

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

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| <b>TITLE (PROVISIONAL)</b> | Medical leadership – a boon or barrier to organisational performance? A thematic synthesis of the literature |
| <b>AUTHORS</b>             | Savage, Mairi; Savage, Carl; Brommels, Mats; Mazzocato, Pamela   |

### VERSION 1 – REVIEW

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| <b>REVIEWER</b>        | Robyn Clay-Williams<br>Macquarie University, Australia |
| <b>REVIEW RETURNED</b> | 12-Dec-2019  |

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| <b>GENERAL COMMENTS</b> | <p>Thank you for the opportunity to review your paper titled 'Physicians in the management and leadership of health care: A systematic review of the conditions conducive to organizational performance'. The study aimed to systematically explore the conditions instrumental for medical leadership to have an impact on organizational performance. It is an interesting and well-written study, which provides insights from the literature on positive and negative aspects of medical leadership. I have identified three major and one minor suggestion(s) for revision, as follows:</p> <p>Major</p> <p>Medical leadership model. You do not have enough evidence from your review to underpin the model, in particular the dependencies you suggest in the cycles. I think the review stands alone without this model, and the findings would be more robust if the hypothetical model and the associated discussion were removed.</p> <p>Search strategy. The search was conducted up to mid August 2018. As this is nearly 18 months ago, the search should be updated. In addition, the full search strategy for each database should be provided, either in the main paper or (if lengthy) as supplementary material.</p> <p>Assessment of risk of bias. I do not agree with your rationale for not assessing risk of bias (page 6), or that not assessing risk of bias for qualitative studies is an "established convention" (page 7). The supporting references you cite are a paper on scoping reviews (which is not the type of review you have conducted), and the ENTREQ paper (which, while it mentions the difficulty associated with assessing quality of reported studies, then goes on to give examples of how it might be done). In a systematic review, it is usual to assess and report bias/quality of studies regardless of the heterogeneity of the study designs/contexts. While this may not be easily done using a standardized instrument, some assessment on each included paper should nevertheless be made to enable the</p> |
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|  | <p>reader to judge the strength of evidence on which you base your findings.</p> <p>Minor</p> <p>Data extraction. More information is needed on the data analysis phase (or perhaps just clarification of the language you use to describe this phase). While your aim is to explore the conditions instrumental for medical leadership to have an impact on organizational performance, it seems that your description of extraction and analysis only includes how the first part of your aim “conditions instrumental for medical leadership” was conceptualized. Please include a description of how you identified or conceptualized organizational performance and the process you used to link conditions of medical leadership with performance. Also, you mention that validity testing was conducted: can you provide more information on your validity test – how many clinicians/managers participated, for example, and to what degree were they in agreement?</p> |
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| <b>REVIEWER</b>        | Lois Meyer<br>Faculty of Medicine,<br>University of New South Wales<br>Sydney, Australia |
| <b>REVIEW RETURNED</b> | 16-Dec-2019  |

