PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	ANTIBIOTICS FOR ACUTE RESPIRATORY TRACT INFECTIONS: A MIXED METHODS STUDY OF PATIENT EXPERIENCES OF NON-MEDICAL PRESCRIBER MANAGEMENT
AUTHORS	Courtenay, Molly; Rowbotham, Samantha; Lim, Rosemary; Deslandes, Rhian; Hodson, Karen; MacLure, Katie; Peters, Sarah; Stewart, Derek

VERSION 1 - REVIEW

REVIEWER	Richard Pinder Imperial College London, United Kingdom
REVIEW RETURNED	30-Aug-2016

GENERAL COMMENTS	Peer Review - 23 August 2016 ANTIBIOTICS FOR ACUTE RESPIRATORY TRACT INFECTIONS: A MIXED METHODS STUDY OF PATIENT EXPERIENCES OF NON-MEDICAL PRESCRIBER MANAGEMENT Using a mixed methods approach, the article seeks to explore patient and professional experience, understanding and management of antibiotic prescribing by non-medical prescribers. The study is broadly well-conceived and will add to the scientific literature on antimicrobial stewardship , patient experience and workforce development / skills blend. While the background and epidemiological approach is well set-out, there are problems in the reporting of the findings - most notably on the quantitative elements of the analysis. It is unusual to have so many quantitative findings reported in the prose without an associated table. The discussion could be better developed to take into account more the issues raised by the qualitative findings and, in particular, to identify the implications of this study. I also query whether the discussion could be better balanced in relation to the comparisons between non-medical prescribers (NMP) and general practitioners (GP). In respect of the latter, I would defer to the editor. Overall, my recommendation is for MAJOR REVISIONS. SPECIFIC COMMENTS INTRODUCTION - No issues.

	METHODS - Page 6. I am not used to seeing the term "M= x minutes" and I am not sure if this refers to the mean or the median. - Page 6 . Were the demographic data collected only gender and age, or more wide-ranging? There is published literature on social gradients and patient expectation in these types of consultation. I did not notice a discussion made on the potential for differences in the nature of patient and consultation complexity between GP and NMP. This may warrant discussion / exploration. - Page 6. Given the general readership of BMJ Open, further in-prose explanation of "parallel" collection and analysis may be useful. RESULTS - General comments: the qualitative findings are reported quite clearly. However the statistical approach and presentation of the quantitative data could be significantly improved. While I appreciate this is a mixed-methods study, and that a regression approach to provide effect size (not just significance levels) may be beyond what is required, a more robust approach to the quantitative elements would be welcome. - Table 1. I believe that the parents or carers of children were within the scope of the study. I am not sure how many were included in the sample. Even on a purposive sampling basis, the scope of those included has implications for the external validity of the study. Moreover, I do not know whether patients consulting NMPs differ from those seeing GPs. Further explanation around this may be welcome in the Introduction or Discussion. - Page 8. I am unclear if the "42% of patients expecting to receive an antibiotic [etc.]" relates to a table, or if these findings are only provided in prose form. I believe there is no table setting out these findings. - Page 11. I found the "Associations between expected and received management strategies and satisfaction" very difficult to understand. Table 4 requires additional explanation at the very least. - Page 12. From line 23 downwards, the patient questionnaire is once-again reported. The manner of reporting these results (apparently, and again, in the absence of a table) could be improved in terms of the statistics presented and clarity of the language. The final sentence (Lines 36-39) reverts back to percentages without any clarification of confidence interval or p-value. DISCUSSION Page 13. The strengths and weaknesses element could be better developed to address the differing epidemiological frameworks applied. There were essentially three different approaches used, and the wording currently used insufficiently discriminates between these methods. Page 14, Line 27 - "don't"; typo Page 14, Line 34 - "Patient's"; typo Page 14, Line 34 - "irrespective of whether or not"; possible tautology Pages 14 and 15; "Comparison with other studies". I feel that the language used in the discussion comparing NMPs with GP prescribing behaviours &c. could either be more balanced in terms of the presentation of the evidence, or be toned down in the use of language (less black and white). Disclosure: although being medically qualified, the peer reviewer is not a GP. - Notwithstanding the previous comment, I note that the authors do not attempt to directly compare the skills and attributes of NMP vs

