PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	'Building on shaky ground' – challenges to and solutions for primary care guideline implementation in four provinces in South Africa: a qualitative study
AUTHORS	Kredo, Tamara; Cooper, Sara; Abrams, Amber; Muller, Jocelyn; Schmidt, Bey-Marrié; Volmink, Jimmy; Atkins, Salla

VERSION 1 – REVIEW

REVIEWER	Ejemai Eboreime National Primary Healthcare Development Agency, Nigeria
REVIEW RETURNED	Ejemai Eboreime National Primary Healthcare Development Agency, Nigeria

GENERAL COMMENTS	The authors present their findings on research which aims to explore the perspectives of provincial and district health managers stakeholders regarding barriers to and enablers for primary care guideline implementation. I opine that the authors need to significantly re-write this work to make it appropriate for publication. Below are a few of my observations. Abstract: The authors first present the impression that the perspective they are examining somehow relates to the decentralized system in South Africa. This, however, doesn't come strongly in the manuscript, so a different introductory sentence should be considered. The abstract does not at all justify the purpose of the study. Further, the journal's format was not adhered to. Article summary: The BMJ Open authors' guidelines clearly state that this section should contain at most 5 short sentences highlighting the strengths and limitations of the study. However, the authors present about 15 sentences which speak almost nothing about the methodological strengths and limitations of their study. Introduction: The presentation of the background offers no international perspective to this study. The authors are not mindful of the global readership of the journal and present their entire perspective in a way that suits largely readers more concerned about the South African health system. Little or no lessons are drawn to the benefit of other comparable LMIC health systems. The authors also present both a fallacy and a contradiction. First, they incorrectly state that there is a paucity of research relating research on clinical guidelines from low- and middle-income

	countries but a crude PubMed search contradicts this by revealing over 700 articles. Further, the authors themselves cite at least 6 papers relating to CPG implementation (page 5, lines 51-55). The flow of thought is difficult to follow as the authors often jump from one issue to another totally unrelated issue.The quality of writing can be significantly improved upon. Methods section: The authors fail to detail the methods by stating that it's already published in another (BMC health services research) article. Thus, they opine that potential readers must have both papers to understand this article. Reading through the cited BMC article (which is better written), it is clear that the target respondents for both studies differ, even though the objectives of both papers are essentially the same. Results: The authors claim to have used an inductive approach to data analysis but present their findings in two very broad themes which are conceptually deductive in nature. A lot of the quotes do not speak explicitly to their corresponding themes. I believe that a theoretical framework will be very helpful for this article. I wonder why the authors who had used the Theoretical Domains Framework in their previous article did not find a theory useful for this article. Discussion: This section would have been more interesting had the authors engaged the broader literature in other contexts beyond repeating their findings. Overall, there are lots of typos which seem to suggest that the authors wrote this in a hurry. I'd advise that the authors improve this interesting work for the benefit of potential readers.

REVIEWER	Max Bachmann University of East Anglia, United Kingdom
REVIEW RETURNED	28-Aug-2019

GENERAL COMMENTS	This study addresses an important question and provides valuable original evidence. The qualitative research was conducted well, and the methods and results are clear. My only reservation is that it does not provide more detail on some of the issues covered, such as which of the guidelines used in South Africa are best or worst and why; how nurse training is done in practice, and in which ways national guidelines are inappropriate for different provinces. However I accept that such details are probably beyond the scope of the study, given the constraints on duration of interviews and on word counts.

REVIEWER	Neo Tapela University of Oxford, Nuffield Department of Population Health
REVIEW RETURNED	03-Sep-2019

GENERAL COMMENTS	SUMMARY I'm grateful for the opportunity to review your manuscript entitled "Building on shaky ground' – challenges to and solutions for primary care guideline implementation in four provinces in South

	Africa: a qualitative study." The manuscript explores, employing in-depth interviews, barriers and facilitators influencing effective implementation of evidence-based primary care guidelines, as viewed from the perspective of healthcare managers in four of the nine provinces in South Africa. Further revision is needed before the manuscript can be ready for publication, in order to clarify aspects of methods employed and to improve organization of information presented (detailed below). While acknowledging limited familiarity with provincial/district health context in South Africa and having primarily the information provided in the manuscript as reference, there is a potential ethical concern that quoted participants can be identified with the details specified in the manuscript (position title, credentials and name of province). This should be considered, and could be readily remedied by specifying only a subset of these details or publishing participant IDs instead. Above notwithstanding, the study addresses an important topic and adds insights that may inform future approaches to clinical guideline implementation and primary care improvement in resource-limited settings. MANUSCRIPT, BY SECTIONS Abstract Would indicate more clearly upfront (in the Background), that the reported study is did not focus on a specific or single guideline. Would indicate total number of provinces in South Africa, out of which 4 were sampled. Conclusion is somewhat disconnected from the rest of the abstract, and its text reads more like content appropriate for Background section: e.g. "UHC is planned for the coming decade and guidelines are one of the named tools to achieve evidence-informed, effective healthcare..." Would instead point out what the manuscript adds to the current discourse on effective implementation of clinical guidelines, and indicate to which settings the findings are relevant, broadening beyond South Africa. Background The aim of the study could be stated more completely (Page 7, line 3) – what would the perspective of healthcare managers add to the already published findings from interviewing other cadres under the broader SAGE project? (e.g. frontline workers, allied workers). Would provide general country context details for those who may be less familiar with South Africa (upper MIC, population size etc). Methods Even if the methods and study context have been described elsewhere (ref 33), some details would be helpful to include here in order for the reader to interpret study findings without having to consult another manuscript. Examples are: describe existing cadres of health professionals in South Africa (including CHWs who are mentioned in Discussion section), provide range/average number of districts per province, outline major categories of primary care services (particularly as the manuscript does not address a specific clinical sphere or guideline).

