interests. |
| **REVIEW RETURNED** | 28-Jun-2017 |

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| **GENERAL COMMENTS** | This is a very well designed and executed piece of qualitative research (having also read the recruitment strategy outlined in reference 21). It outlines and builds on existing enquiry in this field and offers a novel and valuable new structure (the 3 dimensions and 4 communication approaches) |

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| | to describe and explore the complexity of decision making and communication in different settings. The exploration of variation in GPs "default" communication approaches with subtle changes in context (Table 4) is particularly insightful. The contrast between Australian and UK practice is especially interesting and provides useful information upon which doctors can reflect in both Nations.<br>Having checked agains the CASP Tool for qualitative research, one small addition to make might be a brief comment on the Researcher's own role and potential biases (see checkpoint 6 in CASP).<br>Overall an excellent paper which I heartily recommend for publication. |

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| **REVIEWER** | Dr Maggie Kirkman<br>Monash University, Australia |
| **REVIEW RETURNED** | 11-Jul-2017 |

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| **GENERAL COMMENTS** | I am pleased to have had the opportunity to review this manuscript, reporting the results of interviews with 40 general practitioners in Australia on the subject of communicating with men about PSA screening. Having reported in earlier publications that there was consistency in UK GP opinions (interviews with 29 GPs in the UK) and inconsistency among GPs in Australia, the researchers identified four approaches to communication. They concluded that GPs in Australia would need guidance that addressed all four dimensions.<br><br>Title<br>Suggest including “Australia” and “UK” in the title, or perhaps just “Australia” given that the reported results related to Australian GPs. “Grounded theory” does not seem to be in the title of other papers published from this research where it would seem to be a more appropriate description of the method used. I suggest using “qualitative research” as before.<br><br>Abstract<br>Ensure results described are specific to this manuscript, not previously-published results. The results relate only to the 40 GPs in Australia and this is what should be made clear. From the abstract onward, there is confusion about what is being reported in this manuscript and what has already been reported.<br><br>Introduction<br>Good summary of some of the relevant literature. It would be appropriate to cite all papers from this research, not just [14], so that it is clear what we know already.<br>Given that such specific questions were asked of the data, the most appropriate method of analysis sounds like thematic analysis. It is not evident that grounded theory is necessary.<br><br>Method<br>I suggest not including aspects of the results in the method but following the conventions. There needs to be more detail presented in a chronological order. No results (such as final participant numbers) should be in the Methods section. |

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| | The Uniform Requirements for Manuscripts Submitted to Biomedical Journals: http://www.icmje.org/recommendations/browse/manuscript-preparation/preparing-for-submission.html#d include:<br>"The guiding principle of the Methods section should be clarity about how and why a study was done in a particular way. Methods section should aim to be sufficiently detailed such that others with access to the data would be able to reproduce the results. In general, the section should include only information that was available at the time the plan or protocol for the study was being written; all information obtained during the study belongs in the Results section. If an organization was paid or otherwise contracted to help conduct the research (examples include data collection and management), then this should be detailed in the methods."<br>I interpret the requirements for constructing a Method section, as they apply to you and adapted for qualitative research methods, as follows:<br>1. Statement about ethics approval (beginning or end of this section)<br>2. Describe the eligible population<br>3. Describe recruitment procedures, referring to earlier publications for additional detail if necessary, but all relevant information should be here.<br>4. Describe means of gathering data. In this case, was the interview semi-structured or in depth? Although both are stated, evidence suggests that it was semi-structured. Summarise questions.<br>5. Describe the means of managing your data (recording with permission, transcription, safe storage, anonymization, use of a data management program such as NVivo, and so on).<br>6. Describe data analysis, including resolution of any disagreements about interpretation or categorisation, validation processes, and any other steps taken to ensure rigour. Distinctions will need to be made about theory-generating analysis and the thematic analysis required to answer the specific research questions for this component of reporting.<br><br>Results<br>Given that UK-Australia differences have already been reported [refs 14, 21], these should not be in the Results section (this applies also to the abstract). I found it confusing to read summaries of previously published results in the results section of this manuscript which, to my mind, should concern solely results related to the research questions asked at the end of the Introduction. Perhaps there could be a separate section before the research questions are stated that summarises very briefly what is known already about these data?<br>Ensure at all times it is clear that GPs reported their communication styles. It usually happens in the text, but headers should conform too. Perhaps abbreviating them would be better? For example, the main heading could be "Australian GPs' reported communication with men about prostate cancer screening", not "How Australian GPs communicate with men about prostate cancer screening". And rather than having "Some Australian GPs screened men for prostate cancer with little or no prior communication", use "Screen for prostate cancer with little or no prior communication", or just "Little or no communication". As it stands, it reads as though all these non-communicative GPs screen for prostate cancer, whereas the quotations given indicate that this is not the case. The higher-order heading has already specified Australia.<br>Why is it reported as "a minority subset" (page 9)? "A minority" or "three" would be sufficient. If the GPs have been divided into subsets based on communication style, this is another matter but |

