An evaluation of the quality of evidence underpinning diabetes management models: a review of the literature

Deborah Schofield1,2 PhD, Professor of Health Economics
Michelle M. Cunich2,4 PhD, Research Fellow
Lucio Naccarella3 PhD, Senior Research Fellow

1School of Public Health, Sydney Medical School, The University of Sydney, Locked Bag 77, Camperdown, NSW, 1450, Australia. Email: deborah.schofield@ctc.usyd.edu.au
2NHMRC Clinical Trials Centre, Sydney Medical School, The University of Sydney, Locked Bag 77, Camperdown, NSW, 1450, Australia.
3The Australian Health Workforce Institute, The University of Melbourne and General Practice Victoria, Level 3, 766 Elizabeth Street, The University of Melbourne, Parkville, Vic. 3010, Australia. Email: l.naccarella@unimelb.edu.au
4Corresponding author. Email: michelle.cunich@ctc.usyd.edu.au

Abstract
Objective. There is a paucity of research on the quality of evidence relating to primary care workforce models. Thus, the aim of the present study was to evaluate the quality of evidence on diabetes primary care workforce models in Australia.

Methods. The National Health and Medical Research Council of Australia’s (National Health and Medical Research Council; 2000, 2001) frameworks for evaluating scientific evidence and economic evaluations were used to assess the quality of studies involving primary care workforce models for diabetes care involving Australian adults. A search of medical databases (MEDLINE, AMED, RURAL, Australian Indigenous HealthInfoNet and The Cochrane Institute), journals for diabetes care (Diabetes Research and Clinical Practice, Diabetes Care, Diabetic Medicine, Population Health Management, Rural and Remote Health, Australian Journal of Primary Health, PLoS Medicine, Medical Journal of Australia, BMC Health Services Research, BMC Public Health, BMC Family Practice) and Commonwealth and state government health websites was undertaken to acquire Australian studies of diabetes workforce models published 2005–13. Various diabetes workforce models were examined, including ‘one-stop shops’, pharmacy care, Aboriginal services and telephone-delivered interventions. The quality of evidence was evaluated against several criteria, including relevance and replication, strength of evidence, effect size, transferability and representativeness, and value for money.

Results. Of the 14 studies found, four were randomised controlled trials and one was a systematic review (i.e. Level II and I (best) evidence). Only three provided a replicable protocol or detailed intervention delivery. Eleven lacked a theoretical framework. Twelve reported significant improvements in clinical (patient) outcomes, commonly HbA1c, cholesterol and blood pressure; only four reported changes in short- and long-term outcomes (e.g. quality of life). Most studies used a small or targeted population. Only two studies assessed both benefits and costs of their intervention compared with usual care and cost effectiveness.

Conclusions. More rigorous studies of diabetes workforce models are needed to determine whether these interventions improve patient outcomes and, if they do, represent value for money.

What is known about the topic? Although health systems with strong primary care orientations have been associated with enhanced access, equity and population health, the primary care workforce is facing several challenges. These include a mal-distribution of resources (supply side) and health outcomes (demand side), inconsistent support for teamwork care models, and a lack of enhanced clinical inter-professional education and/or training opportunities. These challenges are exacerbated by an ageing health workforce and general population, as well as a population that has increased prevalence of chronic conditions and multi-morbidity. Although several policy directions have been advocated to address these challenges, there is a lack of high-quality evidence about which primary care workforce models are best (and which models represent better value for money compared with current practice) and what the health effects are for patients.

What does this paper add? This study demonstrated several strengths and weaknesses of Australian diabetes models of care studies. In particular, only five of the 14 studies assessed were designed in a way that enabled them to achieve a Level II or I rating (and hence the ‘best’ level of evidence), based on the NHMRC’s (2000, 2001) frameworks for assessing scientific evidence. The majority of studies risked the introduction of bias and thus may have incorrect conclusions. Only a few studies...
described clearly what the intervention and the comparator were and thus could be easily replicated. Only two studies included cost-effectiveness studies of their interventions compared with usual care.