	GP prescribing in either the statement of principal findings or the conclusion. I would argue that the premise of the paper requires such comparison - as alone, the findings from the qualitative section (at least) are not dissimilar to what's found in the GP consultation literature. ARTICLE SUMMARY (also applies to the STRENGTHS AND WEAKNESSES) - The ARTICLE SUMMARY section of the document requires further work. I defer to the editor on whether initialisms such as NMP should be spelt in full on the first occasion in the ARTICLE SUMMARY. - While the RR was 71%, this does not preclude non-response bias. I do not believe that it is possible for the authors to assert that the 'response rate suggests bias was minimal'. There are several distinct samples involved in this study for either qualitative or quantitative examination. More clarity around the epidemiological limitations for each of these samples would be welcomed. - While I believe I understand the intention of the authors in the third bullet point, I am not convinced the language is sufficiently clear / explicit. Moreover, further clarification of the differences between the third and fourth bullet point would be welcome. - Throughout the article summary, I am surprised that the authors do not explicitly relate non-response bias or recall bias. REFERENCES - The authors need to review the formatting of the references as they are currently inconsistent, as well as outwith BMJ Open style guidelines.

REVIEWER	Sarah Tonkin-Crin University of Oxford, UK
REVIEW RETURNED	06-Sep-2016

GENERAL COMMENTS	Introduction 1. References on qualitative work with GPs are fairly old and there have been several more recent publications in this area. Reference 38 would be good to include here as an overview. Method 1. The Scottish HB and English CCG sound like they were chosen based on existing links between the prescribing leads and the research team. It should be made explicit why these were selected. 2. Authors should clarify how acute RTIs were defined and how relevant patients were identified. The authors should state that patients with pre-existing chronic conditions were not excluded from taking part (references to COPD later). Including these patients could be viewed as a limitation of the study as reducing antibiotic prescribing is not always appropriate in this group. 3. Numbers of participants in interviews should be reported in the results section. 4. Authors appear to have interviewed everyone who showed an interest in being interviewed. The authors should state whether any attempt was made to obtain additional responses or whether data collection was informed by analysis/participant characteristics at all. Data saturation is not mentioned. 5. Authors should state how long after consultations interviews with patients were carried out. 6. “Further examination”, which was part of the questionnaire for

	patients, is not explicit and should be defined. 7. Length of interviews should be reported under the results. Length of both sets of interviews seems very short. Authors should comment on this in the limitations section of the discussion. 8. The method used to triangulate the data is not explained in a way that is replicable. Results 1. The authors should state how many NMPs were invited to take part in the study in Scotland, England and Wales and the response rate. If low, this should be commented on in the discussion. 2. The results state that 75% of patients completed the questionnaire. The abstract and discussion state it was 71%. 3. Table 1 states that 4 people over the age of 65 completed the patient questionnaire but 5 people over the age of 65 completed an interview. Author should clarify the discrepancy in these numbers. 4. It would be helpful to understand the contexts/health services in which the NMPs were working (for example the length of time allowed for a consultation, availability of time in work to make follow up phone calls to patients) for a reader to understand any differences between these contexts and GPs working in primary care practices in the UK. This is particularly relevant as one pharmacist took part and it is not apparent whether their working environment would be similar or different from the nurse prescribers. 5. Objective 2 seeks to examine whether patient expectations for an antibiotic affect the likelihood of receiving them. An assumption made by the authors seems to be that acute RTIs should not be treated with antibiotics, which is true for most adults and young children but diagnosis of acute RTI can be difficult. The inclusion of adults with chronic conditions, older adults and young children in the study complicates this issue. Patients with COPD who expect antibiotics would most likely be justified in their expectation and an NMP who prescribes would be treating the clinical presentation and not responding to expectations. Authors could add clarification to support interpretation of the results. 6. Figures in Table 4 do not add up to 120 in each category. Authors should state where there were missing data. 7. The abstract states 44% of patients expected an antibiotic. Table 4 states that 50 patients expected an antibiotic which is 42% (50/120). 8. Authors should comment about the appropriateness of NMPs giving non-antibiotic medication to patients such as cough medicines which may not be an example of evidence-based practice/ supported by guidelines. Discussion 1. A limitation of the research is the number (saturation not mentioned) and length of interviews. The fact that patients reported their expectations after the consultation is a major limitation especially when answering objective 2. 2. The discussion states that NMPs explored patient expectations and there was agreement between their perceptions and what patients reported themselves. The results do not support the statement that NMPs specifically asked patients about their expectations and as such this is not in contrast with the literature on GPs. NMPs understanding of patient perceptions is very similar to what GPs have reported in previous qualitative work. The data presented from NMPs in the results section do not indicate a difference between NMPs and GPs in this respect. 3. Previous research has indicated that GPs are more likely to