	Study population. Would provide clearer characterization of study inclusion/exclusion criteria, and employ more consistent use of terms. Below are examples of terms and phrasing used in various sections of the manuscript. "provincial and district health managers" in Abstract "health managers occupying senior management roles" in Background (page 6, line 48) "we used qualitative methods to understand the phenomena under investigation as experienced by those involved" in Methods (page 7, line 5) "within each province, we aimed to interview provincial and district managers, or district clinical specialists" in Methods (page 8, line 9) "district medical doctors" in Results (page 11, line 1) "senior provincial managers" in Results (page 11, line 24) Would consolidate all details relating to the target and/or study population and locate them in the Methods section. Currently there are aspects in various sections (examples below): • In Methods (appropriate), "The family physician and primary healthcare nurse are central to primary care CPG implementation through their clinical governance role…" (page 8, line 3) . • In Results, "Provincial and district managers were responsible for health service delivery and worked in PHC generally or specific clinical programs… District clinical specialists worked at primary and district healthcare facilities…" (page 10, line 34) • In Background, "The district managers include those with strictly management roles…"page 6, line 51). "District manager" is defined, but "provincial manager" is not. The level of non-participation is unclear. Was the objective of the study to interview all health managers in the 4 provinces? If so, would indicate as such and provide the number of eligible individuals, and those actually interviewed? Methods section indicates that all four provinces approached agreed to participate but doesn't indicate participation among eligible managers. One way to better illustrate study population and participation might perhaps be to add a table that lists #provincial managers eligible vs. interviewed, # district managers eligible vs. interviewed, whether trained as doctor/nurse/other, for each of the four provinces. Sampling. Instead of stating that "both purposive and convenience" sampling were employed (page 8, line 15), it would be preferable to describe how this was done. Were provinces sampled purposively, striking a balance of geographic and cultural diversity? Within each province, were managers then sampled conveniently, interviewing those who responded and were available? Data collection. Would justify use of in-depth interviews for this study. Would state the theoretical framework that underpins this exploratory study and informed interview guide/tool development. It would be helpful to provide examples or categories of questions that were asked in the manuscript, and include the interview guide as part of manuscript Appendix. Would also provide some detail of who the interviewers were (e.g. credentials).

	What criteria were used to determine whether a second interview was needed? How many participants gave more than one interview? Would discuss whether saturation was achieved and if not, detail approaches used that speak to validity. In the accompanying COREQ checklist, authors indicate use of triangulation – this should be detailed in Methods (within the body of the manuscript). Results In order to more completely describe study sample, would include details on participant gender, median age, median number of years in management role). Consider including non-participation figures (% of approached provinces who participated? % of invited individual health managers who were interviewed) This manuscript clearly describes that the standard procedures for ethics review and approval were followed for this study. That said, there may be an ethical concern that quoted participants could be identifiable if the details provided are published (position, name of province, professional type in a setting where presumably there are only a handful of those individuals over the brief study period). An example is page 16, line 26: "...they [nurses] have no time to look at guidelines, they have no time to do quality work to check the quality issues because they are continuously dealing with patients (Provincial manager, nurse, LPP)." A middle ground solution may be to specify only a subset of these details (e.g. participants' training background, position title, but not name of province) or publish participant IDs instead. This would enhance anonymity while not taking away from interpretation of findings. Discussion Would substantiate, with more references, the statement: "Yet, poor quality nurse training, found in our study and others…" (page 23, line 41) There are contradictions, at least on face value, in some findings presented. For example: "the nurse now knows more than the doctor. So you have to train everybody at the same time" (page 17, line 63) vs. "student nurses come out blank… they are the ones causing all these deaths." (page 17, line 1). Would interrogate these and address in the Discussion, and include substantiating references. Generally speaking, there is an imbalance in content between the two themes identified in the study, health system factors and socio-cultural and geographic context, with the latter being much less represented (this is also reflected in the number of bullets in the Article Summary box). If data are available to speak to this, it would be useful to present more Results and Discussion related to this theme.

REVIEWER	Sumeet Sodhi University Health Network, Family and Community Medicine
REVIEW RETURNED	25-Sep-2019

GENERAL COMMENTS	An interesting paper and well done analysis. Topic is important and timely. Below are some points that should be addressed prior to consideration for acceptance for publication. 1. Conclusion section of abstract and the paper itself should be reframed to better related to the research question and study outcomes. Need to create a better link between UHC, EIP and CPGs and this study. 2. No mention of which ethics review board approved the study (although mention of provincial dept approval was mentioned). This may be contained in the previous publication, but should be reiterated in this one. If not ethics approval was sought, please explain why. 3. In the sampling/recruitment section, there is mention of two individuals specifically (the ones that were not interviewed individually). Please comment on whether this would be considered a breach of their privacy to be singled out like this - perhaps better to refer to the participants more generically? 4. There are scattered typos and grammatical errors in the paper. Please consider doing another copy edit to address this. 5. There is "extra" information in the CONSORT checklist - please add this to the manuscript itself. The CONSORT checklist should just show us where in the paper the issue is addressed, not give us new information.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1 Reviewer Name: Ejemai Eboreime Institution and Country: National Primary Healthcare Development Agency, Nigeria Please state any competing interests or state ‘None declared’: None declared	
The authors present their findings on research which aims to explore the perspectives of provincial and district health managers stakeholders regarding barriers to and enablers for primary care guideline implementation. I opine that the authors need to significantly re-write this work to make it appropriate for publication. Below are a few of my observations.	We have noted your comments and trust we have addressed your concerns adequately to improve the submission.

