## PEER REVIEW HISTORY

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

## ARTICLE DETAILS

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| **TITLE (PROVISIONAL)** | Implementation of a lung cancer multidisciplinary team standardized template for reporting to general practitioners: a mixed methods study. |
| **AUTHORS** | Rankin, Nicole; Collett, Gemma; Brown, Clare; Shaw, Tim; White, Kahren; Beale, Philip; Trevena, Lyndal; Anderiesz, Cleola; Barnes, David |

## VERSION 1 – REVIEW

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| **REVIEWER** | Benjamin W Lamb<br>Peter MacCallum Cancer Centre<br>Australia |
| **REVIEW RETURNED** | 03-Aug-2017 |

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| **GENERAL COMMENTS** | The authors describe an implementation and evaluation study with the introduction of a standardised template for reporting outcomes of lung multidisciplinary team meetings to GPs. The paper is clearly written with very good English. The manuscript provides a good outline of the work and would be of interest and utility to anyone considering a similar implementation.<br><br>General comments<br>The main limitation is the low response rate, which is appropriately acknowledged by the authors. I would be interested to know why the authors thin the response rate is so low, and what impact this may have on their findings? Also, is there any reason to think that respondents are in any way different from non-respondents, which may have an effect on the validity of the findings, and the generalizability of the results. What measures did the researchers take to follow-up non-responders? How could readers, who might want to repeat such a project, avoid this in the future? What would the authors recommend, or do differently in the future.<br>If the authors think that their respondents are representative of local GPs in general, does the data support this? They could comment on the heterogeneity of their quantitative data, and also whether the qualitative data from open questions reached saturation point. If the authors are able to demonstrate that there is no reason to believe that their sample is representative, and that saturation point was reached, then this would add strength to their results.<br><br>Specific comments<br>GP evaluation- the first sentence regarding what GPs were asked to evaluate should go into the methods section.<br>Were the GPs who sought clarification/information those who responded to the survey? |

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| | With such a low response rate to the survey, the figure of less than 5% seeking clarification is difficult to interpret.<br>Page 17 'recommendations may become redundant if patient preferences are not in alignment'. How do the authors propose mitigating against this potential problem? I agree with their statement, but what can they do to improve representation of patient views? How could this be addressed in future iterations of their template? |

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| **REVIEWER** | Claire Johnson<br>Monash University<br>Australia |
| **REVIEW RETURNED** | 18-Aug-2017 |

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| **GENERAL COMMENTS** | General<br>Numerous templates for collecting information about cancer treatment plans are available, however, reports of the development and implementation of a template to communicate MDT treatment decisions to GPs, using an electronic format has long been a consideration. As the authors have observed there are limited peer reviewed publications reporting this process. As such the manuscript addresses a gap in the literature.<br><br>However, the manuscript is confusing to read, with methodological components reported in the results section and findings in the discussion which are not reported in the results section. The manuscript would also benefit from a thorough edit with consideration to punctuation, and removing orphan and redundant words. Making a copy of the template available to readers, perhaps as supplementary material would be of benefit. The paper would be strengthened by reporting patient and treatment outcomes, i.e. how did care improve as a result of the introduction of the treatment template? It would also be improved by explicitly reporting MDT outcomes in the Results section (i.e. how did the functioning of the MDT change as a result of the implementation of the template and reporting process?).<br><br>It is suggested the authors follow the objectives as stated on p5/15-22, but in the reverse order— i.e. to document the stages of development and implementation, and then evaluate outcomes of implementation.<br><br>Methods Section<br>The methods section is confusing. Some aspects of the methods are described in the Results section. It is suggested that the Methods be divided up into Development of the template and implementation process, Implementation of the template and Evaluation of the template/process (given that the evaluation is about both the contents of the template and the processes associated with its implementation). Reporting of results would then simply be about the evaluation and feedback…mostly from GPs but may also include feedback from MDT members (which seems to be alluded to in the discussion but not explicitly reported in the results). A description of the development of the template/process should include a specific breakdown of the numbers of the various people involved.<br>P5-32 states semi-structured interviews were conducted. Elsewhere (p8-39) they were structured interviews |