	prescribe an antibiotic when they perceive patient expectation for an antibiotic. The studies cited included more than 1400 patients. The current study had 50 patients/parents who expected an antibiotic. I query whether the authors can make a similar statement about the effect of perceived patient expectation on NMP prescribing behaviour. 4. The authors argue that NMP consultations are more patient centred than GP consultations. This may well be true but the data presented do not demonstrate this. The strategies used by NMPs are similar to those reported in qualitative work with GPs. Patient centred management is defined as giving information, reassurance and undertaking further examination. GPs also use these strategies and patients report receiving these strategies in GP consultations. It is unclear how NMP consultations are any different to GP consultations. 5. The data presented are very similar to qualitative work carried out with GPs. The only findings which are of obvious difference is that some NMPs appear to have longer consultations and some may be more able/willing to offer follow up appointments/phone calls. The discussion is written to highlight differences in practice between NMPs and GPs but the data do not support these arguments. 6. Research with GPs indicates that antibiotics may be viewed as the only way to maintain satisfaction in a minority of patients. This means that some GPs may prescribe inappropriately for some patients who are very demanding/will not accept information/reassurance. It seems unlikely that NMPs would not also struggle with such patients. The interpretation of existing research with GPs in this section seems inaccurate. 7. Reference 38 should not be used to support the sentence at line 16 page 15. 8. The authors rightly highlight NMPs as an important target group for antibiotic prescribing interventions. They argue that much could be learned from a patient-centred approach taken by NMPs but these strategies have already been developed and tested in primary care for GPs (e.g. enhanced communication skills interventions) and have shown to be effective. There may be more to learn from studying NMPs but the authors do not present a convincing case for this. 9. The results do not indicate the specific needs of NMPs to improve their antibiotic prescribing and/or do not specify how NMP approaches could be used to benefit GPs prescribing. Overall there is little to inform future interventions to promote prudent prescribing.

VERSION 1 – AUTHOR RESPONSE

Reviewer	Comment	Response
Reviewer 1	Page 6 - I am not used to seeing the term “M=minutes”and I am not sure if this refers to the mean or median	This has now been made clear and the information has been removed to the results section
	Page 6 . Were the demographic data collected only gender and age, or more wide-ranging? There is published literature on social gradients and patient expectation in these types of	For patients we collected age, gender, country and symptoms, while for NMPs we collected gender, time in post and country. No other demographic data was collected. We appreciate that this is something that

	consultation. I did not notice a discussion made on the potential for differences in the nature of patient and consultation complexity between GP and NMP. This may warrant discussion / exploration	may have influenced our results but unfortunately we do not have the necessary data to explore this within our study. We have addressed this within the 'strengths and weaknesses' section of the discussion. It has been made clearer under 'Methods' (recruitment) that NMPs were working as substitutes for doctors and responsible for providing first contact care and managing RTIs in primary care. NMPs are increasingly working in this capacity; hence we therefore anticipate that the spectrum of patients would be similar to those managed by GPs.
	Page 6. Given the general readership of BMJ Open, further in-prose explanation of "parallel" collection and analysis may be useful.	Further explanation has been provided
	General comments: the qualitative findings are reported quite clearly. However the statistical approach and presentation of the quantitative data could be significantly improved. While I appreciate this is a mixed-methods study, and that a regression approach to provide effect size (not just significance levels) may be beyond what is required, a more robust approach to the quantitative elements would be welcome.	We have tried to address the reviewers concerns about this aspect of our paper. All statistical analysis was conducted by an experienced statistician and results were interpreted and reported in consultation with the statistician but we appreciate the need to have been more transparent in our reporting. Please see the responses to each of the specific comments below.
	Table 1. I believe that the parents or carers of children were within the scope of the study. I am not sure how many were included in the sample. Even on a purposive sampling basis, the scope of those included has implications for the external validity of the study. Moreover, I do not know whether patients consulting NMPs differ from those seeing GPs. Further explanation around this may be welcome in the Introduction or Discussion.	This has been made clear under 'Results' It has been made clear under 'methods (recruitment)' that NMPs were working as substitutes for doctors and responsible for providing first contact care and managing RTIs in primary care. Although we did not systematically explore this within the interviews, a number of patients indicated that they were automatically booked in to see an NMP when they contacted their surgery for an appointment and did not explicitly seek to see these prescribers. This may differ across surgeries