Abstract: The authors first present the impression that the perspective they are examining somehow relates to the decentralized system in South Africa. This, however, doesn't come strongly in the manuscript, so a different introductory sentence should be considered. The abstract does not at all justify the purpose of the study. Further, the journal's format was not adhered to.	The decentralized federal-type system does represent the setting in which health is delivered in South Africa. However, as you recommended, that emphasis has been removed from the abstract, to focus on what we did aim to do, which was to explore perspectives of sub-national health managers regarding guideline implementation for primary care. We have re-formatted the abstract according to the journal requirements.
Article summary: The BMJ Open authors' guidelines clearly state that this section should contain at most 5 short sentences highlighting the strengths and limitations of the study. However, the authors present about 15 sentences which speak almost nothing about the methodological strengths and limitations of their study.	We have changed this section to include four bullet points on methodological strengths and limitations.
Introduction: The presentation of the background offers no international perspective to this study. The authors are not mindful of the global readership of the journal and present their entire perspective in a way that suits largely readers more concerned about the South African health system. Little or no lessons are drawn to the benefit of other comparable LMIC health systems. The authors also present both a fallacy and a contradiction. First, they incorrectly state that there is a paucity of research relating research on clinical guidelines from low- and middle-income countries but a crude PubMed search contradicts this by revealing over 700 articles. Further, the authors themselves cite at least 6 papers relating to CPG implementation (page 5, lines 51-55).	Your feedback is noted, and we have introduced the global relevance regarding primary health care and universal health coverage as it relates to clinical guidelines. Research on guidelines in LMICs is sparse relative to the volume from high-income settings. Much of the research is through the lens of service delivery, quality improvement and guidelines are not often directly mentioned. We have reviewed the background to ensure we are clearer regarding the availability of research that informs our understanding on this topic.

The flow of thought is difficult to follow as the authors often jump from one issue to another totally unrelated issue.The quality of writing can be significantly improved upon.	We have reviewed the background and revised it substantially to improve the flow and writing.
Methods section: The authors fail to detail the methods by stating that it's already published in another (BMC health services research) article. Thus, they opine that potential readers must have both papers to understand this article. Reading through the cited BMC article (which is better written), it is clear that the target respondents for both studies differ, even though the objectives of both papers are essentially the same.	We aimed to avoid unnecessary repetition of the methods which have been published elsewhere in an open access journal. As you rightly state, the methods and objectives are similar, however the participants and analysis differ from a previous paper. This paper specifically explores views of sub-national primary care guideline implementers, compared to previous papers in which we interviewed guideline developers and facilitated focus group discussions with healthcare providers. In order that sufficient methods details are provided, we have added details regarding the setting, sample, data collection and analysis and researcher team. We trust this has made the methods section more comprehensive.
Results: The authors claim to have used an inductive approach to data analysis but present their findings in two very broad themes which are conceptually deductive in nature. A lot of the quotes do not speak explicitly to their corresponding themes. I believe that a theoretical framework will be very helpful for this article. I wonder why the authors who had used the Theoretical Domains Framework in their previous article did not find a theory useful for this article.	The thematic content analysis started with inductive open coding, following which, categories and the final themes were developed. While we appreciate the reviewer's comment, the final two themes were inductively derived from the data. Once preliminary categories and themes had been identified through the analysis, we considered various conceptual/theoretical frameworks (e.g. health systems building blocks, theoretical domains framework- TDF) and whether their usage would be appropriate and aid further data interpretation/ organisation. However, none of the frameworks we considered adequately 'fitted' with the themes emerging from the data. Thus, unlike our study with primary care providers reported in the previous paper where we found

	the TDF to be a suitable and valuable organizing framework, using such a framework in this current paper would have imposed an inappropriate framework on the data. We have reviewed the quotations to ensure they match the content of the section.
Discussion: This section would have been more interesting had the authors engaged the broader literature in other contexts beyond repeating their findings.	We agree that the discussion needs to include relevance for broader readers than those in our context. For the discussion we aimed to report some of the results in a more 'digested' way and to then link this with findings from other research – whether similar or differing. Each item has cited researched from different contexts/ countries/ economic settings. Further clarity and citations have been added in response to the specific peer review feedback we received.
Overall, there are lots of typos which seem to suggest that the authors wrote this in a hurry. I'd advise that the authors improve this interesting work for the benefit of potential readers.	Thanks for noting this, we have reviewed the document to minimize typos and other writing issues. We appreciate the feedback, we hope we have addressed the issues raised adequately to consider publication.
Reviewer: 2 Reviewer Name: Max Bachmann Institution and Country: University of East Anglia, United Kingdom Please state any competing interests or state 'None declared': None declared	
This study addresses an important question and provides valuable original evidence. The qualitative research was conducted well, and the methods and results are clear. My only reservation is that it does not provide more detail on some of the issues covered, such as which of the guidelines used in South Africa are best or worst and why; how nurse training is done in	Thanks for the feedback, there are several research gaps identified through this work. We note your concern regarding which specific guidelines were considered best or worst and why. As we adopted a broad approach, all guidelines in use in primary care were included, and as we didn't ask about any

practice, and in which ways national guidelines are inappropriate for different provinces. However I accept that such details are probably beyond the scope of the study, given the constraints on duration of interviews and on word counts.	specific guidelines, we have left the report broad in its response. To provide more insight to readers, we have added the list of primary care guidelines to the methods description to indicate the inclusion of both condition specific guidelines (e.g. HIV or TB; or the integrated primary care guidelines such as the Essential Medicines List Guidelines of APC, adult primary care guideline). Issues with nursing training emerged as a barrier to adequate guideline implementation. Further insight was beyond the scope of this study but is a research gap and an area that needs urgent attention. Further, the relevance of guidelines for each province would make a useful study – I would think the best approach would be to choose one guideline and explore its issues in several provinces to understand the need for adaptation/ contextualization. We recognized early on that due to our broad scope of research, we would not be able to drill down to the required detail to answer this question.
Reviewer: 3 Reviewer Name: Neo Tapela Institution and Country: University of Oxford, United Kingdom Please state any competing interests or state 'None declared': None declared.	
SUMMARY I'm grateful for the opportunity to review your manuscript entitled "Building on shaky ground' – challenges to and solutions for primary care guideline implementation in four provinces in South Africa: a qualitative study." The manuscript explores, employing in-depth interviews, barriers and facilitators influencing effective implementation of evidence-based primary care guidelines, as viewed from the perspective of	Thanks for reviewing our manuscript and for the feedback.