**What are the implications for practitioners?** Although there has been an increase in the number of primary care workforce models implemented in Australia, there is a need for more rigorous research to assess whether these interventions are effective in producing improved health outcomes and represent better value for money than current practice. Researchers and policymakers need to make decisions based on high-quality evidence; it is not obvious what effect the evidence is having on primary care workforce reform.

**Additional keywords:** economic evaluation, models of care, primary care, workforce.

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### Introduction

Although health systems with strong primary care orientations have been associated with improved access, equity and population health, the primary care workforce is currently facing significant challenges. These include a mal-distribution of resources (supply-side) and health outcomes (demand-side), inconsistent support for teamwork care models and a lack of enhanced clinical inter-professional education and/or training opportunities. These challenges are exacerbated by an ageing health workforce and an ageing general population that has increased prevalence of chronic conditions and multi-morbidity.

Novel health workforce models have been advanced as a way forward to address these challenges, and growing patient and wider health system demands through new roles (e.g. nurse practitioners), support roles (e.g. allied health assistants) which may substitute for current forms of service delivery, or enhanced roles (e.g. diabetes nurses). Approaches to improve the retention of primary healthcare workers through organisational policies, increase the efficiency of the current skills mix, or improve productivity through linking pay to performance have also been advanced. Although several policy directions have been advocated, there is a lack of evidence about which primary care workforce models are best and what the health effects are for patients.

The lack of evidence to support these new directions in primary care is surprising, since it is widely acknowledged in medicine (and public health) that evidence-based medicine is essential to reduce the introduction of ineffective and expensive medical treatments.

In this paper, we draw on the National Health and Medical Research Council (NHMRC: 2000, 2001) frameworks for assessing the quality of scientific evidence and economic evaluations to evaluate the quality of evidence on primary care workforce models for diabetes care.

**The NHMRC frameworks for evaluating the quality of scientific evidence with examples from primary care workforce models**

To make a decision about whether to introduce a new care model it is important to be familiar with the quality of the evidence surrounding that model. In particular, whether the care model (intervention) is likely to achieve the aims of the intended model and whether it represents value for money.

A set of criteria established by the NHMRC (2000, 2001) to assess medical and public health research is used in this paper to appraise diabetes primary care workforce models. These criteria are summarised in Table 1. The first is whether the study states clearly what health outcomes may be achieved by the particular intervention, and whether these outcomes have been measured in appropriate units. For example, whether the new primary care model was intended to improve health outcomes or save money but produce no worse health outcomes.

### Table 1. A framework for assessing the quality of evidence relating to primary care workforce models

- **Purpose**
  - Did the study identify clinical outcomes that are appropriate and relevant?
  - Is the study design stated clearly enough so that it could be replicated?
  - Is there a logical (scientific) reason why the primary care workforce model (intervention) will have the desired effect?
  - Is it a robust study design?
  - Did the P-value or confidence interval reasonably exclude chance?
  - What are the benefits and harms (costs) of the intervention and the comparator? Do they differ between patient groups?
  - Is the study population representative of the population in which the primary care workforce model will be implemented?
  - Is the effect sustained over a relevant time horizon?
  - Is the new primary care workforce model cost effective relative to standard care?

- **Evidence**
  - Relevant and replicable
  - Theoretical framework
  - Strength of the evidence
  - Size of the effect
  - Transferable and representative
  - Duration
  - Value for money

Data from NHMRC; RCT, randomised controlled trial

- Level V: Expert opinion
- Level IV: Evidence from case series such as pre- and post- studies
- Level III: Pseudo RCTs, comparative studies, case control studies, cohort studies
- Level II: A well-designed RCT
- Level I: Systematic reviews of RCTs
- Level V: Expert opinion
Quality of evidence on diabetes models of care

Methods
Assessing the quality of evidence relating to diabetes primary care workforce models

