

Deloitte Access Economics

# Evaluation of the MedsCheck and Diabetes MedsCheck Pilot Program

Department of Health and  
Ageing

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# Glossary

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5CPA	Fifth Community Pharmacy Agreement
ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
ANDIAB	Australian National Diabetes Information Audit and Benchmarking
BC	British Columbia
CALD	culturally and linguistically diverse
CD	compact disc
CI	confidence interval
CR&C	Campbell Research & Consulting
DAA	dose administration aids
DMC	Diabetes MedsCheck
DoHA	Department of Health and Ageing
DVA	Department of Veterans' Affairs
GP	general practitioner
HbA1c	glycosylated haemoglobin
HMR	Home Medicines Review (Program)
IT	Information technology
MBS	Medicare Benefits Scheme
MC	MedsCheck
MPR	Medication Possession Ratio
MUR	Medicines Use Review
NHS	National Health Service
NSW	New South Wales
NT	Northern Territory
NZ	New Zealand
MPR	Medication Possession Ration
PBS	Pharmaceutical Benefits Scheme
PhARIA	Pharmacy Access/Remoteness Index of Australia
PSA	Pharmaceutical Society of Australia
PWC	Price Waterhouse Coopers

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QLD	Queensland
RMMR	Residential Medication Management Review
RRMA	Rural, Remote and Metropolitan Areas classification
SA	South Australia
SEIFA	socio-economic index for areas
SSU	SmartForm Signing Utility
TAS	Tasmania
T2DM	Type 2 diabetes mellitus
UK	United Kingdom
VIC	Victoria
WA	Western Australia

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# Executive summary

## Purpose

The original objectives of this evaluation of the MedsCheck and Diabetes MedsCheck pilot program were to: (1) test the proposed eligibility criteria (section 2.2) and adjust the criteria based on demand and resourcing availability to focus on those most in need; (2) identify the likely numbers of patients who qualify for the service; and (3) assess the usefulness of the Assessment Tool (SmartForm) content (section 2.3). In response to early findings that pharmacies were providing services at a much lower rate than expected, another objective was added to (4) explore the main reasons for the lower than expected program implementation rate. The Department also requested an examination of (5) the relationship between the MedsCheck and Diabetes MedsCheck program on other Fifth Community Pharmacy Agreement Services (5CPA), specifically, the Home Medicines Review program (HMR) and the Clinical Intervention program.

## Methodology

The evaluation framework provided for a mixed methods approach using primary and secondary data sources (section 3). The main sources were monthly SmartForm data reports, an online survey of 75 pharmacists (66% response rate), a survey of 97 patients who received services (15% response rate), and interviews with pharmacists, patients, the Pharmacy Guild of Australia, the Pharmaceutical Society of Australia (PSA) and the Rural Pharmacy Special Interest Group. Pharmaceutical Benefits Scheme (PBS), HMR, Clinical Interventions, Medicare, ABS and AIHW data were also reviewed.

In addition, a literature review was undertaken, which indicated (section 4) that services like MedsCheck and Diabetes MedsCheck may benefit patients by improving medication adherence and management, reducing inappropriate prescribing and improving clinical outcomes (such as HbA1c indicators). The literature suggested benefits are higher with older age, more medications, after hospital discharge, and with higher complexity of dosing schedules and chronicity of disease; however, the efficacy of pharmacist led medication review services on improving patient wellbeing and reducing hospitalisations is variable.

## Major findings

**1. Eligibility criteria (section 9.2):** While some participants in the pilot and organisations suggested modifications to the eligibility criteria, at this stage, adjustments to the eligibility criteria are not considered necessary to ensure sustainability of the program.

**2. Number of patients who will use the service (section 9.1):** During the first seven months of the pilot program (25 August 2011 to 31 March 2012), less than a third (31%) of the 286 pharmacies that registered to deliver services successfully claimed for a service and only about 2% of the expected volume of services were delivered (844 in total, with 695 MedsCheck and 149 Diabetes MedsCheck). Given this, it is difficult to develop an accurate estimate of future service usage. The population eligible for MedsCheck is estimated to be 1.16 million in 2012, and for Diabetes MedsCheck, 580,000. Eligible populations have been crudely estimated to increase to 1.4 million and 638,000 respectively in 2015.

**3. Usefulness of the Assessment Tool (section 10):** Most patients surveyed considered the SmartForm patient report to be useful. However, most patients interviewed had not viewed

the patient report and did not have suggested changes. Pharmacists believed the report was useful for patients and had various suggested changes to make it more user friendly. The evaluation team suggested changes to streamline data collection from the Tool and make the data more meaningful. The Department has decided not to use the pilot program SmartForm during the national roll-out of services.

**4. Reasons for slower than expected program take-up (sections 6-8):** Inability to integrate service delivery into the pharmacists' daily workflow was the primary barrier to service provision. Most pharmacists reported they could only perform consultations when another pharmacist was on duty. The SmartForm was time consuming to complete, the program took too long to 'set up', they did not have enough staff or the necessary infrastructure to provide the program, or the pharmacy was too busy. Over half (53%) the pharmacists from pharmacies that had not claimed for services discontinued due to difficulties installing the software. The remuneration was adequate if each service took 30-60 minutes to deliver; however, on average pharmacists spent 72 minutes per consultation, with considerable time preparing for or finalising the service. Regional factors were also relevant: pharmacies in NSW and Tasmania consistently provided relatively high numbers of services.

**5. Relationship with the HMR and Clinical Intervention program:** The other 5CPA programs were seen as facilitators to service delivery. The Clinical Interventions program had a much greater uptake than the MedsCheck and Diabetes MedsCheck pilot program due to its ease of integration into pharmacists' workflow. It appears the pilot had an insignificant impact on the HMR program, although analysis was limited due to the availability of data.

## Conclusions and recommendations (sections 11 and 12)

Broadly consistent with the original objectives of the program, patient benefits were realised through acquiring an increased understanding of their medicines relating to indication, dosing, side effects, interactions and storage. Patient benefit was the main reason that pharmacists who had provided the service would deliver services in future, as well as positive patient response and use of their professional knowledge and skills. Pharmacists would welcome additional training in communication skills, type 2 diabetes and complex medication via case studies, as well as additional promotional material.

The following recommendations were made for the national roll-out of the MedsCheck program:

- eligibility criteria for the program should remain the same;
- monitoring of the program should be undertaken to determine whether, on the basis of low service uptake, modifications should be made in the future;
- educational materials should be developed, to assist in uptake of the program;
- for future programs, consideration should be given to the format, interoperability and functionality of software used prior to programs being rolled out; and
- definitions of 'significant medical events' should be provided to program participants to enable consistent eligibility checking and categorisation of medical events.

# 1 Introduction

Deloitte Access Economics was appointed to perform an evaluation of the MedsCheck and Diabetes MedsCheck pilot program and to provide recommendations to assist the Department of Health and Ageing (the Department) with the 2012 national roll-out of these services.

## 1.1 Evaluation aims

The original objectives of the evaluation were to:

- test the proposed eligibility criteria and adjust the criteria based on demand and resourcing availability to focus on those most in need;
- identify the likely numbers of patients who qualify for the service; and
- assess the usefulness of the content within the Assessment Tool.

The Department also requested an examination of the relationship between the MedsCheck and Diabetes MedsCheck program on other Fifth Community Pharmacy Agreement Services (5CPA), specifically, the Home Medicines Review program (HMR) and the Clinical Intervention program.

The evaluation methodology was agreed with the Department in August 2011, but adjusted four months later in response to early findings that pharmacies were providing services at a much lower rate than initially anticipated and a majority of pharmacies had not yet claimed for a single service provided. Another evaluation objective was added at this time as follows:

- to explore the main reasons for less than expected MedsCheck and Diabetes MedsCheck service delivery and the low program implementation rate.

## 1.2 Report structure

This report is structured with a view to:

- describing pilot participants, activity and outcomes; and
- addressing each of the evaluation objectives.

The structure is as follows.

- MedsCheck and Diabetes MedsCheck services are described in chapter 2;
- the evaluation methodology is outlined in chapter 3;
- the findings of a literature review are presented in chapter 4;
- the characteristics of patients receiving services, and benefits of services to patients are discussed in chapter 5;
- the pharmacies, services and views of pharmacists about services are discussed in chapter 6;

- reasons for lower than expected take up of service provision are investigated in chapter 7;
- links between MedsCheck and other 5CPA services are analysed in chapter 8;
- eligibility criteria and the number of patients who currently qualify for a service are discussed in chapter 9;
- the usefulness of the content within the Assessment Tool is reviewed in chapter 10;
- findings and recommendations for the roll-out are discussed in chapter 11; and
- indicators to monitor the success of the national roll-out are proposed in chapter 12.

## 2 MedsCheck and Diabetes MedsCheck services explained

This chapter is structured as follows.

- MedsCheck and Diabetes MedsCheck services are described in section 2.1.
- Patient eligibility is outlined in section 2.2.
- A component of service delivery and a key source of data for the evaluation was the SmartForm Assessment Tool. This is described in section 2.3.

### 2.1 MedsCheck and Diabetes MedsCheck

The MedsCheck and Diabetes MedsCheck programs are in-pharmacy, patient centred services delivered by pharmacists. They are funded by the Department under the Medicine Use Review and Diabetes Medication Management services respectively as part of the 5CPA.

Medscheck and Diabetes MedsCheck services consist of a face-to-face medication check delivered by community pharmacists to patients who fit the eligibility criteria. This involves the pharmacist sitting down with the patient in a private area of the pharmacy and going through their medications. Figure 2.1 contains a brief description of the aims of the MedsCheck and Diabetes MedsCheck consultations.

A logic map depicting the aims and objectives of the services, together with a description of the inputs, outputs and desired outcomes is presented in Table 2.1. A service delivery map is in Figure 2.2.

**Figure 2.1: MedsCheck and Diabetes MedsCheck programs**

MedsCheck	Diabetes MedsCheck
<ul style="list-style-type: none"> <li>The 'MedsCheck' service is a Medicines Use Review (MUR) provided by pharmacists to patients in a community pharmacy who meet an eligibility criteria.</li> <li>The MedsCheck service has the following aims, to: <ul style="list-style-type: none"> <li>Help patients learn more about their medicines including interactions between medicines and disease states;</li> <li>Identify problems that patients may be experiencing with their medicines;</li> <li>Improve the effective use of medicines by patients; and</li> <li>Encourage and educate patients about the best practice use and storage of their medicines.</li> </ul> </li> <li>Funding = \$29.6 million over 5 years of the Fifth Community Pharmacy Agreement (5CPA).</li> </ul>	<ul style="list-style-type: none"> <li>'Diabetes MedsCheck' is a Diabetes Medication Management Service provided by pharmacists to patients with type 2 diabetes who are newly diagnosed (within the past 12 months or whose diabetes is less than ideally controlled).</li> <li>Diabetes MedsCheck is delivered in a community pharmacy and is targeted towards patients who are unable to gain timely access to other diabetes services in their community.</li> <li>The Diabetes MedsCheck service has the following aims: <ul style="list-style-type: none"> <li>Optimise patients effective use of medicine through improving understanding of, and compliance with, their diabetes medication therapy;</li> <li>Improve patients effective use of blood glucose monitoring devices through training and education;</li> <li>Improve blood glucose control; and</li> <li>Reduce the risk of patients developing complications associated with type 2 diabetes.</li> </ul> </li> <li>Funding = \$12.2 million over 5 years of the 5CPA.</li> </ul>

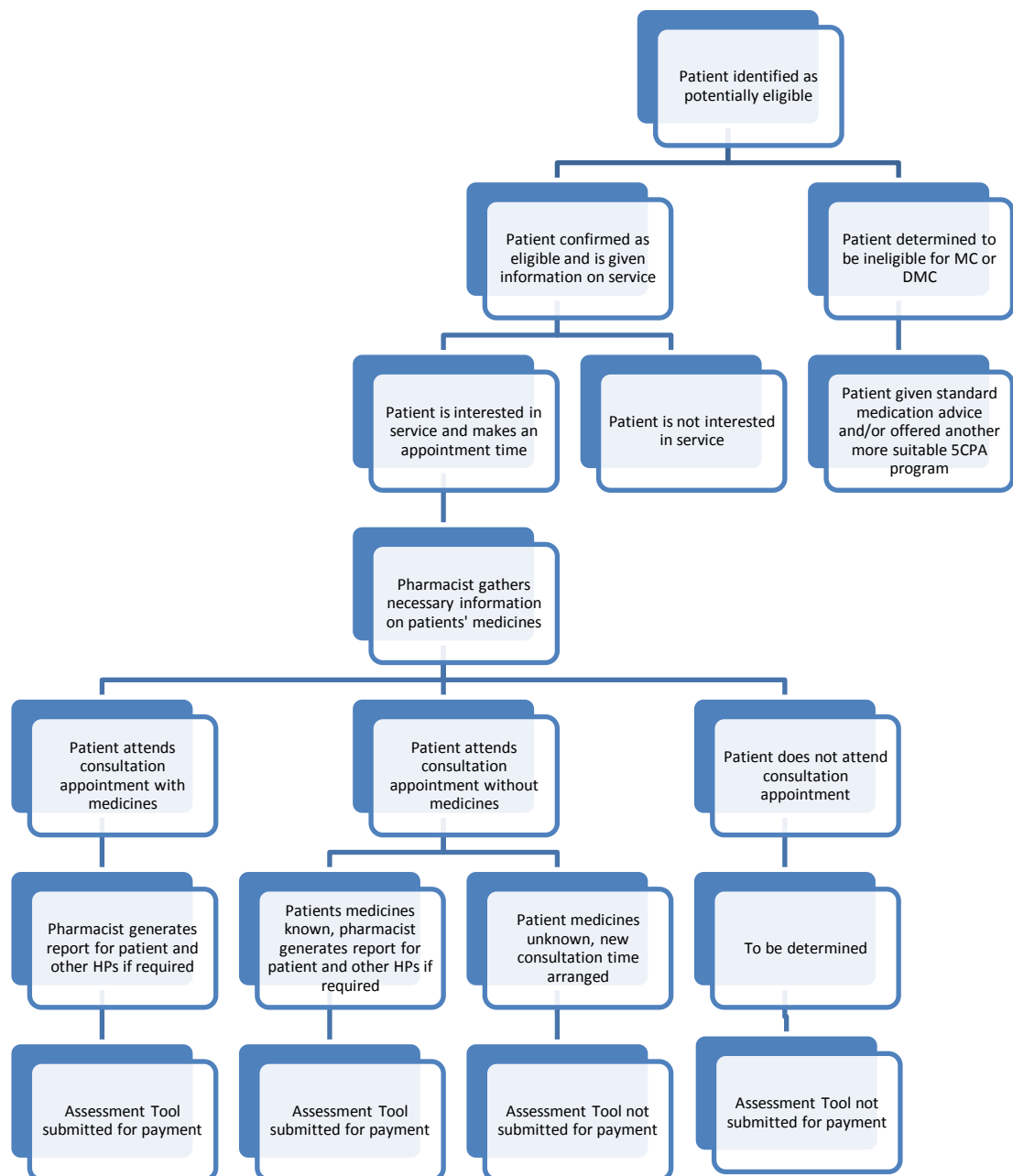
**Table 2.1: MedsCheck and Diabetes MedsCheck Program Logic**

Goal	To enhance the quality use of medicines by patients living in the community and therefore optimise health outcomes, and to reduce adverse events related to medication misadventure.
Objectives	<p><b>MedsCheck objectives</b></p> <p>To optimise the effective use of medicines within the community through improving the understanding of how medications affect medical conditions, and adherence with medication therapy.</p> <p>Identify problems patients may be experiencing with medication/s; and</p> <p>Encourage best practice use and storage of medicines.</p> <p><b>Diabetes MedsCheck objectives</b></p> <p>Optimise effective use of medicines through improving understanding of, and adherence with, diabetes medication therapy;</p> <p>Improve patient's effective use of Blood Glucose Monitoring devices through training and education;</p> <p>Improve Blood Glucose Control; and</p> <p>Reduce risks of developing complications associated with Type 2 Diabetes through increasing adherence with their medication.</p>

Long term outcomes	<p>Adverse events related to the use of medicines by patients' living in the community who use multiple medicines and/or have had a recent significant medical event are reduced</p> <p>Cost effectiveness (inputs per outcome): the MedsCheck programs achieve value for money (improved patient health and less wastage of medicines for a reasonable financial investment)</p>
Medium term outcomes	<p>Eligible patients learn more about their medicines including interactions between medicines and disease states.</p> <p>Problems patients are experiencing, including adverse events with their medicines are identified and resolved where possible.</p> <p>Medicines are used more effectively and stored correctly following the MedsCheck review.</p> <p>An improvement in adherence with medications is observed.</p>
Outputs	<p>A report which is easy to understand by patients is provided to eligible clients in accordance with program guidelines and contains:</p> <p>A patient medication chart and pharmacist recommendations that may arise from the service; and</p> <p>information for the patient or pharmacist to take to another health professional as required and consented to by the patient or representative.</p> <p>A record of service is submitted for audit purposes and to enable payments.</p> <p>Payments are made in a timely way to pharmacists by the Department for services rendered.</p> <p>The program is administered efficiently (inputs per output).</p>
Activities	<p>The MedsCheck services are targeted towards people living in the community who are most in need of assistance with their medicines and who are able to access community pharmacies i.e. the services are targeted to appropriate clients</p> <p>The number of HMR(s) performed decreases as patients' whose needs are met more appropriately through MedsCheck and Diabetes MedsCheck are redirected to these community pharmacy services.</p> <p>The community pharmacist completes an Assessment Tool confirming the eligibility of the patient and enabling a report to be provided to the patient.</p> <p>The services are client oriented and delivered with respect for patient dignity, culture, geographic diversity, confidentiality, and promptness.</p>
Inputs	<p>Department of Health and Ageing resources.</p> <p>IT systems effectively support pharmacists to deliver the program.</p> <p>Skills and knowledge of community pharmacists are appropriate to deliver the program effectively.</p> <p>Community pharmacists allocate dedicated time to the service — the pharmacists must not undertake any other professional duties at the time of the MedsCheck or Diabetes MedsCheck.</p> <p>Infrastructure in the pharmacy so that a private counselling area can be provided.</p>



<p>External influences which affect outcomes</p>	<p>The benefits of the program require patients to adopt the advice they receive from pharmacists.</p> <p>The uptake of the service by patients and pharmacies may depend on support for pharmacists by other health practitioners such as GPs, i.e. lack of consistency in messages received by patients may limit the uptake of the MedsCheck service.</p> <p>Program sustainability: Population demographics and epidemiology of the relevant populations (e.g. people with diabetes) may change over time thereby influencing the numbers of eligible participants.</p> <p>Advances in IT dispensing systems may lead to some processes embedded in the MedsCheck reviews becoming redundant.</p> <p>The availability of other 5CPA programs may influence the uptake of MedsCheck and Diabetes MedsCheck as they may be easier to administer and offer alternative streams of income.</p>
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**Figure 2.2: MedsCheck/Diabetes MedsCheck service delivery map**

## 2.2 Patient eligibility

To be eligible for a MedsCheck or Diabetes MedsCheck service under the pilot program, a patient must (DOHA, 2011a):

- be a Medicare or Department of Veterans' Affairs (DVA) cardholder;
- not have received a medication review<sup>1</sup> within the past 12 months; and

<sup>1</sup> This includes a MedsCheck, Diabetes MedsCheck or HMR service

- be living at home in a community setting.

In addition, MedsCheck patients must be:

- regularly taking five or more prescription medicines; or
- have experienced a recent significant medical event.

To qualify for a Diabetes MedsCheck patients must:

- be unable to access an existing diabetes education/health service in a timely manner; and
- have recently been diagnosed with type 2 diabetes (within the last 12 months); or
- have type 2 diabetes that is less than ideally controlled.

**Table 2.2: Pilot eligibility criteria**

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### **MedsCheck**

- ✓ Medicare or DVA cardholder
- ✓ Patient has not received a MedsCheck, Diabetes MedsCheck , RMMR or HMR in the last 12 months
- ✓ Patient is living at home in a community setting
- ✓ Patient is regularly taking five or more prescription medicines **OR** has had a recent significant medical event

### **Diabetes MedsCheck**

- ✓ Medicare or DVA cardholder
  - ✓ Patient has not received a MedsCheck, Diabetes MedsCheck , RMMR or HMR in the last 12 months
  - ✓ Patient is living at home in a community setting
  - ✓ Patients who have recently been diagnosed with type 2 diabetes (in the last 12 months) **OR** whose type 2 diabetes is less than ideally controlled
  - ✓ Patient has an inability to access an existing diabetes education/health service in their community in a timely manner
- 

Source: Department of Health and Ageing, 2011a, Program Specific Guidelines, MedsCheck and Diabetes MedsCheck Pilot.

## 2.3 SmartForm

During the pilot, pharmacists entered the information about the MedsCheck or Diabetes MedsCheck services into an electronic Assessment Tool called a SmartForm, designed specifically to guide pharmacists in providing MedsCheck and Diabetes MedsCheck services. The SmartForm required pharmacists to enter the following information for each service provided:

- pharmacy details;
- patient details;
- healthcare professional details;
- patient characteristics;
- patient current issues;
- patient medicines prescribed;
- patient action plan developed through consultation between the pharmacists and the patient;
- recommendations on who the patient should consult with regard to each item in the action plan.

The SmartForm was interactive, so for example, if the pharmacist indicated through a series of tick boxes on the SmartForm that a patient was eligible for a Diabetes MedsCheck, the form would automatically update so that with the questions and structures necessary for provision of a Diabetes MedsCheck service became visible to pharmacists on the form.

After completing the patient consultation and the SmartForm, the pharmacist printed out a medication chart and provided it to the patient. A copy of this chart was able to be provided to the patient's other professional carers (such as the patient's GP), but this was not compulsory.

In order to receive payment for services provided, the pharmacist submitted the Smartform electronically to the Department using their AUSkey, a unique password linked to the pharmacy ABN.

The Department has advised that the electronic SmartForm will not be used for the national roll-out of the program.

## 3 Evaluation methodology

The objectives of the evaluation were outlined in the introduction to this report (chapter 1, section 1.1). In this chapter:

- the tasks and deliverables for the evaluation are listed in section 3.1; and
- the data collection tools developed for the evaluation are summarised in section 3.2.

More detail about the evaluation methodology is provided in Appendix A.

### 3.1 Tasks and deliverables

The key tasks required in performing the evaluation and the associated development of strategic recommendations were as follows (noting they were not necessarily mutually exclusive):

- review of literature (reported in chapter 4);
- development of a program logic framework (Table 2.1) and a service delivery map (Figure 2.2);
- development of the evaluation methodology;
- development of survey instruments, and piloting of these;
- conduct of the evaluation (field instruments and analyse secondary data);
- synthesis of findings and development of recommendations; and
- reporting to the Department (interim, progress, draft, and final reports were provided).

Ethics approval was not sought for the project based on advice from the Department that the nature of the project and the service did not necessitate it.

### 3.2 Data sources used in the evaluation

The methodology is described in more detail in Appendix A. The framework provided for a mixed methods approach using the following primary and secondary data sources:

- monthly SmartForm data reports;
- an online survey of pharmacists participating in the pilot (Pharmacist Survey) (survey instrument in Appendix B. In total, 75 pharmacists responded representing 63 separate pharmacies (a response rate of 66%). All pharmacists had completed at least one MedsCheck or Diabetes MedsCheck consultation. Responses from pharmacists who had not yet commenced consultations (6) were excluded from the analysis.
- a survey of patients receiving services during the pilot (survey instrument in Appendix C):

- This report contains an analysis of the 97 Patient Survey responses, representing a response rate of 15%<sup>2</sup>. Almost all questions received a response rate over 90%.
- semi structured telephone interviews with patients (script in Appendix D):
  - Eight patients who had received MedsCheck or Diabetes MedsCheck services were interviewed
- a semi structured telephone interview with the Guild (script in Appendix E);
- a semi structured interview with the PSA and the Rural Pharmacy Special Interest Group (script in Appendix F);
- structured and semi-structured interviews with pharmacists (see below); and
- other data including:
  - Pharmaceutical Benefits Scheme (PBS) data;
  - HMR data;
  - Clinical Interventions data;
  - Medicare data regarding claims made by credentialed diabetes educators;
  - publicly available Medicare data;
  - publicly available data obtained from the Australian Bureau of Statistics (ABS); and
  - publicly available data obtained from the Australian Institute of Health and Welfare (AIHW).

Telephone interviews were conducted with four distinct groups of pharmacists as follows:

- Group 1: structured interviews with pharmacists from pharmacies that had not provided or successfully claimed for any MedsCheck or Diabetes MedsCheck services by January 2012 (script in Appendix G). One hundred pharmacists from 100 different pharmacies were interviewed.
- Group 2: semi-structured interviews with pharmacists who had provided at least one service (script in Appendix H). Thirteen pharmacists from 13 different pharmacies were interviewed.
- Group 3: semi-structured interviews with pharmacists from pharmacies that started providing services, but then stopped (script in Appendix I). Twelve pharmacists from 12 different pharmacies were interviewed.
- Group 4: semi-structured interviews with pharmacists from pharmacies that successfully provided services on a continuous basis (script in Appendix J). Five pharmacists from five different pharmacies were interviewed.

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<sup>2</sup> The total number of services claimed by pharmacists during December 2011 and January, February and March 2012 (N= 632) has been used as the denominator in calculating the estimated response rate to the Patient Survey.

## 4 Literature review

The overall objective of the literature review was to provide context for the MedsCheck program and potential evaluation methods. In particular, the aims of the literature review were to:

- provide an overview of Australian and international medication review services provided by pharmacists;
- provide an understanding of the patients that are most likely to benefit from the MedsCheck/Diabetes MedsCheck services;
- provide an overview of the range of potential health benefits and long term outcomes of MedsCheck/ Diabetes MedsCheck services including what the ideal MedsCheck/Diabetes MedsCheck service consists of;
- summarise the methods used by evaluations of similarly designed services to inform the development of an evaluation framework.

### 4.1 Literature review methodology

#### 4.1.1 Data bases

A targeted search of the following data bases was conducted:

- Australian and international peer reviewed literature in the following data bases
- Pubmed (search includes Medline);
- Cochrane Library; and
- the Cumulative Index to Nursing and Allied Health Literature (CINAHL).
- a search of selected international government health department websites:
  - the Australian Department of Health and Ageing;
  - Medicare Australia;
  - the United Kingdom Department of Health, Pharmacy Services Negotiating Committee (UK);
  - the Ontario Ministry of Health and Long Term Care;
  - the British Columbia Ministry of Health;
  - the Ministry of Health, New Zealand; and
  - the District Health Board of New Zealand Shared Services;
- a search of websites of selected local and international pharmacy organisations:
  - Pharmacy Guild of Australia;
  - Pharmaceutical Society of Australia;
  - Pharmaceutical Society of New Zealand;
  - Royal Pharmaceutical Society of Great Britain.
  - the National Pharmacy Association (UK); and
  - the Canadian Pharmacists Association;

- a search of the Australian National Prescribing Service (NPS) website and The Pharmacy Practice Research Trust (UK) (PPRT); and
- a general internet search using Google Scholar.

#### 4.1.2 Search terms used

Search terms used are outlined in Table 4.1. In addition to searching the specified databases using the terms identified in Table 4.1, an exploratory bibliographic search was conducted of the references identified.



**Table 4.1: Search Terms**

	<b>Search 1</b>	<b>Search 2</b>	<b>Search 3</b>	<b>Search 4</b>
<b>Pubmed</b>	Community Pharmacy Services (MeSH term) AND medic* review (All Fields) filtered for Abstracts available and English only	Community Pharmacy Services (MeSH term) AND medicine review (All Fields)	MedsCheck (All Fields)	
<b>Cochrane Library</b>	Med* NEAR/3 review (in Title, Abstract or Keywords (Ti, Ab, Key)) AND community NEAR/2 pharm* (in Ti, Ab, Key) filtered for Cochrane Reviews, Other Reviews and Trials	Medic* (in Ti, Ab, Key) AND *adherence (in Ti, Ab, Key) OR *compliance (in Ti, Ab, Key) AND predictor* (in Ti, Ab, Key) filtered for Cochrane Reviews	MedsCheck (Search all text)	
<b>CINAHL</b>	Community W2 pharm* (in Abstract) AND medic* N3 review (in Abstract)	Community N5 pharm* (in Abstract) AND medic* N3 review (in Abstract)	Community N5 pharm* (in Abstract) AND "diabetes medication assistance service"	Medic* N3 review (in Abstract) AND pharmac* (in Abstract). Limited to Abstract available, published in English and Systematic Reviews only
<b>Google Scholar</b>	MedsCheck + evaluation + Canada	"Medicine use review" + evaluation		

<b>Government websites</b>	home medicines review, MedsCheck, MedsCheck Expanded Services, Medicine Use Review, BC Medication Management Project			
<b>Pharmacy websites</b>	An exploratory search was conducted for evaluations of similar services to the MedsCheck and Diabetes MedsCheck services			
<b>The NPS</b>	An exploratory search was conducted for evaluations of similar services to the MedsCheck and Diabetes MedsCheck services as well as medication adherence reviews.			
<b>The PPRT</b>	An exploratory search was conducted for evaluations of similar services to the MedsCheck and Diabetes MedsCheck services.			

The \* symbol in Table 4.1 is used in searches to capture all of the different beginnings or endings to words, example, medic\* will search for medical, medicine, medication, medicines and medications or \*adherence will search for non-adherence, non-adherence and adherence.

“All fields” in Pubmed means that the term(s) are search in the author’s name, dates of completion and publication, the editor’s name, the investigator’s name, the Journal, the issue, the MeSH Major Topic, the MeSH Subheading, the MeSH terms, the pharmacological action and the Publication type.