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| | The qualitative data collection and analysis is insufficiently described. What approach was used to collect the qualitative data…what qualitative data were collected? Observation of MDTs, interview data with MDT leads?<br>How were qualitative data (eg MDT minutes, field notes, process data) analysed?<br>What statistical methods were used for comparative analyses?<br>Findings<br>The results section is confusing because methodological information is mixed in with results. Eg.P11/45-50.<br>Information about patients and how many reports were sent should be separate from the GP evaluation information. While information about the patients' characteristics provides context, they are not the key outcomes of this study. Both the table and text relating to GP characteristics would be better presented at the beginning of the GP evaluation section and who received results and information reported with GP evaluation data.<br>When reporting numbers and % of people the % should go immediately after the number. Reporting of statistics should be consistent with the conventions throughout. Eg P11/50-58, 'Nearly all (n=X, y%)' P11-57 About three quarters (n=x, %y) (This actually adds up to 83% in table 2…i.e. the authors need to check the data and reporting in the text is consistent).<br>In Table 2, each survey item is presented as a question and responses are presented as agreement or disagreement. In view of the response options, each item should be presented as a statement, rather than a question.<br>The Implementation process section would be better placed in the methods section, highlighting the key activities for the implementation.<br>P14/3-11 'It was noted that MDT chairs improved their efficiency' is a result of the observation of MDTs but there is no mention of methodological approach to collecting, analsyising or presenting the observational data in the methods section.<br>I am not sure that Table 3 is appropriate in the results section and again may be better placed in the Methods to describe the implementation process.<br>Discussion<br>It needs to be clear in the discussion (and throughout) that the results relate to the template and the process used to implement it.<br>P16/37 'Our study shows that a key component of pre-implementation was template integration into standard MDT workflow…' this may be the case, but the results do not explicitly demonstrate this. Other 'findings' reported in the discussion are also not clearly demonstrated in the results.<br>Abstract conclusions are broader than those in the manuscript. As discussed previously, it is not the template alone that improved knowledge sharing…it was the process that was used to capture the information and make sure that it was shared in a timely way, as well as the template itself. The use of the implementation framework is not one of the key findings of the work, and again is not reported in the conclusion of the paper. |

## VERSION 1 – AUTHOR RESPONSE

**Reviewer 1: Dr Benjamin Lamb**

1.1 The main limitation is the low response rate, which is appropriately acknowledged by the authors. I would be interested to know why the authors think the response rate is so low, and what impact this may have on their findings?

Response: We have encountered significant challenges in seeking GPs participation in research about lung cancer (Rankin et al., 2017, Annals ATS), and note that similar experiences are reported in health literature over the past three decades (e.g. Silagy & Carson, Family Practice, 1989; Murphy et al, Br J Gen Prac 1992; Mason, et al., Family Practice, 2007). We think that the low participation rate will have had little impact on our findings given that we managed to elicit responses from 61 GPs.

1.2 Also, is there any reason to think that respondents are in any way different from non-respondents, which may have an effect on the validity of the findings, and the generalizability of the results. What measures did the researchers take to follow-up non-responders? How could readers, who might want to repeat such a project, avoid this in the future? What would the authors recommend, or do differently in the future.

Response: We have no available data about the characteristics of non-responders and have therefore included an additional statement to on page 17 to address this point: “We did not have access to data about the non-responding GPs and are therefore unable to comment on whether there were any differences across the groups, or whether this affected the validity of our findings.”
Should other researchers wish to replicate or conduct a similar study in future, we would encourage them to conduct follow up phone calls with non-consenting GPs as part of the research protocol. We had not included this additional step.

1.3 If the authors think that their respondents are representative of local GPs in general, does the data support this? They could comment on the heterogeneity of their quantitative data, and also whether the qualitative data from open questions reached saturation point. If the authors are able to demonstrate that there is no reason to believe that their sample is representative, and that saturation point was reached, then this would add strength to their results.

Response: Our data supports that a broadly representative group of GPs participated, given the spread of GPs across metropolitan and rural locations (of relevance for Hospital Site A), gender and years working as a GP, and in the heterogeneous spread of responses to evaluation items in Table 3. We reached saturation in qualitative data giving feedback about the template. We have amended the discussion accordingly (refer to page 17, second paragraph), which now says: “However, we appear to have reached a broadly representative sample of GPs and heterogeneous spread of responses to evaluation items.”

1.4 GP evaluation- the first sentence regarding what GPs were asked to evaluate should go into the methods section.

Response: Thank you for this suggestion, this sentence has been moved to the methods section.

1.5 Were the GPs who sought clarification/information those who responded to the survey? With such a low response rate to the survey, the figure of less than 5% seeking clarification is difficult to interpret.

Response: We have corrected this sentence, which should have indicated that less than five (not five per cent) of GPs chose to contact the case manager.

1.6 Page 17 'recommendations may become redundant if patient preferences are not in alignment'. How do the authors propose mitigating against this potential problem? I agree with their statement, but what can they do to improve representation of patient views? How could this be addressed in future iterations of their template?