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| | carries with it the need to identify other characteristics that might vary by subset.<br><br>This section on non-communicative GPs seems to conflate those who order without explaining, those who order only if men request, and those who explain only after a positive test result. It also includes evidence of GP ignorance of epidemiology. I think these could be succinctly summarised and their heterogeneity made more clear. Were any of these doctors aware of guidelines?<br>The heading levels seems to have gone awry. “How Australian GPs communicate …” is the top level (1); under that are the non-communicators (2) and the communicators (2). Within the communicators are 3 dimensions (3). Each of those dimensions is level 4. Heading levels need to be fixed or the headers changed to suit preferred or required levels. The header level throughout needs to be reassessed, most easily by listing the headers and nesting them as appropriate.<br><br>Dimension 3 header is misleading. Could it be “Aim to give epidemiological or gist understanding”? Otherwise it sounds as though GPs (reported) an aim to ensure they gave men insights into different ways of understanding screening.<br>Page 14, line 39: Surely the stability of GPs’ communication style can’t be confidently stated? The best that can be said is that GPs reported commonly using a particular style, or made statements indicating that they had maintained this style for years and in different circumstances? The rest of the section appears to be presenting evidence for the opposite view: that GPs adapt their communication style according to 10 variables. This needs to be clarified.<br><br>It would be interesting to know whether GPs reported using this style only for prostate cancer screening or whether they adapted their style to the condition or the person. Is there something specific to prostrate cancer or men’s health or men that encourages their style? Table 4 gives some information but a sentence summary in the text would be helpful.<br><br>Page 15: Re-reporting results already published is unnecessary and undesirable. Use as background information only. If new comparisons are to be made with UK GPs, this should be indicated in the research questions with which the introduction concludes.<br>Tables & Figures<br>Figure 1: useful summary of Chan et al.’s items for inclusion in discussions about prostate screening. In the text (page 4) as well as on the figure it is not clear whether Chan et al. or Pickles et al. developed the figure.<br>Table 1: Potentially useful summary of screening recommendations from various organisations, although I cannot assess it for accuracy because the sides of the table have been obscured. I suggest removing “in terms of” from the title; replace with “for”.<br>Table 2: Summarises results already published about differences between the UK and Australia.<br>Table 3: Useful summary of reported communication approaches. I suggest having headings rather than questions in the cells.<br>Table 4: This table had the sides obscured (I assume they were in landscape but only portrait was captured) so I may have missed words or even columns. It seems much too wordy; not a table that encourages engagement. With considerable editing it could be useful. |

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| | Discussion<br>Take care with asserting that the majority of health & health professional groups recommend against screening in Australia. The ANZ Urological Society (https://www.usanz.org.au/psa-guidelines/) has been concerned at the RACGP rejection of PSA texting and has encouraged the organisation to have a less rigid approach.<br>Some of the problems in the claims made in this manuscript stem from using 'screening" to mean not population testing but testing of individual symptom-free men. This needs to be clarified by the authors.<br><br>Other<br>"et al." requires a full stop to indicate the abbreviation of "alia" (unless the publisher's convention is otherwise).<br>Page 10, line 54: "respectively" makes no sense in this sentence and should be deleted.<br>Punctuation is a little eccentric. Colons are frequently used where a semi-colon would be appropriate, and dashes are used instead of commas.<br>The apostrophe is missing in a few case of the possessive use of "GPs". |

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| **REVIEWER** | Dr. Jo Nayoan<br>University of Southampton, United Kingdom |
| **REVIEW RETURNED** | 15-Jul-2017 |

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| **GENERAL COMMENTS** | The manuscript reports a secondary analysis of 69 interviews with GPs in the UK and Australia. Two other papers were published last year that appeared using the same data, one in BMJ Open (Pickles, Carter, Rychetnik & Entwistle, 2016) and another paper (Pickles, Carter, Rychetnik, McCaffery & Entwistle, 2016). Another paper reported a smaller sample of GPs in Australia had also been published previously under the same journal (Pickles, Carter & Rychetnik, 2015). I am concerned that the authors aimed to maximise outputs of what appeared to be a research that is part of a PhD project.<br><br>Abstract: The work built on previous work from one of the authors, Entwistle et al. 2008, but this was not mentioned in the abstract.<br><br>Introduction: There should be a clear information about previous papers in here. Readers may be familiar with previous papers therefore there is a need for rationale for a second secondary analysis.<br><br>Methods: There is a repetition of what is already outlined in Pickles et al 2015 and Pickles et al 2016, almost identical despite referring to Pickles et al 2016. Participants and Setting section would benefit from having a sociodemographic background of the participants, other than stating "participants were of varying ages, clinical experience, gender, and patient populations".<br><br>Results: Data was framed and mapped differently using from previous papers, and participants' quotes were different but findings were not different from previous findings. |

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| | A separate section discussed about 'How Australian GPs communicate with men about prostate cancer screening' but there was no other section discussing about UK GPs. The next section, 'When communicating about prostate cancer screening, Australian GPs varied on three key dimensions', quotes were all from Australian GPs (AGPs) and the comparison is unclear. The rest of the three sections of the findings appeared to be drawn from the UK findings, but again the comparison is unclear. No quotes from UK GPs can be found anywhere in the paper.<br><br>Conclusion: Authors recommended to 'facilitate particular conversations that include but go beyond potential harms and benefits' and also 'encouraging and enabling men to look carefully a why PSA screening is not recommended' but unclear how this can be done effectively in two different countries where primary health care are funded differently, highlighted in the Methods section. |