“Search all text” in the Cochrane library means that the term(s) are searched in the Record title, author, abstract, keywords, tables, publication, type source, and DOI.

W2 stand for “within operator”. This means that the two search terms are within two words of each other, in the exact order they are entered.

N5 and N3 stand for “near operator”. This means that the terms are within five or 3 words of each other respectively, in the exact order entered.

### 4.1.3 Articles retrieved and selection criteria

Table 4.2 shows the number of articles retrieved from each electronic database.

The National Health and Medical Research Council (NHMRC) evidence hierarchy provides a useful guide to assess the quality of research. However, for ethical and practical reasons, the nature of research into government programs rarely includes randomised controlled trials (the gold standard) or comparator studies with concurrent controls. The approach here was therefore to **include** studies where:

- the patient group was comparable to the Australian population; and
- the intervention was comparable to the MedsCheck and Diabetes MedsCheck service delivery models; and
- the intervention was delivered by pharmacists working in a primary health care setting (i.e. in the patient’s home or in pharmacy).

Studies were **excluded** where the patient group included only children or adolescents.

**Table 4.2: Number of articles retrieved and considered relevant**

	Search 1		Search 2		Search 3		Search 4	
	<i>Articles retrieved</i>	<i>Relevant</i>	<i>Articles retrieved</i>	<i>Relevant</i>	<i>Articles retrieved</i>	<i>Relevant</i>	<i>Articles retrieved</i>	<i>Relevant</i>
<b>Pubmed</b>	73	10	64	8	0	0	Not applicable	Not applicable
<b>Cochrane Library</b>	Cochrane reviews: 0 Other Reviews: 1 Trials: 28	Cochrane reviews: 0 Other Reviews: 1 Trials: 10	Cochrane reviews: 61	Cochrane reviews: 4	0	0	Not applicable	Not applicable
<b>CINAHL</b>	18	5	21	6	2	1	17	4
<b>Google Scholar</b>	110	3	43	5				
<b>Government websites</b>	10 (websites and articles)	8						
<b>Pharmacy websites</b>	6							
<b>The NPS</b>	1							
<b>The PPRT</b>	1							
<b>Bibliographic search</b>	18							

#### 4.1.4 The number of articles used to inform each literature review topic

The number of articles used to inform each literature review topic identified using the search methodology above is outlined in Table 4.3.

**Table 4.3: Number of articles used to inform each literature review topic**

Literature review topic	Number of relevant articles and reports identified
Provide an overview of Australian and international medication review services provided by pharmacists	16
Provide an understanding of the patients that are most likely to benefit from the MedsCheck/Diabetes MedsCheck services	10
Provide an overview of the range of potential health benefits and long term outcomes of MedsCheck/ Diabetes MedsCheck services	37
Characteristics of the ideal service	17
Summarise the methods used by evaluations of similarly designed services to inform the development of an evaluation framework	12

## 4.2 Literature review findings

In accordance with the aims of the literature review, the findings are discussed under the following headings:

- overview of medication review programs;
- patients most likely to benefit and eligibility criteria;
- patient health outcomes;
- characteristics of the ideal service; and
- methods used in the evaluation of similarly designed services.

### 4.2.1 Overview of medication review programs

Pharmacist led medication review services for patients living in the community are offered in many countries. Examples include:

- the HMR service in Australia;
- the MedsCheck service, Medication Management Project, and Medication Review Services in Canada;
- the Medication Usage and Prescription Intervention program in the UK; and
- the Medication Usage Review service in New Zealand.

All programs involve a consultation between a pharmacist and patient which aims to improve the patient's understanding of their medicines and identify any medication management problems the patient may be experiencing such as non-adherence, drug interactions and side effects. Broadly speaking, each program has similar objectives which include ensuring patients are using their medicines in a safe and effective manner,

improving patients' understanding of medicines and medical conditions, improving patients' quality of life, correcting any deviations from the prescribed dosing regimen, identifying adverse effects from medicines, preparing an up-to-date medication profile for the patient, and promoting cooperative working relationships between health professionals.

However, medication review services differ in the following ways:

- patient eligibility criteria and the number of services offered per year;
- the location in which services are provided i.e. in a community pharmacy or in the patient's home;
- the extent to which the services constitute a clinical review<sup>3</sup>;
- the referral process into the service;
- the training requirements for pharmacists;
- the mode of payment for services; and
- whether findings are reported to the patient's general practitioner (GP).

Variations between programs are outlined in Appendix K and a summary of the major evaluations of these services together with key findings can be found in Appendix L. The following paragraphs provide a brief overview of the services offered and, where available, some of the findings from evaluations performed.

### **The Australian HMR program**

The HMR program was introduced in 2001 by the Australian Government. The program involves collaboration between patients, GPs and pharmacists and aims to ensure patients are obtaining maximum benefit from their medicines and are using their medicines in a safe and effective manner, thus improving the patient's quality of life and health outcomes. It also aims to improve patients' and health professionals' knowledge and understanding of medicines and facilitate cooperative working relationships between members of the health care team in the interests of patient health and wellbeing. GPs refer patients to the HMR program and the patient is visited at home by an accredited pharmacist. The pharmacist undertakes a medication review and prepares a report with recommendations that are passed on to the patient's GP. The GP then discusses this report with the patient and together a medication management plan is developed.

Since its inception, several evaluations (CR&C, 2008, CR&C, 2010, Sanburg, 2009 and Urbis Keys Young, 2005) have been performed of the HMR program with the major finding that the service is not reaching the population that is most in need. Findings from individual evaluations can be found Appendix L and inform various sections throughout this review.

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<sup>3</sup> 'Clinical review is the assessment of the patient and other parameters for the purpose of evaluating the response to medicine therapy and detecting and managing potential or actual clinical problems. It may include interpretation of biochemical and other investigative tests. It may also include evaluation of patient signs and/or symptoms from discussions with the patient or thorough review of clinical progress notes. Clinical review should be performed routinely and is essential in assisting the understanding of a patient's clinical progress and treatment strategies employed by the healthcare team. Clinical review also serves as a method of monitoring outcomes of therapy' (p. 2-16, SHPA Committee of Specialty Practice in Clinical Pharmacy, 2005).

## **The Canadian MedsCheck program**

The Canadian MedsCheck program was launched in 2007 by the Ontario Ministry of Health and Long Term Care. It involves a review of a patient's medicines by a community pharmacist within the community pharmacy. The main objectives of the program are to

- create and maintain an accurate record of the medicine(s) the patient is currently taking,
- investigate and, if appropriate, correct any discrepancies between the doctor's orders and how the patient is taking their medication, and
- minimise potential adverse effects and medication errors.

It is estimated that each MedsCheck takes around 50 minutes to complete (Dolovich 2008) including face-to-face time and time spent preparing for the consultation. In an evaluation of the program, Dolovich (2008) found that from the pharmacist's perspective, the benefits of MedsCheck for patients included increased education about their medicines, improved adherence, and improved health outcomes. Difficulties for pharmacists in providing these services included a lack of time to provide the service and insufficient reimbursement for the service to justify employing an additional pharmacist to provide the service (Dolovich, 2008). The MedsCheck program was expanded in 2010 to incorporate MedsCheck for Diabetes, MedsCheck for Long Term Care Residents, and MedsCheck at Home. These expanded programs increase the flexibility of the (Canadian) MedsCheck eligibility criteria and enable housebound people and individuals in long term care to access the program.

## **The British Columbia Medicines Review Service**

The Ministry of Health in British Columbia (BC), Canada, introduced a pharmacist led Medicines Review service which can be conducted at any location which is private, and in the presence of the patient. The service differs from the Canadian MedsCheck in that pharmacists are paid an additional fee for resolving any medication issues with the patient and if necessary, the prescriber. Both the BC Medicines Review Service and the Canadian MedsCheck service also include the opportunity for the pharmacist to receive a fee for following up the patient if necessary. The BC Medication Review follow-up can occur if the patient has a medication change subsequent to their original service and can be performed four times per 12 month period. The MedsCheck follow-up service can be provided within 12 months of the original service when:

- the patient has been discharged from hospital,
- is having a planned hospital admission,
- receives a physician referral or
- the pharmacist deems it appropriate due to significant changes made to an existing medication profile,
- addition of new medications,
- documented evidence of non-adherence or
- a change in the patient's place of residence.

Fees for eligible patients in the MedsCheck and the BC Medicines Review service are paid by the Ontario Ministry for Health and Long-Term Care and the BC Ministry of Health

respectively (eligibility criteria are in Appendix K). No evaluations of the BC Medicines Review Service were identified during the literature search.

### **The United Kingdom Medicines Use Review and Prescription Intervention Service**

Like the Canadian MedsCheck program, the UK Medicines Use Review and Prescription Intervention service (MUR) must also be carried out in a community pharmacy (unless a special provision has been granted based on exceptional circumstances) by a pharmacist. It also involves a review of the patient's medicines similar to the Canadian MedsCheck and aims to improve the knowledge and use of medicines by (Blenkinsopp et al. 2007):

- establishing the patient's actual use, understanding and experience of taking drugs;
- identifying, discussing and resolving poor or ineffective use of drugs by the patient;
- identifying side effects and drug interactions that may affect the patient's adherence with instructions provided by a health care professional for taking of drugs; and
- improving the clinical and cost effectiveness of drugs prescribed to patients thereby reducing the wastage of such drugs.

The MUR service is not intended to be a clinical review and is modelled on the concept of concordance where 'patients are encouraged to become increasingly empowered in their own medicine-taking decisions in order to achieve the most effective use of their medicines' (Latif and Boardman, 2008, p. 537).

The mean time needed to conduct a MUR was found to be 51 minutes with 22 minutes spent face-to-face with patients (Belkinsopp et al. 2007). A lack of time was identified by Belkinsopp et al. (2007), Kaulbach et al. (2010) and Latif and Boardman (2008) to be one of the greatest barriers to offering and conducting MUR services. This was potentially due to inadequate staffing - Belkinsopp et al. (2007) found that only 23% of pharmacies offering MUR services had specifically employed a locum to either conduct the MUR or provide cover for the pharmacist while the MUR was conducted and that three-quarters of reviews were conducted without additional pharmacist cover. In addition, pharmacists were deterred from performing MURs for patients taking several medicines due to time constraints. Consultation skills were also identified as an area where pharmacists needed to improve in order to deliver services more effectively (Belkinsopp et al. 2007 and Latif et al. 2011).

### **The New Zealand Medicines Use Review and Adherence Support Services**

The New Zealand (NZ) Medicine Use Review (MUR) program and separate Adherence Support Services can be conducted in the pharmacy, at the patient's home or via telephone. The NZ MUR involves four quarterly consultations between a patient and their pharmacist. According to the NZ National Pharmacist Services Framework (District Health Boards NZ 2007), the initial consultation should take 60 minutes and the following three follow-up consultations should take 15 minutes each. In-line with this, Lee et al. (2009) found that the time taken for the initial consultation was, on average, 57 minutes. The NZ MUR involves a review of current medicines, assessment of medication adherence, counselling to promote appropriate self-management of medicines and current medical conditions, reporting of significant adverse medicine events and disposal of expired and disused medicines. A current medication list is provided to the prescriber and patient unless practical circumstances deem that this would not be beneficial. Any issues identified

that are beyond the pharmacists' scope of practice must be formally referred to other appropriate health professionals.

Adherence Support Services include ongoing monitoring of one or more prescribed or over-the-counter medicines for a patient; the provision of regular verbal, written or other forms of support to promote appropriate medication utilisation; collaboration with the prescriber and other members of the primary health care team to review and report any changes in the patient's utilisation of medicines and consequential changes in effectiveness of the medicine as reported by patients. Both the NZ MUR and the Adherence Support Services must be appropriately documented. In an evaluation of the NZ MUR component, time taken to recruit patients to this service and perform MUR visits was identified as a major barrier to service provision (Brandt et al. 2009).

#### 4.2.2 Patients most likely to benefit and eligibility criteria

##### Patients most likely to benefit

Patients most likely to benefit from medicine use review programs are those at risk of medication misadventure and those whose adherence to their medication regimen is poor.

Hospital admissions resulting from medication misadventure are a significant problem in the Australian health care system. Roughead and Semple (2009a) estimated that 2% to 3% of Australian hospital admissions result from errors in the way a medicine is used and system failures (adverse drug events) or adverse drug reactions resulting from the pharmacological properties of the drug used in isolation or in combination with other drugs. This was estimated to be equivalent to 190,000 hospital admissions per year in Australia costing around (2011) A\$698.8 million<sup>4</sup>. In their extensive review of the literature surrounding medication errors in the community, the Australian National Prescribing Service (2009) found that in Australia, 5.6% of hospital admissions in the general population to 30.4% of admissions in the elderly were associated with adverse drug events. Medication errors in the community were found to occur at all stages in the medication management process from prescribing, supply and administration to therapeutic drug monitoring, medical records documentation, referrals and hospital discharge summaries.

The National Prescribing Service (2009) has identified that those at the highest risk of adverse drug events in the community are the elderly, female, those taking multiple medications and those taking high risk medications such as cardiovascular drugs, antithrombotic drugs, analgesics, antibiotics, oral anti-diabetic drugs, antidepressants, antiepileptic drugs and chemotherapeutic agents. In addition, benzodiazepines, anticholinergics, antipsychotics, sedatives and hypnotics were specifically highlighted as high risk drugs for the elderly (National Prescribing Service 2009).

Risk factors for non-adherence with medication are older age, increasing number of medicines prescribed (especially five or more different medicines taken per day), frequency of dosing regimen (especially 12 or more doses per day), patient dissatisfaction with prescribers, and multiple prescribers and pharmacies (Elliot, 2006). Price Waterhouse

<sup>4</sup> 2009A\$660 million adjusted by health inflation to 2011 A\$ from Australian Institute of Health and Welfare (AIHW) 2010, *Health expenditure Australia 2008-09*, Health and welfare expenditure series, Number 42, Cat No HWE 51, Canberra.



Coopers (PwC) (2010a) also reported patients bearing signs of cognitive/physical impairment (with the exception of psychiatric patients) are more likely to display poor adherence with their medication regimen. PwC conducted an evaluation of the (Australian) dose administration aids (DAA)/patient medication profile (PMP) community pharmacy program<sup>5</sup> (PwC 2010a) and found that in the absence of any specific patient eligibility criteria for participation, pharmacists were successful in targeting populations that are thought to be at risk of non-adherence with medication. Only 10% of patients who were recruited to these services were found to have no risk factors (PwC, 2010a).

### Eligibility criteria for similar services to MedsCheck

While certain population groups have the potential to benefit from medication reviews, the evidence to confirm the effectiveness of these programs among these groups is limited and conflicting. Thus, eligibility criteria may not always closely align with those groups most likely to benefit.

In general, across the HMR in Australia, the NZ MUR, the UK MUR and the MedsCheck program in Canada, consumers expected to benefit from medication reviews are defined by the eligibility criteria and include people:

- taking five or more medications on a regular basis;
- taking 12 or more doses of medicine per day;
- with chronic medical conditions;
- living in the community;
- recently discharged from hospital with possible changes to their medicines regime;
- prescribed medication by multiple prescribers;
- taking a medicine associated with a high risk of adverse events; and
- with language, cognitive, dexterity or other physical difficulties.

The eligibility criteria for the HMR, the Canadian MedsCheck, the UK MUR and the NZ MUR are outlined in Table K.1, Appendix K. While the criteria are broadly similar, they differ in how stringently they are applied and the degree to which a pharmacist's or physician's clinical judgement is required to determine the patient's need. For example, to qualify for the UK MUR, the patient must live in the community and display one of the characteristics listed above, whereas for the Australian HMR, the patient must be living in the community and it is *recommended* that the patient display one of the characteristics listed above (see Appendix K for details on each program's patient eligibility criteria).

A review of the international literature on home-based clinical pharmacy services reveals that the target populations are predominantly elderly patients at high risk of medication problems (Mackeigan and Nissen, 2008). Another trend has been to focus on patients with

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<sup>5</sup> A PMP is a comprehensive computerised printed summary of all medicines consumed by a patient including prescription and non-prescription medicines, vitamins, supplements and other complementary medicines. It must contain the brand, dose, directions, prescriber information, patient name, date of birth, allergies or previous adverse drug reactions. The Australian PMP program was carried out in the patient's community pharmacy and involved an interview between the patient and pharmacist in which the pharmacist ascertained what medicines that patient was using, identified issues, suggested other professional services which may benefit the patient and encouraged the patient to provide the PMP to their GP and other health professionals during consultations (PwC 2010a).

chronic medical conditions who have been discharged after an unplanned hospital admission (Mackeigan and Nissen, 2008).

### **Patients most likely to benefit and access to services**

Qualitative research on the Australian HMR program indicated that patients who received services may not include those most likely to benefit according to the program objectives (CR&C, 2008). Through interviews with health professionals, CR&C (2008) identified that those at greatest risk of medication misadventure (where HMRs were most likely to be of benefit) did not access the program. These population groups were identified to include:

- patients post hospital discharge;
- Aboriginal and Torres Strait Islander people;
- patients living in remote locations;
- culturally and linguistically diverse (CALD) patients;
- patients who are intentionally and unintentionally highly non-adherent with their medicines; and
- patients who are transient or homeless.

Although the recommended eligibility criteria for HMRs does not preclude these patients from receiving the service, gaps in access were believed to occur due to 'inadequate communication between state health services and community health professionals, a lack of consultation with health professionals who service at-risk communities (such as CALD community health workers), (and the fact that) the program model was not suited to some consumers (namely Indigenous consumers)' (CR&C, 2008 p. 99). Solutions for addressing the gap in access to HMRs include increasing the flexibility of the referral pathway (CR&C 2008 and Sanburg 2009) (e.g. allowing GPs to refer patients directly to accredited pharmacists), allowing hospital pharmacists and doctors to refer to accredited pharmacists and allowing community pharmacists who identify adherence issues during their DAA supply process to make referrals to an Aboriginal Health Service accredited pharmacist. Other recommendations include incorporating CALD workers into the HMR system, incorporating Aboriginal Health Service workers into the HMR visits to Indigenous people, and allowing multiple HMRs to be conducted for palliative care patients in a short period of time.

Patients with planned admissions to hospital for elective orthopaedic surgery are also likely to benefit from a preoperative MedsCheck or Diabetes MedsCheck as has been shown in Canada (Leung et al. 2008). In Australia, this consultation would provide an opportunity to understand what medication surgical patients are actually taking. Patients may visit more than one pharmacy and be managed by a GP and specialist before their surgery and so all healthcare professionals may not have a current and comprehensive picture of patients' medications, or be aware of potential medication non-adherence. In the Canadian study, the benefit was realised through improved prescribing of medication at the hospital during the perioperative period. Conducting a consultation prior to the operation was shown to decrease unintentional medication discrepancies including drug omission, requests for clarification, incorrect doses and dosing frequency, incorrect medicines and misspelled medicines (Leung et al. 2008).

### Potential barriers to access for those most likely to benefit from a MedsCheck or Diabetes MedsCheck service

The groups identified as most likely to benefit from a HMR are also most likely to benefit from a MedsCheck or Diabetes MedsCheck. Though the MedsCheck and Diabetes MedsCheck eligibility criteria will not preclude the participation of these groups, it is likely that they will also face similar barriers to access.

- Patients who have recently been discharged from hospital may receive their new medicines at the hospital or they may not volunteer this information to their community pharmacists who consequently, may not offer the MedsCheck service.
- Distance may preclude Aboriginal and Torres Strait Islander patients living remotely from accessing services as they must be performed within pharmacies – only 50% of Aboriginal and Torres Strait Islander households in remote areas can access pharmacies when needed (Australian Bureau of Statistics (ABS), 2010).
- Performing the one-off annual service in pharmacies may not allow for rapport building and gradual education which has been identified by Sanburg (2009) as part of an effective HMR program for Aboriginal and Torres Strait Islander patients.
- The MedsCheck and Diabetes MedsCheck services may not reach to People from CALD backgrounds unless the pharmacist speaks the required language other than English to a proficient level.
- Intentionally non-adherent patients are unlikely to identify themselves to the pharmacist as needing a MedsCheck or Diabetes MedsCheck.
- Similar to a finding from an evaluation of the UK MUR service (Belkinsopp et al. 2007), locating MedsCheck services physically in the pharmacy may prevent access for those most in need as they were more likely to be house bound.

In addition to the access barriers identified above, methods used to recruit patients may also prove to be a barrier to accessing MedsCheck among low socio-economic groups. An evaluation of the pilot of MUR services offered in community pharmacies in NZ by Brandt et al. (2009), found pharmacists identified and recruited eligible patients in an ad-hoc manner which included pharmacy walk-ins and opportunistic screening at the time of dispensing. It was suggested that this method of recruitment may unintentionally exclude lower income groups as they are less likely to access health services including pharmacy services than the general population. Although Brandt et al (2009) concluded that 75% of those who received MURs during the pilot lived in areas of need (as determined by a deprivation rating system), this outcome was attributed to the geographical location of one pharmacy service provider in a high deprivation area. The effect of ad-hoc recruitment was demonstrated in the low numbers of Maori and Pacific Islander populations accessing the program despite being amongst the target populations for the pilot.

#### 4.2.3 Patient health outcomes

It is worth noting that only literature pertaining to pharmacist-led medication reviews provided to adults was included in this section. Services for children and adolescent patients were excluded (consistent with the literature search strategy above in section 4.1.3).

Medication review in the primary care setting is used as a tool by several countries to prevent hospital admissions and improve the safety and efficacy of medication usage in the community (Leendertse et al. 2011 and National Prescribing Service 2009). However, the efficacy of pharmacist led medication review services has been found to be variable.

### **Efficacy of pharmacist led medication reviews in improving medication adherence clinical indicators, appropriateness of prescribing and patient medication management**

Nkansah et al. (2010) reviewed a suite of international randomised controlled trials which involved a pharmacist delivering services to patients (other than dispensing or compounding pharmaceuticals) with or without extra services to physicians e.g. drug education sessions. The services delivered by pharmacists took place in either outpatient medical clinics or in community pharmacies. Interventions included patient education, pharmacist telephone advice following home blood pressure monitoring, the monitoring of adverse drug reactions, drug-drug interactions, and an adherence assessment. Some interventions included the provision of oral or written recommendations to physicians regarding therapy modification and multiple follow up visits with patients from monthly to yearly. Of the 36 relevant studies identified, 29 studies found the pharmacist initiated intervention resulted in improvement in most clinical outcomes, although improvements were not always statistically significant. Overall, statistically significant improvements occurred in the reduction of systolic and diastolic blood pressure and glycosylated haemoglobin (HbA1c), a reduction in all-cause mortality in heart failure patients, a reduction of asthma symptoms among asthma patients and a reduction in the incidence of total bleeding in patients on warfarin therapy (Nkansah et al., 2010).

In contrast to the overall successes of pharmacist led services documented above, in their review of international and local literature, the National Prescribing Service (2009) found that fewer than one third of 33 evaluations of pharmacist-led medication reviews demonstrated improvements in at least one of the following patient outcomes: mortality, hospital admissions, emergency department attendances, quality of life, adverse drug events, adverse drug reactions and falls.

Retrospective analysis of Australian data has shown that HMRs by accredited pharmacists can improve the appropriateness of prescribing as demonstrated by a change in the patient's Medication Appropriateness Index score and therefore have the potential to improve patient health outcomes (Castelino et al. 2010a). In addition, Castelino et al. (2010b) found that pharmacists' recommendations in HMRs, if acted upon, also reduce the prescribing of medicines with anticholinergic and sedative properties in people over 65 years of age. Similarly, a randomised controlled trial where the intervention involved community pharmacists conducting clinical medication reviews for patients aged 65 years and older taking five or more prescribed medicines then discussing their recommendations with the patient's general practitioner showed a significantly reduced Medication Appropriateness Index score in the intervention group (Bryant et al. 2011). Community pharmacist review of medications in patients aged 65 years and older using six or more drugs concomitantly has also been shown to significantly reduce potential drug related problems in the elderly four months after the review. The most common drug related problems that were reduced included expired indication, contraindications and drug interactions (Vinks et al. 2009).

In a randomised controlled trial of the Australian HMR program, a majority of participating pharmacists and GPs suggested that the HMR model improves the care of participating patients. During this trial, the most common problems identified were potential adverse drug reactions, suboptimal monitoring and adherence/lack of concordance issues. More than half (54.4%) of the pharmacists' recommendations were enacted and 70.9% of the recommendations had a positive outcome at follow-up the most common being 'information provided to the patient to prevent possible dangers (31.1%)' and action taken leading 'to improvement in symptoms, function or disease (22.1%)' (Sorensen et al. 2004).

Improved medication adherence, medication knowledge, reduced inappropriate prescribing and improvement across a number of clinical domains such as blood pressure, HbA1c, dyslipidaemia and anticoagulation was found in a randomised controlled trial among patients from a low socio economic area who received a pharmaceutical care process compared to those who did not from the control group (Taylor et al. 2003). The pharmaceutical care process involved pharmacists providing individualized patient education which included a brief review of the disease, important lifestyle modifications and basic drug information combined with a medication review and compliance review. Therapeutic recommendations were communicated to physicians through discussions or progress notes. Follow-up visits provided the opportunity for patients to ask questions and pharmacists to consolidate patient's medication regimens, devise medication reminders and teach patient techniques such as blood glucose measurement and peak flow measurement. Hospitalizations and the number of emergency department visits also decreased in the intervention group compared to the control. However, no significant differences were noted between the intervention and control groups for their quality of life measures (Taylor et al. 2003).

Improved care persisting for at least two years was demonstrated through modest improvements in the prescribing of disease-modifying medications for heart failure patients who received a medicine review delivered by a pharmacist versus those who did not (Lowrie et al. 2012).

In a randomised controlled trial where the intervention involved community pharmacists conducting home medication reviews for patients discharged from hospital on five or more prescription medicines, patient's redundant medicine supplies were reduced and patient's medication costs were slightly reduced compared to the control group (Hugtenburg et al., 2009). This intervention also appeared to improve clarification in the hospital prescriber's intent – the mean number of drugs per patient for which community pharmacist contact was made with hospital physicians or Pharmacy Hospital Service Desk was higher in the intervention group (medicines review group) compared to the control group (0.35 +/- 0.51 vs. 0.16 +/- 0.38). More patients of the intervention pharmacies were very satisfied with the counselling at discharge compared to the control pharmacies (87% vs. 50%) (Hugtenberg et al. 2009).

In a review of the literature, Van Wijk et al. (2005) found that the types of community pharmacist interventions that have shown an effect on patient adherence to medications for chronic conditions were weekly or monthly appointments that consisted of counselling, monitoring and education. However, the same types of intervention showed no significant improvements in adherence in other studies (Van Wijk et al. 2005).

The Hypertension Adherence Program in Pharmacy (HAPPY) randomised controlled trial demonstrated that a community pharmacy intervention package delivered by 55 pharmacies across Victoria, Western Australia and Tasmania can assist patients in improving their adherence with medication and in achieving their target blood pressure after six months (George et al. 2010). Participants in the intervention group received a home blood pressure monitor with the capacity to store and download blood pressure readings to be used for discussion and their three and six monthly follow-ups with the pharmacist; motivational interviewing and education by the pharmacist at zero and three months to help them improve their medication adherence and achieve their target blood pressure; a pharmacist initiated HMR, DAA and/or PMP where necessary; a MUR to identify and resolve any possible medication related causes of hypertension; referral to a GP when needed (e.g. very high blood pressure); and refill reminders by either SMS, telephone or mail from their pharmacist at a chosen number of days before their antihypertensive medication dispensing was due. Pharmacists that delivered these interventions received face-to-face and on-line training. Project material was also available in hard copy, on-line and on CDs. Training included use of the software relevant to the trial, use of the blood pressure monitors, collection of baseline data, calculation of the MedsIndex score, clinical updates on hypertension management, motivational interviewing, MUR, and the importance of using medication adherence in achieving optimal blood pressure control (Lau et al. 2010 and George et al. 2010).

### **Efficacy of pharmacist led medication reviews in decreasing hospital admissions and increasing patient quality of life**

Preventable drug-related admissions (PDRA) to hospital are associated with multiple stages in the medication use process including prescribing, dispensing, administration, monitoring and help seeking. However, a qualitative study conducted in the UK reveals that the main causes of PDRAs are similar despite the stage at which they occur. They are mainly due to communication failures between patients and healthcare professionals and different groups of healthcare professionals and knowledge gaps about medicines and patients' medical and medication histories (Howard et al. 2008). Insufficient patient counselling about medication between patients and healthcare professionals has been identified as an important communication problem. In case studies conducted by Howard et al. (2008):

- many patients who had PDRA to hospital indicated that they were reluctant to question healthcare professionals, especially GPs, about their medication;
- some pharmacists assumed that patients would have received medication counselling from their GP so did not counsel the patient themselves;
- some community pharmacists also did not perceive medication counselling to be their role; and
- some patients indicated that they could not recall the information they had been given or had difficulty hearing the information provided.

The place for pharmacist lead medication reviews in improving communication between patients and healthcare professionals therefore potentially preventing hospital admissions seems logical. However, there is conflicting evidence as to whether pharmacist led medication reviews result in an improvement in patient outcomes such as quality of life and reduction in hospital admissions.