Response: This is difficult to address in a standardized template, given that many patients will not have had advice from the treating specialist about the recommendations from the MDT until after the template has been sent. We propose that an additional item could be added into the template that indicates which clinician is responsible for discussing the MDT recommendation with the patient. This may help ensure that there is a decisive course of action to communicate with the patient. We have included a sentence to reflect this on page 18, which reads: "Future improvements could include an item to document which clinician will take responsibility for communicating the MDT recommendation to the patient."

**Reviewer 2. Professor Claire Johnson**

2.1 Methodological components (are) reported in the results section and findings in the discussion which are not reported in the results section.

Response: In accordance with standards for reporting implementation studies (StaRI classification, see Pinnock et al, BMJ 2017 and BMJ Open 2017), we clearly identify that this is an implementation study (page 6, line 32). Implementation science is defined as 'the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice and improve the quality and effectiveness of health services and care' (Eccles & Mittman, 2006). Thus, it is appropriate to present observations about methods for implementation in the study results. We have thoroughly reviewed the discussion section and have deleted any references to results not previously presented in the manuscript.

2.2 The manuscript would also benefit from a thorough edit with consideration to punctuation, and removing orphan and redundant words.

Response: Typographic changes have been made throughout.

2.3 Making a copy of the template available to readers, perhaps as supplementary material would be of benefit.

Response: The authors note that the template was included in the manuscript as Figure 1.

2.4 The paper would be strengthened by reporting patient and treatment outcomes, i.e. how did care improve as a result of the introduction of the treatment template?

Response: Thank you for this suggestion, which we consider as a direction for future research. Given that this implementation study focused on describing intervention feasibility, we did not have sufficient resources to track each individual patient and determine any impact of the template on their treatment outcomes following discussion with their GP. A follow up study could address this.

2.5 It would also be improved by explicitly reporting MDT outcomes in the Results section (i.e. how did the functioning of the MDT change as a result of the implementation of the template and reporting process?)

Response: We did not seek to explicitly measure MDT outcomes during the project through an objective measure; changes in functioning were observations made by the project officer and recorded in the project log. This has now been further clarified on page 9, paragraph 1.

2.6 It is suggested the authors follow the objectives as stated on p5/15-22, but in the reverse order—i.e. to document the stages of development and implementation, and then evaluate outcomes of implementation.

Response: Thank you for this suggestion, however, to be consistent with the presentation of results (GP evaluation presented first; implementation process data presented second), we consider that changing the order of the objectives would not flow logically.

2.7 It is suggested that the Methods be divided up into Development of the template and implementation process, Implementation of the template and Evaluation of the template/process (given that the evaluation is about both the contents of the template and the processes associated with its implementation). Reporting of results would then simply be about the evaluation and feedback…mostly from GPs but may also include feedback from MDT members (which seems to be alluded to in the discussion but not explicitly reported in the results).

Response: As described on page 7 lines 46/7, we had adopted an implementation science framework, the Knowledge to Action Cycle, and we describe the selection and tailoring of the template as part of the steps described in that Cycle, hence the heading choices corresponded with this framework. In order to address the reviewer's concerns, we have made improvement by including additional subheadings in the Methods section: for example see page 7 line 1, page 8 line 4.

2.8 A description of the development of the template/process should include a specific breakdown of the numbers of the various people involved.

Response: We had already included the numbers of the various people involved on page 8 (line 37 onwards) under the heading of 'measures, recruitment and procedures'. For greater clarity, we have now presented the numbers of participants involved earlier in the methods section (see page 7).

2.9 P5-32 states semi-structured interviews were conducted. Elsewhere (p8-39) they were structured interviews

Response: We have corrected this to read 'structured interviews' throughout the manuscript.

2.10 The qualitative data collection and analysis is insufficiently described. What approach was used to collect the qualitative data…what qualitative data were collected? Observation of MDTs, interview data with MDT leads? How were qualitative data (eg MDT minutes, field notes, process data) analysed?

Response: We have included more specific detail about how the use of a project log (meeting minutes and a project officer notes) and have now introduced a compendium of implementation strategies, as described by Powell et al. to group these activities. The COREQ checklist is also completed as an additional document.

2.11 What statistical methods were used for comparative analyses?

Response: We conducted chi-square comparative analyses, however, no significant results were yielded.

2.12 Information about patients and how many reports were sent should be separate from the GP evaluation information. While information about the patients' characteristics provides context, they are not the key outcomes of this study. Both the table and text relating to GP characteristics would be better presented at the beginning of the GP evaluation section and who received results and information reported with GP evaluation data.

Response: Thank you for this suggestion. In response, we have separated Table 1 into two tables and placed GP information in Table 2 and located this under the heading 'GP evaluation'.

