



## **Appendix 1**

**This appendix was part of the submitted manuscript and has been peer reviewed.  
It is posted as supplied by the authors.**

Appendix to: Janamian T, Jackson CL, Glasson N, Nicholson C. A systematic review of the challenges to implementation of the patient-centred medical home: lessons for Australia. *Med J Aust* 2014; 201 (3 Suppl): S69-S73. doi: 10.5694/mja14.00295.

## **Appendix 1: Methods**

The objective was to review the available literature to identify the major challenges and barriers to implementation and adoption of the PCMH model.

### **Search strategy**

The databases PubMed and Embase were searched in December 2012 for studies published in English between January 2007 and December 2012 (and 2013 in-press online articles). This time-frame was used for the search strategy because it aligns with the published *Joint Principles of the PCMH* in 2007 in the US.<sup>1</sup>

The following search terms were used: “patient centered medical home” or “patient centred medical home” or “medical home” or “PCMH” to capture all literature including any of these terms in either the title and / or the abstract. Appendix 2 (online at [mja.com.au](http://mja.com.au)) provides details of the search strategy for Pubmed and Embase.

A snowballing strategy was used to identify other related citations through the reference list of all reviewed articles. All additional citations identified through snowballing underwent the screening and data extraction processes as described below. All searches were designed and conducted in collaboration with an experienced search librarian. All citations were imported into an electronic bibliographic database (Endnote Version x5).

### **Screening and study selection criteria**

The initial screening of studies involved two researchers independently reviewing the title and abstract of each article for potential relevance to the review objective. Abstracts were included if they met the following inclusion criteria: 1) published between 2007-2012; 2) in English; 3) reported information or data related to the review objective; 4) used the PCPCC Joint Principles of the PCMH as the definition for PCMH or at least mentioned some components of the PCMH Joint Principles<sup>1</sup> (for example the study focused specifically on one aspect of the PCMH such as e-health or care coordination). There were no restrictions on study design or country of study. A screening assessment form was used to guide selection of relevant studies. Where there was any doubt as to the relevance of the study it remained in the list and reviewed by a third researcher. Abstracts remained in the list if they did not contain

sufficient information for a decision to exclude to be made. The results of the screening were recorded against the citation in Excel spreadsheets for comparison purposes and any disagreements were resolved by a third reviewer.

Articles included during the initial screening by either reviewer underwent full-text screening. At the full-text screening stage, one reviewer with expertise in the area reviewed the full text of each article and indicated a decision to include or exclude the article for data abstraction. If the reviewer was unable to reach a decision about whether to include or exclude an article, a second reviewer was asked to review the article in question and make a decision. Articles meeting the eligibility criteria were included for data abstraction.

Two reviewers independently assessed the quality of each study included in the review. Discrepancies between the two reviewers were resolved through discussion. We applied ten quality criteria that were common to sets of criteria proposed by research groups for qualitative or non-experimental research (Box 1).<sup>2-4</sup> This quality criteria was deemed appropriate because it covered a range of important areas pertaining to the qualitative aspect of the data and the relevance of the data in addressing our review objective.<sup>2-4</sup>

### **Data extraction**

A data extraction form was created by the investigative team to assist in systematically extracting information on the study design (type of study, method, and setting) and key findings related to the review objective. One researcher with content knowledge in the area abstracted the data from the eligible articles and entered these into an Excel spreadsheet ready for synthesis. A second researcher reviewed the abstracted data alongside the original article to check for accuracy and completeness. Disagreements were resolved by consensus or by obtaining a third reviewer's opinion if the first two investigators could not reach consensus.

### **Data synthesis**

Thematic synthesis was used in three stages which overlapped to some degree, this included: the free line-by-line coding of data; the organisation of these 'free codes' into related areas to construct 'descriptive' themes and the development of 'analytical' themes.<sup>5</sup> Two independent reviewers were involved in this process. Before completing the first two stages of the synthesis, reviewers examined all the text which had a given coding unit applied (e.g. words or terms) to check for consistency of interpretation and to see whether additional levels of

coding units were needed. Then reviewers looked for similarities and differences between the coding units in order to start grouping them into a hierarchical structure. New coding units were created to capture the meaning of groups of initial coding units.<sup>5,6</sup> This iterative process resulted in several layers of descriptive themes from which seven key analytical themes were generated, including to some extent overlapping of themes. Themes were not created to be mutually exclusive, but in order to represent the best conception of the data.<sup>5-7</sup>

Data was configured at a study level using top-down approach which allowed individual findings from broad study types to be organised and arranged into a coherent theoretical rendering.<sup>7</sup> Synthesis matrices were developed in Excel based on the themes pertaining to the review objective allowing data to be recorded, synthesised and compared.

## References

1. American Academy of Family Physicians, American Academy of Paediatrics, American College of Physicians, & American Osteopathic Association. Joint principles of the Patient-Centered Medical Home, March 2007, American College of Physicians, Washington: [http://www.acponline.org/running\\_practice/delivery\\_and\\_payment\\_models/pcmh/demonstrations/jointprinc\\_05\\_17.pdf](http://www.acponline.org/running_practice/delivery_and_payment_models/pcmh/demonstrations/jointprinc_05_17.pdf) (accessed Dec 2012).
2. Harden A, Garcia J, Oliver S, et al. Applying systematic review methods to studies of young people's views. *J Epidemiol Commun Health Aff Millwood* 2004; 58: 794-800.
3. Kmet LM, Lee RC, Cook LS. Standard Quality Assessment Criteria for Evaluating Primary Research Papers. The Alberta Heritage Foundation for Medical Research: Edmonton, Canada, February 2004. <http://www.ihe.ca/documents/HTA-FR13.pdf> (accessed December 2012).
4. Pawson R, Greenhalgh T, Harvey G, et al. Realist review--a new method of systematic review designed for complex policy interventions. *J Health Serv Res Policy* 2005; July 10 Suppl1: 21-34.
5. Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Med Res Meth* 2008; 8: 45.
6. Barnieh L, King-Shier K, Hemmelgarn B, et al. Views of Canadian patients on or nearing dialysis and their caregivers: a thematic analysis. *Canadian Journal of Kidney Health and Disease* 2014, 1:4.
7. Sandelowski M, Voils CI, Leeman J, et al. Mapping the mixed methods – mixed research synthesis terrain. *J Mix Methods Res* 2012; 6(4): 317-331.