		depending on the specific processes in place locally. We have now included a consideration of this within the discussion i.e. 'Unanswered questions and future research'.
	Page 8. I am unclear if the "42% of patients expecting to receive an antibiotic [etc.]" relates to a table, or if these findings are only provided in prose form. I believe there is no table setting out these findings.	We have now made it clear that this information is in Table 4
	Page 11. I found the "Associations between expected and received management strategies and satisfaction" very difficult to understand. Table 4 requires additional explanation at the very least.	We have elaborated on what was meant here, i.e. that while patient expectation for a range of non-antibiotic management strategies was associated with the strategy received (e.g. if patients expected reassurance they usually got reassurance), this was not the case for antibiotics.
	Page 12. From line 23 downwards, the patient questionnaire is once-again reported. The manner of reporting these results (apparently, and again, in the absence of a table) could be improved in terms of the statistics presented and clarity of the language. The final sentence (Lines 36-39) reverts back to percentages without any clarification of confidence interval or p-value.	We have revised the wording in this section to increase the clarity and we have provided the tables containing these data (see Tables 5 and 6).
	Page 13. The strengths and weaknesses element could be better developed to address the differing epidemiological frameworks applied. There were essentially three different approaches used, and the wording currently used insufficiently discriminates between these methods.	The three different approaches used have been made clear and the strengths and weaknesses element further developed
	Page 14, Line 27 - "don't"; typo Page 14, Line 34 - "Patient's"; typo	This has been amended
	Page 14, Line 34 - "irrespective of whether or not"; possible tautology Pages 14 and 15; "Comparison with other studies". I feel that the language used in the discussion comparing NMPs with GP prescribing behaviours &c. could either be more balanced in terms of the presentation of the evidence, or be toned down in the use of language (less black and white). Disclosure: although being medically qualified, the peer	We don't believe that this is a tautology as NMPs used a number of different strategies beyond supplying and antibiotic. We have therefore left as is. "Comparison with other studies" - We have provided a more balanced discussion with regards to the presentation of the evidence

	reviewer is not a GP.	
	Notwithstanding the previous comment, I note that the authors do not attempt to directly compare the skills and attributes of NMP vs GP prescribing in either the statement of principal findings or the conclusion. I would argue that the premise of the paper requires such comparison - as alone, the findings from the qualitative section (at least) are not dissimilar to what's found in the GP consultation literature.	The research did not compare the skills and attributes of NMPs and GPs and so we don't think it would be correct to have this as a principal finding or conclusion. However, we have discussed that this is an important step for future research. The fact that our findings are not dissimilar to what has been found in the GP literature does not seem to the authors to be a weakness of this study. While there has been considerable research on GP management of RTI consultations, there is a dearth of literature on NMP management of these conditions (and how patients experience these consultations with NMPs). This is despite the large number of NMPs working in general practice and seeing patients about RTIs/prescribing for RTIs. Thus our contribution to the literature is to provide evidence on the strategies used by this group of prescribers and how patients experience these.
	ARTICLE SUMMARY (also applies to the STRENGTHS AND WEAKNESSES) - The ARTICLE SUMMARY section of the document requires further work. I defer to the editor on whether initialisms such as NMP should be spelt in full on the first occasion in the ARTICLE SUMMARY.	The Article Summary has been further developed
	While the RR was 71%, this does not preclude non-response bias. I do not believe that it is possible for the authors to assert that the 'response rate suggests bias was minimal'. There are several distinct samples involved in this study for either qualitative or quantitative examination. More clarity around the epidemiological limitations for each of these samples would be welcomed.	This has been addressed in both the 'Strengths and weaknesses' and 'Strengths and limitations'(Article summary)'
	While I believe I understand the intention of the authors in the third bullet point, I am not convinced the language is sufficiently clear / explicit. Moreover, further clarification of the differences between the third and fourth bullet point would be welcome.	This has been addressed
	Throughout the article summary, I am surprised that the authors do not explicitly relate non-response bias or recall bias.	This has been addressed