- A medication review service consisting of counselling patients (taking at least one medication prescribed for a chronic condition) on their medicines before hospital discharge and during a single home visit by a nurse or pharmacist one week post hospital discharge has been shown to reduce hospital readmissions and out of hospital deaths during the six month discharge period under study conditions (Stewart et al. 1998).
- Roughead et al. (2009b) also found that in the elderly population (average age 81.6 years), HMRs were effective in delaying time to next hospitalisation in patients with heart failure who were treated with heart failure medicines. There were similar findings in a systematic literature review by Koshman et al. (2008).
- Murray et al. (2007) also found patients with heart failure over 50 years of age who received a pharmacist led intervention in a pharmacy specifically established for the study demonstrated a 10.9% improvement in medication adherence (95% CI, 5.0 to 16.7%) and had 19.4% fewer emergency department visits (incidence rate ratio, 0.82, 95% CI, 0.73 to 0.93%) during the nine month intervention period compared to the usual care group. The intervention involved pharmacists taking a baseline medication history of all prescription and over-the-counter drugs plus dietary supplements taken by patients, an assessment of their medication knowledge, verbal and written instructions, and follow-up monitoring of parameters including medication use, health care encounters and body weight. Findings were communicated as needed to other members of the health care team.
- In a review of the literature specifically involving pharmacists and physicians collaborating in a medicines review process, Kalisch et al. (2010) found that this process can improve health outcomes for heart failure patients. Improved health outcomes included reductions in hospital admissions, improvements in medication adherence (though the effect may not be sustained) and physician adherence to heart failure treatment guidelines (Kalisch et al. 2010).

Similarly, as outlined above, patients from a low socioeconomic background who received a pharmaceutical care process compared to those who did showed a significant decrease in hospital admissions and emergency department visits (Taylor et al. 2003).

Pharmacist led interventions may also result in improvements in quality of life:

- Urbis Keys Young (2005) administered the EQ-5D® quality of life survey instrument to 50 consumers who had received a HMR in the previous three to 12 months and found a highly significant improvement in utility post HMR. The most responsive attribute was found to be the patient's self-rated level of anxiety and depression (Urbis Keys Young, 2005). This finding was supported by Brandt et al. (2009) in their analysis of changes in patient quality of life from pre-MUR to post-MUR in NZ, and Stafford et al. (2009) whose Value of Medication Reviews study indicated that HMRs most likely result in a statistically significant reduction in health resource utilisation and improve quality of life in most patients.

Other trials and reviews indicate that medication review processes conducted by pharmacists do not result in improvements in patient's quality of life outcomes or reductions in hospital admissions:

- A randomised controlled trial where the intervention involved pharmacists in the UK providing home based medication reviews to people over 80 years old on two or

more medications daily after discharge from hospital versus normal care found that the intervention had no effect on quality of life or mortality. Moreover, paradoxically, the medication review was associated with an increase in the rate of hospital admissions. Suggested explanations by the authors were that pharmacists may have helped patients understand their medical conditions and early signs of deterioration thus causing them to engage in more help seeking behaviour, that pharmacists may have encouraged greater medication adherence by patients thus triggering more iatrogenic illness and that by visiting patients at home and spending long periods of time with them may have increased patient's anxiety, confusion and dependence on health services (Holland et al. 2005).

- Quality of life domains including emotional role and social functioning were significantly reduced in patients who received a medicine review delivered by a community pharmacist compared to the control group (Bryant et al. 2011). Patients were aged 65 years or older and taking five or more prescription medicines. Explanations provided by the author included the high pharmacist withdrawal rate and poor patient follow-up which may have left patients feeling a sense of abandonment after the initial intense consultation. Similar to Holland et al. (2005) and Salter et al. (2007), the authors also mention that increasing a person's awareness of a medical condition they thought they were managing well may undermine their confidence (Bryant et al. 2011).
- Lenaghan et al. (2007) found that home-based medicines reviews conducted by pharmacists in the primary care setting for people over 80 years of age, taking four or more medicines with at least one additional medicines related risk factor (living alone; record of confused mental state; vision or hearing impaired; prescribed medicines associated with medication –related morbidity; or prescribed more than seven regular oral medicines) had a limited impact. The medication review showed no positive impact on clinical outcomes or quality of life, however, it did appear to reduce prescribing.
- In a randomised controlled trial, Holland et al. (2007) studied the effect of community pharmacists reviewing patient's medicines, providing symptom self-management and lifestyle advice to patients with heart failure after an emergency department admission. The intervention was provided over two home visits and did not lead to reductions in hospital admissions and had no clear effect on mortality, quality of life or medication adherence. A further review of the literature by Holland et al. (2008) found that pharmacist-led medication reviews may be able to reduce polypharmacy<sup>6</sup> slightly but do not have any effect on mortality or hospital admissions in older people.
- Royal et al. (2006) support this finding in their systematic review of the literature where they find that the evidence indicating that pharmacist-led medication reviews are effective in reducing hospital admissions is weak. In another review of the literature, Mackeigan and Nissen (2008) found that the only parameter affected on a consistent basis by home based medicine review services was improved medication adherence. Outcomes regarding hospital admissions and quality of life for patients

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<sup>6</sup> 'Polypharmacy is the concurrent use of multiple medications. It can be associated with the prescription and use of too many or unnecessary medicines at dosages or frequencies higher than therapeutically essential', National Prescribing Service, 2000, [http://www.nps.org.au/\\_\\_data/assets/pdf\\_file/0003/15780/news13\\_polypharmacy\\_1200.pdf](http://www.nps.org.au/__data/assets/pdf_file/0003/15780/news13_polypharmacy_1200.pdf), accessed 23 November 2011.



receiving these interventions were varied with most trials showing that the intervention did not result in any difference across these parameters.

- A multiple interrupted time-series trial of a pharmaceutical care process which required community pharmacists in five primary care trusts in the UK (the RESPECT trial) to review a patient's medication in the context of the patient's health status and identify problems relating to adherence, adverse effects and drug interactions did not reveal positive outcomes on patient health. Nor did it lead to a statistically significant change in the appropriateness of prescribing or quality of life 12 months after the process was implemented (Richmond et al. 2010).
- The Community Pharmacy Medicines Management Project Evaluation Team (2007) found medication reviews performed in pharmacies by a community pharmacist resulted in insignificant differences in quality of life scores as measured by the SF-36 and EQ-5D. In addition, no significant difference was found in the five-year risk of cardiovascular death (in patients with coronary heart disease) between those who had received a medication review and those who had not.
- A randomised controlled trial of the Australian HMR program did not demonstrate any health related quality of life gains (Sorensen et al. 2004).
- In a large scale randomised controlled trial of a medication review process conducted by pharmacists for patients with heart failure found that during the median follow-up time of 4.7 years, the intervention did not significantly decrease death from any cause or hospital admission for heart failure. Nor did it decrease death from any cause or hospital admission for a cardiovascular cause for patients in the intervention group versus the control group. The intervention group consisted of 1,094 patients with left ventricular systolic dysfunction (heart failure) of any severity, randomised to receive medication review with a pharmacist embedded within a primary care practice (1074 control group patients received usual care). The main objective of the medication review was to optimize the medical treatment for left ventricular systolic dysfunction according to guidelines. If agreement between the patient and pharmacist was reached and subsequent family doctor approval was achieved, medications were initiated, discontinued or modified by the pharmacist during 3-4 subsequent weekly or fortnightly consultations. Pharmacists delivering the intervention were not experts in heart failure and received one day of training which included interactive role playing and didactic teaching, heart failure specific reading materials and monthly discussions of cases encountered (Lowrie et al. 2012).

### **Indicator of efficacy — pharmacists' ability to identify clinically relevant issues**

The variable reported efficacy of pharmacist led medication review services may be related to the varying ability of pharmacists to detect drug related issues of clinical or practical relevance.

Three studies suggested pharmacists were able to identify relevant issues. For example:

- 87% of the 88 drug related problems detected by 24 Norwegian community pharmacists during medication reviews of 43 patients with type 2 diabetes were found to be of medium to high clinical and practical relevance demonstrating the effectiveness of medication review by pharmacists in this patient population (Granås et al. 2010).

- Sellors et al. (2003) found that physicians implemented or attempted to implement 72.3% of pharmacists' written recommendations made during face-to-face medication reviews with their patients. Consistent with this, an estimated 70% of recommendations made by pharmacists to improve aged care residents' safety with regards to medications used were implemented by medical practitioners (Khalil, 2011).
- The clinical and practical relevance of pharmacists' recommendations has also been found in a community mental health setting (Gisev et al. 2010). During this intervention, trained pharmacists interviewed 48 community mental health team clients and then prepared a written medication review report detailing their finding regarding drug related clients' drug related problems and recommendations to optimise drug therapy. An expert panel agreed with 76% of the findings and considered that 81% of the recommendations were appropriate. Over three quarters (77%) of the reviews were deemed to potentially have a positive clinical impact (Gisev et al. 2010).

However, Krska and Avery (2007) found that pharmacists' effectiveness in identifying issues may be weak with only 33.8% of potentially relevant pharmaceutical issues identified by pharmacists during MURs in the UK where patient clinical data was also available. The number of years the pharmacists were qualified, whether or not they had a postgraduate qualification or worked in a medical practice was not related to the proportion of issues they identified. The authors do suggest that some issues addressed by pharmacists during the consultation may have not been documented thus the documentation available to the researchers may have underestimated the number of issues identified by pharmacists. In addition, they note that pharmacists participating in the study had limited training on delivering the medication review and did not undergo a formal assessment of competency.

#### 4.2.4 Characteristics of the ideal service

##### Service models involving motivational interviewing

In a study of strategies to improve medication adherence in the community pharmacy setting, 'motivational interviewing' of patients by the pharmacist coupled with a collaboration between the patient and pharmacist in selecting strategies designed to increase medication adherence was shown to increase patient medication adherence at three and six months post the intervention (PwC, 2010b).<sup>7</sup> 'Motivational interviewing' involved a specially trained pharmacist exploring their patient's attitudes and medication-taking behaviours, including their reasons for not taking their medicines as prescribed, and the identification of the patient's stage of behaviour change through a questionnaire and discussion. The strategies delivered within community pharmacies to improve patient adherence were tailored to meet patients' needs and included patient diaries, provision of patient education and information, medication profiling reminders and dose administration aids, referral to GPs, HMRs, and celebrating success. Pharmacists were required to

<sup>7</sup> The PwC report uses the term 'compliance', stating that the terms 'compliance' and 'adherence' are used interchangeably, reflecting older views from the International Society for Pharmacoeconomics and Outcomes Research (Cramer et al, 2008) and the World Health Organization (2003). Our preference in this report is to use the more current terminology preference for 'adherence', which comprises accuracy in execution of taking medication in line with its prescribed regimen and also persistence in taking it for the length of time required for optimal effect (Ruppar et al, 2010).

follow-up on agreed strategies with patients and received a fee for attending the education workshop on 'motivational interviewing' skills and for each patient recruited. A majority of patients involved in this study were aged 51 or above (84.8%), were female (56.6%), were born in Australia (74.2%), spoke English as their preferred language (94.1%), and were not receiving assistance with adhering to their medication regime (80.4%).

Similarly, the Diabetes Medication Assistance Service which was delivered under the Fourth Community Pharmacy Agreement involved training pharmacists in diabetes pathophysiology and pharmacotherapy, diabetes specific skills such as use of insulin pens, blood glucose testing devices, interpretation of self-monitoring of blood glucose and the application of motivational interviewing and collaborative goal setting. Pharmacists then delivered a care cycle of assessment, counselling, education and review for people with type 2 diabetes at regular intervals in the community pharmacy over a six month period. The evaluation found that a majority (87%) of patients had at least one documented goal that was fully or partially attained (most goals related to lifestyle or self-monitoring of blood glucose). Patients also had improved glycaemic control, over 90% of patients reported improvements in their knowledge about diabetes self-management and patients were found to have reduced risk of barriers to adherence. The service was of benefit to both people who were newly diagnosed with type 2 diabetes and those who had diabetes for a number of years. Patients who were newly diagnosed reported that they gained a lot of knowledge from the DMAS and those who had been diagnosed for a number of years reported that the DMAS increased their motivation to improve the management of their diabetes, lifestyle and medication issues (Mitchell et al. 2011).

### **Features of medicine review interventions that improve medication adherence in the elderly population**

A systematic review of international controlled studies aimed at improving medicine adherence in the elderly population receiving multiple medications found that effective interventions used a combination of behavioural and educational strategies (George et al. 2008). Successful strategies included individualised patient education provided by a pharmacist supplemented by one or more behavioural strategies with or without medication review. Behavioural strategies included:

- a reminder chart or calendar in combination with medication regimen simplification and regular pharmacist follow up; and
- medications provided in blister-packed dose administration aids (DAAs) and pharmacist follow-up;

Medication review by pharmacists with a focus on medication regimen simplification was also found to be a successful approach to improving medicine adherence in the elderly population (George et al. 2008).

### **Features of medicines review interventions that improve medication adherence in populations with cardiovascular disease and/or diabetes.**

A systematic review including randomised controlled trials found 83% of identified trials demonstrated that in-person pharmacist interventions delivered in the pharmacy improves adherence to medications used for the prevention or treatment of cardiovascular disease or diabetes. The pharmacist interventions in the trials were similar and involved an in-

person meeting with a pharmacist in which medication histories were obtained, medication knowledge was elicited and expanded upon and disease and lifestyle teaching was conducted, with or without accompanying written information (Cutrona et al. 2010). Another systematic review has found that medication management by pharmacists for patients with hypertension and diabetes can improve patient's clinical indicators such as HbA1c and blood pressure at varying times after the intervention. Facilitators were found to include recruiting patients who had not reached their clinical goals and timely communication with primary care providers to discuss therapeutic problems along with routine follow-up to support medication adherence. Medication management did not appear to benefit patients where patients had unspecified clinical needs, this including elderly patients taking multiple medications for chronic conditions, patients with chronic conditions but no specification of outcomes and patients with new prescriptions for antidepressants (Kucukarslan et al. 2011).

### **Other features of medication review services that may contribute to improved patient outcomes**

Various medicine review trials and reviews identified in the above review demonstrate that patient follow-up after the initial review service and/ or pharmacist communication with prescribers following the medication review process may help contribute to positive health outcomes for patients. These may include improvements in patient medication adherence, medication knowledge and clinical indicators and reduced inappropriate prescribing and hospital admissions (Taylor et al. 2003, Lowrie et al. 2012, Van Wijk et al. 2005, George et al. 2010, Murray et al. 2007, Bryant et al. 2011, Sorensen et al. 2004 and Kalisch et al. 2010). As identified in the above review, the reasons for negative patient outcomes in one medication review service were predominantly attributed to the lack of patient follow-up after the additional consultation (Bryant et al. 2011).

MUR services delivered by pharmacists can improve patient health outcomes through the following strategies that have been shown to improve patient adherence: simplifying the dose regimen (Schroeder et al. 2004 and Haynes et al. 2008); more thorough patient instructions and counselling; reminders; close follow-up; and supervised self-monitoring (Haynes et al. 2008). Other interventions that could be implemented during a pharmacist delivered MUR such as MedsCheck and have been shown to improve medication adherence in patients with hypertension are daily drug reminder charts, reminders and special packaging e.g. using DAAs (Schroeder et al. 2004). Pharmacy led interventions for people with type 2 diabetes such as a combination of diabetes education, medication counselling and evaluation plus adjustment to the medication regimen, prescription reminders and special packaging have also shown a small positive effect on patient clinical outcomes such as metabolic control and HbA1c (Vermeire et al. 2005). Similarly, regular review by a community pharmacist and simple calendar reminders of medication taking provided to patients upon receipt of their first prescription have been shown to increase adherence to lipid lowering medication (Schedlbauer et al. 2010).

Notwithstanding the potential barriers to accessing MedsCheck services for patients most likely to benefit from services outlined above, the 2012 national roll-out of MedsCheck in Australia may allow for better follow-up of patients with regards to their medication management post discharge from hospital. Currently there are no restrictions on who can refer patients into the service thereby enabling hospital pharmacists, medical officers,

nurses and other health professionals to recommend a MedsCheck to any patients who may benefit from community follow-up.

#### 4.2.5 Methods used in the evaluation of similarly designed services

Past approaches undertaken by program evaluation teams were examined to further guide the development of the MedsCheck pilot evaluation framework and also to inform the selection of quality and outcome measures that will be needed as part of a national roll-out to measure actual patient benefit and outcomes.

National and international medication review program evaluations have assessed both the implementation and delivery of the service (process evaluations) and the impact of the service in terms of its objectives (outcomes evaluations).

Qualitative evaluations rarely explicitly specified the ‘indicators’ or thresholds they used to measure success, instead describing the overall consensus of the relevant group (e.g. pharmacists or patients) on a certain question posed or quoting directly from interviews/consultations. The following questions have been explored in evaluations of medication review processes (the Program) conducted in Australia, NZ, the UK and Canada:

- Where are the gaps in access to the Program and what are the reasons for these gaps?
- What are the main barriers affecting patient recruitment into the service?
- What drives participation in the Program, i.e. what are the barriers and enablers to participation relative to different target groups?
- What are the main workforce issues affecting implementation of the Program?
- What are the barriers/operational issues and facilitators in delivering the Program in the pharmacy?
- What would facilitate Program delivery?
- What differences do incentive payments for accreditation make to the Accredited Pharmacist workforce?
- Do incentive payments address barriers to accreditation and the provision of medication reviews?
- Are accreditation incentives the best way to encourage pharmacists to attain accreditation and conduct HMRs?
- What are the barriers to accessing HMRs are for Aboriginal clients and how can these be overcome?
- Do pharmacists feel they are adequately remunerated for HMRs?
- Are HMRs conducted according to the business rules and guidelines disseminated by the Health Insurance Commission and the Department?
- What is the main influence on the number of HMRs conducted and what can be changed in the program to affect this number?
- Are patients satisfied with the services provided by the Program and did they find the service helpful?
- What topics did the pharmacist discuss with patients?
- What did patients learn?

- Did patients feel that they received specific health benefits from the service?
- What actions did patients take after the service?
- What are the pharmacists' perceptions of the effects of delivering the Program i.e. what are the benefits, if any?
- When are patients most likely to benefit from the Program?
- How will the eligible population benefit from the Program?

In answering these questions, the evaluations drew on a variety of information sources, for example, in an evaluation of the Australian HMR program, CR&C (2008) researched the barriers and enablers to participation by health professionals in the HMR program by examining:

- current GP and pharmacist perceptions of the program;
- GP perceptions of the program compared to other health initiatives;
- factors influencing community pharmacy participation or non-participation; and
- health professionals' perceptions of the effectiveness of HMRs.
- To describe how the eligible population benefited from HMRs, CR&C (2008) analysed the following:
  - whether eligible consumers already had strategies in place for managing their medicines and whether these were successful and in place prior to the HMR;
  - whether eligible consumers had the potential to become confused over the name and appearances of their medicines;
  - whether eligible consumers were aware of the HMR program;
  - whether consumers who had received a HMR felt there was any reason to change or improve the HMR program;
  - what consumers who received a HMR felt was the most important outcome of their HMR; and
  - whether consumers were aware that they had to make a follow-up visit to their GP as part of the HMR.

Mixed methods were used to answer these questions including:

- stakeholder consultations;
- pharmacist questionnaires, interviews and focus groups;
- patient questionnaires, interviews and focus groups;
- GP questionnaires, interviews and focus groups;
- medication review facilitator questionnaires, interviews and focus groups;
- literature reviews; and
- a publicly advertised call for submissions.

Further details on methodologies used can be seen in Appendix M.

Some evaluations also quantitatively described factors impeding and facilitating the delivery of medicine review services. For instance, Dolovich et al. (2008), Belkinsopp et al. (2007), Brandt et al. (2009), and Lee et al. (2009) all examined the pharmacist consultation time in assessing the impact of medicine reviews on pharmacists' workload. Belkinsopp et

al. (2007) highlighted the importance of splitting this question into time spent by the pharmacist preparing for the MUR, time spent face-to-face with the patient and time spent completing the MUR paperwork. Other quantitative indicators of workload included:

- the percentage of pharmacies that specifically employed a locum pharmacist to either conduct MURs or provide cover whilst permanent staff conducted the MURs (Belkinsopp et al. 2007);
- the number of reviews conducted without an additional pharmacist present (Belkinsopp et al. 2007); and
- the percentage of pharmacists who reported they were the main recruiters of participants (Belkinsopp et al. 2007).

The impact of pharmacist delivered medication review programs has been measured quantitatively across a number of areas. These include the reach of the program and the efficacy of the program. For example, in their evaluation of the UK MUR service, Belkinsopp et al. (2007) quantified the number of advanced and enhanced services provided using data from a community pharmacy survey and a scan of National Health Service claims data. The analysis included pharmacies that had provided MUR services in the past, those still involved, and pharmacies that intended to provide services in the future. In a NZ study, data describing patients who had received MURs was retrieved from a data collection tool to evaluate the program. The data described access to the program by different population groups, patient age, ethnicity, gender, NZ Deprivation Index, medical condition(s), number and type of prescribed medications, mobility, and sight or hearing problems (Brandt et al. 2009). Brandt et al. (2009) also collected a series of quantitative indicators to further assess the efficacy of the program:

- the number of patients who indicated they would be more likely to seek advice from their pharmacist in the future;
- the percentage of prescription medicines taken as directed across the three consultations (initial consultation, follow-up 1 and follow-up 2) of the MUR;
- patient adherence to medicines across the three consultations according to an adherence rating applied by pharmacists during the MUR;
- patient self-reported adherence across the three consultations using the Morisky Scale;
- patient knowledge about their medicines across the three consultations according to a knowledge rating applied by pharmacists;
- patients' perceptions of whether their medicines were working well according to a scale from 'strongly disagree' to 'strongly agree', across the three consultations;
- percentage of patients who needed medications removed from their homes; and
- patient self-reported rating on the scale of 'strongly disagree' to 'strongly agree' on practical aspects of taking medicines across the three consultations according to the statements 'I can easily take or use my medicines' and 'I can easily order and collect my medicines'.

More objective measurements of the impact of medicine reviews on patient adherence have included use of electronic monitors such as Medication Event Monitoring System (MEMS) V prescription container lids (Murray et al. 2007). The lids record the time and date of each opening and closing of the container onto a digital chip and ensure that the correct lid is placed on the correct container. Data retrieved from the lid enables an



assessment of patient adherence (the percentage of prescribed medication taken) and scheduling adherence (the day-to-day deviation in the timing of administration).

As noted earlier, evaluations of pharmacist delivered medicine review services have also used changes in patient quality of life during or after service delivery to measure the efficacy of the Program (Brandt et al. 2009 and Urbis Keys Young, 2005) and hospital admissions data pre and post service delivery (Murray et al. 2007 and Roughead et al. 2009b).

- For example, in their evaluation of the Australian HMR program Urbis Keys Young (2005) conducted telephone interviews with 50 consumers after they had received their HMR. During the interview, they used the EQ-5D questionnaire to assess quality of life prior to receiving the HMR (relied on patient recall) and post the HMR. Pharmacists in the evaluation of the NZ MUR administered the EQ-5D questionnaire to their patients at the time of their initial consultation and at their first and second follow-ups (Brandt et al. 2009). In addition to the EQ-5D, pharmacists in Brandt et al. (2009) also administered the Visual Analogue Scale (VAS) to patients at their initial consultation, first and second follow-ups.

Hospital admissions pre- and post-service delivery have been assessed through patient interviews (Urbis Keys Young 2005), and the outcome of hospital admissions has been analysed via data scans for select populations. For example, Roughead et al. (2009b) used the Australian Government's Department of Veterans' Affairs records to find hospital admission rates for heart failure patients who were exposed to a HMR and those who were not exposed to a HMR. However, in a diverse patient population, linking hospital admissions back to whether or not a patient has received a HMR is difficult due to the potential lack of data surrounding reasons for hospital admission and the difficulty in linking the admission to MUR data. For example, a patient may be admitted to hospital for an exacerbation of their heart failure. It may be only later on that a health professional discovers that this was because they were not taking their diuretic medication as prescribed. Whether or not the patient received an MUR in the past would then need to be investigated, requiring further data. For example, in NZ, Brandt et al. (2009) studied hospital admissions data for MUR patients pre and post the consultation but could only summarise the data rather than linking the intervention with the incidence of adverse drug events.

In addition to measuring quality of life before and after a HMR, the efficacy of the Australian HMR program was quantitatively analysed by asking patients about *medication-related* health problems experienced before and after their HMR (Urbis Keys Young, 2005). Interviews took place 3 to 12 months after the HMR was performed. The indicators reported included:

- Conclusion- occurrence of medication related health incidents;
- number of hospital admissions;
- stay in hospital for one or more days;
- visit to an emergency department;
- visit to a GP (medications-related);
- days off work (one or more);
- unable to do usual tasks around the home (one or more days); and



- days taken off work by somebody else to help or look after respondents (one or more).

#### 4.2.6 Conclusion

The Department in concert with the Guild launched the MedsCheck and Diabetes MedsCheck pilot – a community pharmacy based medication management program. The aim of the initiative is to complement the existing HMR program, a fee for service pharmacist led and GP referred medicine review service which is similarly funded under the Community Pharmacy Agreement. The MedsCheck and Diabetes MedsCheck program seeks to be more accessible than the HMR program, which requires a GP referral and pharmacist accreditation.

Comparable pharmacist led medication review programs exist in the UK, Canada, and NZ. All of the medication review programs are aimed at improving patients' understanding of medicines and disease states thereby endeavouring to improve adherence and reduce adverse events resulting from incorrect dosing and poorly controlled disease states. The various existing international programs, such as the UK Medication Use Review and the British Columbia Medicines Review Service, have also sought to recruit those at identified to be at the highest risk of medication misadventure including individuals on multiple medications and the elderly. Eligibility criteria applied in other programs but not used in the MedsCheck pilot include patients on frequent doses of medication, those with multiple prescribers, and individuals with cognitive impairment or language difficulties.

The potential benefits of improved medication management in the community have been recognised internationally. However, in the literature, the efficacy of pharmacist led medication review services and pharmacists' ability to detect medication problems has been found to be variable, in part due to the difficulty in evaluating the intervention. Evaluation methods have included surveys, interviews, and skill checks.

## 5 MedsCheck and Diabetes MedsCheck Patients

The discussion in this chapter is divided into two sections as follows:

- Characteristics of patients receiving MedsCheck and Diabetes MedsCheck services; and
- Benefits to patients receiving these services.

### 5.1 Characteristics of patients receiving services

Between August 25<sup>th</sup> 2011 and March 31<sup>st</sup> 2012, 844 patients received MedsCheck and Diabetes MedsCheck services and have been included in the following analysis. Six hundred and ninety-five patients received MedsCheck services and 149 patients received Diabetes MedsCheck services.

#### 5.1.1 Age and gender

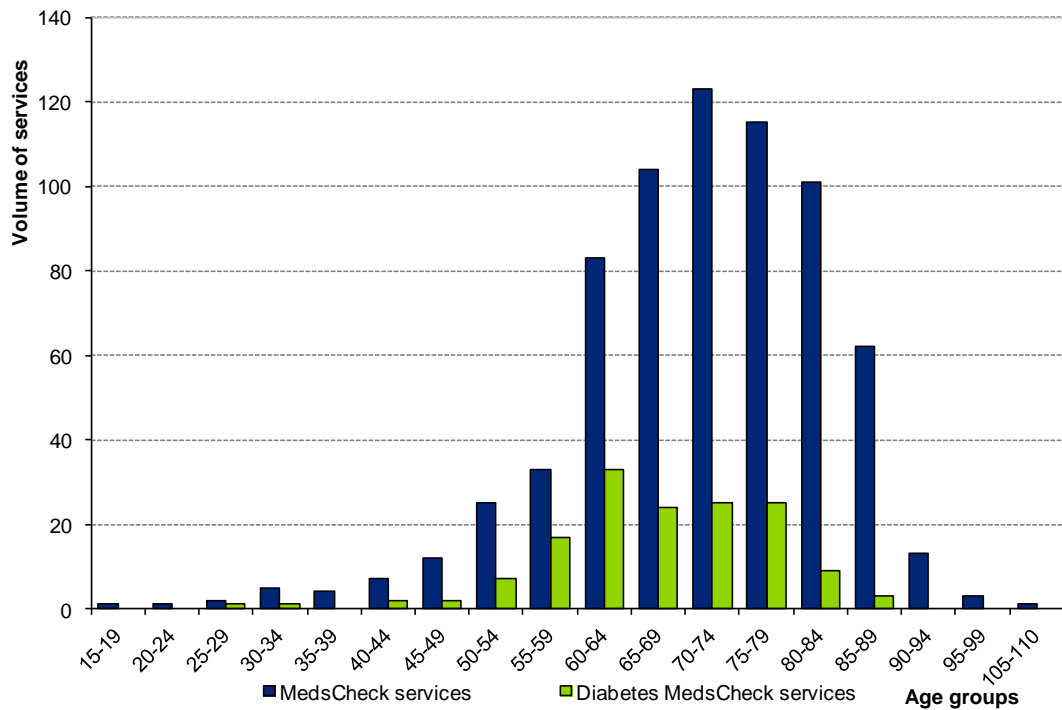
Most MedsCheck patients were aged 70-74 years old most Diabetes MedsCheck patients were 60-64 years old (Chart 5.1). The mean and median ages were 70 years and 71 years respectively. The youngest person to receive a service was 17 years old and the oldest was 110 years old.

Patients who received MedsCheck and Diabetes MedsCheck services were mostly representative of the broader population of people taking medicines in Australia — with 608 of the 844 patients<sup>8</sup> in this analysis aged 65 years or over (72% of the patient population). In 2010, 74% of the people taking five or more medicines were 65 years or older and this is not predicted to change in 2012<sup>9</sup>.