## VERSION 1 – AUTHOR RESPONSE

**REVIEWER #1:**

Comment: Though it is a qualitative study, I would like to know what are the numbers when the authors used majority, minority and few. How many GPs out of the 69 practice this way?
We prefer not to use numbers in our analysis. Grounded theory analysis is more concerned with meaning-based analysis and clarity of concepts than numerical data analysis and individual cases. In keeping to the principles of a grounded theory study, we identified and coded for meaning and patterns in our data, with a focus on variation, and the conditions that could explain that variation. We were most interested in communication as a process and the range of practices and approaches relevant to that central issue, and being able to explain that variation in detail and with understanding, rather than recording how many participants fell into particular groupings. We also describe in the Results section that the approaches to practicing in a particular way were not static and could depend on the GP and particular situations.

Response: The first four paragraphs of the discussion are repetitive of the results. They are summary of the results rather than discussion.
We agree that the first two paragraphs of the discussion are repetitive of the results, and we have deleted those two paragraphs from the manuscript. However we feel that paragraphs 3 and 4 provide important additional information to that described in the results section, particularly about how these findings relate to Entwistle et al.'s framework and why they may be unique to both the Australian context and/or PSA screening.

Limitations were discussed in the article summary but were not included in the discussion.
The following limitations have been included at the end of the discussion.
Limitations
As this is a qualitative study, we cannot infer the prevalence of the four reported approaches; the results of this study could be extended into quantitative survey research with whole populations of GPs to test prevalence.

It is also possible that those GPs who did not participate were in some way different to those who did (that is, that these data are subject to selection bias), however the diversity in our respondents suggests that it is very unlikely that our sample was biased towards a particular view of PSA testing or corresponding communication style (p21).

**REVIEWER #2:**

Comment: Having checked against the CASP Tool for qualitative research, one small addition to make might be a brief comment on the Researcher's own role and potential biases (see checkpoint 6 in CASP).
Consider
• If the researcher critically examined their own role, potential bias and influence during
(a) Formulation of the research questions
(b) Data collection, including sample recruitment and choice of location
• How the researcher responded to events during the study and whether they considered the implications of any changes in the research design.

Response: Thank you for raising this important aspect of qualitative research. The participant information sheet explained the purposes of our study and detailed the background of our research team – we have added text to the Introduction and Methods sections of the manuscript to reflect this information, see below.
The larger program of study examined the role of values, ethics, context, and evidence in cancer screening policy and practice (p6).
The field work for the prostate cancer element of this study was conducted by KP, a public health researcher, as part of a PhD degree. KP had no immediate personal or professional experience with prostate cancer or PSA screening (p8).

**REVIEWER #3:**

Comment; Suggest including “Australia” and “UK” in the title, or perhaps just “Australia” given that the reported results related to Australian GPs.

Response: We have modified the title as suggested.
Primary goals, information-giving and men’s understanding: a qualitative study of Australian and UK doctors’ varied communication about PSA testing

Comment: “Grounded theory” does not seem to be in the title of other papers published from this research where it would seem to be a more appropriate description of the method used. I suggest using “qualitative research” as before.

Response: We have modified the title as suggested.
Primary goals, information-giving and men’s understanding: a qualitative study of Australian and UK doctors’ varied communication about PSA testing

Comment: Ensure results described are specific to this manuscript, not previously-published results. The results relate only to the 40 GPs in Australia and this is what should be made clear. From the abstract onward, there is confusion about what is being reported in this manuscript and what has already been reported.

Response: While on p11 we state that the majority of the variation in communicating about PSA testing did occur among the 40 Australian GPs, we have also drawn from/reported on data from 29 UK GPs. So although this analysis focuses on 40 GPs it is actually informed by analysis of data from 69 GPs. The UK data helped to illuminate the contrasting complexity of the Australian data and highlighted important differences in communication and screening practice.
On p16 and in Table 2 we specifically compare the communication approaches of Australian and UK GPs.

Comment: Good summary of some of the relevant literature. It would be appropriate to cite all papers from this research, not just [14], so that it is clear what we know already.

Response: We agree with this suggestion and have added the following sentence to the introduction (p6):
Previous analyses from this study have illuminated systemic variation between the two jurisdictions, including in payment models, the history of PSA screening policy, screening culture, and referral patterns (14). The authors have also published earlier findings from the empirical work about how clinicians manage the potential for overdiagnosis (20) and their responses to uncertainty in relation to prostate cancer screening (21).

Comment; Given that such specific questions were asked of the data, the most appropriate method of analysis sounds like thematic analysis. It is not evident that grounded theory is necessary.