An appraisal of primary care workforce models applied to diabetes care in Australia published in peer reviewed and ‘grey’ literature between 2005 and 2013 was undertaken. Three main areas were searched:

- key medical databases (MEDLINE, AMED, RURAL, Australian Indigenous HealthInfoNet and The Cochrane Institute)
- key academic peer review journals (Diabetes Research and Clinical Practice, Diabetes Care, Diabetic Medicine, Population Health Management, Rural and Remote Health, Australian Journal of Primary Health, PLoS Medicine, Medical Journal of Australia, BMC Health Services Research, BMC Public Health, BMC Family Practice) relating to diabetes models of care

Key search terms were ‘primary workforce’, ‘workforce models’, ‘diabetes’, ‘care models’ and ‘Australia’.

The NHMRC’s frameworks for assessing evidence (see Table 1) were applied to the studies we found involving primary care workforce models designed to improve the health of adults with diabetes. Of the 14 studies found, only five could be classified as RCTs or systematic reviews and thus correspond to the ‘best’ type of evidence (Level II or I). Nine studies constituted ‘evidence from case series’ or ‘expert opinion’ (Level IV or V). Of the higher-rated studies, one study incorporated an economic evaluation (cost-effectiveness analysis) within the RCT, whereas another was a systematic review. Note that the study by Graves et al. is rated II* rather than simply II because it not only meets the NHMRC’s (2000) standard for Level II evidence (i.e. a properly designed RCT) but it also includes an economic evaluation.

Results
All studies provided some information about study design and expected outcomes; however, only three studies provided a replicable protocol or detailed information about intervention delivery. Thirteen studies lacked a theoretical framework. Only four studies provided sufficient detail about the intervention to enable replication. Only three studies clearly stated the types of changes in health outcomes that equated to ‘clinically important’ ones.

Most studies identified, measured and valued the benefits of their particular intervention; however, only three studies identified, measured and valued the related costs. Only two of these studies had collected the type of data required to undertake an economic evaluation and thus determine whether the intervention represented value for money compared with the comparator (usual care).

Table 2 is a summary of the 14 studies found. The quality of each study was rated on the basis of the NHMRC’s (2000, 2001) criteria for assessing evidence (see column 4). The diabetes primary care workforce models are grouped under five headings: one-stop shops, pharmacy models, Aboriginal services, telephone delivered interventions and systematic reviews, which characterise the models implemented. Of the 14 studies, 12 reported statistically significant improvements in several immediate health outcomes (e.g. HbA1c) of patients with diabetes. Only four studies assessed changes in both short- and long-term health outcomes. Most studies used either a small (cut-off was n ~ 100) or very specific populations such as diabetic patients in a rural community.

The ‘one-stop shop’ or coordinated diabetes treatment

Of the seven studies in this group, five were given a quality rating of IV or IV* and two were given a rating of V. The first five studies analysed clinical data from interventions whereas the last two studies (WA Department of Health and Foster...
Table 2. Summary of primary level models of diabetes care