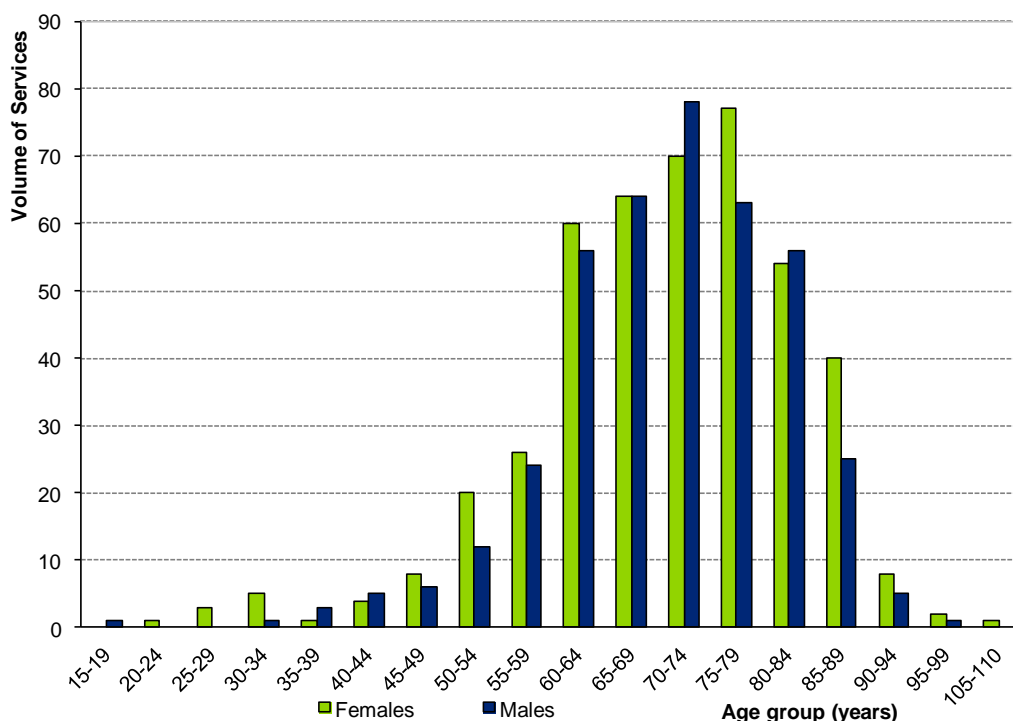
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<sup>8</sup> Note each patient is unique – no patient received more than one service.

<sup>9</sup> Deloitte Access Economics internal analysis, 2012. See section 9.1.3 for further explanation.

**Chart 5.1: Volume of services by type of service and by age group**

Over half (53%) of the patients receiving MedsChecks and Diabetes MedsCheck services were female. The mean age for both females and males receiving services was 70 years. The distribution of both males and females by age group appears to be similar with 82% of services delivered to females reaching those between 60 and 89 years of age and 86% of services delivered to males reaching those between 60 and 89 years of age (Chart 5.2).

**Chart 5.2: Volume of services received by age and gender**

### 5.1.2 Closing the Gap status

‘Closing the Gap status’ was the closest indicator of patient Aboriginal and Torres Strait Islander status available from the SmartForm. During the period August 2011 to March 2012, 35 patients (4% of all patients recorded as receiving services), had ‘Closing the Gap status’. Twenty-six of these patients had a MedsCheck service and nine had a Diabetes MedsCheck service.

### 5.1.3 Socio-economic status and patient living alone

Similar proportions of patients were living in areas ranked within the lowest four deciles of disadvantage and within the top four deciles of disadvantage (38% in the lowest and 34% in the highest). This is slightly different to the distribution of the Australian population across the SEIFA deciles, as people living in areas located in the top four deciles of disadvantage (categories of least disadvantage) have the highest proportion of residents at 46%. The lowest four deciles have a slightly lower proportion at 33% (Table 5.1).

Results from the Patient Survey indicate that 23 patients (24% of total respondents) who received MedsCheck and Diabetes MedsCheck services were living alone.

**Table 5.1: Location of patient residence by SEIFA decile**

<b>SEIFA decile</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>NA</b>
Number of patients	29	76	108	110	126	105	60	25	229	83	4
Proportion of patients	3%	9%	13%	13%	15%	12%	7%	3%	14%	10%	0%
Proportion of usual resident population across Australia*	8%	7%	8%	10%	10%	10%	10%	11%	13%	12%	-

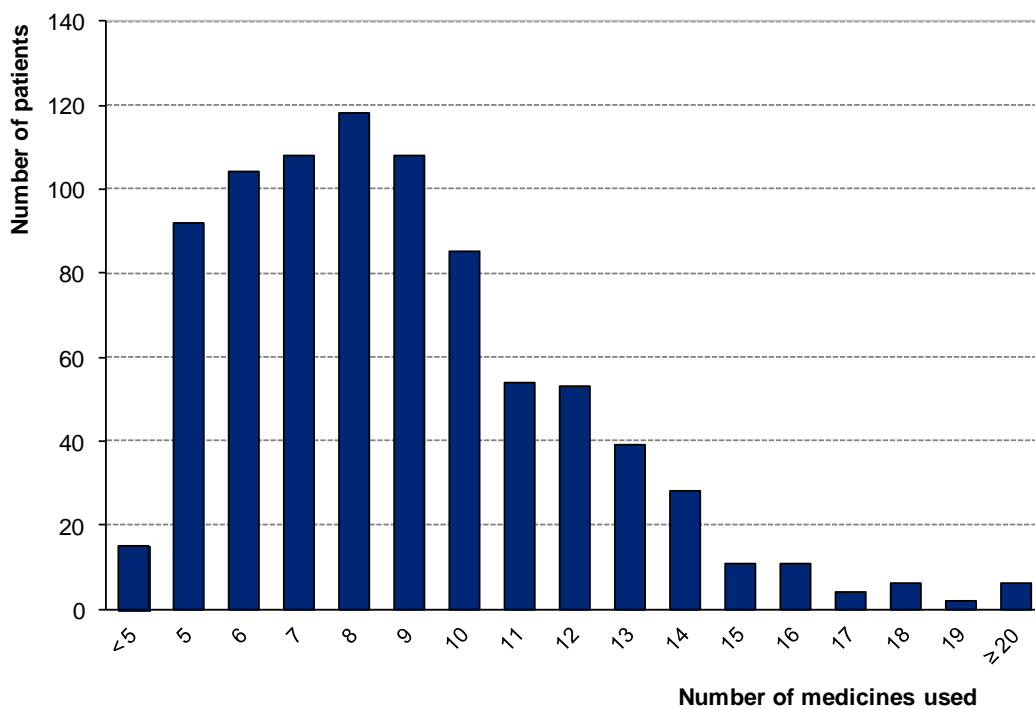
\* Data source : ABS 2006b, *Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia- Data only, 2006*, Cat No 2033.0.55.001, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2033.0.55.0012006?OpenDocument>, accessed 14 November 2011.

#### 5.1.4 Complexity of medication regimen

SmartForm records suggest that the 844 patients recorded as receiving a service were taking a total of 7,465 medicines. The average number of medicines used per patient was 8.8 with a median of 8, minimum of one and a maximum of 27<sup>10</sup>. Only fifteen patients were taking fewer than five medicines each. Eight hundred and twenty-nine patients (98%) were taking five or more medicines (Chart 5.3).

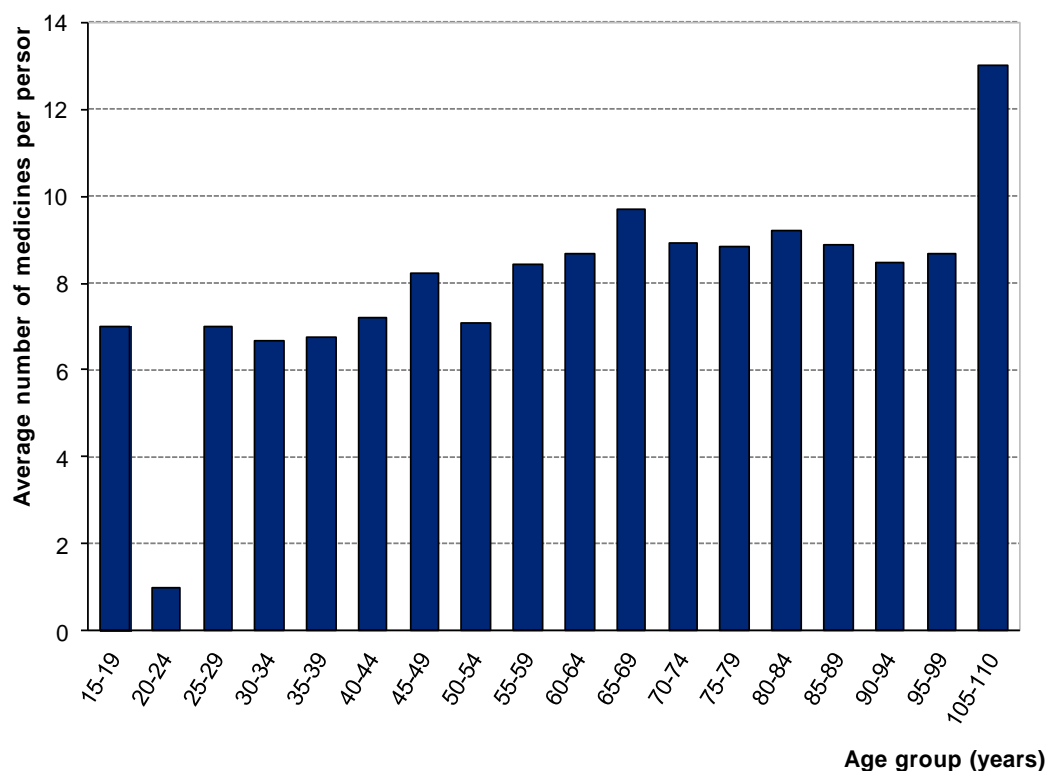
<sup>10</sup> Patients who have had a 'recent significant medical event' are eligible for a MedsCheck service regardless of the number of medicines they take. The number of medicines a patient is taking does not determine eligibility for a Diabetes MedsCheck.

**Chart 5.3: Number of MedsCheck and Diabetes MedsCheck patients versus volume of medicines used**



#### **Average number of medicines per patient by age group**

The average number of medicines taken by patients in each age group is displayed in Chart 5.4. If the 105-110 years age group is excluded (as there was only one person in this age group), the highest average number of medicines taken is in the 65-69 years age group (N=128) at 9.7 medicines per person. All age groups except the 20-24 years age group (only one patient in this age group) took on average more than five medicines.

**Chart 5.4: Average number of medicines per person by age group (years)**

### 5.1.5 A recent significant medical event

Two-hundred and sixty-four patients (31%) who received MedsCheck and Diabetes MedsCheck services between August 2011 and 31<sup>st</sup> March 2012 had experienced a recent 'significant medical event'. These patients experienced 289 'significant medical events'. The events were recorded in SmartForm under seven categories:

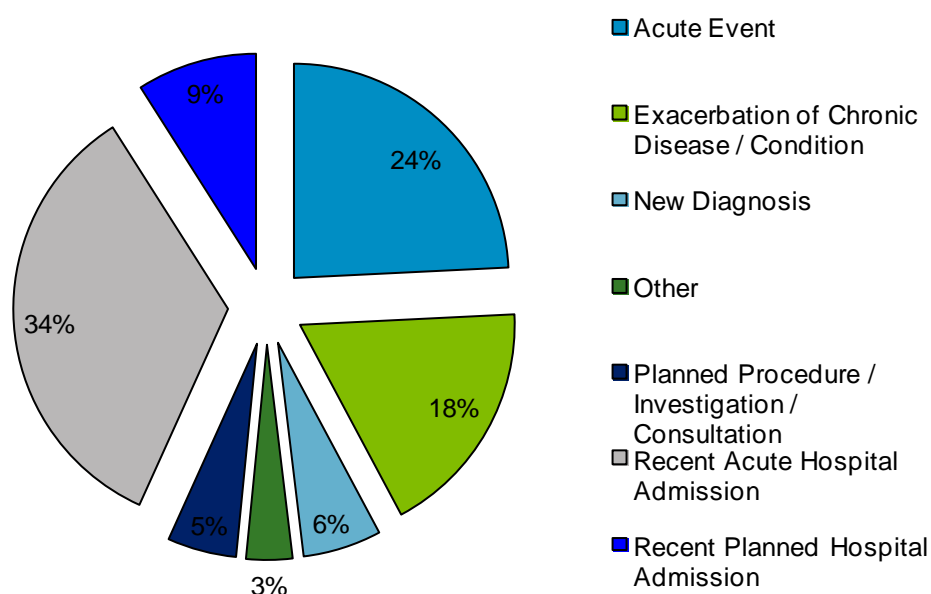
- exacerbation of chronic disease/condition;
- planned procedure/investigation/consultation;
- recent acute hospital admissions;
- recent planned hospital admission
- new diagnosis;
- acute event; and
- other.

As demonstrated in Chart 5.5, the most common event was 'a recent acute hospital admission' (34%) followed by 'acute event' (24%).

Only ten patients who received a MedsCheck service (1.4% of patients who received MedsCheck services) had a recent significant medical event and were also documented as taking *fewer* than five medicines, suggesting that 'a recent significant medical event' was rarely used to determine eligibility for a MedsCheck. Four hundred and seventy-five

patients (68% of patients who received MedsCheck services) had five or more medicines as their decisive eligibility criterion.

**Chart 5.5: Recent significant medical events by category**



### Significant event descriptions

Significant medical events were further described by the pharmacist in a free text field on the SmartForm. Analysis of the data received from claims made in August and September revealed that the free text descriptions were not consistently categorised by pharmacists under the seven categories available on the SmartForm (see above). For example, one significant medical event was categorised as a 'new diagnosis' and in the description, the pharmacist had written 'stroke'. In the absence of any definitions of the SmartForm categories, this event could have been categorised as a 'recent acute hospital admission' or an 'acute event'. Similar to this, 'pacemaker' was documented in another event description and was categorised as 'exacerbation of chronic disease/condition' by the pharmacists when it could also have been categorised as a 'planned procedure/investigation/consultation' or a 'recent acute hospital admission' depending on the context of the event.

Without providing pharmacists with coding instructions or a data dictionary to ensure consistency across pharmacists, this SmartForm field was not particularly useful. It was not clear whether similar terms in this field had the same meaning for each pharmacist and patient and it was not clear whether the field descriptions provided a complete picture of all the conditions patients may have had. It was not therefore possible to draw out themes from the information as currently provided. A menu of choices or more explicit guidelines for pharmacists entering (free text) patient information would have been preferable.



### 5.1.6 Other patient characteristics

Other characteristics of patients recorded as having received a service (drawing on the SmartForm data) are described in Table 5.2.

**Table 5.2: Other characteristics of patients who received MedsCheck or Diabetes MedsCheck services**

Characteristic	Number of patients	Proportion of patients with the characteristic recorded (N=844)
Chronic condition	833	99%
Having difficulty remembering when to take their medicines or confused about the medicines they take	326	39%
Complex medicine regimen	659	78%
Asked for a MedsCheck or enquired about managing their medicines	476	56%
Taking a 'high risk' medicine (e.g. warfarin, amiodarone, tramadol, digoxin, lithium, etc.)	267	32%
Pharmacy has access to past three months of dispensing history	722	86%

### 5.1.7 Characteristics of patients receiving a Diabetes MedsCheck

Of the 844 patients who received MedsCheck or Diabetes MedsCheck services between August 2011 and 31<sup>st</sup> March 2012, 334 (40%) had a previous diagnosis of type 2 diabetes and 149 of these patients received a Diabetes MedsCheck.

- 117 patients who received a Diabetes MedsCheck were eligible for this service because they had less than ideally controlled type 2 diabetes and did not have timely access to a diabetes educator or health service to talk about their condition.
- Seven patients had been recently diagnosed with type 2 diabetes and had similar difficulties accessing a diabetes educator.
- 23 patients had both less than ideally controlled type 2 diabetes and were recently diagnosed with type 2 diabetes and had difficulties accessing a diabetes educator.
- Two patients had a diagnosis of type 2 diabetes and did not meet eligibility criteria but appear to have received a Diabetes MedsCheck in any case.
- One patient with no pre-existing diagnosis of type 2 diabetes received a Diabetes MedsCheck.
- 118 of the 149 patients who received a Diabetes MedsCheck were self-monitoring their blood sugar levels and 138 were on five medicines or more.

Of the remaining 186 patients with type 2 diabetes who received a MedsCheck but were not eligible for a Diabetes MedsCheck, 77 did not qualify because they did have timely access to a diabetes educator or health service. Sixty-seven of these patients had diabetes that was less than ideally controlled, eight had also been recently diagnosed with type 2

diabetes and twenty-one had experienced a recent change in medicines. An additional ten patients were recently diagnosed with type 2 diabetes. One hundred and nine out of the 186 patients with type 2 diabetes did not receive a Diabetes MedsCheck because they had not been recently diagnosed and had well controlled diabetes.

### 5.1.8 Access to diabetes educators and health services

Part of the eligibility criteria for receiving a Diabetes MedsCheck is that the patient does not have 'timely access to a diabetes educator/health service in their community to talk about their condition'. Table 5.3 shows the reasons patients had difficulty accessing diabetes educators and the number of patients who provided these reasons.

**Table 5.3: Patients reporting difficulties accessing a diabetes educator/health service(a)**

Barriers to access	Number of patients
Distance	50
Transport	37
Appointment availability <4 weeks	38
Appointment availability >4 weeks	63

(a) Patients could report more than one reason for lack of access.

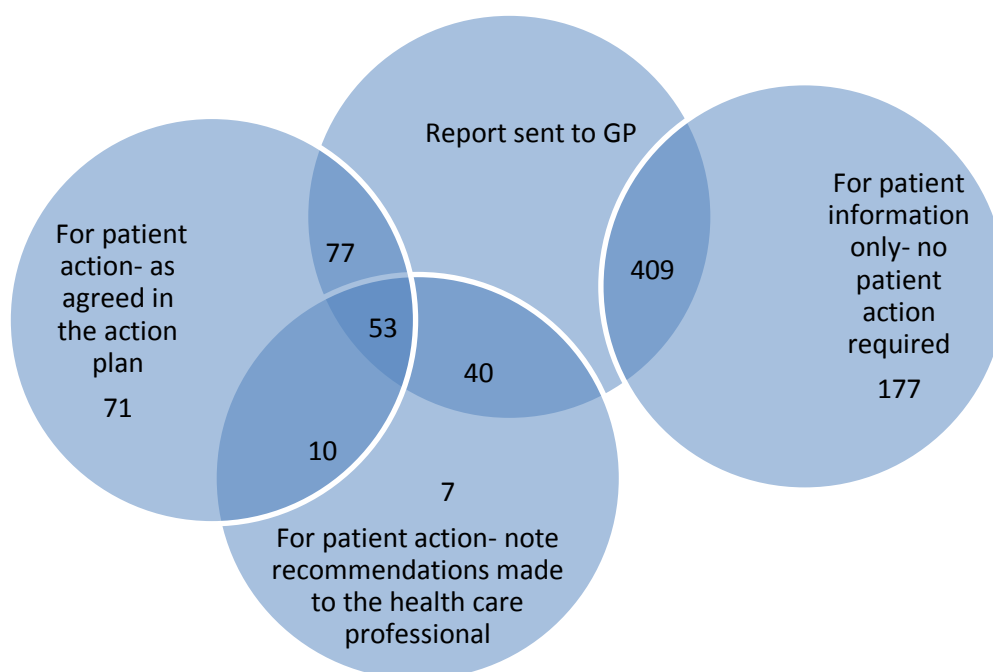
Patients reporting that they did not have 'timely access to a diabetes educator/health service in their community to talk about their condition' came from 68 postcodes across Australia. Postcodes in NSW represented the highest proportion at 28 (41%) followed by TAS (16%), QLD (16%), WA (7%), NT (7%), VIC (6%), SA (2%) and ACT (4%).

### 5.1.9 The Patient Report and its distribution

At the end of the MedsCheck or Diabetes MedsCheck consultation, an individualised report with a medication list and recommendations is created for each patient and distributed to their healthcare professional as needed. Figure 5.1 shows the distribution of reports.

According to analysis of SmartForm data from August 2011 to 31<sup>st</sup> March 2012, 579 reports (69% of total reports) were forwarded onto the patient's GP with 152 reports (18%) requesting that the GP consider the recommendations made and 427 reports (51%) stating they were for the GP's information only with no actions required. Close to one-half (49%) of reports requested that either the patient or the GP take action or both.

Five hundred and eighty-six (69%) reports were for the patient's information only with no action required on behalf of the patient. Of the remaining 258 reports distributed to patients, 211 (25%) requested that the patient take action as agreed in the action plan and 110 (13%) requested that patients note the recommendations made to their health care professional (e.g. GP). Sixty-three reports distributed to patients requested that they both take action as agreed in the action plan and that they note the recommendations made to their health care professional.

**Figure 5.1: Distribution of MedsCheck and Diabetes MedsCheck reports**

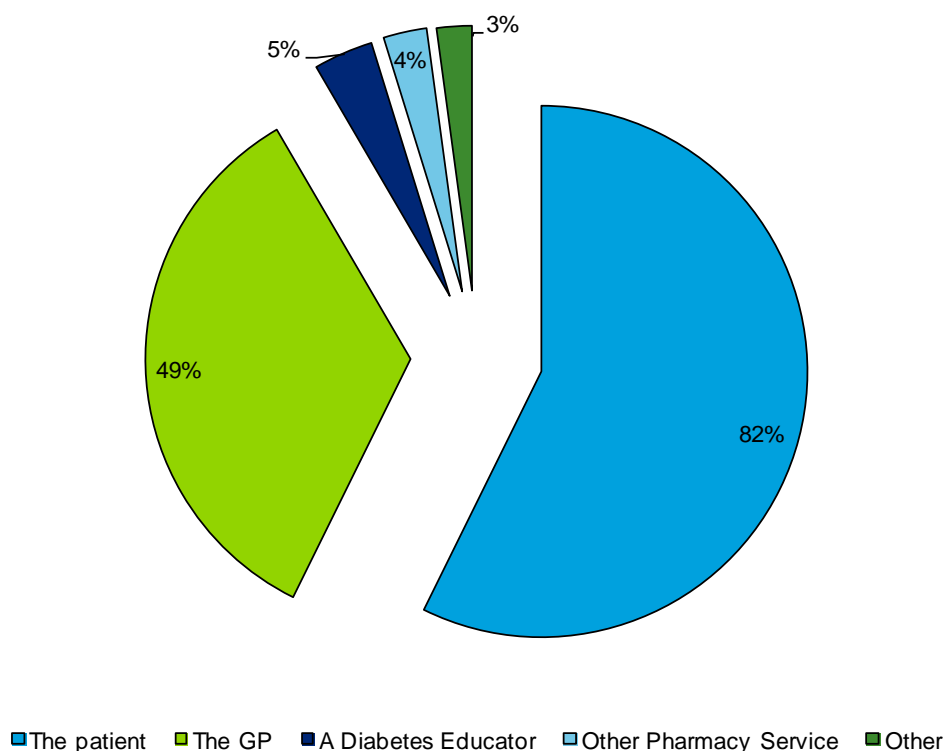
A total of 551 reports (65% of all reports) *did not* require action by the patient or GP and appear to be purely for informational purposes and the remainder (35%) *did* require action or consideration.

#### 5.1.10 Action Plan data

The pharmacist provided each MedsCheck and Diabetes MedsCheck patient with an Action Plan which was contained within the individualised patient report. The Action Plan contained a description of the issues identified during the consultation and the outcome or recommendation. For each issue, the pharmacist recommended that it be considered by one or more of the following – the patient, the GP, the diabetes educator, another pharmacy service, or another service. A total of 1,840 issues and outcomes/recommendations were described for the 844 patients (around two per patient).

Chart 5.6 shows the proportion of patients who had Action Plan issues and outcomes/recommendations. For example, 696 of the 844 patients (82%) who received MedsCheck or Diabetes MedsCheck services had one or more issues and outcomes/recommendations in their Action Plan for consideration by themselves and 417 of the 844 patients (49%) had one or more issues and outcomes/recommendations in their Action Plan for consideration by a GP. This is broadly in line with the findings from the report distribution data (section 5.2.3) in which 69% of all reports were actually distributed to GPs.

**Chart 5.6: Proportion of patients with Action Plan issues for recommendations by themselves or other services<sup>11</sup>**



## 5.2 Benefits of services for patients

This section is structured as followed:

- Benefits reported by patients;
- Benefits to patients reported by pharmacists;
- Usefulness of the patient report;
- Potential for services to improve patient adherence to their medication regimen
- Potential for patients to better understand the indications for their medicines.

### 5.2.1 Benefits reported by patients

Ninety-eight per-cent of patients responding to the relevant questions in the Patient Survey agreed or strongly agreed that the information provided by the pharmacist during the MedsCheck or Diabetes MedsCheck consultation was useful (95% confidence interval (CI) (95%CI) 95%-100%, based on 95 valid responses to this question).

In addition, 86 patients out of 89 responding patients (97%) reported that they were satisfied with the service provided (95%CI 93%-100% based on 89 valid responses to this

<sup>11</sup> Totals more than 100% as each patient could have multiple issues and outcomes/recommendations that could be marked for consideration by more than one health care professional or the patient and more than one health care professional.

question) and 88 out of 92 responding patients (96%) would recommend the MedsCheck or Diabetes MedsCheck service to others (95% CI 91-100% based on 92 valid responses to this question).

Almost all patients agreed or strongly agreed that they benefited in the following ways:

- increased confidence in the way they manage their medicines (N= 95 valid responses, 94% of respondents to this question agreed or strongly agreed, 95%CI 89%-99%);
- better understanding of the conditions their medicines treat (N= 95, 95%, 95%CI 90%-99%);
- better understanding about the side effects of their medicines (N=95, 93%, 95%CI 87%-98%);
- better understanding about which medicines/other health products/foods to avoid with their medicines (N=93, 87%, 95%CI 80%-94%);
- better understanding of medicines storage in the home (N= 91, 82%, 95%CI 75%-90%); and
- overall feeling that the service benefited them (N=91, 95%, 95%CI 90%-99%).

Of the 14 patients who responded to the Patient Survey and clearly identified that they had received a Diabetes MedsCheck, 13 responded to a specific question regarding blood sugar levels. Ninety-two per-cent (12 patients) reported that they agreed or strongly agreed that the pharmacist had provided them with useful information to help monitor their blood sugar levels (N=13 responses, 95% CI 67%-100% based on 13 responses).

Four out of eight patients interviewed felt that they benefited from their MedsCheck or Diabetes MedsCheck service through an increased understanding of what their medicines were for and potential side effects. Of these patients, one had visited their GP and made a change to their medicine as a result of information received during the service. The remaining four patients appeared to be ambivalent about the benefits of the service, stating that they already knew enough about their medicines prior to the service and one of these patients said the service helped confirm that they were taking their medicines correctly.

One patient stated that they had expected that the service would provide clarification about the indications for their medicines and that this expectation was met. Lack of patient expectation was because patients stated they were not aware of the service before they received it, not because their expectations of the service were not met.

All eight patients interviewed were satisfied with the service they received. Some clarified that they liked the one-on-one time in a private space with their pharmacist and were happy with the manner in which the pharmacist engaged them, took an interest in their health, took time to explain their medicines, listened their questions and didn't rush the appointment. Overall, patient responses suggest there is a high level of trust between patients and their pharmacists. Responses suggest that all patients interviewed would approach their pharmacist in the future for information about their health and their medicines and that they feel supported in their medicines management by their pharmacist. The only criticism from one patient was that perhaps the service went for too long and that a shorter interview with a follow up email would be more suitable.

The services provided valuable education to patients, but did not necessarily change behaviour.

- Only 24 patients (26%) indicated that they had made changes to the way they managed their medicines (i.e. taken action) (81 respondents to this question, 95%CI, 17%-37%).
- Only nine patients reported approaching another health care professional and only six more intended to, as recommended by the pharmacist (80 respondents to this question).
- Sixty-nine per-cent of respondents to the Patient Survey reported that the pharmacist was happy with how they managed their medicines and no changes were necessary, (94 valid responses to this question, 95%CI 17% to 34%), and 76% of respondents reported that they had not approached another health care provider as their pharmacist had not recommended it (92 responses to the question, 95%CI 67% to 85%).

Consistent with this finding, the Patient Survey data indicates that prior to their MedsCheck or Diabetes MedsCheck service (N=96 responses to this question<sup>12</sup> i.e. a 99% response rate):

- 84% of patients reported that they were taking their medicine(s) correctly as prescribed by their doctor (95%CI 77% - 92%);
- 20% of patients sometimes became confused about when to take their medicine(s) or sometimes forgot to take their medicine(s) (95%CI 12% - 28%) (8% of patients reported that they were both taking their medicine(s) correctly and that they sometimes became confused about when to take their medicine(s) or forgot to take their medicines);
- 8% of patients were unsure if they were taking their medicine(s) correctly (95%CI 3% - 14%); and
- 3% were unsure if they were using their puffer correctly (95%CI 0% -7%).

This theme was further explored during patient interviews. Seven of the eight patients interviewed did not have any issues or concerns with managing their medicines prior to their MedsCheck or Diabetes MedsCheck service. Only one patient reported being concerned about the side effects of her medicines and potential interactions between her medicines. Seven patients appeared to be adherent with their medicines with six stating that they had some kind of system in place to manage their medicines such as a pre-packed dosette box or morning and evening containers. One patient stated that they occasionally forgot to take their medicines when visiting friends but this was not frequent.

Further reinforcing that the service was used mainly for the transfer of information, seven of the eight patients interviewed stated that the pharmacist did not suggest they make any changes to the way they manage their medicines or that they visit another health care professional. Only one patient interviewed reported visiting their GP and making changes to their medicines directly as a result of the service.

