

Author's response to reviews

Title: A work force model to support the adoption of best practice care in Chronic Diseases - A missing piece in clinical guideline implementation

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To the Editors Implementation Science

Manuscript revision

Leonie Segal, Kim Dalziel and Tom Bolton, 'A workforce model to support the adoption of best practice in Chronic Diseases – A missing piece in clinical guideline implementation'

Please find attached a revised manuscript in response to reviewer's comments.

We have made revisions as described below- in which we note the reviewers comments together with our response, and revisions to the manuscript.

Regards

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Response to Reviewers Comments

Referee 1- Susan Nancarrow Comments	Authors' Response
<p>This paper adds to the body of literature on workforce planning by attempting to link workforce planning for chronic disease management with best practice guidelines. It is a relatively novel approach in that it is a model that could be used to address multi-professional workforce needs rather than simply uni-disciplinary workforce models. This type of model may be of use to workforce planners and service managers. The authors acknowledge that within their model, flexible approaches to workforce provision may be necessary (ie, different professional or para-professional groups may be able to deliver the same tasks). However, whilst the authors illustrate the way that their model may apply using diabetes clinical guidelines as an example, the model uses broad generalisations, rather than specific, transferable findings.</p> <p>In principle, this could be a useful basis for guiding workforce planning, however I feel that the following revisions would strengthen the paper and the arguments of the authors</p>	<p>We concur. No comment needed.</p>
<p>Minor essential revisions:</p> <p>1. There is relatively little reference to the wide array of workforce planning tools that are available internationally. For instance, there is no reference to any of the workforce planning tools that have been developed by the NHS... in particular the 'National Workforce Project' planning tools (eg workforce scorecard). There are also several attempts at developing workforce metrics which should be considered in this section. These are needed to justify the approach suggested by the authors.</p>	<p>In the manuscript we cite several examples of health workforce research, but note that most of this is concerned with supply side issues and particularly with strategies to increase the health workforce, through policies to promote retention or recruitment. We have now included reference to UK health workforce activities, noting again much although not all is concerned with supply-side issues. The demand side aspects of this work are also now mentioned. See below. (p5, para 3 & 4)</p> <p>.... and a considerable program of work in the UK on health workforce planning for primary care. [22, 23] This has been concerned in large part with increasing the capacity and efficiency of the health workforce. Strategies put in place to do this are have been broadly successful, although at considerable cost [23].</p> <p>UK Health workforce planning is also concerned with understanding workforce demand [24], primarily at the primary care trust level and in the context of health services planning. Identifying future demand is a core component of the health workforce planning framework, but how this is to proceed is described in general rather than explicit terms [24].</p>

	<p>.....(p6 para 3)</p> <p>Hurst has also taken the estimation of the health workforce market further, developing a comprehensive linked data set that could be used to explore both health workforce demand, as defined here, as well as supply. Thus far, the data set created has largely been used to provide comparative data, and exactly how it might be used to estimate demand is not yet described. [28]</p> <p>Additional references</p> <p>22. Buchan J, Handcock C, Rafferty A: Health Sector Reform and Trends in the United Kingdom Hospital Workforce: Hospital Restructuring. <i>Medical Care</i> 2007, 35:143-150.</p> <p>23. Klien R: The Troubled Transformation of Britain's National Health Service. <i>The New England Journal of Medicine</i> 2006, 355:409-414.</p> <p>24. Primary care workforce planning framework [www.natpact.nhs.uk]</p> <p>28. Hurst K: Primary and Community care workforce planning and development. <i>Journal of Advanced Nursing</i> 2006, 55:757-769.</p>
<p>2. The authors do not mention ways that they will determine the success or otherwise of this workforce planning approach (eg outcomes). Feedback mechanisms are mentioned, but more specific examples would be valuable.</p>	<p>A paragraph has been added at p 13. This is still described in relatively general terms as a precise description of tests of performance and feedback mechanisms can only be developed in the context of a specific application of the framework.</p> <p>'The performance of the model is to be assessed in the first instance in terms of capacity for implementation; which essentially concerns access to necessary data and ability to develop robust sets of assumptions to complete the analysis. The ultimate test of performance must also include whether it is found to offer a useful contribution to workforce planning, health services planning and education and training policy and whether this in turn supports the adoption of clinical best practice care and are expected improvements in patient health outcomes.' P13 para 5</p>
<p>3. Whilst the authors acknowledge the potential for workforce substitution/flexibility within this approach, they have not discussed the impact of the informal/voluntary workforce and how this can be accommodated within the model.</p>	<p>Some changes are made to p12 paragraph 4, to include reference to informal care and more broadly to change in health care technology</p> <p><i>Technology of care delivery</i> – Approaches to care delivery change over time with new understandings about disease processes and impact of care, access to new treatments and the influence of cost pressures etc. In expressing requirements in terms of competencies rather than occupations, this will more readily allow modelling to consider likely factor substitution (between health professional groups) and the</p>