healthcare managers in four of the nine provinces in South Africa. Further revision is needed before the manuscript can be ready for publication, in order to clarify aspects of methods employed and to improve organization of information presented (detailed below). While acknowledging limited familiarity with provincial/district health context in South Africa and having primarily the information provided in the manuscript as reference, there is a potential ethical concern that quoted participants can be identified with the details specified in the manuscript (position title, credentials and name of province). This should be considered, and could be readily remedied by specifying only a subset of these details or publishing participant IDs instead. Above notwithstanding, the study addresses an important topic and adds insights that may inform future approaches to clinical guideline implementation and primary care improvement in resource-limited settings.	We acknowledge your concern about potential to identify the participants by the identification included in the manuscript. During the informed consent process this was raised with participants, prior to proceeding with the interviews. This risk is higher with provincial managers, as there are fewer of them in the provincial offices, whereas the risk of this with district managers is low, given the many districts in South Africa within each provinces. In the manuscript, we have minimized the risk by removing the professional discipline included in the identifiers with quotations. Noted, thanks.
Abstract Would indicate more clearly upfront (in the Background), that the reported study is did not focus on a specific or single guideline.	We have clarified this point in the abstract with the addition of the following line to the objectives: '*all available primary care guidelines'.* In addition, in the manuscript methods section, we have added some clarity regarding the spectrum of guidelines available as follows: *'There are several primary care guidelines endorsed by the national government for public sector use. These include the condition specific guidelines (e.g. basic antenatal care, human immune-deficiency, tuberculosis) or integrated guidelines (e.g. Essential Medicines*

Would indicate total number of provinces in South Africa, out of which 4 were sampled. Conclusion is somewhat disconnected from the rest of the abstract, and its text reads more like content appropriate for Background section: e.g. "UHC is planned for the coming decade and guidelines are one of the named tools to achieve evidence-informed, effective healthcare..." Would instead point out what the manuscript adds to the current discourse on effective implementation of clinical guidelines, and indicate to which settings the findings are relevant, broadening beyond South Africa.	*list, Adult Primary Care, Integrated Management of Childhood Illness). We did not select these but allowed participants to speak to any that they were working with.'* We have added that we visited 'four of nine provinces' to the abstract. The conclusion has been re-drafted to draw more broadly relevant conclusions that the readership may find applicable for their settings.
Background The aim of the study could be stated more completely (Page 7, line 3) – what would the perspective of healthcare managers add to the already published findings from interviewing other cadres under the broader SAGE project? (e.g. frontline workers, allied workers).	We have further clarified the purpose of this study as follows: *'In this paper, we build on previous work but aim to delve further into the area of health system and service governance to explore the perspectives of provincial or district health managers who have responsibility for CPG implementation.'*

Would provide general country context details for those who may be less familiar with South Africa (upper MIC, population size etc).	Details of South Africa's population size and income status have been added to the methods section 'study settings' as follows: *'South Africa is an upper middle-income country with a population of 58.8 million in 2019; and amongst the highest rates of inequality globally.'*
Methods Even if the methods and study context have been described elsewhere (ref 33), some details would be helpful to include here in order for the reader to interpret study findings without having to consult another manuscript. Examples are: describe existing cadres of health professionals in South Africa (including CHWs who are mentioned in Discussion section), provide range/average number of districts per province, outline major categories of primary care services (particularly as the manuscript does not address a specific clinical sphere or guideline).	Your recommendation is noted. Additional details have been added to the methods to ensure all minimum requirements for reporting qualitative studies is present. We have added explanations of the primary care providers in South Africa as it relates to the integrated guidelines available. We have also explained the number of districts in the nine provinces. These updates are included in the methods section under 'setting'.
Study population. Would provide clearer characterization of study inclusion/exclusion criteria, and employ more consistent use of terms. Below are examples of terms and phrasing used in various sections of the manuscript. "provincial and district health managers" in Abstract "health managers occupying senior management roles" in Background (page 6, line 48) "we used qualitative methods to understand the phenomena under investigation as experienced by those involved" in Methods (page 7, line 5) "within each province, we aimed to interview provincial and district managers, or district clinical specialists" in Methods (page 8, line 9) "district medical doctors" in Results (page 11, line 1) "senior provincial managers" in Results (page 11, line 24)	Noted. Naming of managers has been re-checked throughout for consistency. To clarify, we include provincial managers, district managers – who include those responsible for training or clinical governance – but all have a role in PHC guideline implementation. Further, a table clarifying the participants has been added (Table 1).
Would consolidate all details relating to the target and/or study population and locate them in the	We have shifted the majority of the information regarding the sample population to the

Methods section. Currently there are aspects in various sections (examples below): • In Methods (appropriate), "The family physician and primary healthcare nurse are central to primary care CPG implementation through their clinical governance role…" (page 8, line 3) . • In Results, "Provincial and district managers were responsible for health service delivery and worked in PHC generally or specific clinical programs… District clinical specialists worked at primary and district healthcare facilities…" (page 10, line 34) • In Background, "The district managers include those with strictly management roles…"page 6, line 51). "District manager" is defined, but "provincial manager" is not.	methods section as suggested. This provides clearer, we hope, descriptions of the context regarding district health systems, the target population and their role as it relates to guideline implementation, along with additional information about all primary care providers in the study setting and the various guidelines at play. This is seen in the updates to the following sections: - Study settings - Sampling and recruitment - Data collection and management We have left some of the text on the target population in the introduction as this provides the rationale for conducting this additional study and that it adds to previous work with other target groups. Further, in the first paragraph of the results, we provide the final details of who was interviewed along with a table with a description of the sample.
The level of non-participation is unclear. Was the objective of the study to interview all health managers in the 4 provinces? If so, would indicate as such and provide the number of eligible individuals, and those actually interviewed? Methods section indicates that all four provinces approached agreed to participate but doesn't indicate participation among eligible managers. One way to better illustrate study population and participation might perhaps be to add a table that lists #provincial managers eligible vs. interviewed, # district managers eligible vs. interviewed, whether trained as doctor/nurse/other, for each of the four provinces.	Given the size of South Africa and its health system, we could only aim to engage a sample of the health managers in each of the chosen provinces. We did aim for up to 2 participants in the provincial office and up to 4 in the district offices, but this was influenced by availability of staff to participate. Non-participation did not occur in our study. Once invited, all agreed to participate. This is described in methods in 'sampling and recruitment'. We have no easy access to data on the numbers of managers in posts in the various provincial or district offices, hence the table suggested, although valuable, would not be possible. We have included a table (Table 1) in the results outlining the final sample we interviewed, where they hailed from and their professional background.