Response: We initially omitted a detailed explanation of our methods from this manuscript and suggest that in doing so we may have created confusion about the data analysis process. This work was conducted as part of a grounded theory PhD project investigating clinician perspectives on prostate cancer screening in primary care. Data were collected and analysed following grounded theory principles and communication styles was identified as a particular concept of interest to report on separately. The findings of this component of the study – about differences in communication accounted for by GP's goals and practice situations - contributed to the theory building process and final grounded theory.
We have added a more detailed explanation of our approach and analysis on pages 7-9 of the revised manuscript (see yellow highlight), which we hope makes it clear that grounded theory was central to this study.

Comment: I suggest not including aspects of the results in the method but following the conventions. There needs to be more detail presented in a chronological order. No results (such as final participant numbers) should be in the Methods section.
ICMJE: "The guiding principle of the Methods section should be clarity about how and why a study was done in a particular way. Methods section should aim to be sufficiently detailed such that others with access to the data would be able to reproduce the results. In general, the section should include only information that was available at the time the plan or protocol for the study was being written; all information obtained during the study belongs in the Results section. If an organization was paid or otherwise contracted to help conduct the research (examples include data collection and management), then this should be detailed in the methods."
I interpret the requirements for constructing a Method section, as they apply to you and adapted for qualitative research methods, as follows:
1. Statement about ethics approval (beginning or end of this section)
2. Describe the eligible population
3. Describe recruitment procedures, referring to earlier publications for additional detail if necessary, but all relevant information should be here.
4. Describe means of gathering data. In this case, was the interview semi-structured or in depth? Although both are stated, evidence suggests that it was semi-structured. Summarise questions.

5. Describe the means of managing your data (recording with permission, transcription, safe storage, anonymization, use of a data management program such as NVivo, and so on).
6. Describe data analysis, including resolution of any disagreements about interpretation or categorisation, validation processes, and any other steps taken to ensure rigour.

Distinctions will need to be made about theory-generating analysis and the thematic analysis required to answer the specific research questions for this component of reporting.

Response:
We have revised the manuscript to include more detail in the Methods section, see below and highlighted text additions to the manuscript.
• Ethics approval section was moved to the beginning of the Methods section with a sentence added (p7): Participation was voluntary, participants could withdraw at any time, and confidentiality was protected. All responses were anonymised before analysis and potentially identifying information removed.
• We included more detail about participants and setting rather than only referring readers to our previous paper. This section (beginning p7) now reads: We identified clinicians working in primary care practices as being in the best position to provide insight on our research questions, and most likely to face the question of PSA testing as part of their everyday practice. We purposively recruited a sample of GPs first in the Australian health care setting, and later in the United Kingdom (England, Scotland, and Wales), as our study evolved. Sampling for the broader study was initially driven by existing quantitative evidence on characteristics of GPs, patients, and practice contexts associated with higher or lower PSA testing rates. We aimed to recruit a set of GPs likely to have diverse practices. See Pickles et al. (21) for a detailed description of the recruitment process.
In Australia we advertised in newsletters and email lists of GP organisations, in mass and social media, medical journals, we phoned practice managers and via email and flyers distributed by rural GP organisations. In the UK, academic colleagues distributed an invitation through their professional networks, we advertised to members of the Royal College of General Practitioners (RCGP), primary health care departments, university academic departments, and general practice and research via mail lists, and in organisational newsletters including the Society for Academic Primary Care (SAPC) and RCGP Scotland's eBulletin. GPs were invited to contact KP if they were interested and willing to participate. An information sheet outlining the research project was emailed to all respondents. All GPs who expressed interest in participating were included.
Overall, 69 GPs participated in this study, 40 GPs in Australia and 29 GPs in the UK. 44/69 of the GPs were male. The GPs ranged in clinical experience, working from 1-40 years in general practice, and were located in both metropolitan (n=32/69) and regional/rural (n=37/69) clinics, with varied patient populations.
• Information about the interview schedule was added to data collection (p8): An interview guide was prepared to provide general direction and an overview of potential question routes.
• We also included information about saturation (p9): We continued to interview GPs until we judged we had reached theoretical saturation; that is, the point at which gathering more data ceases to yield any further insights about the emerging grounded theory.
• And data management (p9): With GP permission, the interviews were audio-recorded and transcribed verbatim by a professional transcribing service to produce data for analysis. All responses were anonymised before analysis and potentially identifying information was removed.
• As suggested, we have described the data coding and analysis process in more detail (while being mindful of word count) (p9): We coded to capture the range of variation in the GP-reported discussions about PSA screening and for conditions that could explain that variation. Codes were kept as similar to the data as possible to preserve context and to ensure that all concepts derived directly from the data.

Grounded theory was our methodology and method. Both thematic and theory-generating analysis involve coding of broader themes and patterns in a dataset. However a grounded theory analysis involves moving beyond descriptive reporting to interpretation of patterns, with the aim of developing a theory grounded in the data generated in the study.
In line with the principles of a grounded theory method, we moved from simple coding to focused coding and eventually drew on theoretical codes (e.g. Entwistle et al.'s characterisation of communication approaches) for each category we developed (e.g. communication), with the purpose of our overall analysis being to generate an explanatory theory about how and why PSA screening for prostate cancer risk occurs in primary care. This paper reports on one component of that process.