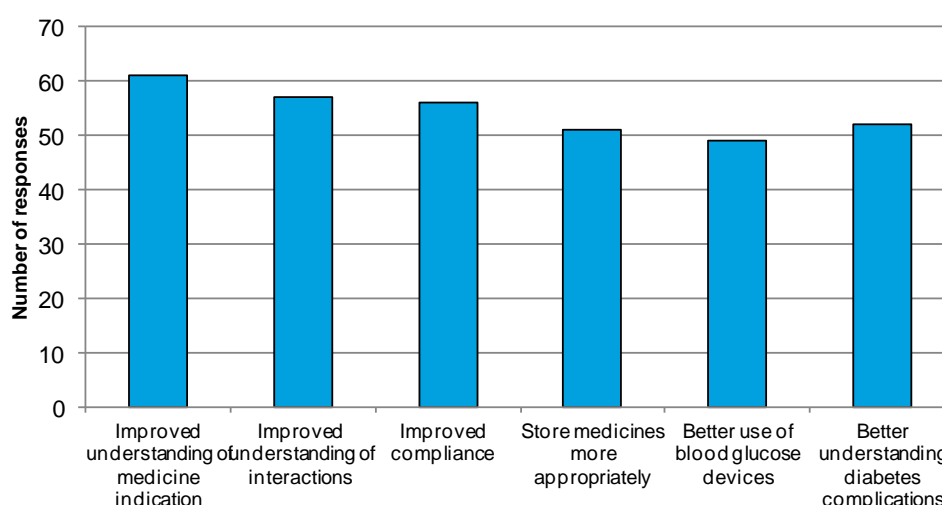
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<sup>12</sup> Patients could select more than one option in answering this question hence percentages do not add up to 100%.

## 5.2.2 Benefits to patients reported by pharmacists

Respondents to the online Pharmacist Survey were generally of the opinion that the MedsCheck and Diabetes MedsCheck had positive outcomes for patients. Improved understanding of medicines and potential interactions were the two most cited beneficial outcomes of the program (Chart 5.7).

**Chart 5.7: Patient outcomes of MedsCheck program (N=326 pharmacist responses\*)**



\*Pharmacists were able to provide more than one way in which they believed patients benefited from the services.

Source: online Pharmacist Survey results

Pharmacists participating in the general interviews about service delivery (Group 2 interviews (N=13) were asked how they believed patients benefited from the MedsCheck and Diabetes MedsCheck services. Pharmacists considered that patients benefited from the services through improved health care and knowledge about their medicines. Ultimately, all pharmacists participating in Group 2 interviews considered that as a result of the program, patients would have:

- an increased understanding of why their medicines were prescribed and a greater insight into side effects and interactions; and
- most pharmacists mentioned that this would improve patients' adherence with their medicines and may lower the rate of complications with their medicines.

Pharmacists suggested that patients would have increased confidence in taking their medicines and that the consultation provided an opportunity for patients to reconfirm that they were taking their medicines correctly. One pharmacist explained that the consultations provided an opportunity to identify medication problems that patients did not know existed. Two pharmacists identified that the consultations may be a more accessible and relaxing environment for patients to receive information about their medicines compared to a GP surgery and that patients did not feel as rushed as they may feel during appointments with their GP. In addition to this, one pharmacist mentioned that patients would have an increased awareness in the expertise pharmacists possess in medication management and would be more likely to utilise them for information about their medicines. In addition to this, patients would feel less intimidated by the busy

pharmacy environment and would be more likely to approach the pharmacist in the future for advice on their medicines. These findings are consistent with the benefits identified by patients themselves.

Other patient benefits mentioned by pharmacists included:

- increased knowledge of interactions between prescription medicines and over-the-counter medicines;
- the provision of an up-to-date medicine profile to the patient and their GP;
- increased patient empowerment in dealing with their disease; and
- patient referral to other health care professionals, as necessary.

### 5.2.3 Usefulness of the Patient Report and its distribution

In the Patient Survey, 97% of respondents to the question agreed or strongly agreed that the report provided to them as a result of the MedsCheck and Diabetes MedsCheck consultation was useful (88 responses to the question, 95%CI 93%-100%).

Six out of eight patients interviewed recalled receiving a report from their pharmacist after the consultation and four patients stated they had looked at this report but could not recall what was in it. One patient mentioned that it was useful for cross checking her medicines. No patients suggested any changes to the format or content in the report they received. The two patients who did not recall receiving the report said that speaking to the pharmacist sufficed.

Eight out of 10 pharmacists interviewed were satisfied the patient report was helpful for patients but made several suggestions for improvement, including:

- having a cover letter template the pharmacist could populate when sending the chart to another health care professional;
- adding brand names and coloured pictures of the medicines to aid patient recall;
- using bigger type font for elderly patients;
- increasing the size of the 'Current Issues' section;
- including a consultation date for future reference;
- deleting the fields for 'year medication was commenced', and 'height and weight' for diabetics.

The report was considered helpful for the patient's GP, to provide a complete picture of their medications, including non-prescription items, and quicker to digest than the detailed HMR medication profile.

### 5.2.4 Potential for services to improve patient adherence to their medication regimen

According to analysis of the SmartForm data from August 2011 to March 31<sup>st</sup> 2012, a total of 7,465 medicines were used by 844 patients or, on average, close to nine medicines per patient. Eight hundred and forty-three patients were using one or more medicines as prescribed, that is, only one patient was taking *all* their medicines incorrectly. However, 209 patients (or 25%) were also taking *one or more medicines incorrectly*, that is, not as



prescribed. On average, this latter group was taking slightly more medicines (9.3 medicines per person) than those who were taking *all* medicines as prescribed (8.7 medicines per person), and was on average younger (Table 5.4).

**Table 5.4: Patient characteristics by adherence to prescribed dosing regimen**

	Patients taking at least one medicine incorrectly		Patients taking all medicines correctly	
		<i>Proportion of total (N=209)</i>		<i>Proportion of total (N=635)</i>
Average age (years)	69	na	71	na
Number of males	99	47%	301	47%
Number of females	110	53%	334	53%

Source: SmartForm data analysed by Deloitte Access Economics, 2012

These results are broadly similar to those from the Patient Survey. Eighty-four per-cent of patients reported that they were taking their medicine(s) as prescribed by their doctor before their MedsCheck or Diabetes MedsCheck therefore indicating that a further 16% of patients did have some known or suspected issue with adherence. In addition, 20% of patients reported that their pharmacist recommended they have a HMR (93 valid responses to this question, 95%CI 12% - 29%).<sup>13</sup>

It has been estimated that 50% of Australians taking medicines are non-adherent with their medication regimen (PSA, 2006 cited in PwC, 2010b and Jin et al. 2008). This suggests that a large proportion of people who could benefit from MedsCheck services may be missing out. However, as suggested by the Guild, a proportion of these more complex patients may have received a HMR within the last 12 months.

A representative from the Guild raised the possibility that some pharmacists were not targeting patients with complex medicine regimens and adherence issues because:

- it would take too long to deliver a service and from a business point of view, the current level of remuneration would not provide adequate compensation for this time; and
- if these patients were intentionally non-adherent, pharmacists may feel that there was little they could do to change this.

In addition, the Guild mentioned that while on a learning curve with MedsCheck and Diabetes MedsCheck services:

- pharmacists may target patients based not only on their perceived need for the services, but also on the level of familiarity they had with the patient;
- pharmacists may wait until they are more confident about delivering the service before targeting complex patients;

<sup>13</sup> It is possible that there was some bias in the patient survey results because respondents to the Patient Survey were more likely to be healthier as sick people may have been less likely to respond to the survey. This cohort may therefore have included individuals who were more compliant with their medication.

- pharmacists may not target complex patients as the current lengthy nature of service provision makes it unprofitable; and
- the current lengthy nature of service provision means that the actual consultation time for complex patients is extremely prolonged which may cause patients to become bored and disengaged which in-turn, may adversely affect the pharmacy business and patient outcomes.

The Guild suggested that targeting of more complex patients would likely increase with:

- public promotion of the service (with a view to increasing the number of patients who self-identify as needing a service);
- improvements in the IT systems for MedsCheck to reduce the time required per service; and
- improvements in pharmacists' confidence in delivering the service.

### 5.2.5 Potential for patients to better understand the indications for their medicines

As indicated by the SmartForm data, 188 (22%) of the 844 patients who received a MedsCheck or Diabetes MedsCheck were uncertain of the indication for one or more of their medicines, and nine patients did not know the indication for any of their medicines (Table 5.5).

**Table 5.5: Patient certainty about the indications for prescribed medicines**

	<b>Uncertain about the indication for all medicines prescribed*</b>	<b>Uncertain about the indication for one or more medicines prescribed</b>	<b>Certain of indications for all medicines prescribed</b>
Number of patients	9	188	656
% of total (N=844)	1%	22%	78%

\*These patients are a subset of the patients who are uncertain about the indication for one or more medicines prescribed.

Source: SmartForm data analysed by Deloitte Access Economics, 2012

This theme was further explored during the patient interviews. Only two of the eight patients interviewed stated that prior to their MedsCheck or Diabetes MedsCheck service they wished to find out more about the indications for their medicines, the potential side effects and/or interactions between their medicines. Six patients indicated that their doctor and or pharmacist had already explained their medicines (six patients identified that they knew the indications for their medicines and three of these patients indicated that they knew about side effects) and that consequently they were not seeking more information.

## 6 Pharmacies, pharmacists and services

Between August 2011 and March 2012, 844 claims were made for MedsChecks and Diabetes MedsChecks by 89 of the 286 *pharmacies* participating in the pilot program. These services were provided by a total of 133 *pharmacists*.

This chapter describes the characteristics of pharmacies delivering services and the services delivered as well as describing pharmacists' views about the services.

### 6.1 Characteristics of pharmacies participating in the pilot

A total of 286 pharmacies volunteered to participate in the MedsCheck and Diabetes MedsCheck Pilot program.

#### 6.1.1 Pharmacies by State/Territory

The distribution of pharmacies by state and territory is shown in Table 6.1. The proportion of pharmacies participating in the MedsCheck and Diabetes MedsCheck pilot program per state and territory is broadly representative of the proportion of people living within each state and territory. That said, a disproportionately high proportion was recruited from Tasmania and a disproportionately low proportion was recruited from Victoria.

**Table 6.1: Pharmacies participating in the MedsCheck and Diabetes MedsCheck Pilot program and the Australian population residing in each jurisdiction**

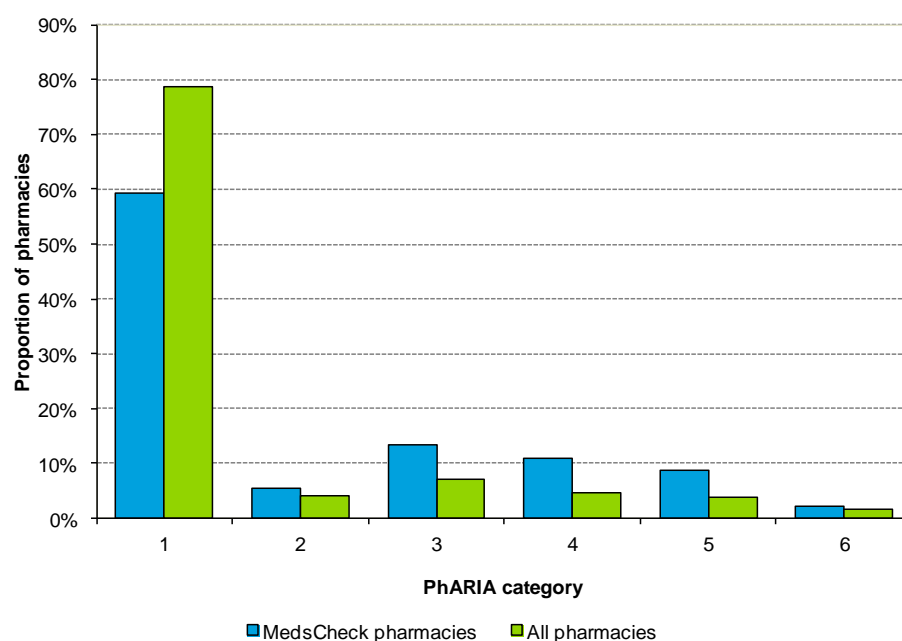
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Number of pharmacies	72	34	66	28	22	31	14	19	286
Proportion of total pharmacies recruited	25%	12%	23%	10%	8%	11%	5%	7%	100%
Proportion of Australian resident population*	32%	25%	20%	7%	10%	2%	1%	2%	100%

\*Data Source: ABS 2011, *Australian Demographic Statistics, Jun 2011*, Cat No 3101.0, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3101.0Jun%202011?OpenDocument>, accessed 22 December 2011.

## 6.1.2 Pharmacies by remoteness

The Pharmacy Access/Remoteness Index of Australia (PhARIA) was used to categorise pharmacies recruited to the pilot by remoteness.<sup>14</sup> As evidenced in Chart 6.1, most participating pharmacies are in category 1 areas ('highly accessible') with just 11% in category 5 or 6, ('remote' or 'very remote' areas). This reflects the distribution of the Australian population and therefore the spread of patients eligible for the MedsCheck programs. Pharmacies located outside metropolitan regions were well represented in the MedsCheck pilot.

**Chart 6.1: Enrolled MedsCheck pharmacies, and all pharmacies\* in Australia by remoteness**



Source: \*Data supplied by the Department, Section 90 Approval Data as at 4 November 2011.

## 6.1.3 Pharmacies by socio-economic disadvantage

The socio-economic index for areas (SEIFA) was used to examine the location of pharmacies recruited to the pilot by socio economics status.<sup>15</sup> A greater proportion of pharmacies participating in the MedsCheck pilot were in relatively disadvantaged areas. Around 58% of

<sup>14</sup> PhARIA was developed by the University of Adelaide to measure the remoteness of pharmacies at almost 14,000 locations across Australia and is used to assess eligibility for rural and remote pharmacy allowances. Both general remoteness and distance to the closest five pharmacies is considered when assigning each pharmacy a PhARIA category.

<sup>15</sup> The socio-economic index for areas (SEIFA) 2006 is based on the 2006 Census and is a rank assigned to every geographic area in Australia reflecting its relative disadvantage. The SEIFA index used here to categorise pharmacies recruited for the MedsCheck and Diabetes MedsCheck pilot program is the Index of Relative Socio-economic Disadvantage, which uses variables of disadvantage such as low income, low educational attainment, unemployment, and dwellings without motor vehicles to derive the indexes for each area. This Index has ten deciles with the first decile containing the 10% of areas across Australia with the greatest socio-economic disadvantage and the tenth containing the 10% of areas across Australia with the least disadvantage (ABS, 2006a).

pharmacies were in SEIFA categories one to five (greatest disadvantage) and 42% were in categories six to ten. Compared to the distribution of all pharmacies across Australia, a higher proportion of pharmacies recruited to the pilot were in the deciles of greatest disadvantage and a lower proportion of pharmacies recruited in the deciles of least disadvantage (see Table 6.2).

**Table 6.2: Pilot pharmacies by SEIFA decile**

SEIFA decile	1	2	3	4	5	6	7	8	9	10
<b>Number of pharmacies</b>	18	36	34	40	38	36	26	12	26	20
<b>Proportion of MedsCheck pharmacies</b>	6%	13%	12%	14%	13%	13%	9%	4%	9%	7%
<b>Proportion of all pharmacies in Australia*</b>	8%	8%	9%	10%	12%	10%	11%	10%	12%	11%

\*Data supplied by the Department of Health and Ageing, Section 90 Approval Data as at 4 November 2011.

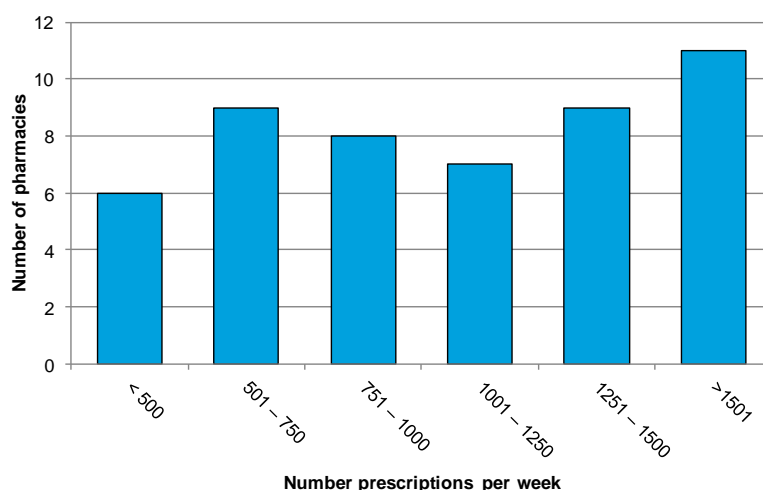
#### 6.1.4 Pharmacies by script volume

Information on script volume was collected as part of the online Pharmacist Survey as an indicator of pharmacy size. The mean number of prescriptions per week dispensed by participating pharmacies was 1,023 (Chart 6.2). By comparison, pharmacy businesses that participated in the annual Guild Digest Survey in 2009 reported dispensing a mean of 1,040 prescriptions per week (The Pharmacy Guild of Australia, 2010).<sup>16</sup> The Guild projected the mean would rise to approximately 1,172 prescriptions per week by 2012.<sup>17</sup>

<sup>16</sup> The Guild Digest Survey for the 2008-2009 financial year response rates are reasonably consistent with the distribution of pharmacies by state with QLD and NSW having a slightly higher than average response rate and Victoria's response rate being lower than average. Responses have favoured larger pharmacies. The mean of 1,040 prescriptions dispensed per week is based on 302 out of a total of 311 responses to the Guild Digest Survey for the 2008-2009 financial year and is unweighted for size of the pharmacies participating (The Pharmacy Guild of Australia, 2010).

<sup>17</sup> Based on an average annual increase of 4.07% that occurred between pharmacies that responded to both the Guild Digest Survey for the 2007-2008 financial year and the Guild Digest Survey for the 2008-2009 financial year (N=118) (The Pharmacy Guild of Australia, 2010).

**Chart 6.2: Proportion of pharmacies which responded to online survey by script volume  
(N=51 pharmacy responses)**



## 6.2 Service delivery

As noted above, 844 MedsCheck and Diabetes MedsCheck services were claimed by 89 of the pharmacies (31%) participating in the pilot. Notably, around 12% of all services provided could not be included in the analysis of the SmartForm data due to errors in the claiming system. These missing claims were made for services provided by a total of 37 pharmacies, six that were found to be unique providers, that is, not identified in the data previously received by the evaluators.

### 6.2.1 Service delivery patterns over time

The total number of pharmacies claiming each month for services decreased over time to November 2011 but increased from December onwards (Table 6.3).

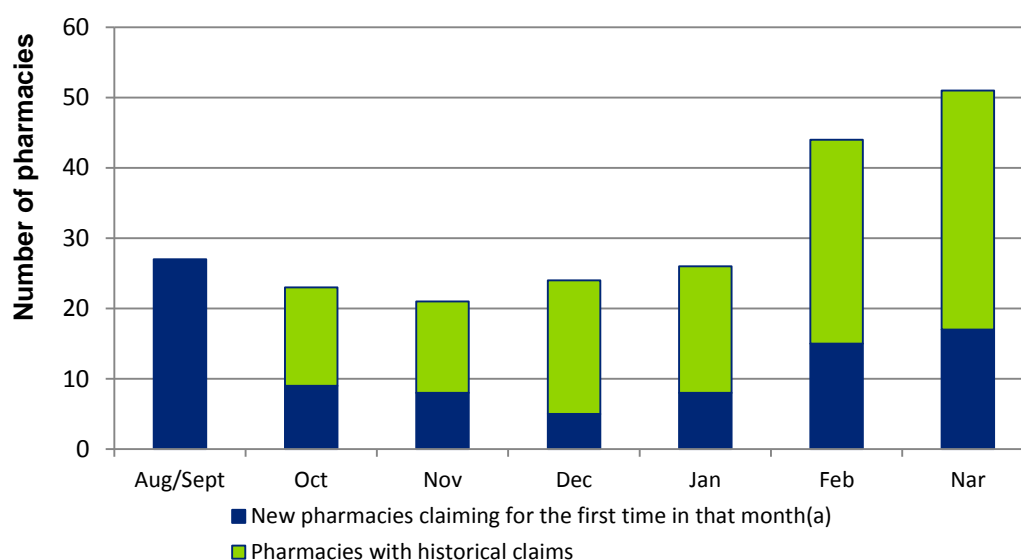
**Table 6.3: Claims volume and number of pharmacies claiming per month**

Claim period	Claims volume	Total no. of pharmacies claiming	New pharmacies claiming for the first time in that month	Pharmacies with historical claims
August/September	58	27	27	0
October	77	23	9	14
November	77	21	8	13
December	76	24	5	19

January	102	26	8	18
February	204	44	15	29
March	250	51	17	34
<b>Total</b>	<b>844</b>	<b>-</b>	<b>89</b>	<b>-</b>

Twenty seven pharmacies commenced service delivery once the pilot was initiated in August-September 2011. However, between October and January, few pharmacies commenced service delivery (Table 6.3 and Chart 6.3). Moreover, pharmacies which delivered services in previous months stopped delivering services (Table 6.3 and Chart 6.3). The drop-out rate is further described in Table 6.4. During the first seven months of the pilot program, less than a third (31%) of pharmacies that originally registered to deliver services actually delivered and claimed for a service successfully. The reasons for low pharmacy uptake are explored in chapter 7.

**Chart 6.3: Number of pharmacies claiming per month, 2011 and 2012**



Claiming for the first time in that month

**Table 6.4: Number of new pharmacies claiming, and their claims during subsequent months**

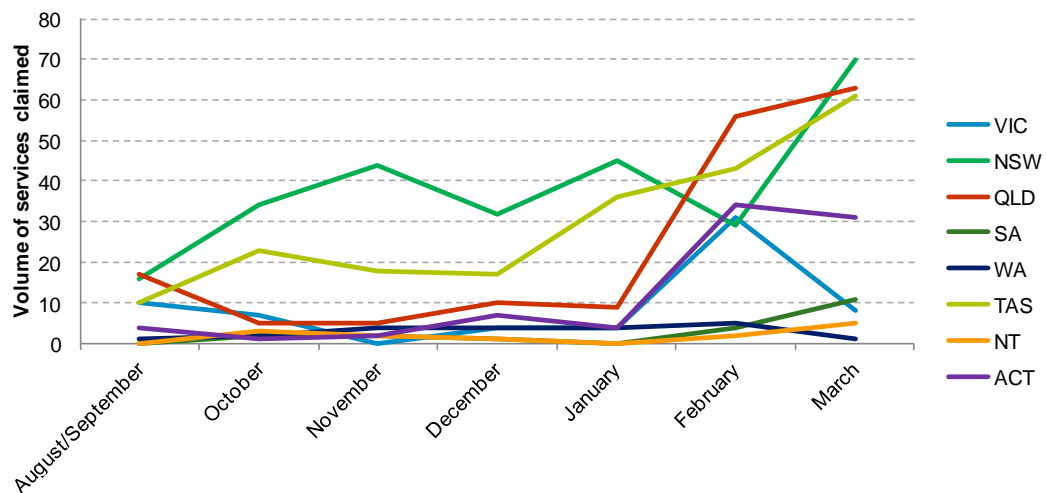
		Collection in subsequent months:							
		August/September	October	November	December	January	February	March	Drop-out rate by March
<b>New pharmacies</b>	<b>August/September</b>	27	14	8	9	10	13	14	48%
	<b>October</b>	-	9	5	5	3	4	4	55%
	<b>November</b>	-	-	8	6	4	5	4	50%
	<b>December</b>	-	-	-	5	2	2	1	80%
	<b>January</b>	-	-	-	-	8	7	5	38%
	<b>February</b>	-	-	-	-	-	15	7	53%
	<b>March</b>	-	-	-	-	-	-	17	-

### 6.2.2 Services provided by state/territory

Pharmacies in NSW and Tasmania provided the highest numbers of services throughout the pilot (Chart 6.4). By 31 March 2012, pharmacies in NSW had provided 270 services and pharmacies in Tasmania had provided 208 services. By March, pharmacies in QLD were delivering the second highest number of services (63 services provided that month) behind NSW (70 services provided). Substantially fewer services were claimed by pharmacies in the other states and territories (Chart 6.4).



**Chart 6.4: Service provision per State and Territory from August/September 2011 to March 2012**



The high volume of services provided by pharmacies in Tasmania was driven by a relatively high rate of claims per pharmacy (see Chart 6.5). Rates of claims were also relatively high in NSW until January 2012, when pharmacies in Queensland and the ACT increased their claim rate.

**Chart 6.5: Services claimed per pharmacy**

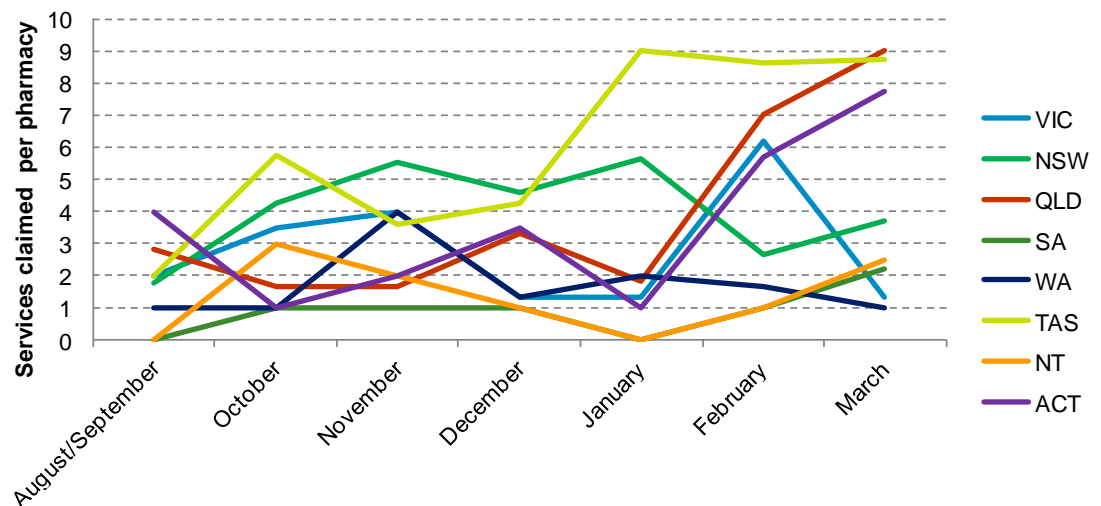


Table 6.5 further supports the findings above that pharmacies in Tasmania were most likely to provide the MedsCheck and Diabetes MedsCheck services — with a rate of service provision more than proportional to the Tasmanian population share. As per Table 6.1, the representation of pharmacies providing MedsCheck services in Victoria and WA was low compared to the resident population whereas in Tasmania, proportional representation pharmacies providing MedsCheck services was high.

Discussion with a Tasmanian Branch Committee member of the Guild suggested that relatively high rates of service provision by pharmacies in Tasmania may be driven by the smaller, close knit communities in which pharmacists know their customers and can identify those likely to benefit from a medicines review.

Of the 844 claims recorded between August 2011 and March 2012, 695 claims were made for MedsCheck services and 149 claims for Diabetes MedsCheck services.

**Table 6.5: Number and proportion of services by State or Territory and the proportion of the Australian resident population residing in each State and Territory**

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Number of MedsCheck services (proportion of total)	228 (33%)	59 (8%)	137 (20%)	20 (3%)	10 (1%)	161 (23%)	5 (1%)	75 (11%)	695 (100%)
Number of Diabetes MedsCheck services (proportion of total)	44 (30%)	6 (4%)	29 (19%)	1 (1%)	11 (7%)	47 (32%)	8 (5%)	3 (2%)	149 (100%)
Proportion of Australian resident population*	32%	25%	20%	7%	10%	2%	1%	2%	100%

\*Data Source: ABS 2011, Australian Demographic Statistics, Jun 2011, Cat No 3101.0, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3101.0Jun%202011?OpenDocument>, accessed 22 December 2011.

### 6.2.3 Consultation time

On average, pharmacists who completed the online survey (N=56 (MedsCheck) and N=37 (Diabetes MedsCheck)) spent 72 minutes on each MedsCheck and Diabetes MedsCheck consultation, with a considerable proportion of time spent preparing for or finalising the service.

**Table 6.6: Average number of minutes spent per consultation (Pharmacist Survey)**

	Preparation	Face to face	Finalising	Total <sup>(a)</sup>
	<i>Minutes (interquartile range)</i>			
MedsCheck <sup>(b)</sup>	19 (10)	34 (15)	20 (18)	72 (40)
Diabetes MedsCheck <sup>(c)</sup>	17 (10)	38 (31)	20 (16)	72 (43)

(b)total may not equal sum of components given averages are reported here (b) N=56 pharmacist responses (c) N=37 pharmacist responses

Source: online Pharmacist Survey results

Groups 2, 3 and 4 pharmacists interviewed (N=30), reflected similar views to the Pharmacist Survey, see Table 6.7. Some pharmacists reported that over time, they had become more familiar with the process and developed procedures to streamline the consultation. One pharmacist reported that he conducted further research on medicine interactions and side effects after the interview which significantly prolonged the process.