2.12 When reporting numbers and % of people the % should go immediately after the number. Reporting of statistics should be consistent with the conventions throughout. Eg P11/50-58, 'Nearly all (n=X, y%)' P11-57 About three quarters (n=x, %y) (This actually adds up to 83% in table 2…i.e. the authors need to check the data and reporting in the text is consistent).

Response: We include only per cent in text so that the table does not become redundant (that is, to avoid identical information is presented in text and tables) and have corrected the error (page 11 line 57).

2.13 In Table 2, each survey item is presented as a question and responses are presented as agreement or disagreement. In view of the response options, each item should be presented as a statement, rather than a question.

Response: Thank you for this suggestion, we have changed each item to a statement (now Table 3).

2.14 P14/3-11 'It was noted that MDT chairs improved their efficiency' is a result of the observation of MDTs but there is no mention of methodological approach to collecting, analsyising or presenting the observational data in the methods section.

Response: As described on page 9, we have now clarified that observational data from the project log was used to document changes over time, however, we do not have an objective measure of changes in efficiency.

2.15 I am not sure that Table 3 is appropriate in the results section and again may be better placed in the Methods to describe the implementation process.

Response: We note the reviewer's suggestion, however, Table 3 (now Table 4) Column 3 presents resulting outcomes and therefore, the table is appropriately included in the results section.

2.16 It needs to be clear in the discussion (and throughout) that the results relate to the template and the process used to implement it.
P16/37 'Our study shows that a key component of pre-implementation was template integration into standard MDT workflow…' this may be the case, but the results do not explicitly demonstrate this.

Response: It is acceptable in implementation science studies to document processes and to include reflections about the processes that enabled implementation. We believe these reflections are useful to others who may wish to replicate implementation of a template.

2.17 Abstract conclusions are broader than those in the manuscript. As discussed previously, it is not the template alone that improved knowledge sharing…it was the process that was used to capture the information and make sure that it was shared in a timely way, as well as the template itself.

Response: Thank you for noting this. We have added further detail into the discussion to reflect this suggestion.

2.18 The use of the implementation framework is not one of the key findings of the work, and again is not reported in the conclusion of the paper.

Response: The reference to an implementation framework has been deleted from the abstract

## VERSION 2 – REVIEW

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| **REVIEWER** | Benjamin Lamb<br>Peter MacCallum Cancer Centre<br>Australia |
| **REVIEW RETURNED** | 01-Oct-2017 |

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| **GENERAL COMMENTS** | acceptable changes |

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| **REVIEWER** | Claire Johnson<br>Monash University<br>Australia |
| **REVIEW RETURNED** | 10-Oct-2017 |

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| **GENERAL COMMENTS** | Thank you for allowing me to review your revised manuscript describing the development of a MDT reporting template for sharing information about people diagnosed with lung cancer with their GP, and its implementation and evaluation and thank you for clarifying my previous comments.<br>Concerns about the quality of information sharing between hospital-based specialists and GPs is frequently reported as a barrier to shared care and the lack of processes (especially automated processes) to facilitate information sharing in lung cancer is an important gap, clinically and in the literature. Hence this is a timely publication. Please note the minor comments below.<br>P13 line 11 'compliation'…I think should be 'compilation'<br>P13 line 25 This sentence doesn't all make sense… Prior to implementation commencement, a clinical leadership forum was held, consisting of a one-hour video-conference session based and (???) engaged participants from site B and the two regional hospitals sites (which was part of a 'conduct educational meetings' strategy).<br>P18 line 46 I think there is a redundant 'to' in this sentence…These limitations of the intervention, rather than of the implementation design, should be canvassed with MDTs if they consider to (?) adapting the template for local use. |

## VERSION 2 – AUTHOR RESPONSE

Thank you for forwarding these minor revisions, all of which are now addressed.

P13 line 11 ‘compliation’…I think should be ‘compilation’

Response: This has been corrected.

P13 line 25 This sentence doesn’t all make sense… Prior to implementation commencement, a clinical leadership forum was held, consisting of a one-hour video-conference session based and (???) engaged participants from site B and the two regional hospitals sites (which was part of a ‘conduct educational meetings’ strategy).

Response: This has been corrected, the sentence now reads - Prior to implementation commencement, a clinical leadership forum was held, consisting of a one-hour video-conference session that engaged participants from site B and the two regional hospitals sites (which was part of a ‘conduct educational meetings’ strategy).

P18 line 46 I think there is a redundant ‘to’ in this sentence…These limitations of the intervention, rather than of the implementation design, should be canvassed with MDTs if they consider to (?) adapting the template for local use.

Response: This has been corrected, the sentence now reads - These limitations of the intervention, rather than of the implementation design, should be canvassed with MDTs if they consider adapting the template for local use.