Comment: Given that UK-Australia differences have already been reported [refs 14, 21], these should not be in the Results section (this applies also to the abstract). I found it confusing to read summaries of previously published results in the results section of this manuscript which, to my mind, should concern solely results related to the research questions asked at the end of the Introduction. Perhaps there could be a separate section before the research questions are stated that summarises very briefly what is known already about these data?

Response: Thank you for suggesting a way around this confusion. We have deleted the following sentence from the results (p10), This was particularly observed in the Australian context, possibly because the Australian health care system provides less consistent and directive guidance to GPs about how to communicate with men on this topic, alongside differences between Australia and the UK in social, historical, and structural factors as identified in our previous work (14)
We also removed the following sentence from the abstract (p2): The reported consistency of PSA communication practices in the UK contrasted strongly with the significant variation reported in the Australian context.
We also revised the paragraph before the research questions (p6) to reflect the changes.

Comment; Ensure at all times it is clear that GPs reported their communication styles. It usually happens in the text, but headers should conform too. Perhaps abbreviating them would be better? For example, the main heading could be "Australian GPs' reported communication with men about prostate cancer screening", not "How Australian GPs communicate with men about prostate cancer screening". And rather than having "Some Australian GPs screened men for prostate cancer with little or no prior communication", use "Screen for prostate cancer with little or no prior communication", or just "Little or no communication". As it stands, it reads as though all these non-communicative GPs screen for prostate cancer, whereas the quotations given indicate that this is not the case. The higher-order heading has already specified Australia.

Response: We have changed the headings, as suggested (p10).
How Australian GPs' reported communication with men about prostate cancer screening
Screening men for prostate cancer with little or no prior communication

Comment: Why is it reported as "a minority subset" (page 9)? "A minority" or "three" would be sufficient. If the GPs have been divided into subsets based on communication style, this is another matter but carries with it the need to identify other characteristics that might vary by subset.

Response: We have removed 'subset' from the manuscript.

Comment: This section on non-communicative GPs seems to conflate those who order without explaining, those who order only if men request, and those who explain only after a positive test result. It also includes evidence of GP ignorance of epidemiology. I think these could be succinctly summarised and their heterogeneity made more clear. Were any of these doctors aware of guidelines?

Response: Yes, this is a good point. We have taken your advice and added the sentence below, and separated the different justifications with bullet points (p11).
A minority of interviewees reported ordering PSA tests with little or no prior communication with the patient. GPs were categorised as non-communicative if they reported (1) ordering PSA tests without explaining that to their patient, (2) ordering PSA tests at patient request with no further discussion, and (3) explaining PSA testing only after a positive PSA test result.
Re whether doctors were aware of guidelines, the majority of doctors were aware of guidelines – which we describe in detail in our previous papers – however guidelines in the Australian context are unclear, inconsistent, or conflict, were described as unhelpful/vague, and were not frequently relied on by GPs to direct their practice. Some GPs also found it challenging to balance guidelines against personal and professional experiences, which may have provided contradictory evidence about 'best practice'.

Comment: The heading levels seems to have gone awry. "How Australian GPs communicate …" is the top level (1); under that are the non-communicators (2) and the communicators (2). Within the communicators are 3 dimensions (3). Each of those dimensions is level 4. Heading levels need to be fixed or the headers changed to suit preferred or required levels. The header level throughout needs to be reassessed, most easily by listing the headers and nesting them as appropriate.

Response: Thank you for noting this formatting error – we have amended the heading levels accordingly.

Comment: Dimension 3 header is misleading. Could it be "Aim to give epidemiological or gist understanding"? Otherwise it sounds as though GPs (reported) an aim to ensure they gave men insights into different ways of understanding screening.

Response: We have changed the dimension headers to read:
Dimension 1. GP's primary communication goal
Dimension 2. GPs' reported information provision
Dimension 3. GPs' reported ambitions for men's understanding

Comment: Page 14, line 39: Surely the stability of GPs' communication style can't be confidently stated? The best that can be said is that GPs reported commonly using a particular style, or made statements indicating that they had maintained this style for years and in different circumstances? The rest of the section appears to be presenting evidence for the opposite view: that GPs adapt their communication style according to 10 variables. This needs to be clarified.

Response; Thank you for noting this discrepancy. We have changed the text as suggested (p16):
GPs positioning on the four approaches seemed relatively stable; GPs' interviews indicated that they tended to have a preferred approach for most PSA interactions, or that they had maintained a particular communication style over time.

Comment: It would be interesting to know whether GPs reported using this style only for prostate cancer screening or whether they adapted their style to the condition or the person. Is there something specific to prostate cancer or men's health or men that encourages their style? Table 4 gives some information but a sentence summary in the text would be helpful.

Response: This is an interesting issue and one that we have been reflecting on too.
We agree that it warrants further investigation, but was beyond the scope of this study. We have been careful to only offer interpretations grounded in the data available, but intend to follow this particular question up in future work.

Comment: Page 15: Re-reporting results already published is unnecessary and undesirable. Use as background information only. If new comparisons are to be made with UK GPs, this should be indicated in the research questions with which the introduction concludes. We removed the following paragraph from the results (p10).