Sampling. Instead of stating that "both purposive and convenience" sampling were employed (page 8, line 15), it would be preferable to describe how this was done. Were provinces sampled purposively, striking a balance of geographic and cultural diversity? Within each province, were managers then sampled conveniently, interviewing those who responded and were available?	Thank you for your comment. Our description of sampling outlines what we did with an explanatory line added to the 'sampling and recruitment' sub-section as follows: *'Hence sampling was both purposive, as we sought specific individuals with specific experience in PHC CPG implementation; and convenience, when specific individuals, meeting out criteria, were available to be interviewed.'*
Data collection. Would justify use of in-depth interviews for this study. Would state the theoretical framework that underpins this exploratory study and informed interview guide/tool development. It would be helpful to provide examples or categories of questions that were asked in the manuscript, and include the interview guide as part of manuscript Appendix. Would also provide some detail of who the interviewers were (e.g. credentials).	Choice of interview has been clarified, we used semi-structured interviews to enable engagement with the professional individually, to go more in depth with their stories. Given their role as a manager status, individual interviews were both more appropriate and most feasible to do, as arranging meetings with groups of busy health managers would be challenging and not add to the data collection in meaningful ways, given our objective. The interview guide should be included with the manuscript submission. There was no specific framework that underpinned the development of the interview guide, this was rather pragmatically done to include questions relevant to the study objectives. Some additional credentials of the researchers have been included (i.e. lead researcher is a medical doctor and the team include both doctors and social scientists all with public health experience).
What criteria were used to determine whether a second interview was needed? How many participants gave more than one interview?	No second interviews took place in this study.
Would discuss whether saturation was achieved and if not, detail approaches used that speak to validity. In the accompanying COREQ checklist, authors indicate use of triangulation – this should be detailed in Methods (within the body of the manuscript).	Thank you for your comment. We have addressed the issue of saturation in the 'Discussion' section as follows: *'…while many of the same themes reemerged amongst participants, complete data saturation was not reached in this sub-study. Time and financial restraints prevented further data collection; additional concepts may have*

	emerged if we had spoken to further people. Further research amongst this population would thus be potentially useful'. We did not specifically set out to triangulate the data, I have removed reference to this in the limitation section of the manuscript and the COREQ checklist. We rather describe how we ensured validity in more detail in the methods section.
Results In order to more completely describe study sample, would include details on participant gender, median age, median number of years in management role).	A table has been provided in the results to better describe the participants (see table 1). However, we have limited demographic details, only professional background, sex and current role.
Consider including non-participation figures (% of approached provinces who participated? % of invited individual health managers who were interviewed)	Non-participation was not an issue, although slow response times were. All four targeted provinces participated, we only invited participants based on recommendations from provincial research offices or other colleagues.
This manuscript clearly describes that the standard procedures for ethics review and approval were followed for this study. That said, there may be an ethical concern that quoted participants could be identifiable if the details provided are published (position, name of province, professional type in a setting where presumably there are only a handful of those individuals over the brief study period). An example is page 16, line 26: "...they [nurses] have no time to look at guidelines, they have no time to do quality work to check the quality issues because they are continuously dealing with patients (Provincial manager, nurse, LPP)." A middle ground solution may be to specify only a subset of these details (e.g. participants' training background, position title, but not name of province) or publish participant IDs instead. This would enhance anonymity while not taking away from interpretation of findings.	Your point is noted. However, given the large number of managers in most of these settings, we believe the chances of disclosure is minimal. There are 44 districts in the country, each with multiple sub-districts, hence, identifying the most vulnerable of those we interviewed (i.e those in the rural districts), would be very challenging. To err on the side of caution, we have removed the professional role, as at the level of manager, this may be less important for the data to be understood.
Discussion Would substantiate, with more references, the statement: "Yet, poor quality nurse training, found in our study and others…" (page 23, line 41)	This issue of poor nursing training and the implications of this is an important aspect of the findings. We have added further clarity to the reference we cited and added a more globally relevant citation in the discussion.

There are contradictions, at least on face value, in some findings presented. For example: “the nurse now knows more than the doctor. So you have to train everybody at the same time” (page 17, line 63) vs. “student nurses come out blank… they are the ones causing all these deaths.” (page 17, line 1). Would interrogate these and address in the Discussion, and include substantiating references.	We appreciate your point about clarifying these contradictions. We have added to the results section stating: *‘Despite many challenges outlined for nurses and their training, nurses were still considered to have better access to training that doctors, resulting in outdated practices by doctors.’* In addition, within the ‘discussion’ when we outline the human resources and training issues, we again raise the different views expressed by doctors and nurses. Much of the literature on adherence references high income and physician led care. We have therefore highlighted this as a research gap that requires further exploration.
Generally speaking, there is an imbalance in content between the two themes identified in the study, health system factors and socio-cultural and geographic context, with the latter being much less represented (this is also reflected in the number of bullets in the Article Summary box). If data are available to speak to this, it would be useful to present more Results and Discussion related to this theme.	Your point is noted, the health system factors have more content and additional categories that required description relative to the social, geographic and cultural issues. However, the latter issues cannot be integrated into the health system categories and have substantial implications for implementation. Although there are no other data to add to this theme, we will add a comment to limitations explaining this point. We have added the following: *‘In particular, the thematic area on socio-cultural-geographic issues, although of equal importance and impact on CPG implementation, included relatively fewer findings. The latter requires further exploration with additional participants from various groups including patients and community leaders. This will provide further specific contextual insights into important barriers to CPG uptake.’*
Reviewer: 4 Reviewer Name: Sumeet Sodhi Institution and Country: University of Toronto, Department of Family and Community Medicine Canada Please state any competing interests or state ‘None declared’: None declared	