**Table 6.7: Mean number of minutes spent per consultation (pharmacist interviews)**

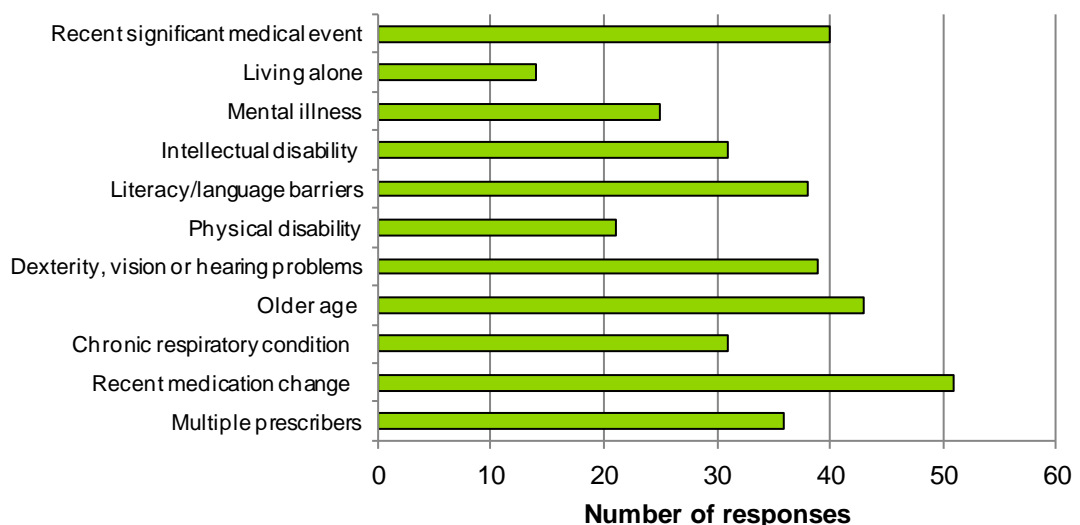
	Mean number of minutes	Maximum number of minutes (number of responses)
Group 2 (general interview, N=13)	62	90-120 (4)
Group 3 (pharmacies that started then stopped providing services, N=12)	73	90-120 (4)
Group 4 (successful service providers, N=5)	71	150 (1)

Source: Interviews with pharmacists

Most pharmacists who participated in the interviews were able to process on average one consultation each day, or every other day. Some pharmacists also made specific appointment times, generally in the early afternoon, when the pharmacy was less busy. This strategy, however, was not always successful as patients forgot or lost interest while waiting for their appointment. One interviewed pharmacist said preparation beforehand (to complete the SmartForm fields) was necessary but makes spontaneous consultations difficult. Patients were not keen to wait for more than 15 minutes for the commencement of their appointment according to this pharmacist.

#### 6.2.4 Factors associated with longer than average consultations

The online Pharmacist Survey asked respondents whether certain patient characteristics contributed to a longer than average appointment. Of those characteristics mentioned, a recent medication change was the most common reason for a protracted consultation followed by older patient age and a recent significant medical event (Chart 6.6).

**Chart 6.6: Patient characteristics contributing to extended appointment time (N=369 pharmacist responses\*)**

\*Pharmacists were allowed to provide more than one response as to patient factors that extend their appointment time.

Source: online Pharmacist Survey results

According to pharmacists participating in telephone interviews, factors which had the greatest impact on the time taken to deliver a MedsCheck or Diabetes MedsCheck included:

- a higher number of medicines taken by the patient;
- the capability of the patient to understand the information provided;
- the ability of patients to be able to focus on the purpose of the interview;
- the experience of the pharmacist in delivering the service; and
- the amount of time taken to fill in patient details and medicine history on the SmartForm which is influenced by the number of medicines the patient is taking.

### 6.2.5 Consultation time and remuneration

Two pharmacists raised remuneration for services as a facilitator for service delivery. However, for the most part, the remuneration was considered inadequate.

Overall, the Guild, and pharmacists interviewed from Groups 2, 3 and 4 considered the remuneration received for MedsCheck and Diabetes MedsCheck consultations would be adequate if service delivery time fell between 30-60 minutes (noting that average consultation times in practice were just above 70 minutes – see section 6.2.3). Nine of the 12 pharmacists from pharmacies which initially delivered services then stopped (Group 3 interviews) and six of the 13 pharmacists participating in the general interview (Group 2) stated that the time taken to deliver the service and or inadequate staffing was their main barrier to service delivery. That said:

- two of the five pharmacists in Group 4 interviews (pharmacies continuously successfully delivering services) stated that they believed remuneration was adequate for the amount of time invested in delivering services (the rest did not consider remuneration adequate).
- none of the pharmacists from Group 3 interviews (pharmacies that started then stopped delivering services) identified inadequate remuneration as a major reason for discontinuing services.

In the Guild's view, the current level of remuneration does not provide an incentive for pharmacists to provide services to complex patients as service provision for these patients was likely to take a longer time. Other members also advised that they had not anticipated the amount of time service provision would take and the initial expectation per service was 30-40 minutes.

Pharmacists suggested that payment based on the number of minutes of consultation time, or the number of medications taken by the patient were ways to more accurately compensate pharmacists for their time.

- Many pharmacists suggested that improving the SmartForm would speed up the consultations, making them more financially worthwhile and appealing to pharmacists. The Department has indicated that the SmartForm will not be used for the national roll-out of MedsCheck and Diabetes MedsCheck.

Both the Guild and the PSA considered that adequate remuneration was especially pertinent for single pharmacist pharmacies where justification for the employment of an additional pharmacist to provide services would be needed. According to a representative pharmacist from the Rural Pharmacy Special Interest Group, adequate remuneration was especially challenging in rural and remote areas where pharmacy businesses may pay pharmacists higher wages.

### 6.2.6 Consultation time and the SmartForm

The SmartForm was criticised by pharmacists, the Guild and the PSA, on the basis that it was unnecessarily time consuming to complete. One pharmacist interviewed advised that if the SmartForm was integrated with the dispensing software, the amount of time spent delivering the service could be halved or quartered. Compared with other existing software which was seamlessly integrated into programs already used by staff, pharmacists were of the view that the Smartform was much less easy to use.

- Nine of the pharmacies in Group 3 interviews (pharmacies that started then stopped delivering services) suggested that the significant time required for consultations was due to the cumbersome nature of the current SmartForm and better design would help reduce this barrier.
- A majority of pharmacists from Group 4 (pharmacies that were successfully delivering services (N=5)) also suggested that refinements to the SmartForm would decrease the amount of time required for service delivery.

Features of the SmartForm that could be improved with a view to reducing consultation times included the following:

- MedsCheck and Diabetes MedsCheck services would be more streamlined and efficient if the program software was linked to other pharmacy activities such as the dispensing program. Patient, pharmacy, and GP details could then be easily downloaded and current medications identified without the need to retype all details.
- Two pharmacists in Group 3 identified that they had difficulties accessing the computer terminal containing the AUSkey as it was being used for other purposes such as dispensing. This made it difficult for them to complete and submit the SmartForm as this process could only take place on the computer from which the SmartForm would be submitted, that is, the computer containing the AUSkey. Thus it was suggested that completion of the SmartForm be possible on any computer prior to submission on the computer with the AUSkey.
- Allowing incomplete forms to be saved so pharmacists were not required to complete all fields during a single sitting.

The Department has advised that the SmartForm will not be used as part of the national roll-out of MedsCheck or Diabetes MedsCheck services.

### 6.2.7 Consultation time and pharmacy size

All but two pharmacists interviewed said they could only perform MedsCheck and Diabetes MedsCheck consultations when another pharmacist was on duty, meaning that larger pharmacies are better placed to provide consultations on a continuous basis.

- One pharmacist previously working alone employed a locum pharmacist to provide dispensary support while he undertook MedsCheck and Diabetes MedsCheck consultations.
- Another advised that he could not start delivering services until he had employed another pharmacist to help with dispensing prescriptions.
- Nine of the pharmacists who participated in Group 3 interviews (pharmacists from pharmacies that started then stopped delivering services) stopped delivering services due to time constraints and each had only one, one and a half or two FTE pharmacists.
- The PSA mentioned that incorporating MedsCheck and Diabetes MedsCheck services with other daily pharmacist tasks such as dispensing was a real challenge, especially for sole pharmacists.
- One pharmacy which was successfully delivering MedsCheck and Diabetes MedsCheck services had a pharmacist who performed these services outside his normal rostered hours and personally received the whole amount of remuneration as an incentive payment.

By contrast, a facilitator for service provision noted by pharmacists from Group 4 interviews (pharmacists from pharmacies that were successfully delivering services (N=5)) was that these pharmacies had three to four full-time pharmacists working at the pharmacy and therefore did not have difficulty integrating MedsCheck and Diabetes MedsCheck services in with their pharmacy's normal workflow.

Responses to the online Pharmacist Survey were analysed to examine links between the impact of the MedsCheck program on the overall pharmacy workload and pharmacy size (Table 6.8). Surveyed businesses were classified as small, medium or large based on script volume. Pharmacists were asked as part of the survey to report whether the pharmacy had changed full-time equivalent (FTE) staffing as a consequence of the pilot and to forecast the likely effect on FTE staff numbers once the full MedsCheck program was rolled out. Medium and large sized pharmacies were more likely to report that the pilot program led to an increase in pharmacist FTEs. It is possible that medium and large pharmacies could afford the investment of extra pharmacist FTEs and were able to use these extra FTEs for other tasks in the pharmacy, not just the provision of MedsCheck and Diabetes MedsCheck services. Small and large pharmacies predicted the roll-out of the program late 2012 will have a small to moderate impact on overall workload whereas pharmacists representing medium sized pharmacies were more likely to predict the change will be moderate.

**Table 6.8: Pharmacy staff changes resulting from the pilot and predicted for the roll-out (N=49 pharmacy responses)**

Size of pharmacy	Scripts per week	Average pharmacist FTE		Average technician FTE		Overall impact on workload (a)
		<i>Before pilot</i>	<i>With pilot</i>	<i>Before pilot</i>	<i>With pilot</i>	
Small	Up to 750	2	No change	1	No change	sml-mod
Medium	751 - 1250	2	2.5	1	No change	mod

Large	Over 1250	3	3.5	2	No change	sml-mod
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(a) refers to impact on pharmacy workload, sml – small, mod – moderate

Source: online Pharmacist Survey results

### 6.2.8 Other costs of service provision

Given that the MedsCheck program is still in its pilot stage, pharmacists may not have invested in permanent infrastructure and estimates of infrastructure costs associated with services may therefore understate the potential set up costs associated with provision of the services. The Guild stated that with the national roll-out, there may be a number of fixed costs that pharmacies would possibly incur, including, software upgrades, purchase of hardware such as an additional laptop, and creation of a space in which the service would be provided.

- Two pharmacists in Group 4 identified that having several computer terminals in the pharmacy made it easier to provide services.
- A representative from the Rural Pharmacy Special Interest Group stated that finding a private area to conduct the consultation in a busy pharmacy could be problematic.

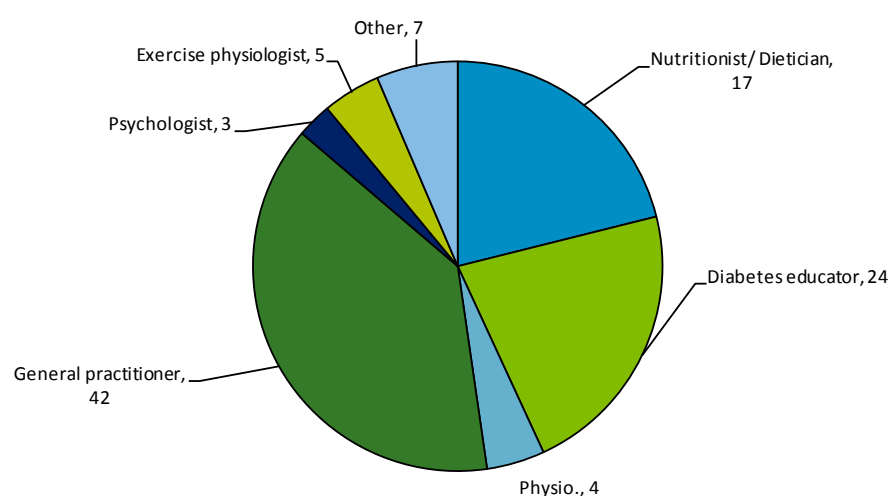
According to the responses to the online Pharmacist Survey:

- very few pharmacies encountered set up costs resulting from infrastructure changes or the purchase of new equipment; but
- almost half (21 of 52) of pharmacies conducted in-house training and these businesses estimated the training cost, on average, \$132.

### 6.2.9 Referrals to other health professionals

The online Pharmacist Survey revealed that most pharmacists referred patients to another health professional, most often GPs and diabetes educators (Chart 6.7).

**Chart 6.7: Referrals to health practitioner by type (N=109 pharmacist responses\*)**



\*more than one practitioner could be specified

Source: online Pharmacist Survey results

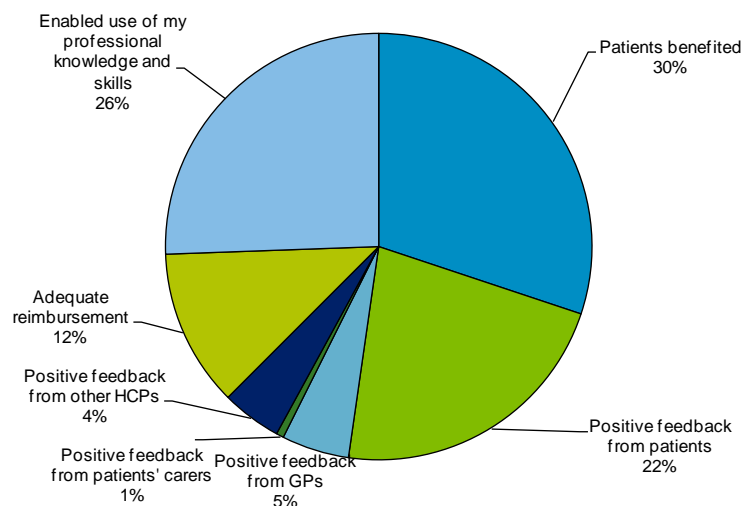
## 6.3 Views of pharmacists and the PSA

The 844 MedsChecks and Diabetes MedsChecks claimed during the pilot were provided by a total of 133 pharmacists.

### 6.3.1 Would pharmacists be happy to continue providing services?

Overall, pharmacists who responded to the online Pharmacist Survey were happy to continue providing services as they were of the opinion that patients had benefited, patients had responded positively to the service and pharmacists had been able to use their professional knowledge and skills (Chart 6.8).

**Chart 6.8: Reasons pharmacists are happy to continue providing MedsCheck services (N=176 pharmacist responses\*)**



Source: online Pharmacist Survey results

\* pharmacists were able to report more than one reason

General interviews with pharmacists who had provided at least one service (Group 2, N=13) indicated that the most popular reasons for continuing to provide services were:

- patients' understanding of the indications for their medicines improved; and
- patients' understanding of the importance of their medicines in the context of their disease management was enhanced.

Pharmacists also enjoyed the chance to build rapport with their patients, with two pharmacists suggesting that as a result of MedsCheck and Diabetes MedsCheck, patients would now feel more willing to approach their pharmacist and ask questions about their medicines and other health issues. In addition, they stated that the program had the opportunity to bring more customers into the pharmacy. MedsCheck and Diabetes MedsCheck services could also help pharmacists identify patients who may need a HMR, and could improve their relationships with GPs.

Pharmacists also considered the services to be a professionally fulfilling activity which would attract better pharmacists to work at the pharmacy. One pharmacist stated that he



wanted the pharmacy to move down the pathway of professional services rather than retail. Another stated that it was important to show the government that pharmacy could deliver this service so that other fee for service programs could be developed for community pharmacy.

### 6.3.2 Need for training

The MedsCheck and Diabetes MedsCheck service requires pharmacists to provide health and lifestyle advice in addition to a medication review. Almost all pharmacists responding to the online survey (62 of 66 respondents) reported confidence discussing the following range of topics with patients:

- healthy ranges for the clinical measurements;
- drug indication, potential interactions and potential side effects;
- how adherence can be improved including correct inhaler technique;
- blood glucose monitoring devices and risks associated with uncontrolled diabetes; and
- smoking cessation, alcohol consumption, diet and exercise recommendations.

Pharmacists responding to the online Pharmacist Survey and participating in the general pharmacist interviews (Group 2, N=13) had the following suggestions for useful training.

- Additional training in diabetes management, including diet, exercise, and blood glucose management, was indicated as being useful. One pharmacist highlighted that disease management changes over time and it is important pharmacists are complementing and reiterating messages from diabetes educators. The Diabetes Medication Assistance Service training was cited as a well received and suitable program to develop MedsCheck pharmacists' technical and communication skills.
- Communication skills were another area for improvement according to some interviewees, including how to be concise and focus on the salient points during the limited consultation time.
- An abbreviated HMR type training program would also be helpful to boost confidence according to one interviewee.
- One pharmacist proposed a monthly newsletter (similar to the Australian Association of Consultant Pharmacy newsletter) be sent to all participating MedsCheck pharmacists with disease management advice and MedsCheck case studies so all pharmacists can learn from the experiences of their colleagues.
- A MedsCheck introductory seminar was also suggested with topics including motivational interviewing, clinical disease state management (especially diabetes), role playing, and case studies. The pharmacist also proposed the seminar be offered as a DVD for those unable to attend.
- One pharmacist suggested that learning from other pharmacist's experiences in implementing and delivering the services would be helpful in their own service delivery.
- On the other hand, two out of 13 interviewed pharmacists said no further training was needed.

One pharmacist said a more detailed protocol or instruction manual would help get businesses up and running more quickly.

The PSA suggested that to deliver MedsCheck and Diabetes MedsCheck services effectively, pharmacists need to have good communication and medication adherence assessment skills. They explained that although pharmacists are good communicators in general, they may be unfamiliar with communication during the provision of a structured service and unfamiliar with communication techniques required to get a meaningful response from patients in this context. The PSA stated that it already has training materials that will help pharmacists on their communication, professional approach and clinical topics.

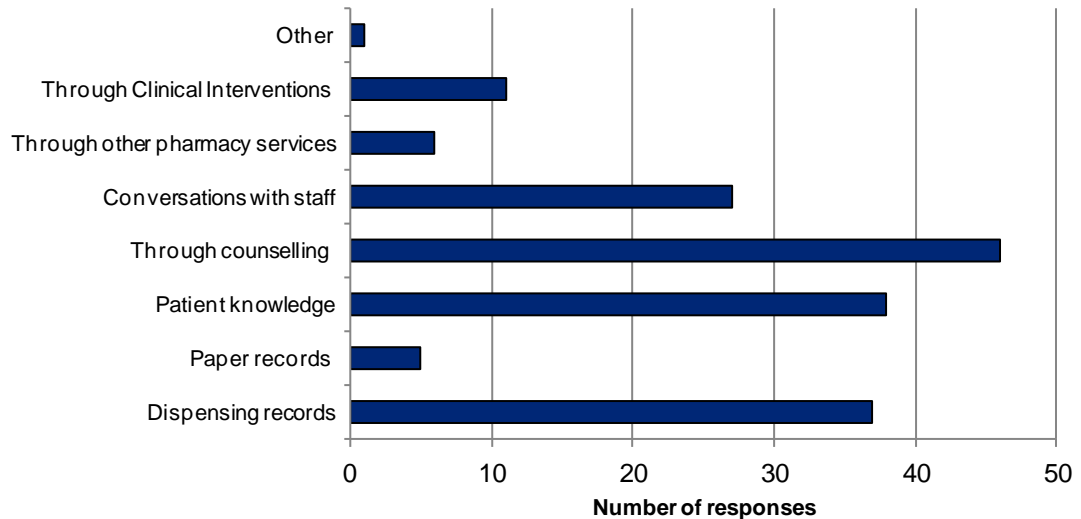
A representative from the Rural Pharmacy Special Interest Group suggested that pharmacists needed to improve their knowledge of other primary care programs within their Medicare Locals so that they can effectively and appropriately refer patients into these services if needed.

The PSA suggested that web-based and on-line training modules were the most appropriate modes of delivering training for pharmacists for the MedsCheck and Diabetes MedsCheck program. The representative from the Rural Pharmacy Special Interest group stated that 'webinars' where lectures could be watched in real time or later were effective in reaching rural and remote pharmacists as well as locum pharmacists.

### 6.3.3 Ease of patient recruitment

According to responses to the online Pharmacist Survey, almost all patients were recruited within the pharmacy by pharmacists, with a breakdown of specific methods in Chart 6.9. About two thirds of pharmacists found patient recruitment to be somewhat or very easy. This finding is consistent with the Patient Survey where 89% of patients indicated that the pharmacist had approached them and asked if they would like a MedsCheck or Diabetes MedsCheck service (N=94 respondents to the question, 95%CI 83%-96%).

- Ease of patient recruitment was mentioned as a service delivery facilitator by two pharmacists interviewed in Group 4 (pharmacists from pharmacies that were successfully providing services). One of these pharmacists reported that on-going promotion to patients and promotion of the service to doctors assisted in recruiting patients directly or via referrals. The other reported working for a large private hospital where medication changes were frequent and patients were easy to identify.

**Chart 6.9: Pharmacy methods of patient recruitment (N=171 pharmacist responses\*)**

\* Pharmacists were allowed to provide more than one method of recruitment used in their pharmacy.

Source: online Pharmacist Survey results

By contrast, three pharmacists participating in Group 3 interviews (pharmacists from pharmacies that started then stopped delivering services) identified patient recruitment as a major barrier to service delivery.

- One suggested that there were not enough patients who needed the service in his area;
- Another said that patients approached were sceptical and uninterested in the service; and
- The third reported that remembering to recruit patients while dispensing was a barrier to service delivery.

It was suggested that promotional material and advertising would help pharmacists recruit patients and raise patient awareness.

Some pharmacists commented that access to existing dispensing software that identified patients eligible for MedsCheck or Diabetes MedsCheck services made patient recruitment easier.

#### 6.3.4 Information Technology issues

The SmartForm was generally unpopular with pilot participants and the Department has advised that it will not be part of the national roll-out of the MedsCheck and Diabetes MedsCheck program. As discussed in section 6.2.6, the SmartForm generated inefficiencies and unnecessarily extended consultation time. Information technology (IT) issues are also discussed in chapter 7 in the context of the lower than anticipated up take of MedsCheck and Diabetes MedsCheck services by pharmacies enrolled in the pilot.

In addition, the IT systems used during the pilot detracted from the quality of service provision. Pharmacists and the Guild felt that the need for pharmacists to sit behind a

computer screen completing the SmartForm during consultations diminished the experience for patients and reduced the time available for face to face discussion of medications and current issues. Moreover, the Guild was of the view that the SmartForm created a barrier between the patient and the pharmacist due to the amount of information that needed to be entered manually. This was reported to be very discouraging for pharmacists who were more interested in talking to their patients rather than data entry.

- To avoid filling out the SmartForm while interviewing patients and/or due to lack of availability of a computer in the consultation space with an AUSkey loaded, some pharmacists reported that they or the dispensary technician pre-populated the form with the patient's details and medicines or that they took written notes during the interview then populated the form after the interview between dispensing prescriptions. The patient report would then be mailed to the patient.
- A hardcopy of the SmartForm could not be printed, hence one pharmacy had created a copy of the form in another document that could be printed and then filled in by hand during the interview. Due to their preference for taking hand written notes, some pharmacists mentioned that they would like a SmartForm that could be printed prior to the service.

Pharmacists felt that the IT associated with the program was complicated and insufficient direction or instructions had been provided. All were able to resolve their issues after calling the MedsCheck helpline, although some the difficulties resulted in a delay in commencing consultations and an early frustration with the new program. The AUSkey process was cited by almost all who reported problems as the more troublesome aspect of the start up, both in installation and also the inability for it to be used on other computers in the pharmacy or by other pharmacists. Compatibility issues, for instance with Adobe, were also cited.

The Guild strongly emphasised the need for a more user friendly software which is integrated into pharmacy dispensing systems and the workflow of the pharmacy, and which is developed with input from the pharmacy industry. The necessity of developing a software program to provide a single gateway for transacting with the government for all services provided in pharmacies (dispensing PBS prescriptions, DAAs, MedsChecks etc.) was raised. As discussed elsewhere, some pharmacists commented that access to existing software that identified eligible patients made identification of eligible patients conducting MedsCheck and Diabetes MedsCheck services easier due to its integration with their dispensing programs. In addition, increasing the flexibility of computer work stations on which the MedsCheck and Diabetes MedsCheck consultation can be performed would also aid integration with existing pharmacy workflow.

The payment process was reported to be running smoothly for most pharmacists, except, one Guild representative mentioned that there was only one or two months of service provision where his pharmacy was adequately remunerated because of problems with claiming for reimbursement, which had undermined his confidence in the claiming system. In addition, 15 pharmacists interviewed from pharmacies which were not recorded as providing a service (see chapter 7) had provided a service but were not able to successfully submit the SmartForm to claim for payment.

The standard Smartform could be replaced with a simplified checklist of the compulsory components of the service and then pharmacists could use their own medication management tools to provide the patient with information. The Guild suggested that this may additionally encourage innovation and continuous improvement in community pharmacy patient services.

A web based MedsCheck program was suggested as a way to improve usability and flexibility of delivery across computer terminals and staff.

If an electronic system for collecting information is eventually adopted, a template of the data collection report (currently the entire SmartForm) would be helpful for pharmacists when completing their initial MedsCheck consultations so pharmacists are aware of all the questions which need to be asked and enable better preparation before meeting with the patient.

### 6.3.5 Other program refinements

Overall, pharmacists appear to believe that, with some refinement, the MedsCheck initiative will be successful and will help to fulfil the significant potential of community pharmacy to assist in professional service provision. Numerous suggestions for improvement have been included in this report — with the two below belonging in their own category.

- The PSA and a representative from the Rural Pharmacy Special Interest Group suggested that providing information about MedsCheck services to GPs and other health professionals would assist pharmacists in communicating with them over issues discovered during service provision to their patients. Pharmacists would not need to 'cold-call' GPs and other health professionals and explain the service before they reached the main point of the phone call.
- A representative from the Rural Pharmacy Special Interest Group suggested that pharmacists delivering MedsCheck and Diabetes MedsCheck services should be linked in with Medicare Locals to assist them to effectively and appropriately refer patients to other services they may need.

## 7 Reasons for the lower than expected take-up of service provision

As previously mentioned in chapter 1, four months after the pilot commenced, early findings showed that pharmacies were providing services at a much lower rate than initially anticipated and a majority of pharmacies had not yet claimed for a single service.

- Approximately 2%<sup>18</sup> of the expected volume of services was claimed during the first seven months of the pilot program. These claims were made by fewer than one-third (31%) of pharmacies participating in the pilot.
- Although the number of pharmacies claiming for services per month and the number of new pharmacies claiming for services increased during February and March 2012, service delivery numbers remained low compared to initial expectations. For example, during March, 250 services were claimed by 51 pharmacies suggesting an average of five services per pharmacy or 20% of the expected number of services per pharmacy.
- By March 31<sup>st</sup> 2012, the MedsCheck pilot program had been available for seven months, however, 69% of pharmacies originally enrolled had still not delivered any services.

Another evaluation objective was added in January 2011 to explore the main reasons for less than expected MedsCheck and Diabetes MedsCheck service delivery and the low program implementation rate. The reasons are discussed in this chapter, based on interviews with:

- pharmacies enrolled in the pilot who had not yet provided services by January 2012; and
- pharmacies enrolled in the pilot who had provided service(s) but then had not successfully claimed for the service(s) provided by January 2012.

### 7.1 Feedback from pilot pharmacies who had not yet claimed for services by January 2012

In order to investigate the reasons for lower than anticipated service provision, the evaluation team organised telephone interviews with 100 pharmacists from 100 pharmacies that had not yet claimed for a service. The interviews were conducted during

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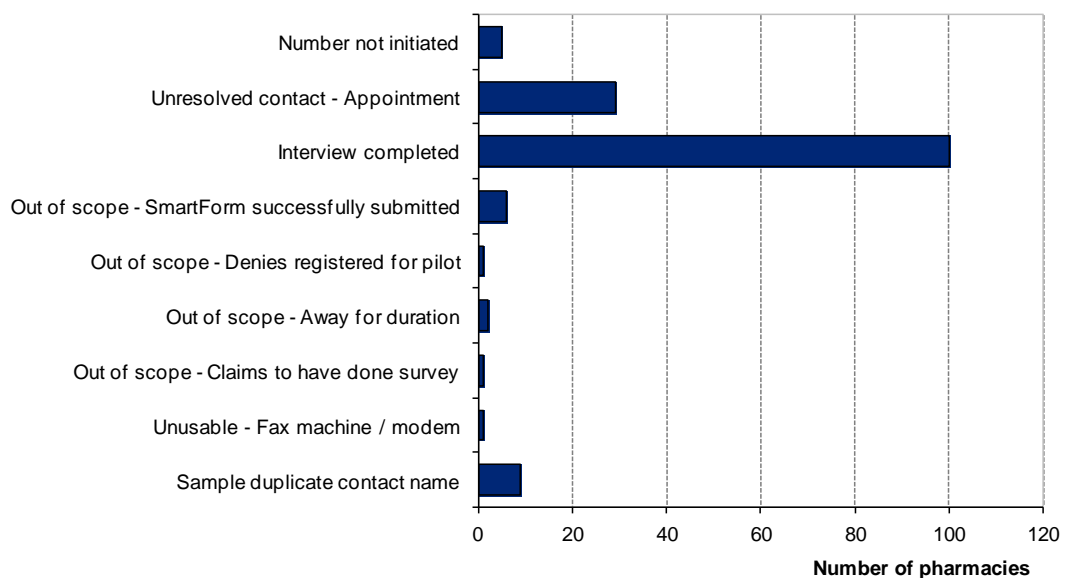
<sup>18</sup> The initial expectation was that pharmacies would be able to deliver five MedsCheck services and one Diabetes MedsCheck service per week. Over 30 weeks, this equates to 51,480 services delivered by 286 pharmacies.