	REFERENCES The authors need to review the formatting of the references as they are currently inconsistent, as well as out with BMJ Open style guidelines.	We have reviewed the formatting of the references which are now consistent with BMJ Open style guidelines
Reviewer 2	Introduction References on qualitative work with GPs are fairly old and there have been several more recent publications in this area. Reference 38 would be good to include here as an overview.	More recent references have been included as has the review by Tonkin-Crine et al 2011
	Method The Scottish HB and English CCG sound like they were chosen based on existing links between the prescribing leads and the research team. It should be made explicit why these were selected.	This has now been made explicit
	Authors should clarify how acute RTIs were defined and how relevant patients were identified. The authors should state that patients with pre-existing chronic conditions were not excluded from taking part (references to COPD later). Including these patients could be viewed as a limitation of the study as reducing antibiotic prescribing is not always appropriate in this group.	It has been made clear (under 'Recruitment')that NMPs were asked to approach 10 consecutive patients (or parents/carer of child patients) presenting with a chief complaint consistent with a respiratory infection as identified by NICE guidance (i.e. acute otitis media, acute sore throat/acute pharyngitis/acute tonsillitis, common cold, acute rhinosinusitis, acute cough/acute bronchitis) as defined by This has been addressed in the 'Strengths and weaknesses' section of the discussion
	Numbers of participants in interviews should be reported in the results section.	This was reported in the results section but has been made clearer
	Authors appear to have interviewed everyone who showed an interest in being interviewed. The authors should state whether any attempt was made to obtain additional responses or whether data collection was informed by analysis/participant characteristics at all. Data saturation is not mentioned	This has been addressed under 'data analysis (semi-structured interviews)' and within the 'Strengths and weaknesses' and 'Article summary' sections of the paper
	Authors should state how long after consultations interviews with patients were carried out.	Patient questionnaires were left with NMPs until all of the questionnaires were completed. They were then collected by the researchers who contacted those patients who had provided their contact details indicating that they were interested in participating in an interview. Interviews therefore took place 4-8 following the

		consultation. This has been addressed under 'Data collection' and 'interviews' and the 'Strengths and weaknesses' section of the paper.
	Further examination", which was part of the questionnaire for patients, is not explicit and should be defined.	It has been made clear under 'data collection '(patient questionnaire) that it is a physical examination
	Length of interviews should be reported under the results. Length of both sets of interviews seems very short. Authors should comment on this in the limitations section of the discussion.	This has been reported in the results and commented on under the 'Strengths and weaknesses' section of the discussion.
	The method used to triangulate the data is not explained in a way that is replicable.	We have now provided more detail about the process of data triangulation under 'Data analysis' and 'semi-structured interviews'.
	Results The authors should state how many NMPs were invited to take part in the study in Scotland, England and Wales and the response rate. If low, this should be commented on in the discussion.	This has been made clear under 'Recruitment'
	The results state that 75% of patients completed the questionnaire. The abstract and discussion state it was 71%.	This has been amended
	Table 1 states that 4 people over the age of 65 completed the patient questionnaire but 5 people over the age of 65 completed an interview. Author should clarify the discrepancy in these numbers.	This has been amended
	It would be helpful to understand the contexts/health services in which the NMPs were working (for example the length of time allowed for a consultation, availability of time in work to make follow up phone calls to patients) for a reader to understand any differences between these contexts and GPs working in primary care practices in the UK. This is particularly relevant as one pharmacist took part and it is not apparent whether their working environment would be similar or different from the nurse prescribers	We did not collect information on the length of time allowed for a consultation, or availability of time in work to make follow up phone calls to patients. However, we have suggested in the 'Unanswered questions and future research' section, that systematic reviews evaluating the impact of doctor-nurse substitution in primary care on health outcomes report that nurses generally have longer consultation than doctors and that this is an area worth exploring. All nurse prescribers were in general practices. The pharmacist prescriber was based in a community clinic managed by GPs This has been made clear under 'Results'