<table>
<thead>
<tr>
<th>Model of care (study and brief description)</th>
<th>Relevant and replicable</th>
<th>Theoretical framework</th>
<th>Strength of evidence</th>
<th>Size of main effects</th>
<th>Transferable and representative</th>
<th>Effect time</th>
<th>Value for money</th>
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<tbody>
<tr>
<td>One-stop shop</td>
<td>Provided few details of the intervention</td>
<td>–</td>
<td>IV: a before and after study of patients with diabetes</td>
<td>Mean (± s.d.) values at baseline and most recent GP visit were:</td>
<td>Small sample size (n = 54) in seven rural communities</td>
<td>10 months</td>
<td>No economic evaluation</td>
</tr>
<tr>
<td>POCT: Shephard et al.¹</td>
<td>–</td>
<td>–</td>
<td>IV: a before and after study of patients with diabetes</td>
<td></td>
<td></td>
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<tr>
<td>Standard ‘disjointed and uncoordinated’ care vs a multidisciplinary ‘one-stop’ GP, diabetes educator, podiatrist and nurse service</td>
<td>–</td>
<td>–</td>
<td>IV: a before and after study of patients with diabetes</td>
<td></td>
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<tr>
<td>GGT diabetes prevention project: Laatikainen et al.¹² and Kilkkinen et al.¹³</td>
<td>Yes, the intervention was based on a Finnish implementation study</td>
<td>Yes, based on a Finnish implementation study</td>
<td>IV: a pre- and post-test study</td>
<td>Significant reductions after 12 months in mean weight (by 2.52 kg; 95% CI 1.85–3.19), waist circumference (by 4.17 cm; 3.48–4.87), mean FPG (by 0.14; mM 0.07–0.20), plasma glucose 2 h after oral glucose challenge (by 0.58 mM; 0.36–0.79), TC (by 0.29 mM; 0.18–0.40), LDL-C (by 0.25 mM; 0.16–0.34), TG (by 0.15 mM; 0.05–0.24) and DBP (by 2.14 mmHg; 0.94–3.33)</td>
<td>Patients aged 40–75 years, 12 months with at least moderate risk of T2D</td>
<td>No economic evaluation</td>
<td></td>
</tr>
<tr>
<td>SHDGP: McRae et al.¹⁶</td>
<td>Sufficient information to be replicated</td>
<td>–</td>
<td>IV*: assessed costs and health outcomes</td>
<td>Found a small but significant improvement in mean Hba1c over 5 years (6.9% at registration vs 7.2% after 5 years; P-value not reported) Also found a significant reduction in lipid cholesterol level (6.1 mM at registration vs 5.1 mM after 5 years; P-value not reported)</td>
<td>Only used one database from one Division of General Practice in NSW</td>
<td>Projected outcomes to 40 years</td>
<td>Cost–impact analysis</td>
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Table 2. (continued)

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<tr>
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<tr>
<td>Multidisciplinary DSS clinic, Melbourne, Li Wai Suen et al.</td>
<td>Provided information about patient visits and type of health professionals seen at the diabetes support service clinic</td>
<td>IV: a retrospective audit of the DSS clinic</td>
<td>Reported a significant reduction in mean HbA1c of 1.5% for patients who visited the clinic after a mean follow-up period of 4.4 months (i.e. mean HbA1c at the time of admission to the service was 9.2% vs 7.7% at discharge; ( P &lt; 0.0001 ))</td>
<td>Small sample, ( n = 115 ), complete medical records for patients who attended the DSS clinic at the Dandenong Hospital in Melbourne 2004–09</td>
<td>4.4 months (mean follow up)</td>
<td>No economic evaluation</td>
<td></td>
</tr>
<tr>
<td>NA-HARP: Raselaha et al.</td>
<td>Study design outcomes were appropriate: HbA1c and HR-QOL</td>
<td>IV: design not stated</td>
<td>Reported significant improvements in mean (± s.d.) HbA1c (8.6 ± 1.9% at enrolment vs 7.3 ± 1.2% at 12 months; ( P &lt; 0.001 )) and QOL measures for patients (251 patients (64%) had improved HR-QOL, 27 (7%) had no change and 114 (29%) had deteriorated QOL) after 12 months</td>
<td>545 patients who had HbA1c data at baseline and at 12 months</td>
<td>12 months</td>
<td>No economic evaluation</td>
<td></td>
</tr>
<tr>
<td>WA Department of Health</td>
<td>High level of program description</td>
<td>V: a grey literature report.</td>
<td>Nothing reported</td>
<td>Potentially high if the study were conducted state wide</td>
<td>–</td>
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| Enhanced Primary Care: Foster et al. 14     | Medicare Enhanced Primary Care program  
Several potential adverse clinical outcomes of the program are identified, and illustrative hypothetical case studies claiming possible serious perverse incentives are discussed | V: a description of the Australian Government’s initiative to introduce chronic disease management items on Medicare, including referrals to up to five allied health treatments | No real patients or health professionals in the study (and thus no clinical outcomes reported)  
Case studies were hypothetical | – | – | – | – |
| Pharmacy models                             | Defined protocol (RCT)  | – | II: RCT | Significant and larger reductions in mean HbA1c for those in the intervention vs control group (−0.5% (95% CI −0.7 to −0.3) vs 0 (−0.2 to 0.2), respectively), SBP (−14 mmHg (−19 to −9) vs −7 (−11 to −2), respectively) and DBP (−5 mmHg (−8 to −3) vs −2 (−4 to 1), respectively; (P = 0.043)  
Reduction in the median (IQR) 10-year estimated risk of a first coronary heart disease event for patients in the intervention group (25.1% (15.6–36.2) to 20.3 (14.6–30.2); n = 42; P = 0.002) but not for those in the control group (26.1% (17.2–39.4) vs 26.4 (16.7–38.0); n = 52; P = 0.17) | 198 patients with T2D from the FDS were randomised to pharmaceutical care (92 patients) or usual care (88 patients) | 12 months for HbA1c and blood pressure  
Projected first CVD event to 10 years | No economic evaluation |
| Pharmacy diabetes care program in four states Krass et al. 11 | Defined protocol (RCT)  
Study examined changes in clinical outcomes and QOL measures for patients in intervention and control groups | – | II: multisite RCT | For patients in the intervention (n = 149), there was a significant reduction in mean blood glucose level over the 6-month study from 9.4 to 8.5 mM (P < 0.01)  
There was also a significantly greater improvement in glycaemic control in the intervention compared with control group (mean reductions in HbA1c) | 56 pharmacies  
(28 interventions and 28 controls)  
and 289 patients in four Australian states (urban and rural settings) were involved in the study | 6 months | No economic evaluation |