	<p>possible substitution between the formal and informal care sector. However where technology change means a shift in competencies which are recognised in revised guidelines, this can only be accommodated by adjusting the model periodically to reflect new information, which should be built into the planning cycle. Attempting to predict new technology is unlikely to be successful.</p>
<p>4. It is not clear from this paper exactly which health care setting this model is designed to apply to. Several of the examples are drawn from Australia, and the authors propose a 'geographic' approach to the model. However, health workforce provision (and therefore planning) will not always fit within neat geographic boundaries. For instance, in the UK health care practitioners do not always work within the same geographic boundary as each other. Different funding sources (eg public / private / veterans' affairs etc) will impact on the accessibility of providers - for instance in Australia and the US, people within the same geographic region do not have equal access to health care provision, regardless of health status.</p>	<p>The region is the logical planning frame for the model, and the framework is expected to be readily applicable in a wide range of settings. The model explicitly provides for the inclusion of region specific data. Given the focus on need rather than demand, issues of funding and access are not pertinent.</p>
<p>5. Whilst, as the authors point out, there are several clinical guidelines, diabetes is one of the few diseases which clearly lends itself to this level of workforce planning because the multidisciplinary team is relatively well defined and agreed.</p> <p>The complications and disease progress are relatively well known. However other chronic conditions, such as stroke and dementia have far more variation in their disease courses - and still lack clear consensus on the staffing and organisation of the models of chronic care provision. It would be valuable to see the authors apply this model to a more complex condition. Further... the authors propose that this model could potentially address several comorbidities, a concept which needs further exploration.</p>	<p>If there is no agreement about care needs 'evidence-based' workforce planning will be problematic, regardless of the proposed model.</p> <p>This framework does rely on a 'reasonable consensus' concerning best practice approaches to care. We already note the thousands of published clinical guidelines (p3 Box 1) and the on-going process of guideline development.</p> <p>Describing in detail how to deal with comorbidities is beyond the scope of the current paper, and noted as a matter that can only be explored via implementation.</p>
<p>The references need a bit of attention (it looks as though the reference manager hasn't formatted them properly).</p>	<p>References have been checked and revised as necessary.</p>

Referee 2- Carolyn J Green comments	Authors' Response
<p><i>1. Is the question posed by the authors new and well defined?</i></p> <p>No question was posed however this is not an empirical work. Therefore, the questions suggested for reviewers do not fit the purpose of the paper – to propose a logical model. Suggestion: It could be useful to incorporate a question into the background ie, What human resources are required to implement best practice CPGs on CDM? Then an explanation of how this initial model is an important first step in developing an evidence-based human resource model for implementing CDM CPGs could follow. ie, Presentation of this analysis is preliminary to implementing and testing the model in actual planning efforts. Subsequent testing could evaluate whether this model predicts actual shortfall and whether use of the model results in increases in performance in alignment with CPG defined care.</p>	<p>We have included a research question at the conclusion of the Background section p.7 para 2</p> <p>“In short this paper seeks to answer the question; ‘What human resources are required to implement best practice CPGs in chronic disease management?’ ”</p> <p>We have also modified the conclusion to note the place of the model in health system reform and the ultimate measure of performance, (p.14 para 2 & 3)</p> <p>“The proposed health workforce model is an important first step in developing an evidence-based human resources framework for implementing chronic disease management consistent with clinical practice guidelines that offers an evidence-based alternative to the commonly used simplistic methods (like population ratios). Application of the model will allow planners to determine the gap between the current health workforce and that required for evidence based practice, to inform service planning and education and training policy.</p> <p>The achievement of best practice care and enhanced health and wellbeing of persons with chronic disease presumes however that related health system reform elements are simultaneously pursued. It is also the case that if clinical guidelines are not based on evidence regarding effective and cost-effective care, then supporting the delivery of care consistent with clinical guidelines will not achieve the promised gains in health and wellbeing. For this reason, the ultimate test of model performance is whether clinical practice is better aligned with CPG and whether through this, the expected improvement in patient outcomes are realised”</p>
<p>In support of the model, the justification for rationalizing human resource planning by using a model that combines population (epidemiological) parameters with clinical practice guideline prescribed care is well presented. The background seems long at 3+ pages and could be tightened up some more, however many readers with little background in CDM and/or CPGs may require this to understand the usefulness of these in modelling human resource planning.</p>	<p>We note comments about the length of the Background, but have not changed the Background. This reflects feedback from others, which suggest that many readers will not be familiar with the arguments, which are essential to understanding the logic of the model. The reviewer does acknowledge that a longer than usual background might in fact be useful.</p>
<p>In general the background section is well referenced. An exception is the statement (p 4 last para, sentence 3) “This [clinical decision support systems] is likely to be most effective where combined with patient enrolment as we find in the UK and New Zealand.” A citation to support such a strong statement would be useful. Also more explicit explanation would be useful as it is not perfectly clear what</p>	<p>A reference is provided to the benefits of enrolled populations (reference 14). The arguments in favour of enrolled populations in short relate to vesting responsibility for care with a single fundholder, the opportunity for a more comprehensive knowledge of the patient and their care needs and incentives that promote long term rather than episodic care, especially if combined with needs adjusted capitation funding and quality audit and accountability mechanisms. However we have not included further discussion on this</p>