	Objective 2 seeks to examine whether patient expectations for an antibiotic affect the likelihood of receiving them. An assumption made by the authors seems to be that acute RTIs should not be treated with antibiotics, which is true for most adults and young children but diagnosis of acute RTI can be difficult. The inclusion of adults with chronic conditions, older adults and young children in the study complicates this issue. Patients with COPD who expect antibiotics would most likely be justified in their expectation and an NMP who prescribes would be treating the clinical presentation and not responding to expectations. Authors could add clarification to support interpretation of the results.	We appreciate this comment and agree that it is a difficult area, especially when dealing with vulnerable groups. We have now addressed this issue under the 'Strengths and limitations', 'Strengths and weaknesses', and 'Comparison with other studies' sections of the paper.
	Figures in Table 4 do not add up to 120 in each category. Authors should state where there were missing data.	We have added a note to the table to indicate where this is the case.
	The abstract states 44% of patients expected an antibiotic. Table 4 states that 50 patients expected an antibiotic which is 42% (50/120).	115 patients answered this question. So percentage of patients who expected antibiotics was 50/115 = 43%. This has been amended in the abstract.
	Authors should comment about the appropriateness of NMPs giving non-antibiotic medication to patients such as cough medicines which may not be an example of evidence-based practice/ supported by guidelines.	It has been made clear under 'Data Collection' and 'Patient questionnaire' that these strategies are within NICE guidelines.
	A limitation of the research is the number (saturation not mentioned) and length of interviews. The fact that patients reported their expectations after the consultation is a major limitation especially when answering objective 2.	This has been addressed under 'Data analysis' and 'Semi-structured interviews' and 'Strength and weaknesses' sections of the paper This was addressed but, has been made clearer in both the 'Strengths and Weaknesses' and 'Strengths and limitations' sections of the paper
	The discussion states that NMPs explored patient expectations and there was agreement between their perceptions and what patients reported themselves. The results do not support the statement that NMPs specifically asked patients about their expectations and as such this is not in contrast with the literature on GPs. NMPs understanding of patient perceptions is very similar to what	We have made it clear that the alignment between the expectations reported by patients, and as perceived by NMPs, **suggests** that NMPs actively explored patient expectations. We have added support for this by highlighting that skills of eliciting patient expectations have been reported previously in the consultation of nurse prescribers. We have removed the information which contrasted this finding with the research involving GPs.

	GPs have reported in previous qualitative work. The data presented from NMPs in the results section do not indicate a difference between NMPs and GPs in this respect.	
	Previous research has indicated that GPs are more likely to prescribe an antibiotic when they perceive patient expectation for an antibiotic. The studies cited included more than 1400 patients. The current study had 50 patients/parents who expected an antibiotic. I query whether the authors can make a similar statement about the effect of perceived patient expectation on NMP prescribing behaviour.	We have made it clear that the sample numbers in the current study are much smaller than in those studies that have explored the influence of patient expectations on the prescribing behaviour of GPs
	The authors argue that NMP consultations are more patient centred than GP consultations. This may well be true but the data presented do not demonstrate this. The strategies used by NMPs are similar to those reported in qualitative work with GPs. Patient centred management is defined as giving information, reassurance and undertaking further examination. GPs also use these strategies and patients report receiving these strategies in GP consultations. It is unclear how NMP consultations are any different to GP consultations.	We have made it clear that the way patients described their consultations align with studies that have explored patient experiences of NMP management. We have removed the reference to research with GPs in which a lack of patient centeredness has been reported. We have also made it clear in 'Unanswered questions and future research' that the results of this study and other studies indicate that NMPs and GPs have similar experiences of these consultations. We have also highlighted in this section that patient centred strategies were valued by patients in our study (and may be a focus for interventions), and that previous research has shown that these interventions are useful for GPs and so a valuable next step would be to consider their utility with NMPs.
	The data presented are very similar to qualitative work carried out with GPs. The only findings which are of obvious difference is that some NMPs appear to have longer consultations and some may be more able/willing to offer follow up appointments/phone calls. The discussion is written to highlight differences in practice between NMPs and GPs but the data do not support these arguments.	The 'Discussion' and specifically 'Comparison with other studies' has been amended in that it now does not specifically highlight differences in practice between NMPs and GPs as this was not the primary purpose of our study. . We have also highlighted in the 'Unanswered questions and future research section' that an in-depth exploration and comparison of NMP and GP consultations with patients with RTIs would be a valuable next step to

		understand the degree to which these professionals face similar or different challenges in managing patients and the factors that contribute to such challenges
	Research with GPs indicates that antibiotics may be viewed as the only way to maintain satisfaction in a minority of patients. This means that some GPs may prescribe inappropriately for some patients who are very demanding/will not accept information/reassurance. It seems unlikely that NMPs would not also struggle with such patients. The interpretation of existing research with GPs in this section seems inaccurate	The last sentence in 'Comparison with other studies' has been removed. It has been noted here that the alignment between patient expectations for antibiotics and whether these were prescribed influenced satisfaction i.e. that there were lower levels of satisfaction among patients who expected but did not receive an antibiotic indicating that there is scope for improvement in NMP management of these patients. .
	Reference 38 should not be used to support the sentence at line 16 page 15.	This has been removed
	The authors rightly highlight NMPs as an important target group for antibiotic prescribing interventions. They argue that much could be learned from a patient-centred approach taken by NMPs but these strategies have already been developed and tested in primary care for GPs (e.g. enhanced communication skills interventions) and have shown to be effective. There may be more to learn from studying NMPs but the authors do not present a convincing case for this.	It has been highlighted under 'Meaning of the study' that it is important that NMPs are involved in efforts to improve antimicrobial stewardship. The sentences highlighting that 'the need to understand the patient centred strategies adopted by NMPs, and to identify and describe those strategies that provide the greatest benefit' has been removed from this section. However, we have highlighted under 'Unanswered questions and future research' that our results suggest that patient centred strategies were valued by patients and may be a focus for interventions and, that although previous work has shown that these interventions are useful for GPs, a next step would be to consider their utilty with NMPs.
	The results do not indicate the specific needs of NMPs to improve their antibiotic prescribing and/or do not specify how NMP approaches could be used to benefit GPs prescribing. Overall there is little to inform future interventions to promote prudent prescribing.	The study did not aim to identify the needs of NMPs to improve antibiotic prescribing. However, the study has found that as well as similarities with GP management of these conditions, there is some difference. We have proposed in the 'Unanswered questions and future research' section, that it would be a valuable next step to understand the