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<tr>
<td>Aboriginal services Quality Assurance for Aboriginal Medical Services (QAAMS) Point of Care Testing Program Shephard.</td>
<td>–</td>
<td>IV: design not stated</td>
<td>Both clinicians and patients reported improved satisfaction with delivery or consumption of diabetes services</td>
<td>−0.97% (95% CI −0.8 to −1.14) and −0.27% (−0.15 to −0.39), respectively</td>
<td>Aboriginal rural communities</td>
<td>12 months</td>
<td>No economic evaluation</td>
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<tr>
<td>Brief description of this feasibility or acceptability study was given</td>
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<td>McDermott and Segal.</td>
<td>–</td>
<td>II: a costing study</td>
<td>Over the years 2000–05, a net present value cost of A$570 000 was estimated for the new service; this was equivalent to A$1800 for each major event avoided</td>
<td>A significant reduction in mean (± s.d.) HbA1c, from 9.3 ± 2.0% to 8.6 ± 2.0%, was found in 74 patients 12 months after commencing QAAMS point-of-care testing (P = 0.003)</td>
<td>A district health service in remote northern Australia, with 9600 mainly Indigenous (Islander) residents, including 1000 adults with known diabetes served by 21 primary care centres</td>
<td>6 years (2000–05)</td>
<td>NPV calculated</td>
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<td>Direct costs and savings of new diabetes service implemented in 2000 were compared with usual care in the primary care setting from 2001 to 2006.</td>
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Discussed the type of health professionals delivering the new diabetes service, what patients were expected to experience