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| <b>GENERAL COMMENTS</b> | <p>This is a well conceived and executed study using a systematic literature review investigating the impact of physician leadership on organisational performance and the paper presents interesting and valuable new insights on this area of scholarship.</p> <p>The stated aim of the research is "to explore the conditions instrumental for medical leadership" to have an impact on organisational performance. In so doing it's noted that the use of the term 'instrumental' is a potentially challenging one that deserves some attention in the text. It would be helpful to clarify briefly just what is being sought through this aim. In seeking to explore the conditions "instrumental" for medical leadership to have an impact is it the intention to identify the most important influences causing an impact? How far is one seeking to go with causation? with most important issues?</p> <p>The Abstract could be presented in a slightly more balanced way and with greater clarity. In particular it is suggested that the Methods states a systematic literature review was conducted before noting the search strategy. Under Results in the Abstract Line 33 it should read 1) A movement from medical professionalism...Under Conclusions Line 55 to says "leadership would benefit from a more integrative mental model of management" but I would suggest that given the paper it is not a mental model being proposed but simply a more integrative model of management.</p> <p>Methods: The stated procedures in the review follow accepted methods for this type of review, and the authors have provided supplementary materials supporting adherence to these methods.</p> <p>Results: The initial overview of the themes identified in the results section and Table 1 'Descriptive themes, categories and sub-categories identified through the thematic synthesis' on pp 8-9</p> |
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|  | <p>provides an excellent distillation of the findings and is a valuable outcome of this research for the field.</p> <p>It is noted that there is a minor difference of language in the table and the text on theme three where in the text it is described as "Organisational practices to nurture willing vs incidental leaders" and in the table it is presented as " Organisational practices to support incidental vs willing leaders".</p> <p>The remainder of the results section of the paper is problematic in that it is uneven in the structuring of the findings and the quality of the analysis with a major disjunction in the presentation of the findings in discussing the three themes as outlined in Table 1. Pages 10 - 14 that outline the findings of the systematic literature review addressing Themes 1 and 2. These two themes in contrast to Theme 3 are presented first around the impeding conditions and then around the facilitating conditions and provide little synthesis and linking back of the literature to the actual theme being discussed. In contrast the Results section on Theme 3 presented on pp14-18 presents the findings under the sub themes and does not split the results under the impeding and facilitating factors. Further the findings are presented in this theme in a cohesive evidence-informed argument directing the reader towards possible strategies for action. This is a significant difference within the paper and for consistency alone the Results section needs to be revised so that there is not this issue. It is highly recommended that Theme 1 and 2 are revised to follow the same format and standard of analysis as Theme 3 as here the findings are presented in a nuanced way that allows the complexity of the conditions that can impact on organisations to be illuminated. I would like to note that there is a verbal tension - issue in the language around the third theme of Organisational practices that deserves a little more consideration. It is not only that Table 1 presents the Theme as "Organisational practices to support incidental vs willing leaders" rather than "Organisational practices to nurture willing vs incidental leaders". Even if the latter is inserted into the table the implication is that organisations still nurture incidental leaders. Perhaps the theme might be "Organisational practices that provide incidental vs nurture willing leaders"? Given the importance of the focus then on willing vs incidental leadership that follows and is the basis of the schemata in Figure 4 and the Discussion section of the paper, I suggest it is important to more fully clarify the language around the theme earlier on in the paper to then support the final argument and valuable schemata model proposed (Figure 4).</p> <p>While there are issues within the paper in terms of consistency I commend the authors on the overall outcomes of the study and find the quality of the overall conceptual outcomes innovative and enriching for the field.</p> |
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| <b>REVIEWER</b>        | Joseph Hopkins, MD, MMM<br>Stanford Health Care<br>Stanford Medicine<br>United States |
| <b>REVIEW RETURNED</b> | 18-Dec-2019   |

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| <b>GENERAL COMMENTS</b> | This is a very important study contrasting the vicious cycle and the virtuous cycle. Other studies, many cited by the authors, have shown positive impact of physician leadership on healthcare systems and outcomes. Few, if any, have contrasted these positive impacts with other actions that physicians may do that |
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|  | detract from performance. I believe this is not widely appreciated. The following themes about leadership styles and development of leaders provide the path for supporting the virtuous cycle. |
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### VERSION 1 – AUTHOR RESPONSE

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| <b>Reviewer: 1</b>  |   |
| Reviewer Name: Robyn Clay-Williams<br>Institution and Country: Macquarie University, Australia  |   |
| <i>Thank you for the opportunity to review your paper titled 'Physicians in the management and leadership of health care: A systematic review of the conditions conducive to organizational performance'. The study aimed to systematically explore the conditions instrumental for medical leadership to have an impact on organizational performance. It is an interesting and well-written study, which provides insights from the literature on positive and negative aspects of medical leadership. I have identified three major and one minor suggestion(s) for revision, as follows:</i>  |   |
| <b>Major revisions</b>  |   |
| <input type="checkbox"/> Medical leadership model. You do not have enough evidence from your review to underpin the model, in particular the dependencies you suggest in the cycles. I think the review stands alone without this model, and the findings would be more robust if the hypothetical model and the associated discussion were removed.  | Thank you for a relevant concern. According to Thomas & Arden, and as described in the methods section, going beyond the primary studies by generating <i>new interpretative constructs, explanations and hypothesis</i> is a critical component of thematic synthesis. The virtuous and vicious cycles of medical leadership are the result of an additional analytical step, a higher-order interpretation. To able to make that clearer, changes were made in the methods section, results section was radically re-organized and the cycles were presented under an additional heading called Synthesis. We hope these changes help the reader to better follow and assess the analytical process and findings. |
| <input type="checkbox"/> Search strategy. The search was conducted up to mid August 2018. As this is nearly 18 months ago, the search should be updated. In addition, the full search strategy for each database should be provided, either in the main   | The search was updated on the 21 <sup>st</sup> of January and full search strategy is provided as Appendix 2.   |
| <p>paper or (if lengthy) as supplementary material.</p> <input type="checkbox"/> Assessment of risk of bias. I do not agree with your rationale for not assessing risk of bias (page 6), or that not assessing risk of bias for qualitative studies is an "established convention" (page 7). The supporting references you cite are a paper on scoping reviews (which is not the type of review you have conducted), and the ENTREQ paper (which, while it mentions the difficulty associated with assessing quality of reported studies, then goes on to give examples of how it might be done). In a systematic review, it is usual to assess and report bias/quality of studies regardless of the heterogeneity of the study designs/contexts. While this may not be easily done using a standardized instrument, some assessment on each included paper should nevertheless be made to enable the reader to judge the strength of evidence on which you base your findings. | While this still remains a debated question, we conducted a critical appraisal of all included studies (See pages 7, 22-23 in main manuscript). The details are available as Appendix 3.  |