Response: We observed considerable diversity in the ways that GPs' described their communication about prostate cancer screening. This was particularly observed in the Australian context, possibly because the Australian health care system provides less consistent and directive guidance to GPs about how to communicate with men on this topic, alongside differences between Australia and the UK in social, historical, and structural factors as identified in our previous work (14).

Comment: Figure 1: useful summary of Chan et al.'s items for inclusion in discussions about prostate screening. In the text (page 4) as well as on the figure it is not clear whether Chan et al. or Pickles et al. developed the figure.

Response: Thankyou for noting this oversight, we have added 'figure developed by KP' to both the text and the caption to Figure 1.

Comment: Table 1: Potentially useful summary of screening recommendations from various organisations, although I cannot assess it for accuracy because the sides of the table have been obscured. I suggest removing "in terms of" from the title; replace with "for".
The title of Table 1 now reads:

Response: Table 1. The recommendations of professional organisations for communicating about prostate screening

Comment: Table 3: Useful summary of reported communication approaches. I suggest having headings rather than questions in the cells.

Response: Thank you for the feedback, we have changed the questions in the cells to the following headings:
GP's primary goal:
Information provided by GP:
Type of understanding that GP considered adequate:

Comment: Table 4: This table had the sides obscured (I assume they were in landscape but only portrait was captured) so I may have missed words or even columns. It seems much too wordy; not a table that encourages engagement. With considerable editing it could be useful.

Response: It is unfortunate that the reviewer was unable to view the entire contents of Table 4; the table provides specific examples illustrating how the situational and relational factors (described by GPs) influenced their approaches to communicating with men.
At the suggestion of a thesis examiner we have rearranged the table into the situational and relational factors and divided that further into situational factors more pertaining to the GP or to the patient, situational factors pertaining to service characteristics, relational factors pertaining to GP/patient, and relational factors pertaining to service characteristics.

We suggest that this modification makes Table 4 more user-friendly but would be happy to consider editing the table further if necessary, or moving it to the appendices as a supplementary file if recommended by the editor.

Comment: Take care with asserting that the majority of health & health professional groups recommend against screening in Australia. The ANZ Urological Society (https://www.usanz.org.au/psa-guidelines/) has been concerned at the RACGP rejection of PSA texting and has encouraged the organisation to have a less rigid approach.

Response: Thanks for noting, USANZ do indeed suggest that clinicians could offer PSA to appropriately selected patients. We have changed the sentence to read (p18):
"The need for inclusion of a Do not be Screened element is likely a product of the Australian context where the PSA test is available and widely promoted for screening purposes in the media, despite the majority of relevant public health and health professional groups recommending against routine screening of asymptomatic men."

Comment: Some of the problems in the claims made in this manuscript stem from using 'screening" to mean not population testing but testing of individual symptom-free men. This needs to be clarified by the authors.

Response: In the introduction (sentence 2) we define how we will be using the terms 'screening' and 'testing' throughout the paper: 'cancer screening' as PSA testing ostensibly healthy men who are not considered to be at high risk of prostate cancer for their age, and 'testing' men who have a diagnosis of prostate cancer or are experiencing acute symptoms that may suggest prostate disease.
We refer to 'cancer screening' broadly rather than 'population screening' which does refer to a test that is offered to all individuals in a target group as part of an organised program. Although there is not a population screening program for prostate cancer in Australia or the UK, evidence suggests that the PSA test is frequently ordered. Some writers refer to the existence of a 'de facto' prostate screening program in Australia, given evidence indicating a high prevalence of PSA tests that are ordered for low-risk asymptomatic men, with the purpose of detecting cancer before symptoms appear (i.e. cancer screening).

Comment: "et al." requires a full stop to indicate the abbreviation of "alia" (unless the publisher's convention is otherwise).

Response: Thank you for noting, we have added full stops after et al. throughout the manuscript.

Comment: Page 10, line 54: "respectively" makes no sense in this sentence and should be deleted.

Response: We have deleted 'respectively' from the text.

Comment: Punctuation is a little eccentric. Colons are frequently used where a semi-colon would be appropriate, and dashes are used instead of commas.

Response: Thank you for picking up on punctuation issues, we have carefully scanned the manuscript and made changes where required.

Comment: The apostrophe is missing in a few case of the possessive use of "GPs".

Response: Thank you, we have carefully scanned the manuscript and made changes where required.

**REVIEWER #4:**

Comment: I am concerned that the authors aimed to maximise outputs of what appeared to be a research that is part of a PhD project.

Response: The nature and purpose of a grounded theory study is to build theories inductively from the data. The previous published papers each illustrate this theory-building process and describe particularly noteworthy patterns/processes that we identified during our ongoing analysis. As we note, in the light of our prior findings on variation between the Australian and UK contexts, we set out to better understand GP communication practices in particular.
We have added a statement to the methods declaring the aims of this paper and how it relates to the broader cancer screening project.

Commment: The work built on previous work from one of the authors, Entwistle et al. 2008, but this was not mentioned in the abstract.

Response: Thanks for the suggestion, the sentence in the abstract now reads:
Taking into account these three dimensions (goals, information, understanding), we derived four overarching approaches to communication, building on Entwistle et al.'s Consider an Offer framework: Be screened, Do not be screened, Analyse and choose, and As you wish.