February 2012. The main objective of the interviews was to determine why these pharmacies had enrolled in the pilot, but decided not to proceed or else had been unable to proceed with service delivery and the point where this occurred in the program implementation pathway.

### 7.1.1 Interview sample

Of the 229 pharmacies which had not claimed for services during the first five months of the pilot program, 154 pharmacies were contacted with a view to completing 100 interviews. Pharmacies were randomly selected for interview. Pharmacies contacted for interview and reasons for non-participation are detailed in Chart 7.1.

**Chart 7.1: Pharmacies contacted for interview and reasons for non-participation (N=154)**



### Pharmacy distribution by State/Territory

In terms of their location by States or Territory, the pharmacists interviewed were broadly representative of pharmacies eligible for interview. Victoria had the largest variation in proportional representation where 11% of pharmacies had not claimed for a service whereas 15% of pharmacists interviewed were from Victoria.

**Table 7.1: Total population of eligible pharmacies and pharmacists interviewed**

State	Pharmacies that had not claimed for a service by 31 <sup>st</sup> January 2012 (N=229)		Pharmacists interviewed (N=100)		
	Number	Distribution	Number	Distribution	Variation in percentage points
NSW	56	24%	27	27%	+3
ACT	14	6%	3	3%	-3
VIC	26	11%	15	15%	+4
TAS	24	10%	12	12%	+2
QLD	55	24%	21	21%	-3
SA	24	10%	12	12%	+2
NT	13	6%	5	5%	-1
WA	17	7%	5	5%	-2
TOTAL	229	100%	100	100%	

**Pharmacy distribution by SEIFA category**

In terms of their SEIFA decile, the pharmacists interviewed were from pharmacies that were broadly representative of pharmacies eligible for interview. The lowest four SEIFA deciles had a higher proportion of pharmacies that did not claim for services (45%) compared to the highest four deciles (29%). In terms of the pharmacists interviewed, the lowest four SEIFA deciles had a higher proportion of pharmacies at 49% compared to the highest four deciles at 21%.

**Table 7.2: Distribution of pharmacies that had not claimed for a MedsCheck or Diabetes MedsCheck by 31<sup>st</sup> January 2012 and pharmacies that were interviewed**

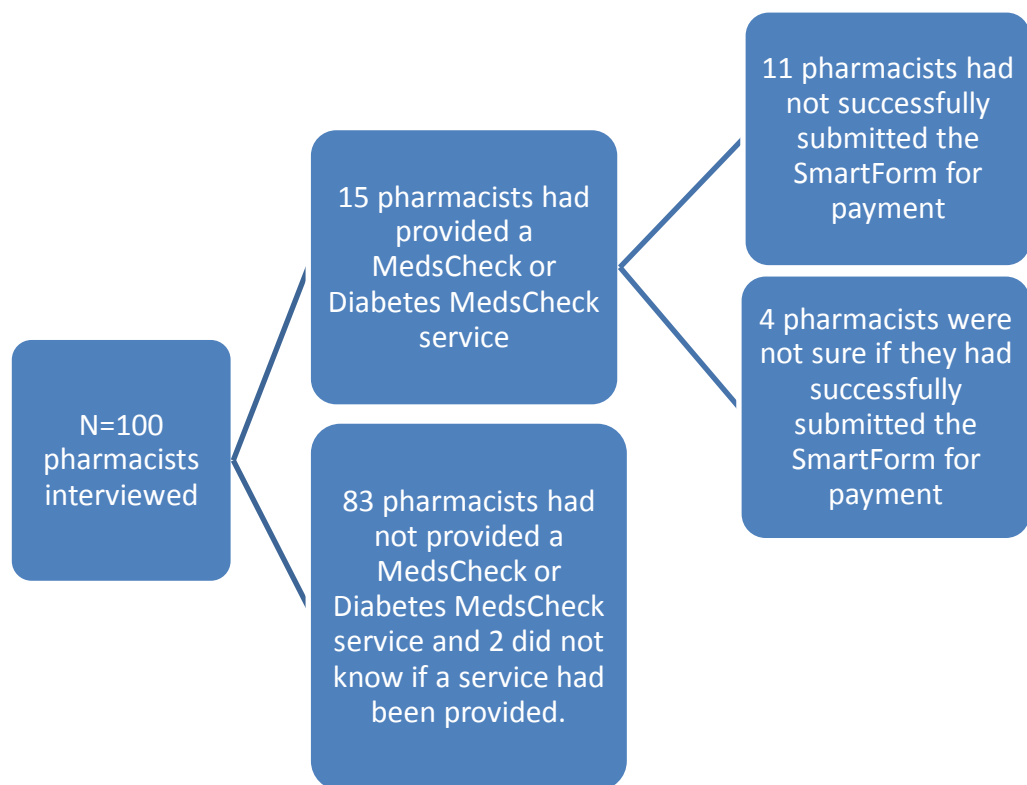
SEIFA decile	Pharmacies that had not claimed for a service by 31 <sup>st</sup> January 2012 (N=229)	Pharmacists interviewed (N=100)	Variation in percentage points
1	7%	6%	-1
2	13%	18%	+5
3	12%	9%	-3
4	13%	16%	+3
5	14%	16%	+2
6	12%	14%	+2
7	10%	3%	-7
8	5%	7%	+2
9	7%	3%	-4
10	7%	8%	+1



### Some pharmacists in the sample provided services but were unable to claim for payment

Of the 100 pharmacists interviewed, 83 had not yet provided a MedsCheck or Diabetes MedsCheck service, 15 had provided a service but were not able to successfully submit the SmartForm to claim for payment and two did not know whether a service had been provided in the pharmacy or not (Figure 7.1).

**Figure 7.1: Pharmacists interviewed**



### Do the pharmacies which had not provided services plan to provide services in future?

Of the 85 pharmacists who had not yet provided a service or did not know whether a service had been provided in the pharmacy:

- 77 stated that their pharmacy intended to start providing MedsCheck and Diabetes MedsCheck services in future;
- five stated that their pharmacy would not be providing services in the future; and
- three did not know whether they would provide services in future.

#### 7.1.2 Pharmacy size

In this section, the size of pharmacies participating in the interviews (ie pharmacies which had not successfully provided or claimed for any services) is compared with pharmacies that have provided MedsCheck services. Size is measured by FTE pharmacists as well as dispensing volumes.

### FTE pharmacists

Pharmacists interviewed (N=100) reported that their pharmacy had an average of 1.8 FTE pharmacists with a median of 1.65, a minimum of 1 and a maximum of 8. Table 7.3 shows that most pharmacies (89%) had fewer than 3.0 FTE pharmacists and around half the pharmacies had between 1.0 and 2.0 FTE pharmacists.

**Table 7.3: Number of FTE pharmacists working at pharmacies**

FTE pharmacists	Number of pharmacies (% of total) (N=100)
≥1.0 < 2.0	51 (51%)
≥2.0 <3.0	38(38%)
≥3.0	11(11%)

In comparison, pharmacies which had commenced MedsCheck and Diabetes MedsCheck consultations and responded to the online survey reported a slightly higher number of FTE pharmacists (average of 2.3, median of 2 and maximum of 9.5), (Table 7.4). Just over three quarters of respondents to the Pharmacist Survey (78%) said they had fewer than 3.0 FTE pharmacists and 38% had between 1.0 and 2.0 FTE pharmacists. Overall, it appears that pharmacies which had commenced service delivery employed more pharmacists on average than pharmacies which had not commenced service delivery and which participated in the interviews.

**Table 7.4: Number of FTE pharmacists at businesses which responded to the online survey<sup>(a)</sup>**

FTE pharmacists	Number of pharmacies (% of total)(N=50)
≥1.0 < 2.0	19 (38%)
≥2.0 <3.0	20(40%)
≥3.0	11(22%)

(a) Number of FTE pharmacists before the commencement of the MedsCheck program was reported

### Dispensing volume

Table 7.5 shows that over one third (37%) of pharmacies that never provided or claimed for a MedsCheck or Diabetes MedsCheck service dispensed over 1,500 prescriptions per week and close to one half (49%) dispense over 1,250 prescriptions per week. Table 7.5 also shows that larger proportion of pharmacies that never provided a service or never successfully claimed for a service dispense more than 1,500 prescriptions compared to the pharmacies that have successfully claimed for a service provided, Table 7.5.

**Table 7.5: Comparison between prescriptions dispensed per week for pharmacies that have not successfully provided or claimed for a MedsCheck or Diabetes MedsCheck service and pharmacies that have**

Number of prescriptions per week	Proportion of pharmacies that have never successfully provided or claimed for a service (%) (N=100)	Proportion of pharmacies that have provided a service (%) (N=63 pharmacy responses)
<500	7	6
501 to 750	12	11
751 to 1,000	15	7
1,001 to 1,250	15	9
1,251 to 1,500	12	9
>1,500	37	9
No response	2	12

At a high level, pharmacies that had not provided or claimed for any services dispensed prescriptions with slightly lower number of FTE pharmacists relative to weekly prescription volume than pharmacies that had commenced service provision, see Table 7.6.

**Table 7.6: Mean number of FTE pharmacists and relative prescription volumes**

Number of prescriptions per week	Mean number of FTE pharmacists at pharmacies that have never successfully provided or claimed for a service (N=100)	Mean number of pharmacists at pharmacies that have provided a service (N=49)
<750	1.6	1.8
750-1250	1.8	2.0
>1250	2.4	2.9

### 7.1.3 Main barriers to program implementation and subsequent service delivery

Pharmacists were asked to describe the main reasons why they had not provided services. All pharmacists (N=100) responded, with a total of 163 reasons. These were categorised into 28 separate codes. The top ten codes (75% of the total number of responses) were as follows.

- The pharmacy was too busy or the program takes too long to set up and/ or implement (30 responses).
- It was too difficult/complicated to register or obtain an AUSkey (22 responses).
- There was not enough staff or the staff turnover was too high (20 responses).
- It was too difficult/complicated to install the AUSkey/make the AUSkey work (13 responses).
- There was no computer/consultation area available (7 responses).
- There were problems/difficulties with the AUSkey (7 responses).

- It took too long to install the software (6 responses).
- The pharmacy didn't receive enough/clear information about the program in general (6 responses).
- It was too difficult/complicated to install the software (6 responses).
- The pharmacy had trouble with the digital signature/submitting the SmartForm online (5 responses).

Close to half the responses under these top ten reasons (48%) concerned an IT related issue. Of the 163 responses in total, 83 (51%) specifically related to IT issues, while other responses may or may not reflect IT issues (for example, the 30 responses where the pharmacist indicated that 'the pharmacy was too busy or the program takes too long to set up and/ or implement'). Other reasons are provided in Table 7.7.

**Table 7.7: Non-computer related reasons for not providing MedsCheck and Diabetes MedsCheck services under the pilot program**

Reason	Number of responses
The pharmacy was too busy/the program takes too long to set up/implement	30
Not enough staff/staff turnover too high	20
No computer/consultation area available	7
Didn't receive enough/clear information about the program in general	6
Other	4
Difficult to recruit patients	4
Already providing several HMRs which would preclude several customers from MedsCheck services	2
Moving stores/selling stores	2
Too much paperwork	2
Had trouble filling out forms	1
Confusing/incorrect information provided	1
Didn't receive CD	1

#### 7.1.4 Barriers to service provision — the point in the service delivery chain at which pharmacies stopped

Pharmacists who had not provided a MedsCheck or Diabetes MedsCheck service (N=83) or did not know if their pharmacy had provided either service (N=2) were asked where their pharmacy "is currently up to" in implementing service delivery processes, or at which point in the implementation process they "decided not to proceed". The implementation process for successful service delivery was broken down into six steps and pharmacists' progression through those steps was mapped. The six steps were:

- Step 1: Received the Pilot Resource CD with the MedsCheck program software;
- Step 2: Successfully located the pharmacy's existing AUSkey/attained a new AUSkey;

- Step 3: Successfully installed the AUSkey and the SmartForm Signing Utility software from the CD;
- Step 4: Successfully downloaded the SmartForm Assessment Tool from the Department or the Guild website;
- Step 5: Offered/promoted MedsCheck services to eligible patients;
- Step 6: Delivered MedsCheck services, including completing the SmartForm Assessment Tool; and
- Step 7: Successfully submitted the SmartForm Assessment Tool to the Department to claim payment using the AUSkey.

During piloting, it became evident that pharmacies who claimed they had provided a service but had unsuccessfully submitted their claim for payment or did not know if their submission had been successful, (N=15), had completed step 6 but not step 7. Therefore, no further pharmacists from these pharmacies were asked this question and it was assumed that these 15 pharmacies had completed step 6.

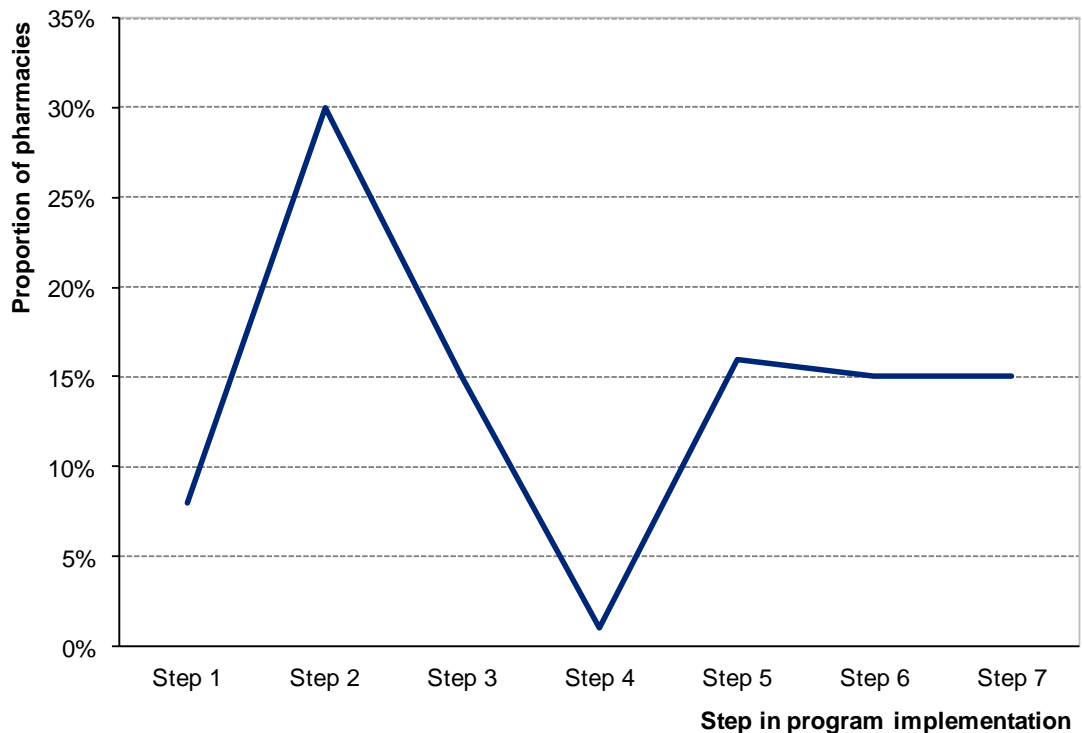
The findings presented here are designed to inform the design of any future electronic tools used to deliver professional pharmacy services. Chart 7.2 shows the cumulative number of pharmacies quitting at each step.

For pharmacies that never provided a service or did not successfully claim for a service provided:

- more than half (53%) of the 100 pharmacies stopped at step 3;
- only 1% of pharmacies stopped at step 4;
- once the IT requirements had been met (steps 2,3 and 4), work flow and or promotion provided further barriers to the implementation of the program. Sixteen per-cent were unable to offer/promote MedChecks to eligible patients (step 5) and a further 15% were unable to deliver a MedsCheck including completing the SmartForm Assessment Tool (step 6); and
- although 30 pharmacies reached and completed step 5, it appears that only half these pharmacies completed step 6. It is possible that their promotion of services did not make traction with customers and they were unable to deliver any MedsCheck or Diabetes MedsCheck services or they did not have time to schedule appointments, hence did not complete steps 6 and 7; and
- 15% of pharmacies reached step 7, but did not complete as they were either unable to submit their SmartForm for payment or were unsure if it was successfully submitted.

As can be seen Appendix O, a relatively small number of pharmacies did not know whether they had completed or not completed each step, hence these have been added to pharmacies that stated they did not complete the step.

**Chart 7.2: Proportion of pharmacies that discontinued program implementation at each step (N=100)**



### Further descriptions of steps

Linking into the question about the point at which service delivery was stopped, pharmacists who had not provided any services i.e. not able to complete step 6 (N=85) were asked to further describe the steps they could and could not complete. The barriers steps 2 and 3 posed for pharmacies in implementing the MedsCheck and Diabetes MedsCheck pilot program were further emphasised by these descriptions. All 85 pharmacists provided 126 responses which were categorised into 26 separate descriptions. Of those, the most frequently quoted description with 15 responses was that it was 'difficult/complicated to register/get an AUSkey' which would have occurred at Step 2. The second most frequently quoted descriptions were:

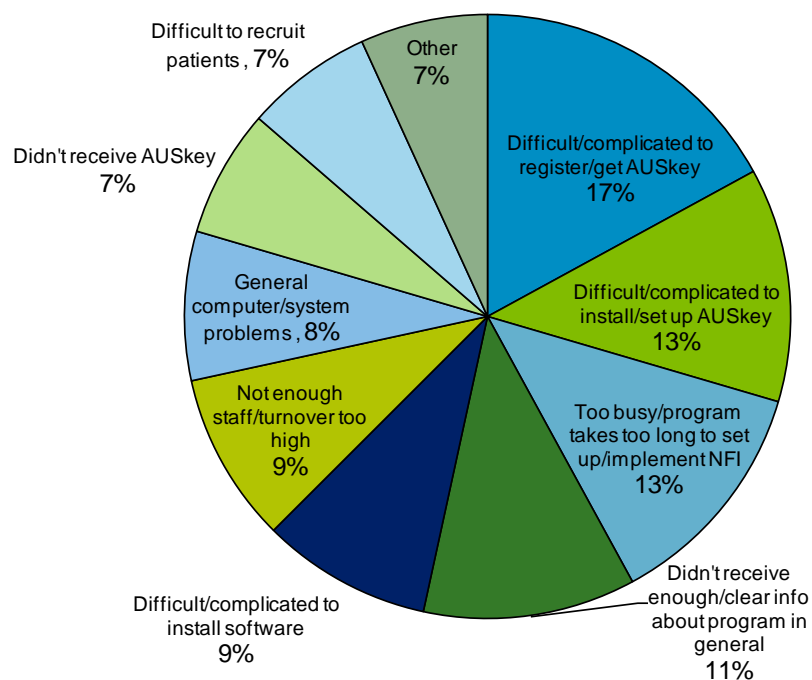
- it was 'too busy/program takes too long to set up/implement'; and
- it was 'difficult/complicated to install/set up the AUSkey', each with 11 responses.

Out of the 26 types of descriptions for the steps that pharmacists could and could not complete, there were ten outlining AUSkey problems with a total of 47 responses.

The *top* ten descriptions (out of the 26 coded descriptions) accounted for 70% of the total responses (88 responses out of 126 responses in total). The ten most frequent descriptions and the frequency of responses for each as a proportion of total responses, N=88, is represented in Chart 7.3. When asked for a further description of the step they did not complete, pharmacists frequently described that they were too busy and that the program took too long to set up. This may be linked with the difficulties that pharmacists experienced in obtaining, registering and installing the AUSkey. Another popular

description was not receiving enough/clear information about the program in general. This also featured in the top ten main reasons as to why the pharmacy had not started providing the program.

**Chart 7.3: The ten most frequent descriptions of the step not completed and their proportional frequency of responses (N=88 responses)**



### 7.1.5 The impact of other 5CPA programs on MedsCheck service delivery

Ninety-seven per-cent of the 100 pharmacists interviewed offered a range of other services under the 5CPA with only 2% of pharmacies offering no other services and 1% not sure of other services offered. The 5CPA services provided included:

- recording of Clinical Interventions (95% of pharmacies);
- supply of dose administration aids (92% of pharmacies);
- staged supply of medicines (84% of pharmacies);
- HMRs (68% of pharmacies);
- working with others (68% of pharmacies);
- primary health care (53% of pharmacies);
- community services support (44% of pharmacies);
- residential Medication Management (26% of pharmacies); and
- other (7% of pharmacies).

Overall, 82% of pharmacists who worked in pharmacies that had not implemented the MedsCheck program did not see the other 5CPA programs as a hindrance. However, 18%

of pharmacists stated that the other 5CPA programs they offered took up too much time or there was no time to implement the MedsCheck service.

Integration between the MedsCheck program and other 5CPA programs was recognised as advantageous by a minority of pharmacists with 11% reporting that the MedsCheck and Diabetes MedsCheck program complements the other programs. Pharmacists also recognised that the other programs available would

- help them identify suitable patients for MedsCheck;
- highlighted a general need for/the importance of MedsCheck; and/or
- complemented the MedsCheck program.

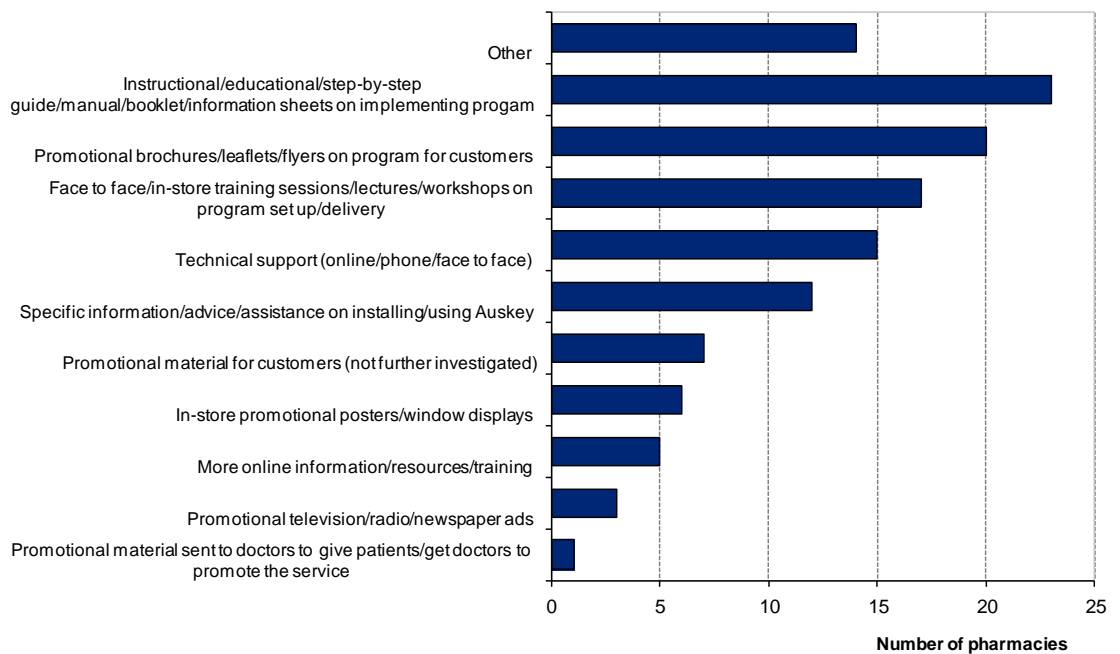
#### 7.1.6 Additional support that would assist in delivering services

In a question enabling an open ended response, pharmacists were asked about the different types of support, educational materials and promotional materials that would help them implement and deliver MedsCheck and Diabetes MedsCheck services. Ninety two pharmacists responded that some kind of additional support would help them implement MedsCheck and Diabetes MedsCheck services, two responded that they did not know of any supports that would be useful and six responded that the program is currently fine.

Of those with suggestions for additional supports, a total of one hundred and twenty-three responses were received from 92 pharmacists and were distributed into 11 separate categories. Twenty-three pharmacists responded that an instructional/educational/step-by-step guide/manual/booklet/information sheet on implementing the program would be helpful. The next most common, with 20 responses, was promotional brochures/leaflets/flyers on the program for customers (Chart 7.4).



**Chart 7.4: Additional support and materials that would help pharmacies implement MedsCheck and Diabetes MedsCheck services and number of pharmacies (N=100)**



## 7.2 Feedback from pharmacies which commenced service delivery but then stopped

As described in chapter 3, telephone interviews were also conducted with 12 pharmacists representing pharmacies which had started delivering MedsCheck consultations, but then stopped to elicit reasons why their involvement in the pilot had ceased, or significantly reduced. The top reasons were as follows.

- The pharmacy became busy around December due to safety net prescriptions and the Christmas rush therefore there was less time for, and prioritising of, the MedsCheck program.
- Staff members took leave over December and January meaning the pharmacy was understaffed and without sufficient pharmacist back up to enable the consultations to take place. Some patients were also away at this time.
- Recruitment difficulties were experienced after the initial, easily identified patients were exhausted. Also, patients were not always keen to participate due to scepticism of the program or being unwilling to spend their time. Lack of promotion within the community also meant pharmacists needed to work harder to raise awareness of the program and recruit suitable, willing candidates. It was also reported that pharmacists found it difficult to remember to recruit patients while dispensing and it took time to train other pharmacists to also think about recruitment while dispensing. Patient recruitment is further discussed in section 6.3.3.

- The initial consultations were often very time consuming and unprofitable as pharmacists became familiar with the program. The SmartForm caused a great deal of frustration for individuals and meant their time was spent inputting data rather than speaking to the patient (see chapter 6).

## 8 Links between MedsCheck and other Fifth Community Pharmacy Agreement services

The Department requested an analysis of the nexus between MedsCheck and Diabetes MedsCheck services and other 5CPA services —specifically, Clinical Interventions and HMR services.

### 8.1 Analysis of primary data (pharmacists' and PSA views)

Many pharmacists reported the 5CPA programs work very well in tandem and enabled patients to be referred between programs. For instance, a MedsCheck consultation may demonstrate that a patient has many medication issues and could benefit from a more in depth HMR. About a third (18 of 63) of pharmacists responding to the online survey indicated a dose administration aid was recommended. However, pharmacists at only 12 pharmacies which offer HMRs (or 21%) referred one or two MedsCheck patients for the service.

Patients for whom many Clinical Interventions are recorded were recognised as potentially good candidates for a MedsCheck consultation. According to the Pharmacist Survey, a number of pharmacies recruited MedsCheck patients through Clinical Interventions (51 out of 64 pharmacies that were reporting Clinical Interventions). On average at each of these pharmacies, seven patients were cross referred from Clinical Interventions to MedsCheck or Diabetes MedsCheck.

The suite of Medication Management Programs and Pharmacy Practice Incentives offered under the 5CPA was viewed by several pharmacists interviewed as a facilitator to MedsCheck and Diabetes MedsCheck service delivery, rather than a hindrance. Provision of other services under the 5CPA did not appear to impact pharmacists' ability or willingness to provide MedsCheck or Diabetes MedsCheck services.

The 5CPA programs, including MedsCheck, Clinical Interventions, and HMRs, are sufficiently differentiated according to interviewed pharmacists (Groups 2, 3 and 4, N=30). The main differences reported between MedsCheck/Diabetes MedsCheck and HMRs were that MedsCheck:

- does not require pharmacist accreditation;
- does not require GP referral;
- is not as thorough and so less time consuming;
- involves less paperwork;
- offers more control over patient recruitment; and

- allows pharmacists to be proactive.

Pharmacists also suggested that MedsCheck and Diabetes MedsCheck services may be more acceptable to patients than HMR services due to their less invasive nature.

- Patients may be more accepting of MedsCheck and Diabetes MedsCheck services because they take place in the pharmacy rather than in their homes. In-home provision can feel invasive for patients; and
- the nature of the actual MedsCheck and Diabetes MedsCheck service is more casual than the HMR service.

No pharmacists suggested that they consciously decided to perform Clinical Interventions instead of MedsCheck and Diabetes MedsCheck services. However, almost all pharmacists pointed out that documenting Clinical Interventions was easier and or quicker to complete compared to providing MedsCheck and Diabetes MedsCheck services. Some pharmacists reported that documenting Clinical Interventions was more profitable and better streamlined than MedsCheck and Diabetes MedsCheck services, due to the integration of existing software with the dispensing program, which made identification of eligible patients easy. Changing to another computer to record the interventions was also not needed which offered greater flexibility than the MedsCheck program. Several pharmacists explained that documenting Clinical Interventions did not require a major shift in what pharmacists were doing prior to the introduction of incentive payments for this activity under the 5CPA. Unlike MedsCheck and Diabetes MedsCheck, documenting Clinical Interventions was easy to integrate within the pharmacy workflow. Clinical Interventions could be documented at the time they arise, no report is produced for the patient or the health care professional, and patients do not need to be interviewed.

The PSA suggested that pharmacists may need training on where MedsCheck and Diabetes MedsCheck services sit in the range of other professional services offered under the 5CPA. They suggested that pharmacists needed further clarification on what their role is under each of the services, the appropriateness of one service versus another for the diverse range of patients they encounter and how the services interrelate.