| <b>Minor</b>  |  |
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| <input type="checkbox"/> Data extraction. More information is needed on the data analysis phase (or perhaps just clarification of the language you use to describe this phase). While your aim is to explore the conditions instrumental for medical leadership to have an impact on organizational performance, it seems that your description of extraction and analysis only includes how the first part of your aim "conditions instrumental for medical leadership" was conceptualized.  | <p>We elaborated on what we meant by conditions (p7). We have also changed the wording of the aim to <i>explore the conditions that can either facilitate or impede the influence of medical leadership on organisational performance</i> (p4)</p> |
| <input type="checkbox"/> Please include a description of how you identified or conceptualized organizational performance and the process you used to link conditions of medical leadership with performance.  | <p>Given the inductive approach to analysis, we did not conceptualize organizational performance in any particular way but coded based on the way the primary studies described performance. (p7)</p>  |
| <input type="checkbox"/> Also, you mention that validity testing was conducted: can you provide more information on your validity test – how many clinicians/managers participated, for example, and to what degree were they in agreement?   | <p>We have changed "validity testing" to "presented" the study (p7). One can see this as a way to improve trustworthiness or face validity.</p>  |
| <p><b>Reviewer: 2</b><br/>           Reviewer Name: Lois Meyer<br/>           Institution and Country: Faculty of Medicine, University of New South Wales, Sydney, Australia<br/> <i>This is a well conceived and executed study using a systematic literature review investigating the impact of physician leadership on organisational performance and the paper presents interesting and valuable new insights on this area of scholarship.</i></p>  |  |
| <input type="checkbox"/> The stated aim of the research is "to explore the conditions instrumental for medical leadership" to have an impact on organisational performance. In so doing it's noted that the use of the term "instrumental" is a potentially challenging one that deserves some attention in the text. It would be helpful to clarify briefly just what is being sought through this aim. In seeking to explore the conditions "instrumental" for medical leadership to have an impact is it the intention to identify the most important influences causing an impact? How far is one seeking to go with causation? with most important issues? | <p>Thank you for your well-grounded attention to language. This prompted us to change the aim to: <i>explore the conditions that can either facilitate or impede the influence of medical leadership on organizational performance</i> (p4)</p>    |
| <input type="checkbox"/> The Abstract could be presented in a slightly more balanced way and with greater clarity. In particular it is suggested that the Methods states a systematic literature review was conducted before noting the search strategy. Under Results in the Abstract Line 33 it should read 1) A movement from medical professionalism...Under Conclusions Line 55 to says "leadership would benefit from a more integrative mental model of management" but I would suggest that given the paper it is not a mental model being proposed but simply a more integrative model of management.  | <p>Changes have been incorporated (p2-3)</p>   |