An interesting paper and well done analysis. Topic is important and timely.	Thanks for your review.
Below are some points that should be addressed prior to consideration for acceptance for publication. 1. Conclusion section of abstract and the paper itself should be reframed to better related to the research question and study outcomes. Need to create a better link between UHC, EIP and CPGs and this study.	Your feedback is noted. The abstract and manuscript conclusions have been re-considered to better link evidence-informed policy, UHC and the issue of guideline implementation as the primary aim of the study.
2. No mention of which ethics review board approved the study (although mention of provincial dept approval was mentioned). This may be contained in the previous publication, but should be reiterated in this one. If not ethics approval was sought, please explain why.	This is currently captured under the 'declarations' section of the manuscript, with full details of the committees and process. However, if editors suggest, this can be included within the methods section of the publication.
3. In the sampling/recruitment section, there is mention of two individuals specifically (the ones that were not interviewed individually). Please comment on whether this would be considered a breach of their privacy to be singled out like this - perhaps better to refer to the participants more generically?	Your point is noted, several individuals chose to draw in their colleagues when we had requested individual interviews. To avoid any breach of privacy, we have changed the wording to be more generic. See section on sampling. It states: *'All interviews were individual, with two exceptions in which colleagues joined the interview at the request of the invited participant.'*
4. There are scattered typos and grammatical errors in the paper. Please consider doing another copy edit to address this.	We have taken your suggestion and had and requested copy edit check of the manuscript.
5. There is "extra" information in the CONSORT checklist - please add this to the manuscript itself. The CONSORT checklist should just show us where in the paper the issue is addressed, not give us new information.	The COREQ checklist references where the information is found in the manuscript and no longer includes additional information not found in the manuscript.

VERSION 2 – REVIEW

REVIEWER	Neo Tapela University of Oxford, UK

REVIEW RETURNED	01-Dec-2019

GENERAL COMMENTS	I appreciate the opportunity to review this manuscript again and the Authors' efforts in addressing the comments raised. Examples of response to comments has included: addressing concern regarding confidentiality of participants by reducing identifiers associated with quotations presented, nicely stating rationale for this paper including how it is complementary to other SAGE related publications, and providing more context details and a more nuanced discussion of their findings. My impression is that the manuscript is much improved and would be acceptable for publication following Minor revisions (detailed below). Background Page 7, line 10. Would consider moving to Methods section. "The district managers include those with strictly management roles and those with clinical governance and support/training roles (e.g. members of the District Specialist Clinical Teams) or those responsible for training. All participants we spoke to have roles in primary care CPG implementation."… and revising aims sentence to "We aimed to explore the perspectives of district managers regarding barriers to and enablers for primary care CPG implementation in four provinces. in South Africa." Methods Study population. While improved, there is still inconsistency which can be confusing. While the Background mentions and defines "district health managers" (above), the first sentence of Methods (page 7, line 30) refers to "primary care guideline implementers" and further in Methods (page 8, line 62) describes sample as "district managers or district clinical specialists" and further (page 9, line 41) "health managers." In results (page 11, line 32) "Participants had previously worked in clinical positions as nurses (n = 15), or doctors (n = 7), but were currently occupying management positions" does that mean that in fact none of the sample was practicing "district clinical specialist"? Page 11, line 41 (In Results section): "Our final sample included provincial managers representing four provinces; district managers from two districts in each of the four provinces; and district doctors in Limpopo, KZN and Eastern Cape. The Western Cape has not implemented the DCST programme." Does "district doctor" actually mean "district manager" who happens to have an MD/MBBS? Sample size, participation. The additional background on SA healthcare context is very helpful. Would also include the total number of provincial/district health managers in the four provinces included in the study, to further inform level of non participation. Also the number of interviewees stated in results (22) is not consistent with the statement in Methods of "at least 2 provincial and 5 district managers" and that had 100% response (that would compute to minimum (2+5) x 4 provinces = 28) 20 interviews vs 22 participants - needs explanation, were some interviews jointly held with >1 participant?

REVIEWER	Sumeet Sodhi University of Toronto, Canada
REVIEW RETURNED	27-Nov-2019

GENERAL COMMENTS	1. There are several grammatical oversights and typos which will need addressing prior to publication. The authors may want to hire a copy editor for this as this is the second revision and this was noted in the previous reviewer's comments. For example: page 2, line 34/35: should be "spending" rather than "spend"; page 7 line 41/42 should be "study setting" not "study settings"; page 7 line 46 should be "population" not "populations"; page 8 line 17 states only "human immune-deficiency"; there are many more examples throughout the manuscript. 2. In the abstract - the setting section should be reworded to avoid the statement "we visited" - this doesn't convey an appropriate scientific procedure. 3. In the introduction, the link between UHC and CPGs is still vague and choppy. It doesn't seem to support the rationale for the overall study. Perhaps better to move some of the the UHC points to the discussion section? 4. Last paragraph of the background section (page 7 lines 11-21) contains information on the study participants - this would be better served in the methods section - "all participants we spoke to..." 5. Methods/Design page 7 line 30/31: please consider changing "phenomena under investigation" to another more specific phrase relevant to the study objective. This is too vague and unclear. 6. The study setting section should include information that this is a sub-study and describe how this study related to the main one. 7. Data collection section: I would recommend removing "with a Kwazulu-Natal manager" to keep ethical and privacy standards. 8. Validity section: Recommend to replace the word "credibility" with another more appropriate term. In addition, lines 17-21 need to be edited to make the statement more clear - I am unsure of the intent. 9. Table 1 needs to be reformatted to be more clear, may need more rows/columns to communicate the data better. 10. Discussion section would benefit from better linkage with the Introduction in terms of linkage of CPG and UHC.