<p>the authors find self-evident.</p>	<p>matter in the Paper as the comment about enrolled populations is essentially presented as background and not a primary focus of the paper. It was felt that a discussion of this matter would be a distraction.</p>
<p><i>2. Are the methods appropriate and well described, and are sufficient details provided to replicate the work?</i></p> <p>The figure as illustrated by the diabetes example provides a reasonably clear description. I was involved in a human resource planning exercise that this model would have provided an appropriate and useful framework. A limitation is that there is much that is not sufficiently detailed to replicate as it is dependent in part on the local health system configuration as well as local human resource availability.</p>	<p>Re replication of the model – In the paper we recognise that any particular application will need to take account of the local human resource and health service system and we provide a general framework for doing this; notably via tasks 6 to 8. (Fig 1 p 19)</p> <p>Some adjustments to the model description have been made to strengthen this section, especially regarding the use for modelling to explore the impact of alternative parameter values. See new text incorporated into the description of Tasks 6, 7 & 8 on p9.</p>
<p><i>3. Are the data sound and well controlled?</i></p> <p>Again this question does not fit the analysis. The logical assumptions upon which the model is based appear to be sound. Data are available in many jurisdictions to be drawn into the model.</p>	<p>We concur. No comment needed</p>
<p><i>4. Does the manuscript adhere to the relevant standards for reporting and data deposition?</i></p> <p>I could not open the file.MYD which seems to require MYSQL software so would appreciate a more accessible supplementary data file.</p>	<p>There are no data files associated with the paper.</p>
<p><i>5. Are the discussion and conclusions well balanced and adequately supported by the data? Yes and no.</i></p> <p>The limitations of the analysis are side stepped by statements in the conclusion such as the one on p 14 “undoubtedly there are important practical and theoretical issues to be explored”. Yet the authors counter this with 2 arguments: 1) without the providers with the right skill set other strategies such as CPG development and dissemination could not produce best care and 2) the simplistic</p>	<p>A new section has been added at the end of the discussion on p13 paragraph 4 as follows:</p> <p>“One of the strengths of the proposed model is that it provides an opportunity and framework in which to analyse the impact of varying assumptions about definition of disease and at risk populations, estimating skill inputs from care protocols and translating skills and competencies into professional groupings occupations. It is proposed that an expert clinical and policy advisory committee be established as part of model implementation to inform the sets of assumptions incorporated into the modelling. “</p>

<p>methods in current use are clearly inadequate. Whereas I basically agree with this line of reasoning, the authors have sidestepped an itemization and discussion of important and relevant issues.</p> <p>For example, while the authors allude to the assumption that a workforce capable of delivering best practices care is of social value, there is also societal preferences and financial incentives for care by physicians that this model would run counter to. These will not be easily overcome and so it makes sense to present this model as a piece of a larger improvement, primary care reform effort within which this model would provide benefit.</p>	<p>Additionally, the conclusion has been redrafted with additional paragraphs as follows:</p> <p>“The proposed health workforce model is an important first step in developing an evidence-based human resources framework for implementing chronic disease management consistent with clinical practice guidelines that offers an evidence-based alternative to the commonly used simplistic methods (like population ratios). Application of the model will allow planners to determine the gap between the current health workforce and that required for evidence based practice, to inform service planning and education and training policy.</p> <p>The achievement of best practice care and enhanced health and wellbeing of persons with chronic disease presumes however that related health system reform elements are simultaneously pursued. It is also the case that if clinical guidelines are not based on evidence regarding effective and cost-effective care, then supporting the delivery of care consistent with clinical guidelines will not achieve the promised gains in health and wellbeing. For this reason, the ultimate test of model performance is whether clinical practice is better aligned with CPG and whether through this, the expected improvement in patient outcomes are realised.” P 14</p>
<p><i>6. Do the title and abstract accurately convey what has been found?</i></p> <p>Yes and no. As this was not an empirical study there are no findings however the proposed model is a useful contribution to academic literature. The title and abstract adequately convey the content of the paper.</p>	<p>No response needed</p>