Comment: There should be a clear information about previous papers in here. Readers may be familiar with previous papers therefore there is a need for rationale for a second secondary analysis. Please refer to previous comment (to reviewer 3) re information added about how this paper and analysis fits with previous work. We have added references to all previous papers. We are happy to provide additional justification for this at the Editor's request.

Response: As we have noted, this was a grounded theory study, and this paper reports on one component of the overall study. We purposively gathered and analysed primary data with the purpose of answering specific research questions. It was an iterative proves and required that questions were re-formulated and refined over time.
A second secondary analysis would utilise existing data collected for the purposes of a prior study, in order to pursue a research interest, which is distinct from that of the original work. In this grounded theory study, we began data analysis immediately and the analysis was an ongoing process.

Comment: There is a repetition of what is already outlined in Pickles et al 2015 and Pickles et al 2016, almost identical despite referring to Pickles et al 2016.

Response: We thought that including detail of other findings would provide important and useful contextualising information, however reviewer comments helpfully suggest that there is too much overlap and it has created confusion. We have removed most detail from the discussion section describing previous findings.

Comment: Participants and Setting section would benefit from having a sociodemographic background of the participants, other than stating "participants were of varying ages, clinical experience, gender, and patient populations".

Response: We have added the following demographic information:
Overall, 69 GPs participated in this study, 40 GPs in Australia and 29 GPs in the UK. 44/69 of the GPs were male, the GPs ranged in clinical experiences, from 1-40 years in general practice, and were located in both metropolitan (n=32/69) and regional/rural (n=37/69) practices, with varied patient populations.

Comment: Data was framed and mapped differently using from previous papers, and participants' quotes were different but findings were not different from previous findings.

Response: This analysis is quite separate from the earlier analyses, which focused on under- and over-diagnosis, uncertainty, and organisational differences. This is how grounded theory works, the researcher needs to identify the core concepts and provide detailed analysis to be able to explain each of them.
The current paper is a reflection of our developing theory and specifically sought to better understand, and report on, clinician perspectives in relation to communicating with men about these issues, as described on p7:
In the light of our prior findings on variation between the Australian and UK contexts, we set out to better understand GP communication practices in particular.

Comment: A separate section discussed about 'How Australian GPs communicate with men about prostate cancer screening' but there was no other section discussing about UK GPs.

Response: The focus of this paper was to report on variation in how GPs communicate with men about PSA testing. We identified particularly interesting patterns in the Australian context that only became apparent to us when we compared the communication approaches of Australian GPs with UK GPs (see comparison section beginning p16 and summary Table 2). We have also described UK usual practice in detail in our previous paper, and summarised in Table 2.

Comment: The next section, 'When communicating about prostate cancer screening, Australian GPs varied on three key dimensions', quotes were all from Australian GPs (AGPs) and the comparison is unclear. The rest of the three sections of the findings appeared to be drawn from the UK findings, but again the comparison is unclear. No quotes from UK GPs can be found anywhere in the paper.

Response: This analysis did focus on variation in the practice of Australian GPs but was informed by comparing data from 69 Australian and UK GPs. We have added a couple of quotes to pages 12-14 of the manuscript from the UK data, see yellow highlights.

Comment: Authors recommended to 'facilitate particular conversations that include but go beyond potential harms and benefits' and also 'encouraging and enabling men to look carefully at why PSA screening is not recommended' but unclear how this can be done effectively in two different countries where primary health care are funded differently, highlighted in the Methods section.

Response: While we recognise (as noted in the manuscript) the significant differences between the two health systems, it also seems reasonable, given that the evidence is international and the cultures of the two countries similar, that there should be similar expectations of GPs practical and ethical obligations regarding communication. The challenge is to intervene in the system to provide them with the supports and structures that will facilitate this.

## VERSION 2 – REVIEW

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| **REVIEWER** | Chunhuan Lao<br>Medical Research Unit, University of Waikato, New Zealand |
| **REVIEW RETURNED** | 18-Sep-2017 |

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| **GENERAL COMMENTS** | I am happy with the changes that the authors made based on my comments. |

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| **REVIEWER** | Maggie Kirkman<br>Monash University<br>Australia<br>No Competing Interest |
| **REVIEW RETURNED** | 25-Sep-2017 |

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| **GENERAL COMMENTS** | I congratulate the authors on a much improved manuscript and appreciate the trouble they have taken in attending to the editor's and reviewers' comments. I have a few minor suggestions.<br><br>Method<br>Page 7, line 24: How much were GPs compensated? This is important information; could compensation amount to incentive?<br><br>Results<br>Page 15, line 31: I think it is too big a call to say that GPs wanted men to develop "a detailed epidemiological understanding". Perhaps "a population-level understanding"?<br><br>I was once again unable to see the sides of landscape tables.<br>I continue to think that Table 4 could be much more succinct.<br><br>Page 31 has an item that could be a table or a figure but is not adequately titled.<br><br>Conclusion<br>Although the paper as a whole now compares Australian and UK GPs, the conclusion refers only to Australian GPs. It should reflect the emphasis of the whole paper.<br><br>General<br>I remain concerned that there is inadequate distinction between screening and case-finding. |