VERSION 2 – AUTHOR RESPONSE

Reviewer: 4
Reviewer Name: Sumeet Sodhi
Institution and Country: University of Toronto, Canada

1. There are several grammatical oversights and typos which will need addressing prior to publication. The authors may want to hire a copy editor for this as this is the second	Thanks for pointing this out. We have reviewed this including independent copy-editing.

revision and this was noted in the previous reviewer's comments. For example: page 2, line 34/35: should be "spending" rather than "spend"; page 7 line 41/42 should be "study setting" not "study settings"; page 7 line 46 should be "population" not "populations"; page 8 line 17 states only "human immune-deficiency"; there are many more examples throughout the manuscript.	
2. In the abstract - the setting section should be reworded to avoid the statement "we visited" - this doesn't convey an appropriate scientific procedure.	To address this comment, we changed 'visited' to 'conducted research in…' to convey an appropriate scientific procedure.
3. In the introduction, the link between UHC and CPGs is still vague and choppy. It doesn't seem to support the rationale for the overall study. Perhaps better to move some of the the UHC points to the discussion section?	For primary care top be high quality, decisions for providing care need to be underpinned by best available, current evidence, as found in good quality clinical practice guidelines. To make this point clearer, we have added explanations at various points in the introduction that may have come across as vague. We trust this has now been addressed.
4. Last paragraph of the background section (page 7 lines 11-21) contains information on the study participants - this would be better served in the methods section - "all participants we spoke to..."	We have addressed this comment by moving more of the description of the participants to the methods section into the sub-section, Study Setting. In the introduction it is relevant to provide the context of this sub-study as part of the larger qualitative research project. The main defining aspect of the sub-studies is the different sample (participants) and as such we have left some descriptions about the participants in the introduction.
5. Methods/Design page 7 line 30/31: please consider changing "phenomena under investigation" to another more specific phrase relevant to the study objective. This is too vague and unclear.	We have removed the phrase 'phenomena under investigation' and replaced this with the 'experiences and perspectives of..'.
6. The study setting section should include information that this is a sub-study and describe how this study related to the main one.	Information about the larger SAGE project and this is is provided in the introduction, and we have now further explained that this is a sub-study and the participants in the 'study setting' part of the manuscript.
7. Data collection section: I would recommend removing "with a Kwazulu-Natal manager" to	Noted, we have done this.

keep ethical and privacy standards.	
8. Validity section: Recommend to replace the word "credibility" with another more appropriate term. In addition, lines 17-21 need to be edited to make the statement more clear - I am unsure of the intent.	We have changed the word ‘credible’ to the word ‘trustworthiness’. We have also amended this section so our intentions for establishing the trustworthiness of our research processes and findings are clearer. The intent of this section is to capture the steps we considered important to ensure the quality of the research conduct, analysis, interpretation and write up.
9. Table 1 needs to be reformatted to be more clear, may need more rows/columns to communicate the data better.	We have added a few rows to the section with more detail. We trust this can make it more clear.
10. Discussion section would benefit from better linkage with the Introduction in terms of linkage of CPG and UHC.	In the discussion, in the sub-section on ‘implications for policy and practice’, we have added a few sentences to clarify the link between quality health care and evidence-based clinical practice guidelines. For example, this sentence now reads: *In this study, participants made recommendations regarding structural barriers that hinder CPG implementation and ultimately impact on patient care and its quality, and through these on UHC.*

Reviewer: 3
Reviewer Name: Neo Tapela
Institution and Country: University of Oxford, UK
Please state any competing interests or state ‘None declared’: None

Please leave your comments for the authors below I appreciate the opportunity to review this manuscript again and the Authors’ efforts in addressing the comments raised. Examples of response to comments has included: addressing concern regarding confidentiality of participants by reducing identifiers associated with quotations presented, nicely stating rationale for this paper including how it is complementary to other SAGE related publications, and providing more context details and a more nuanced discussion of their findings. My impression is that the manuscript is much improved and would be acceptable for publication following Minor revisions (detailed below).	Thanks, we have aimed to address all comments.

Background Page 7, line 10. Would consider moving to Methods section. “The district managers include those with strictly management roles and those with clinical governance and support/training roles (e.g. members of the District Specialist Clinical Teams) or those responsible for training. All participants we spoke to have roles in primary care CPG implementation.”… and revising aims sentence to “We aimed to explore the perspectives of district managers regarding barriers to and enablers for primary care CPG implementation in four provinces. in South Africa.”	Background Thanks for your suggestions. We have moved the description of the population to the ‘study setting’ sub-section in the methods section of the manuscript. We have adapted the aims sentence as advised.
Methods Study population. While improved, there is still inconsistency which can be confusing. While the Background mentions and defines “district health managers” (above), the first sentence of Methods (page 7, line 30) refers to “primary care guideline implementers” and further in Methods (page 8, line 62) describes sample as “district managers or district clinical specialists” and further (page 9, line 41) “health managers.” In results (page 11, line 32) “Participants had previously worked in clinical positions as nurses (n = 15), or doctors (n = 7), but were currently occupying management positions” does that mean that in fact none of the sample was practicing “district clinical specialist”? Page 11, line 41 (In Results section): “Our final sample included provincial managers representing four provinces; district managers from two districts in each of the four provinces; and district doctors in Limpopo, KZN and Eastern Cape. The Western Cape has not implemented the DCST programme.” Does “district doctor” actually mean “district manager” who happens to have an MD/MBBS?	Thanks for noting this. In order to limit confusion of readers, we have checked that the participants are labeled as provincial and district health managers throughout, and if they have other characteristics, such as relate to their background training or their gender, we have noted this adjacent to the quotation or analysis. We have also tried to explain the role of the District Clinical Specialists – who have a management and clinical governance role, but not clinical duty as such. As noted throughout the manuscript and in the table of participants, those we interviewed may have a nursing or medical background, and where relevant this is highlighted.
Sample size, participation. The additional background on SA healthcare context is very helpful. Would also include the total number of provincial/district health managers in the four provinces included in the study, to further inform level of non participation.	South Africa is a large country. With nine provinces and 44 districts. Each district has several sub-districts and I have not been able to source the numbers of provincial and district and sub-district managers. The number is likely to be very high as they cover several programmes

	including primary care, NCDs, HIV/ AIDS and TB amongst others. In terms of non-participation, we aimed to interview participants in the main provincial office and two district offices. All those we contacted responded and agreed to be interviewed.
Also the number of interviewees stated in results (22) is not consistent with the statement in Methods of “at least 2 provincial and 5 district managers” and that had 100% response (that would compute to minimum (2+5) x 4 provinces = 28)	We aimed to interview participants in provincial offices and two districts in each of the four provinces (we aimed for approximately 20 participants). To make this clearer in the text, we have amended the sentence in the Methods section as follows: ‘*Within each province, we aimed to interview 20 participants from the about provincial office and from two district offices….’*
20 interviews vs 22 participants - needs explanation, were some interviews jointly held with >1 participant?	We aimed for individual in-depth interviews, however, in two instances, the invited participants included their colleagues in the interviews. This is described in Data collection and management within the Methods section as follows: *‘All interviews were individual, with two exceptions in which colleagues joined the interview at the request of the invited participant.’*