		degree to which these professionals face similar or different challenges in managing these patients which would provide more insights into the specific kinds of support that these groups of prescribers need. We have also highlighted that although previous work has shown that patient centred interventions are useful for GPs, it would be useful to consider their utilty with NMPs.

VERSION 2 – REVIEW

REVIEWER	Richard Pinder Imperial College London London, United Kingdom
REVIEW RETURNED	19-Nov-2016

GENERAL COMMENTS	I reviewed the original submission to this article and welcome the authors' amendments. On the basis of the amended article I would recommend minor revisions and acceptance. GENERAL 1. Table presentation: I would defer to the Editor in terms of the use of column labelling implying column or row percentages. 2. Article summary for strengths and limitations could be improved for clarity and context; for example, set alone, bullet three around pre-existing conditions is not easily understood without reading the article - I feel the whole point of the article summary is that it should be interpretable independently. SPECIFIC Abstract/p3. Line 21 - criteria should be singular - and therefore "criterion"; alternatively if plural then chronic conditions "were". The same gramatical error is made in the strengths and weaknesses. Introduction/p4. Line 19 - "selected allied health professionals" - not sure how they are selected. Results/p11 Line 45 - Is there an intentional difference between application of N and n in the table column headings (i.e. population vs sample)? Results/p12 Line 51 / Table 6. What statistical test is used to calculate the p-value? I assume it is Fisher's exact test; moreover the Information row shows a p-value of 0.006 - it is unclear what this means or why it is not statistically significant. Likewise the asterisk-ed p-value does nto appear to have a link within the figure legend. Reference to the statistical test or its implications should be included in the prose and/or legend. Again the differential use of n and N in the "Satisfied with treatment" and "Satisfied overall" is unclear.

REVIEWER	Sarah Tonkin-Crine University of Oxford, UK
REVIEW RETURNED	04-Nov-2016

GENERAL COMMENTS	The authors have made revisions to the manuscript which help to clarify how the study was carried out and the interpretation of the results which I believe has strengthened the manuscript a great deal. The new section on patient satisfaction is interesting. A couple of minor comments are listed below: 1. The conclusion of the abstract and the main text states that NMPs manage RTI consultations in a way that "maintains patient satisfaction while not prescribing due to expectations". This sentence is misleading as some patients were not satisfied when antibiotics were not prescribed and NMPs may need further support with this patient group. 2. Reference 30 is provided to support the description of the method of qualitative analysis. This appears to be an introductory chapter of a qualitative text book and I wonder whether this is correct? 3. Tables 3 and 4 appear in the main text in reverse order. 4. The first paragraph of the discussion mentions that a third of consultations resulted in antibiotic prescribing. I would remove this from this sentence as it is meaningless given that the patient population who are presenting are not clearly defined (no sense of whether this is good or bad rate of prescribing). 5. The study included both adult and child patients presenting with RTI. The authors should acknowledge that parental expectations regarding care for their child with an RTI are distinct from adult expectations about their own care and comment on this in the limitations.