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| <p>□ Methods: The stated procedures in the review follow accepted methods for this type of review, and the authors have provided supplementary materials supporting adherence to these methods.</p>  | <p>Thank you.</p>  |
| <p>□ Results: The initial overview of the themes identified in the results section and Table 1 'Descriptive themes, categories and sub-categories identified through the thematic synthesis' on pp 8-9 provides an excellent distillation of the findings and is a valuable outcome of this research for the field.</p> <p>It is noted that there is a minor difference of language in the table and the text on theme three where in the text it is described as "Organisational practices to nurture willing vs incidental leaders" and in the table it is presented as " Organisational practices to support incidental vs willing leaders".</p> <p>The remainder of the results section of the paper is problematic in that it is uneven in the structuring of the findings and the quality of the analysis with a</p>   | <p>Thank you for your attention to detail. The wording of the third theme has now been changed to "Organisational practices that <i>form</i> incidental vs willing leaders". Results describing Themes 1 and 2 have been changed to mirror the structure of Theme 3. (p8-16)</p> |
| <p>major disjunction in the presentation of the findings in discussing the three themes as outlined in Table 1. Pages 10 - 14 that outline the findings of the systematic literature review addressing Themes 1 and 2. These two themes in contrast to Theme 3 are presented first around the impeding conditions and then around the facilitating conditions and provide little synthesis and linking back of the literature to the actual theme being discussed. In contrast the Results section on Theme 3 presented on pp14-18 presents the findings under the sub themes and does not split the results under the impeding and facilitating factors. Further the findings are presented in this theme in a cohesive evidence-informed argument directing the reader towards possible strategies for action. This is a significant difference within the paper and for consistency alone the Results section needs to be revised so that there is not this issue. It is highly recommended that Theme 1 and 2 are revised to follow the same format and standard of analysis as Theme 3 as here the findings are presented in a nuanced way that allows the complexity of the conditions that can impact on organisations to be illuminated.</p> |  |



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| <p>□ I would like to note that there is a verbal tension - issue in the language around the third theme of Organisational practices that deserves a little more consideration. It is not only that Table 1 presents the Theme as "Organisational practices to support incidental vs willing leaders" rather than "Organisational practices to nurture willing vs incidental leaders". Even if the latter is inserted into the table the implication is that organisations still nurture incidental leaders. Perhaps the theme might be "Organisational practices that provide incidental vs nurture willing leaders"? Given the importance of the focus then on willing vs incidental leadership that follows and is the basis of the schemata in Figure 4 and the Discussion section of the paper, I suggest it is important to more fully clarify the language around the theme earlier on in the paper to then support the final argument and valuable schemata model proposed (Figure 4).</p> | <p>The theme has been changed into "Organisational practices that <i>form</i> incidental vs willing leaders"</p> |
| <p>□ While there are issues within the paper in terms of consistency I commend the authors on the overall outcomes of the</p>   | <p>Thank you.</p>  |

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| <p>study and find the quality of the overall conceptual outcomes innovative and enriching for the field.</p>   |                   |
| <p><b>Reviewer: 3</b><br/> Reviewer Name: Joseph Hopkins, MD, MMM<br/> Institution and Country: Stanford Health Care, Stanford Medicine, United States</p>   |                   |
| <p>This is a very important studying contrasting the vicious cycle and the virtuous cycle. Other studies, many cited by the authors, have shown positive impact of physician leadership on healthcare systems and outcomes. Few, if any, have contrasted these positive impacts with other actions that physicians may do that detract from performance. I believe this is not widely appreciated. The following themes about leadership styles and development of leaders provide the path for supporting the virtuous cycle.</p> | <p>Thank you.</p> |

### VERSION 2 – REVIEW

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| <p><b>REVIEWER</b></p>         | <p>Robyn Clay-Williams<br/> Australian Institute of Health Innovation, Macquarie University, Australia</p>                         |
| <p><b>REVIEW RETURNED</b></p>  | <p>01-Mar-2020</p>   |
| <p><b>GENERAL COMMENTS</b></p> | <p>Thank you for the opportunity to review your revised paper titled 'Medical leadership – a boon or barrier to organizational</p> |

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|  | <p>performance? A thematic synthesis of the literature'. This well-written study aimed to systematically explore the conditions that can either facilitate or impede the influence of medical leadership on organisational performance.</p> <p>I like everything about this extensive revision, and commend you on the final version: this is a robust study that provides a valuable and unique contribution to our understanding of medical leadership and how it may influence organizational performance.</p> <p>Thank you, in particular, for updating the search and providing both the full search strategy and critical appraisal of included studies. I realise this has involved a lot of extra effort, but inclusion of this material is critical for others in using and interpreting your findings, and means that scholars can also now build on your work. I also appreciate the changes you have made in reporting your thematic analysis and in clarifying your process of synthesis of the evidence to develop the medical leadership model, and accept your argument for its inclusion.</p> |
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