VERSION 3 – REVIEW

REVIEWER	Neo Tapela University of Oxford
REVIEW RETURNED	16-Feb-2020

GENERAL COMMENTS	**METHODS** Thank you for the opportunity to review this manuscript and provide final comments. My impression is that the manuscript would be acceptable for publication following Minor revisions (detailed below and comments annotated in tracked changes manuscript draft file name ‘Guidelines_implementation_manuscript_tracked_changes_jan2020_NT’).

	RESULTS

RESULTS

"Twenty semi-structured interviews were held with 22 participants from September 2015 to August 2016."

- Still need to explain this discrepancy of 20 vs 22: e.g. were two of the interviews done jointly with two interviewees?

"Amongst these were the District Clinical Specialists worked at primary and district healthcare facilities providing management and clinical governance oversight."

- Above sentence is redundant and would remove (already explained in background and methods sections)

Table 1. Description of research participants.

- Lay out could be improved. Example below:

	province 1	province 2	province 3	province 4
total interviewed				
docs				
nurses				
from province office				
from district office				

METHODS

"Patient and Public Involvement

CPGs are tools that aim to directly impact patient care and guide clinician-patient engagement. In South Africa, there is little research evidence regarding patients' views about CPGs. The research question was developed with patients in mind, but we were seeking perspectives of provincial and district health managers in primary care, and neither patients nor the public were included. The results of the research will be shared with the participants."

- This paragraph is unusually placed.

	REFERENCES • 73 references is too many. Would parse down. Typical for an original research article of about 3000 words is 30 refs.

REVIEWER	Sumeet Sodhi University of Toronto Canada
REVIEW RETURNED	24-Feb-2020

GENERAL COMMENTS	1. As this is a revision of a previous submission, it would have been useful to have had a letter from the authors outlining what they did to address previous comments from reviewers (in addition to the provided tracked changes Word document). 2. Background section mentions a definition in the last sentence of the first paragraph, unclear what is being defined. 3. Page 7, line 4/5: "Guidelines represent.....according to the latest evidence" - needs elaboration an/or referencing 4. Readability and clarity much improved, only a very few typos remain.

VERSION 3 – AUTHOR RESPONSE

Reviewers' Comments to Author:

Reviewer: 3
Reviewer Name: Neo Tapela
Institution and Country: University of Oxford, UK
Please state any competing interests or state ‘None declared’: None

Comment
METHODS
Thank you for the opportunity to review this manuscript and provide final comments. My impression is that the manuscript would be acceptable for publication following Minor revisions (detailed below and comments annotated in tracked changes manuscript draft file name ‘Guidelines_implementation_manuscript_tracked_changes_jan2020_NT’).

Response
Thank you for taking time to provide further feedback. We note that further minor feedback needs to be addressed.

RESULTS
“Twenty semi-structured interviews were held with 22 participants from September 2015 to August 2016.”

• Still need to explain this discrepancy of 20 vs 22: e.g. were two of the interviews done jointly with two interviewees?

Response
The apparent mismatch between the interviews and participant numbers is now more clearly explained as follows:

‘Twenty semi-structured interviews were held from September 2015 to August 2016. Two interviews included more than one individual, at the request of the invited participant, and as such there were 22 included participants for 20 interviews.’

Comment
“Amongst these were the District Clinical Specialists worked at primary and district healthcare facilities providing management and clinical governance oversight.”
• Above sentence is redundant and would remove (already explained in background and methods sections)

Response
Noted, this sentence has been removed.
T
able 1. Description of research participants.
• Lay out could be improved. Example below:

province 1 province 2 province 3 province 4
total interviewed
docs
nurses
from province office
from district office

Response
We have adapted the table as suggested.
We have removed the report of the number of doctors or nurses as this is provided in the text.

METHODS
“Patient and Public Involvement
CPGs are tools that aim to directly impact patient care and guide clinician-patient engagement. In South Africa, there is little research evidence regarding patients’ views about CPGs. The research question was developed with patients in mind, but we were seeking perspectives of provincial and district health managers in primary care, and neither patients nor the public were included. The results of the research will be shared with the participants.”
• This paragraph is unusually placed.

Response
As suggested by yourself and the editor, we will move this to the end of the methods sections.

REFERENCES
• 73 references is too many. Would parse down. Typical for an original research article of about 3000 words is 30 refs.

Response

We have reduced the number of references to 61 without losing important justifications of included statements.

Reviewer: 4
Reviewer Name: Sumeet Sodhi
Institution and Country: University of Toronto, Canada
Please state any competing interests or state ‘None declared’: None declared

Comment
1. As this is a revision of a previous submission, it would have been useful to have had a letter from the authors outlining what they did to address previous comments from reviewers (in addition to the provided tracked changes Word document).

Response
Thanks for further review.
A detailed response to each comment was provided. I’m sorry you were not able to access during this review.

2. Background section mentions a definition in the last sentence of the first paragraph, unclear what is being defined.

Response
Thanks for noting this. We have removed the sentence and rather included the issue of quality and access in the prior sentence.

3. Page 7, line 4/5: "Guidelines represent.....according to the latest evidence" - needs elaboration an/or referencing

Response
Thanks, we have amended that sentence to state: ‘Well conducted guidelines provide evidence-informed recommendations to guideline patient care’ and added a relevant reference.

4. Readability and clarity much improved, only a very few typos remain.

Response
Noted, we have tried to find these and trust any further typos can be identified in the final copy edit stage.