VERSION 2 – AUTHOR RESPONSE

Response to reviewers' comments:

Reviewer: 2	
1. The conclusion of the abstract and the main text states that NMPs manage RTI consultations in a way that "maintains patient satisfaction while not prescribing due to expectations". This sentence is misleading as some patients were not satisfied when antibiotics were not prescribed and NMPs may need further support with this patient group.	It has been made clear in the conclusion of the abstract and the main text that the lower levels of satisfaction among patients who expected, but did not receive an antibiotic, indicates that there is still scope for improvement by these prescribers.
2. Reference 30 is provided to support the description of the method of qualitative analysis. This appears to be an introductory chapter of a qualitative text book and I wonder whether this is correct?	Reference 30 has now been amended to Braun, V., & Clarke, V. Using thematic analysis in psychology. Qualitative research in psychology 2006, 3(2), 77-101
3. Tables 3 and 4 appear in the main text in reverse order.	Table 3 'Number of patients *[n (%)]* receiving various treatment combinations of antibiotics, patient-centred management, and/or non-antibiotic medication' belongs on page 10 under the section heading 'Management strategies employed within

	consultations' Table 4 'Associations between expected and received RTI management strategies [n(%)] calculated using Fisher's exact test' belongs on page 11 under the section heading 'Associations between expected and received management strategies and satisfaction' The reason there was an early reference to Table 4 in the 'Patient expectations of RTI consultations' on page 8, is because Table 4 contains details on the expectations of patients. However, while the section on page 8 deals with patient expectations only, Table 4 contains both the expectations and their association with the strategies received. As such it would not make sense to have Table 4 appear earlier (i.e. to change places with Table 3) as the textual explanation that goes with Table 4 appears on page 11. To reduce confusion we have added the wording 'see Table 4 in section 'Associations between expected and received management strategies and satisfaction' on page 8 to make clearer that the table belongs to that section but is being referenced earlier.
4. The first paragraph of the discussion mentions that a third of consultations resulted in antibiotic prescribing. I would remove this from this sentence as it is meaningless given that the patient population who are presenting are not clearly defined (no sense of whether this is good or bad rate of prescribing).	The statement 'a third of consultations resulted in antibiotic prescribing' has been removed
5. The study included both adult and child patients presenting with RTI. The authors should acknowledge that parental expectations regarding care for their child with an RTI are distinct from adult expectations about their own care and comment on this in the limitations.	This has now been addressed in the limitations section of the paper
Reviewer: 1	
GENERAL	
1. Table presentation: I would defer to the Editor in terms of the use of column labelling implying column or row percentages.	As the editor has not provided any guidance on this issue we have left the labelling as it is
2. Article summary for strengths and limitations could be improved for clarity and context; for example, set alone, bullet three around pre-existing conditions is not easily understood without reading the article - I feel the whole point of the article summary is that it should be interpretable independently.	The third bullet under 'Article summary' and 'Strengths and weaknesses' under the discussion have been reworded to aid clarity

SPECIFIC	
Abstract/p3. Line 21 - criteria should be singular - and therefore "criterion"; alternatively if plural then chronic conditions "were". The same gramatical error is made in the strengths and weaknesses.	'We have revised this wording within the article summary and within the 'Strengths and weaknesses' section of the discussion.
Introduction/p4. Line 19 - "selected allied health professionals" - not sure how they are selected.	We have revised the wording here
Results/p11 Line 45 - Is there an intentional difference between application of N and n in the table column headings (i.e. population vs sample)?	This was a typo due to MS Word autocorrect function and has now been corrected. Both are lower case 'n' to denote samples. Usage has been corrected elsewhere also.
Results/p12 Line 51 / Table 6. What statistical test is used to calculate the p-value? I assume it is Fisher's exact test; moreover the Information row shows a p-value of 0.006 - it is unclear what this means or why it is not statistically significant. Likewise the asterisk-ed p-value does nto appear to have a link within the figure legend.	As detailed in the 'Analysis' section (page 6), Fisher's exact test was used to explore associations within the data. The missing asterisk on .006 value for information was a typo and has now been added. We have now added a note to the table to explain the meaning of the asterisk and the use of the Bonferroni correction. We have also reworded the text summary of this section to better reflect the results in the table.
Reference to the statistical test or its implications should be included in the prose and/or legend. Again the differential use of n and N in the "Satisfied with treatment" and "Satisfied overall" is unclear.	Reference to the statistical test is detailed on page 6. The use of n has been corrected. This was a typo.

VERSION 3 – REVIEW

REVIEWER	Richard Pinder Imperial College London, United Kingdom
REVIEW RETURNED	20-Jan-2017

GENERAL COMMENTS	I welcome the changes and recommend acceptance.

REVIEWER	Sarah Tonkin-Crine University of Oxford, UK
REVIEW RETURNED	04-Jan-2017

GENERAL COMMENTS	The authors have responded to all comments raised by both reviewers and have adjusted the manuscript as needed. I recommend the manuscript for publication.