Outlined the different cost components and health outcomes (hospitalisations among people with diabetes for infections and other acute complications, lower limb amputations, ESRD and CVD)
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<tr>
<td><strong>Flinders model of self-management support for patients with type 2 diabetes, Battersby et al.</strong>&lt;sup&gt;22&lt;/sup&gt;</td>
<td>Good description of the roles of different health professionals involved in the program and outcomes measured</td>
<td>IV: a pilot study</td>
<td>A significant reduction in mean HbA1c after 12 months, dropping from 8.74% to 8.09% ($P &lt; 0.01$)</td>
<td>60 Aboriginal Australians with T2D on Eyre Peninsula, SA</td>
<td>12 months</td>
<td>No economic evaluation</td>
<td></td>
</tr>
<tr>
<td><strong>Telephone-delivered interventions</strong>&lt;sup&gt;8&lt;/sup&gt;</td>
<td>Study protocol provided Immediate (physical activity and diet) and final benefits (QALYs) and various costs (e.g. staff costs and services used by patients) included in the study</td>
<td>II*: a cost-effectiveness modelling study using RCT data</td>
<td>Mean values and 95% Bayesian credible intervals of incremental cost and QALY outcomes for all comparisons were presented in the paper</td>
<td>Choosing the telephone counselling intervention over usual care cost $A$78,489 per QALY gained; choosing telephone counselling over the existing practice alternative (real control) cost $A$29,375 per QALY gained; choosing usual care over existing practice alternative (real control) cost $A$12,153 per QALY gained</td>
<td>10 years</td>
<td>434 patients with T2D or hypertension in a low socioeconomic area of Qld (Logan)</td>
<td>Cost-effectiveness study</td>
</tr>
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*Table 2. (continued)*

Significant reductions in mean SBP (39.40 ± 16.1 to 130.86 ± 19.1 mmHg; $P = 0.000$) and DBP (81.05 ± 9.3 to 75.97 ± 12.1 mmHg; $P = 0.000$) found for patients during the period 2000–03

AHWs found the program acceptable, as did their patients.
et al.\textsuperscript{14}) were primary care policy papers.\textsuperscript{14,20} The first five studies provided a sufficient amount of information regarding health outcomes (e.g. HbA1c and quality of life) to conclude they were both appropriate and relevant. Only one (observational) study also provided information about costs;\textsuperscript{16} however, this was limited to the intervention only (as there was no control group) and used to conduct a cost-impact analysis. All studies described the state of existing evidence on the effectiveness of similar interventions in different disease populations\textsuperscript{19} or research demonstrating a link between their intervention and the desired effects in diabetic patients. Only the Greater Green Triangle (GGT) diabetes prevention project\textsuperscript{12,13} provided details about an earlier implementation of their intervention (pilot). All studies reported changes in clinical outcomes that were statistically significant for patients in the intervention group. Foster \textit{et al.}\textsuperscript{14} only reported ‘outcomes’ on hypothetical case studies, that is, no patients actually experienced the incentives. The transferability of study findings is questionable, because these studies relied on small samples\textsuperscript{18,19} or specific populations (i.e. rural communities, socioeconomically disadvantaged groups). Only one study projected the occurrence of health outcomes to several decades.\textsuperscript{16}

**Pharmacy diabetes care programs**

Two studies of pharmacy diabetes care models were found. Both studies were given a high-quality rating: Level II. They shared many of the required criteria for a high rating, such as having a well-defined protocol for the RCT, enabling replication; reporting that the observed improvements in clinical outcomes were greater (and statically significant) in the pharmaceutical care group than in the control; and using a large sample. Clifford and Davis\textsuperscript{10} also outlined the type of changes in health outcomes that could be seen as ‘clinically important’ ones for diabetic patients. In addition to assessing changes in immediate outcomes for patients, Clifford and Davis\textsuperscript{10} estimated the long-term risk of first cardiovascular disease (CVD) event in patients. Although Clifford and Davis\textsuperscript{10} noted the need for cost-effective programs in diabetes care, neither they nor Krass \textit{et al.}\textsuperscript{11} conducted an economic evaluation.