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| | The (inconsistent) use of US spelling (“practicing”, labeling”) (rather than UK or Australian) is a distraction. I assume this will be dealt with by the journal.<br>The punctuation, especially in the quotations, is unconventional. I wonder whether the authors felt compelled to use the punctuation provided by the transcribing service? There is no logical reason for doing so. Quotations should be conventionally punctuated, unless the research is about language use, which this is not.<br>The authors still need to work on apostrophes in “GPs”. The apostrophe is inappropriate for page 2, line 23; page 10, lines 9 & 18, none of which is a possessive. On page 17, line 42, it should be GPs’ primary communication, not GP’s.<br>Page 20, line 29: Should be a colon, not a semi-colon, before the art of medicine.<br>There are examples of unconventional use of prepositions, on most of which I haven’t commented; an example is page 14, line 13: grasp of, not grasp on.<br>I apologise for the nit-picking; I can’t help noticing details. |

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| **REVIEWER** | DR JOHANA NAYOAN<br>UNIVERSITY OF SOUTHAMPTON, UK |
| **REVIEW RETURNED** | 16-Sep-2017 |

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| **GENERAL COMMENTS** | I feel the authors have addressed the reviewers' comments and I am happy to recommend the journal to accept this version, |

## VERSION 2 – AUTHOR RESPONSE

Comment: Page 7, line 24: How much were GPs compensated? This is important information; could compensation amount to incentive?

Response: All GPs were compensated AUD $100. I have added this information to the manuscript on page 7. In response to the reviewer’s concern about whether compensation for participation amounts to incentive, this amount is less than the Medicare Benefits Schedule fee for a GP consultation of a length equivalent to the average length of these interviews.

Comment: Page 15, line 31: I think it is too big a call to say that GPs wanted men to develop “a detailed epidemiological understanding”. Perhaps “a population-level understanding”?

Response: Thanks for the feedback, ‘epidemiological’ understanding has been changed to ‘population-level’ understanding throughout the manuscript.

I continue to think that Table 4 could be much more succinct.

Response: We re-formatted table 4 to simplify and again, will take the lead of the editor in relation to whether it can be included in the published version of the manuscript or as a supplementary file.

Comment: Page 31 has an item that could be a table or a figure but is not adequately titled.

Response: We are not clear which item the reviewer is referring to, all tables and figures are labelled in our version of the manuscript. The reviewer may be referring to Figure 1, which is missing from the main document because the Journal requires figures to be uploaded separately. We will happily comply with any editorial requirements in relation to this comment but will need further information to clarify which table or figure the reviewer is referring to in the manuscript.

Comment: Although the paper as a whole now compares Australian and UK GPs, the conclusion refers only to Australian GPs. It should reflect the emphasis of the whole paper.

Response: We have added the following sentence to the conclusion:

Comment: The reported consistency of PSA communication practices in the UK contrasted strongly with the significant variation reported in the Australian context.

Response: I remain concerned that there is inadequate distinction between screening and case-finding.

'Case-finding' refers to systematically targeting individuals or small groups of people based on the presence of risk factors for prostate cancer (e.g. men with a family history of the disease, or to further investigate possible causes of lower urinary tract symptoms). 'Screening', as we have defined in the first paragraph of the Introduction, is performed on asymptomatic men, and focuses on men who are not considered to be at high risk of developing prostate cancer for their age.

Comment: The (inconsistent) use of US spelling ("practicing", labeling") (rather than UK or Australian) is a distraction. I assume this will be dealt with by the journal.

Response: Thank you. 'Practice' is used consistently throughout. 'Labeled' was used once (p17) and we have changed it to 'labelled'.

Comment: The punctuation, especially in the quotations, is unconventional. I wonder whether the authors felt compelled to use the punctuation provided by the transcribing service? There is no logical reason for doing so. Quotations should be conventionally punctuated, unless the research is about language use, which this is not.

Response: We have published previously in BMJ Open and used quotations throughout this manuscript consistent with the formatting of our previous publications. We will make any modifications to the quotations at the request of the editorial team.

Comment: The authors still need to work on apostrophes in "GPs". The apostrophe is inappropriate for page 2, line 23; page 10, lines 9 & 18, none of which is a possessive. On page 17, line 42, it should be GPs' primary communication, not GP's.

Response: We have edited the manuscript accordingly.

Comment: Page 20, line 29: Should be a colon, not a semi-colon, before the art of medicine.

Response: Manuscript edited.

Comment: There are examples of unconventional use of prepositions, on most of which I haven't commented; an example is page 14, line 13: grasp of, not grasp on.

Response: We have edited the example provided by the reviewer and will take further direction from the Journal's copyediting team.

## VERSION 3 – REVIEW

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| **REVIEWER** | Maggie Kirkman<br>Monash University, Australia |
| **REVIEW RETURNED** | 05-Oct-2017 |

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| **GENERAL COMMENTS** | The authors have adequately addressed my concerns; I appreciate the care they have taken. |