**Aboriginal services**

Three primary care workforce models for Aboriginal Australians with type 2 diabetes were found. Shephard\textsuperscript{21} and Battersby \textit{et al.}\textsuperscript{22} were given a quality rating of IV, whereas McDermott and Segal\textsuperscript{17} were given a rating of II. All studies provided a generous amount of information on their particular intervention. Health outcomes were appropriate for addressing the aims of the respective studies. Both immediate (e.g. HbA1c and blood pressure) and long-term clinical outcomes (e.g. avoidable diabetes-related hospitalisations and quality of life) were considered. The studies of Shephard\textsuperscript{21} and Battersby \textit{et al.}\textsuperscript{22} are feasibility or acceptability studies and hence report on outcomes relevant to implementation, such as level of satisfaction assessed by patients and health workers. McDermott and Segal\textsuperscript{17} conducted an economic evaluation of enhanced coordinated care for patients with diabetes in remote Australian Indigenous communities over a period of 6 years. Shephard\textsuperscript{21} and Battersby \textit{et al.}\textsuperscript{22} only assessed changes in clinical outcomes for their patients at 12 months after the intervention; they did not assess the cost effectiveness of their intervention.
Telephone delivered interventions

Only one telephone delivered intervention was found.²⁻⁸ That study is an economic evaluation of a telephone counselling intervention designed to improve the level of physical activity and diet of patients with type 2 diabetes or hypertension in a low socioeconomic area of Queensland. The cost-effectiveness modelling relied on data from a cluster-randomised trial comparing telephone counselling with usual care (brief intervention) and existing practice (real control) collected between 2005 and 2007. Health states were modelled for 10 years after recruitment.

Systematic reviews

Only one systematic review of international literature on chronic disease management in primary care was found.⁹ Multidisciplinary team and self-management support interventions (and adherence to guidelines) were reported from January 1990 to February 2006 and found to have a significant effect on patients (clinical outcomes). A total of 141 studies and 23 systematic reviews were examined. The study included objective disease control measures, such as patient and practitioner satisfaction and adherence to guidelines. However, the review does not present a summary of cost effectiveness. The main limitation of the study was that it included a large number of models of care (e.g. organisational, professional and financial interventions) using different measures (health outcomes), applied to different patient groups and health conditions. To better assist decision makers, this review should have pooled the results of outcomes for specific patients receiving a well-defined intervention and reported on its relative effect and cost effectiveness over a particular comparator.

Discussion

The 14 studies of diabetes primary care workforce models appraised in this paper suggest there is an urgent need for more rigorous research on this topic in Australia, especially in relation to the cost effectiveness of new interventions. Only five studies were designed in such a way as to achieve a Level II or I rating, based on the NHMRC’s (2000, 2001) frameworks for assessing scientific evidence. The majority of studies risked the introduction of bias and may have made incorrect conclusions. Several of the diabetes primary care models were implemented in quite unique populations (i.e. small, culturally or socioeconomically defined) and hence it is difficult to say whether they (and the possible benefits they describe) could be transferred to the (general) population. Only a few studies described clearly what the intervention and the comparator were and thus could be successfully replicated. Only two studies assessed the cost effectiveness of their intervention compared with (formal) usual care.²⁻¹¹

The Commonwealth government is currently piloting new approaches to diabetes management through general practice. It has recognised that benefits can be derived from well-coordinated, integrated, multidisciplinary diabetes care teams and, for this reason, in July 2011 the government committed $30.2 million over 3 to 4 years to a Coordinated Care for Diabetes Pilot in the primary care setting.²² The pilot is testing a model of prepaid funding for coordinated care of patients with diabetes in general practice.²⁴ With a superior study design it could generate vital information about the relative merits of the intervention in relation to patient outcomes.

It is widely acknowledged that researchers and policymakers need to make decisions based on high-quality evidence; however, it is not obvious what effect the evidence is having on primary care workforce reform.

Conclusions

Although there has been an increase in the number of primary care workforce models implemented in Australia, there is a need for more rigorous research to assess: (1) whether these interventions are effective in producing improved health outcomes; and (2) whether they represent better value for money than current practice.

Competing interests

The authors have no conflicts of interest to report.

Acknowledgements

None.

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