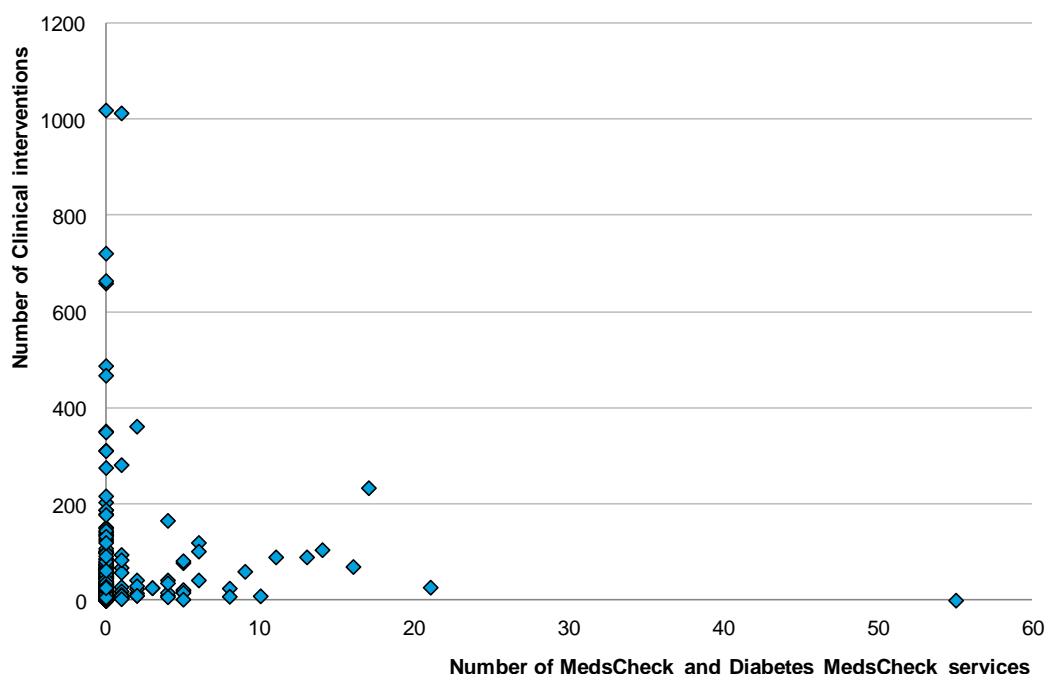
## 8.2 Analysis of secondary data

### 8.2.1 Clinical Interventions

All pharmacies enrolled in the MedsCheck and Diabetes MedsCheck pilot program were also enrolled to claim for Clinical Interventions performed. Chart 8.1 shows the volume of Clinical interventions documented versus the volume of MedsCheck and Diabetes MedsCheck services claimed per pharmacy.

- Between July and December 2011, 17,383 Clinical Interventions were documented by pharmacies recruited to provide MedsCheck and Diabetes MedsCheck services. During the same period, 288 MedsCheck and Diabetes MedsCheck services were claimed.
- By December, only 49 of the 286 pharmacies had claimed for MedsCheck and Diabetes MedsChecks services yet 258 of the 286 pharmacies had claimed for Clinical Interventions.

**Chart 8.1: Volume of Clinical Interventions versus MedsCheck and Diabetes MedsCheck services, July to December 2011.**



Source: Special data request from Department of Health and Ageing, received 16 February 2012.

### 8.2.2 HMR services

The Department was able to provide HMR data for the period 2007 to August 2011 for all pharmacies across Australia and for October 2011 to March 2012 for the MedsCheck pharmacies.

#### Number of HMR services provided — historical and projected

The number of HMR services provided across Australia during the last four years has increased from 15,436 in 2007-2008 or 0.3% of the population of people taking prescription medicines to 63,088 in 2010-2011 or 1.2% of people taking prescription medicines (Table 8.1).

**Table 8.1: Number of HMR services provided in Australia**

	Number of HMR services*	Total number of people taking prescription medicines#	Percentage of people taking medicines who received a HMR
2007-2008	15,436	4,903,075	0.31%
2008-2009	48,344	5,043,498	0.96%
2009-2010	60,577	5,234,005	1.16%
2010-2011	63,088	5,407,800 <sup>##</sup>	1.17%

\*Source: special data request from the Department of Health and Ageing, received 16 February 2012.

#Source: special data request from the Department of Health and Ageing, received 19 December 2011 and Deloitte Access Economics internal analysis, see section 9.1.3. Relates only to medicine listed on the Pharmaceutical Benefits Scheme (PBS).

## Projected value, Deloitte Access Economics internal analysis, 2012

If the proportion of people who are taking prescription medicines and who receive a HMR remains constant at 1.17%, it is estimated that the number of HMR services provided by 2015 will reach around 72,100 (Table 8.2).

**Table 8.2: Projected number of HMR services**

	<b>Total number of people taking prescription medicines*#</b>	<b>Estimated number of people who will receive a HMR(a)</b>
2012	5,587,400	65,400
2013	5,772,900	67,500
2014	5,964,600	69,800
2015	6,162,700	72,100

\*Source: special data request received from the Department of Health and Ageing, received 19 December 2011 and Deloitte Access Economics internal analysis, see Section 9.1.3. Relates only to medicine listed on the PBS.

#Projected values, rounded to the nearest 100, Deloitte Access Economics internal analysis, 2012

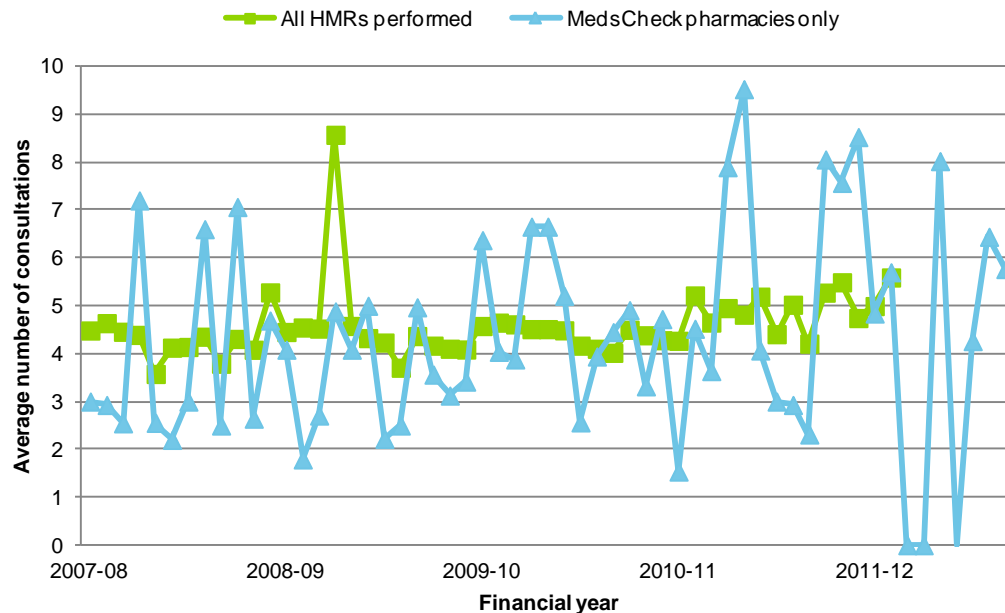
(a) Rounded to the nearest 100

### **The impact of MedsCheck and Diabetes MedsCheck on the volume of HMR services provided**

The average number of HMRs provided per pharmacy by pharmacies enrolled in the pilot per month was compared with the average number of HMRs provided by pharmacies Australia wide per month (the denominator each month was the number of pharmacies that provided HMR services that month for those enrolled in the pilot program and those across Australia respectively). Notably, August 2011 was the only month during which MedsCheck consultations were performed and for which HMR data for all pharmacies across Australia was available. Data for HMR claims for pharmacies across Australia was not available after August 2011. Using data from August alone as the basis for comparisons is problematic given so few pharmacies had commenced performing MedsChecks in August 2011, and only 10 of these claimed for HMR services.

Historically, the average number of HMRs claimed per month by pharmacies that subsequently provided MedsCheck and/or Diabetes MedsCheck services fluctuated far more than the average number of HMRs provided by all pharmacies (Chart 8.2) — reflecting the small number of MedsCheck pharmacies in the sample on which to estimate the average.

**Chart 8.2: Average number of HMRs conducted by all pharmacies and those which have performed MedsCheck and Diabetes MedsCheck services, 2007-08 to 2011-12, reported monthly**



Source: special data request from the Department of Health and Ageing, received April and June 2012...

On October 1<sup>st</sup> 2011, the HMR program rules changed to allow HMR accredited pharmacists to claim directly from Medicare for HMR services provided, in addition to community pharmacies. Prior to this, only community pharmacies could claim Medicare payments for HMR services, and as a result, community pharmacies may have subcontracted a HMR accredited pharmacist to provide HMRs.

This program rule change confounds analysis of the impact of the MedsCheck pilot program on HMR service provision. In addition, the period available for analysis is too short to determine trends. HMR and MedsCheck/Diabetes MedsCheck services provided by pharmacies enrolled in the pilot are presented in Table 8.3. Following the HMR program rule change there were two months where no HMR services were performed by MedsCheck participating pharmacies (October and December 2011) and one month where data was not available (September 2011). In total, from October 1<sup>st</sup> 2011 to March 2012, 1,306 claims were made for HMR services by pharmacies participating in the MedsCheck pilot program.

From the Pharmacist Survey, it does appear that less than one-fifth of pharmacists who work at pharmacies that are HMR service providers recommended that patients have a HMR and the Patient Survey revealed that just over one-fifth of patients who responded were recommended to have a HMR. These data do not confirm whether patients recommended an HMR actually received one.

**Table 8.3: MedsCheck and HMR services provided by pharmacies participating in the pilot**

	<b>25thAug/Sept 2011</b>		<b>Oct 2011</b>	<b>Nov 2011</b>	<b>Dec 2011</b>	<b>Jan 2012</b>	<b>Feb 2012</b>	<b>Mar 2012</b>
MedsCheck and Diabetes MedsCheck services	58		77	77	76	102	204	250
MedsCheck and Diabetes MedsCheck services per pharmacy*	2		3	4	3	4	5	5
HMR services	135 (Aug)	no data (Sept)	0	377	0	243	438	248
HMR services per month per pharmacy*	5	no data	0	8	0	4	6	6

Source: special data request from the Department of Health and Ageing, received April 2011 and analysis of SmartForm program data, Deloitte Access Economics, 2012

\*only pharmacies that provided the specified services (MedsCheck and Diabetes MedsCheck or HMR) each month are used as the denominator.

### 8.2.3 Conclusions from secondary data analysis

The available data reveals that pharmacies are participating in the documentation of Clinical Interventions far more than the delivery of MedsCheck and Diabetes MedsCheck services.

Following the HMR program rule change, MedsCheck pharmacies did not perform HMR services during two out of the six months available for analysis however it is unclear whether this is attributable to the program change or the pilot or the accuracy of data collection. The time period for analysis is too short to test for a discernible change in the pattern of HMR service provision by pharmacies enrolled in the MedsCheck/Diabetes MedsCheck pilot.



## 9 Eligibility criteria and number of patients who currently qualify for a service

The eligibility criteria for MedsCheck and Diabetes MedsCheck enables pharmacists to target some of the people who have been identified as most in need of a medicines use review according to the literature (chapter 4) — i.e. older people, people taking five or more medicines, and people with a chronic disease and a complex medicine regimen. As noted in chapter 5, by 31<sup>st</sup> March 2012:

- close to three-quarters (72%) of the patients who received MedsCheck and Diabetes MedsCheck services were aged 65 years or over;
- ninety-eight per-cent of MedsCheck and Diabetes MedsCheck services were provided to patients on five or more medicines;
- almost all patients who received a MedsCheck or Diabetes MedsCheck (99%) had a chronic condition and a complex medicine regimen;
- the main eligibility criteria used to recruit patients was the volume of medicines taken per day, with over two-thirds (68%) of the 695 Medscheck patients qualifying for a service because they were taking five medicines or more and only 1.4% qualifying because of a recent significant medical event. (The remaining 210 patients — 30.2% — were taking five or more prescription medicines per day and had a recent significant medical event.)

### 9.1 The number of patients eligible for services according to the current criteria

This section explores the likely number of people who would qualify for a MedsCheck or Diabetes MedsCheck if the program is rolled out across Australia with its current eligibility criteria (Table 2.2). The basis for the analysis of the eligible population is the Australian population as a whole. We then drill into the population relevant to each criterion for MedsCheck:

- People living in a community setting (as opposed to permanently in residential aged care);
- People taking five or more prescription medicines;
- People who have experienced a recent significant medical event;
- People recently diagnosed with type 2 diabetes or who have uncontrolled blood sugar levels; and
- People with diabetes who are not able to access diabetes education services in a timely manner.

### 9.1.1 Medicare and DVA card holders

From 30<sup>th</sup> June 2010-2011, it was estimated that 22.5 million people were enrolled with Medicare<sup>19</sup>. This population includes the majority of DVA card holders — a key target group for MedsCheck and Diabetes MedsCheck services.<sup>20</sup>

**Table 9.1: Number of people enrolled with Medicare**

Enrolment period	2007-2008	2008-2009	2009-2010	2010-2011
Persons enrolled 30 June*##	21.4 million	21.7 million	22.1 million	22.5 million
Australian population##	21.3 million	21.7 million	22.0 million	22.3 million

\*People enrolled included some people who were not Australian residents, such as visitors from countries that have reciprocal health care agreements within Australia and people covered under ministerial orders.

Sources:

#:[http://www.humanservices.gov.au/spw/corporate/publications-and-resources/annual-report/resources/1011/html/medicare-australia/chapter03/part02\\_medicare.html](http://www.humanservices.gov.au/spw/corporate/publications-and-resources/annual-report/resources/1011/html/medicare-australia/chapter03/part02_medicare.html),

<http://www.humanservices.gov.au/spw/corporate/publications-and-resources/annual-report/resources/0910/medicare-australia-annual-report-0910-full-report.pdf>

<http://www.humanservices.gov.au/spw/corporate/publications-and-resources/annual-report/resources/0809/medicare-annual-report-0809-full-version.pdf>

## ABS 2008, Population Projections, Australia, 2006 to 2101, cat. no. 3222.0,

<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3222.02006%20to%202101?OpenDocument> accessed 15 February, 2012

As seen in Table 9.1, historically, the number of people enrolled with Medicare is closely aligned with the Australian population and so the Australian population (rather than those enrolled with Medicare) is used as the basis for the analysis in section 9.1.<sup>21</sup>

Overall, the Australian population is predicted to grow at an average annual rate of 1.44% between 2012 and 2015, with population ageing leading to predictions that the average annual growth rate for people 65 years and older will be higher at 3.84% (ABS 2008, Appendix P). The higher annual growth rate for people over 65 years has implications for the future roll-out of the MedsCheck and Diabetes MedsCheck programs because older people are most likely to benefit from and utilise MedsCheck services.

<sup>19</sup>[http://www.humanservices.gov.au/spw/corporate/publications-and-resources/annual-report/resources/1011/html/medicare-australia/chapter03/part02\\_medicare.html](http://www.humanservices.gov.au/spw/corporate/publications-and-resources/annual-report/resources/1011/html/medicare-australia/chapter03/part02_medicare.html)

<sup>20</sup> According to a member of the Information Strategy Team, Health & older Australians Gateway Section within the Department of Human Services, it is estimated that over 99% of DVA card holders are also registered with Medicare, hence the 30<sup>th</sup> June 2010-2011 Medicare enrollee figures are likely to include a majority of DVA card holders and have not been further adjusted (pers. comm., 17 January 2012).

<sup>21</sup> The numbers enrolled with Medicare may exceed the total Australian population because visitors to Australia from countries that have reciprocal health care agreements and people covered under ministerial orders may also be enrolled with Medicare.

### 9.1.2 People living in a community setting

On 30<sup>th</sup> June 2011, 165,276 people were considered permanent residents of aged care homes (DoHA, 2011b). By 2012, this is projected to increase to 167,700 and to 175,000 by 2015. See Appendix Q for a methodological description.

Based on these figures, the number of people living in the community by age group is represented in Table 9.2. Once again, see Appendix Q for a methodological description.

**Table 9.2: Number of Medicare enrolled residents living in the community by age group projected to 2015**

Year	Less than 65 years	65-74 years	75-84 years	85 years and over	Total
2012	19,384,500	1,774,500	979,300	341,500	22,479,800
2013	19,588,200	1,861,900	999,700	356,400	22,806,200
2014	19,798,100	1,940,200	1,025,200	369,900	23,133,300
2015	20,003,700	2,021,100	1,052,900	383,400	23,461,100

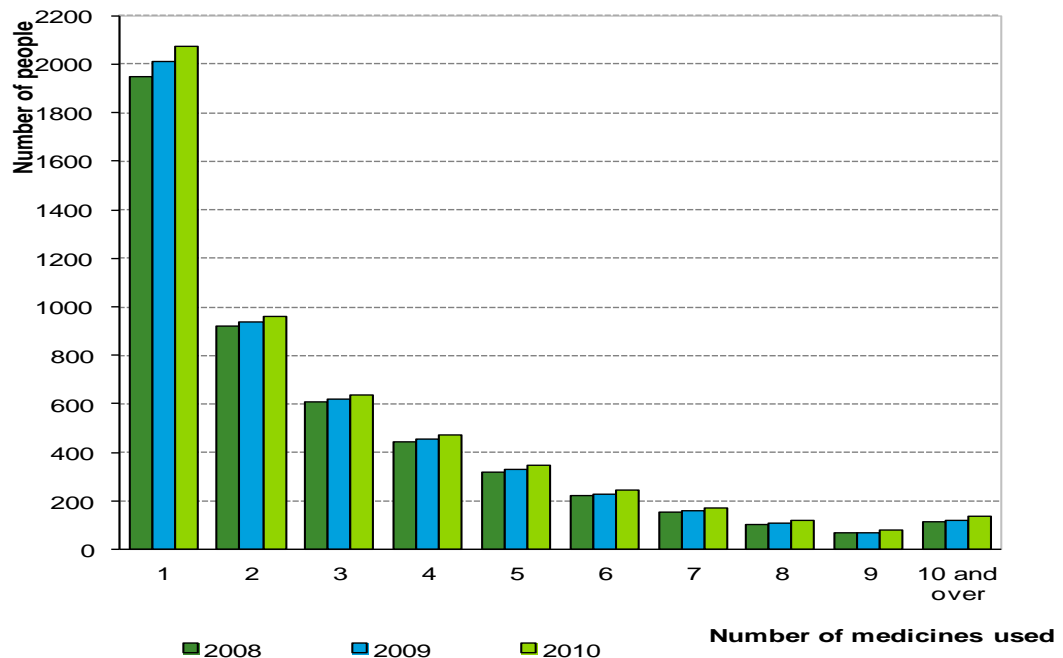
Source: Deloitte Access Economics internal analysis.

### 9.1.3 Prescription medication usage by gender and age

Pharmaceutical Benefits Scheme (PBS) prescription dispensing data were requested from the Department for the month of November for three consecutive years (2008, 2009 and 2010). In November 2010, 5,234,005 people were dispensed prescription medicines listed on the PBS and 1,095,022 of these were taking five or more medicines.

Chart 9.1 presents the numbers of people who were dispensed specified numbers of prescription medicines between 2008 and 2010.

**Chart 9.1: Number of people ('000) by number of medicines used, between 2008 and 2010**



Source: Special data request from the Department of Health and Ageing, received 19 December 2011.

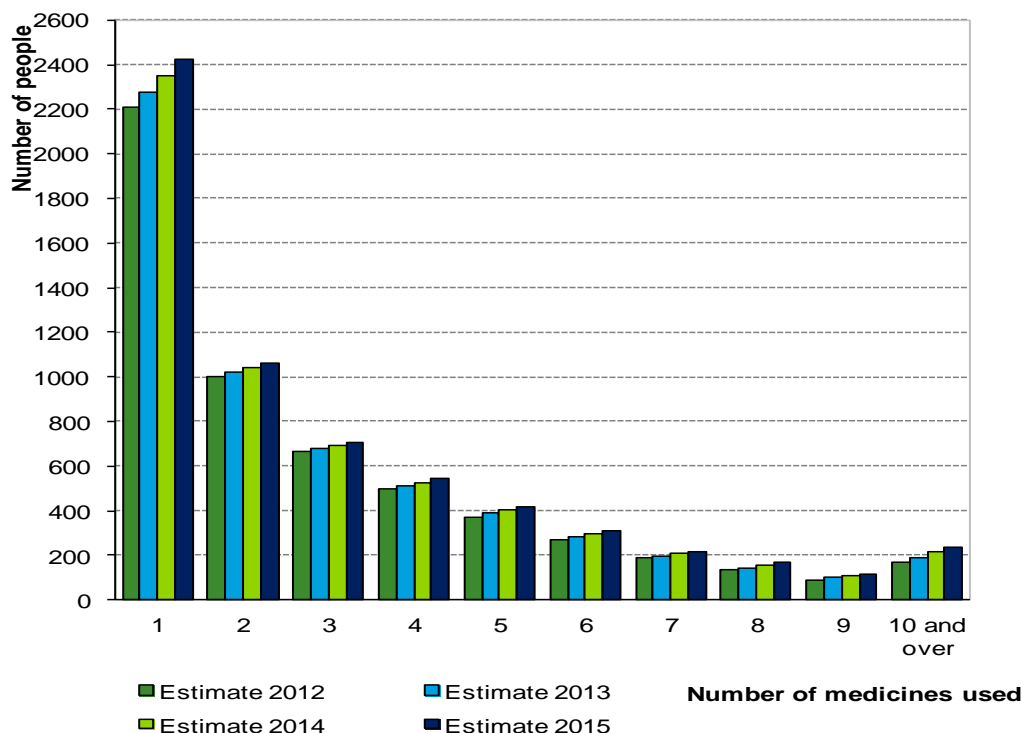
Using 2010 data as the baseline, by 2012 it is estimated that 5,587,400 people will be dispensed prescription medicines listed on the PBS and 22% or 1,224,200<sup>22</sup> of these people will be taking five or more medicines and would thus be eligible for a MedsCheck service under the current eligibility criteria. Therefore, in 2012, 25% of Australia's population is predicted to be taking one or more prescription medicines, increasing to 26% by 2015, and 77% of people over 65 years of age are predicted to be taking one or more medicines, increasing to 78% by 2015. By 2015, the total number of people dispensed medicines listed on the PBS is estimated to increase to 6,162,700 and 23% or 1,447,000<sup>23</sup> of these people will be taking five or more medicines. See Appendix R for a methodological description.

The projected number of people dispensed specified numbers of prescription medicines listed on the PBS between 2012 and 2015 is presented in Chart 9.2.

<sup>22</sup> These estimated figures are based on increasing the corresponding 2010 value by the average annual percentage increase per Appendix R and are not equal to the sum of all relevant 2012 estimates.

<sup>23</sup> These estimated figures are based on increasing the corresponding 2010 value by the average annual percentage increase per Appendix R and are not equal to the sum of all relevant 2015 estimates.

**Chart 9.2: Estimated number of people ('000) by number of PBS medicines used, between 2012 and 2015**



Source: Special data request from the Department of Health and Ageing, received 19 December 2011 and Deloitte Access Economics internal analysis.

Non-PBS prescriptions have conservatively not been considered here owing to the lack of available private prescription data, although these account for a small proportion of dispensed medicines in Australia.

In 2010, 45% or 492,500 people taking five or more medicines were aged 75 years and over, followed by people aged 65-74 years (29% or 320,500 people). People aged 65 years and above represented 45% of all people dispensed PBS prescription medicines in 2010 and this proportion is not predicted to change in 2012.<sup>24</sup> In 2012, similar to 2010, people in the 75+ age group are predicted to make up the greatest proportion of people on five or more medicines at 46% and will be followed by people in the 65-74 year age group at 30%. These proportions are predicted to increase to 48% and remain similar at 30% respectively by 2015. Similar to 2010 and 2012, by 2015, 46% of all people dispensed PBS prescription medicines are predicted to be over 65 years of age.

<sup>24</sup> No change is predicted based on calculating an average annual percentage increase in the number of people in each age group taking specified volumes of medicines using data from 2008, 2009 and 2010 and projecting forwards using 2010 data as a baseline.

### 9.1.4 Recent significant medical events

To provide pharmacists with some flexibility in whom they provided services to, there was no strict definition of a 'recent significant medical event'. The only guidance was provided in the MedsCheck and Diabetes MedsCheck Pilot Program Specific Guidelines of an 'unanticipated hospital admission'. The SmartForm listed other examples of significant events; exacerbation of chronic disease, new diagnosis, planned procedure or investigation, and acute event.

The SmartForm data from claims made between August 2011 and 31<sup>st</sup> of January 2012 indicated that only 1.6% of patients who received a MedsCheck were taking fewer than five medicines meaning a 'recent significant medical event' was rarely used as the primary reason the patient was suitable, and eligible for, a MedsCheck consultation. This, together with the lack of a detailed definition of a significant medical event which can be linked with available health data, means that the proportion of Australians who would be eligible to receive a MedsCheck due to this criterion alone has not been able to be analysed.

### 9.1.5 People with a diagnosis of type 2 diabetes

#### Prevalence of type 2 diabetes in Australia

ABS population projections were used to estimate the number of Australians by age and gender with type 2 diabetes from 2012 to 2015 as per Table 9.3. See Appendix S for a methodological description.

**Table 9.3: Projected prevalence of type 2 diabetes in Australia**

	2012	2013	2014	2015
<b>Australian population</b>	22,647,464	22,976,367	23,305,898	23,636,109
<b>Females</b>	11,378,785	11,541,671	11,704,904	11,868,505
<b>Males</b>	11,268,679	11,434,696	11,600,994	11,767,604
<b>Prevalence of diagnosed T2DM</b>	4.07%	4.13%	4.20%	4.27%
<b>Females</b>	3.53%	3.59%	3.65%	3.71%
<b>Males</b>	4.60%	4.68%	4.75%	4.83%
<b>Total no. diagnosed with type 2 diabetes(a)</b>	933,800	962,700	992,200	1,022,000
<b>Females</b>	407,600	420,100	432,900	445,800
<b>Males</b>	526,200	542,600	559,300	576,200

(a) Figures may not add to totals because of rounding

Source: ABS 2011, AIHW 2008, AIHW 2011b

### Incidence of type 2 diabetes in Australia

Individuals eligible for a Diabetes MedsCheck must have either been recently diagnosed with type 2 diabetes or have uncontrolled blood sugar levels and so it is helpful to also consider the incidence or newly diagnosed cases of type 2 diabetes per annum. The projected incidence for type 2 diabetes is presented in Table 9.4. See Appendix S for a methodological description.

**Table 9.4: Projected incidence of type 2 diabetes in Australia**

	2012 <sup>(a)</sup>	2013	2014	2015
<b>Overall incidence of T2DM</b>	<b>83,100</b>	<b>95,700</b>	<b>98,000</b>	<b>100,700</b>
<b>Females</b>	36,300	41,800	42,700	43,800
<b>Males</b>	46,800	53,800	55,300	56,800

Source: ABS 2011, AIHW 2008, AIHW 2011b, Barr et al 2007

(a) calculated from 2011 prevalence data (not shown)

Based on these calculations, In 2012 the incidence of diagnosed type 2 diabetes is estimated to be around 0.4% which is similar to that calculated by the 2005 AusDiab study (Barr et al 2006).

#### 9.1.6 People with type 2 diabetes who have uncontrolled blood sugar levels

The 2009 Australian National Diabetes Information Audit & Benchmarking (ANDIAB) study conducted by the National Association of Diabetes Centres (ANDIAB) study findings estimate that 66.1% of patients with type 2 diabetes have an average HbA1c above 7% and are thus eligible for a Diabetes MedsCheck (if an educator cannot be accessed), see Appendix T for a methodological description. Naturally the patient must also be aware that they have poorly controlled blood sugar levels and volunteer this information to the pharmacist. The ANDIAB dataset is, however, limited as it is only based on a subset of the type 2 diabetic population – those attending specialist diabetes services. Although patients with type 2 diabetes who have poorly controlled blood sugar levels may be less likely to attend specialist services, they also may be less likely to be aware that they have poorly controlled sugar levels and so, if not recently diagnosed, would be unlikely to be Diabetes MedsCheck candidates.

#### 9.1.7 Location of diabetes educators

Since 2007, the number of different postcodes from which credentialed diabetes educators made claims for payment from Medicare for services provided appears to have increased from 210 postal areas during 2007 to 415 during 2010, that is around 16% of the total

postal areas across Australia<sup>25</sup>. During January of 2011, credentialed diabetes educators had already made claims from 262 different postal areas. The number of services provided by credentialed diabetes educators also grew between January 2007 and January 2011, see Table 9.5.

**Table 9.5: The number of postal areas from which credentialed diabetes educators made claims and the total number of services claimed across Australia**

Year	Number of postal areas from which claims were made	Number of claims under MBS item:10951#	Number of claims under MBS item: 81305##	Number of claims under item: 81100*	Number of claims under item: 81105**	Total number of services claimed
2007	210	20,481	0	208	210	20,899
2008	267	32,572	1	614	769	33,956
2009	350	44,739	43	1,192	1,249	47,223
2010	415	58,528	143	1,658	2,096	62,425
2011 (January only)	262	3,774	17	112	1	3,904.

# 10951- Diabetes education health service provided to a person by an eligible diabetes educator

## 81305-Diabetes education health service provided to a person who is of Aboriginal or Torres Strait Islander descent by an eligible diabetes educator.

\* 81100- Diabetes education health service provided to a person by an eligible diabetes educator for the purposes of assessing a person's suitability for group services for the management of type 2 diabetes.

\*\*81105- Diabetes education health service provided to a person by an eligible diabetes educator, as a group service for the management of type 2 diabetes. The group size must be between two and 12 patients inclusive.

Source: Special data request from the Department of Health and Ageing, received 16 February 2012.

In 2010, the most recent year with 12 months of consecutive data supplied it is estimated that diabetes education from a credentialed diabetes educator reached a maximum of 83,823 people with diabetes. In 2010, it is estimated that 3.93% of the Australian population, that is 848,800 people, had type 2 diabetes<sup>26</sup>. Therefore, even an optimistic estimation suggests that diabetes education services delivered by credentialed diabetes educators reached less than 10% of people with type 2 diabetes in 2010. Non-credentialed

<sup>25</sup> During the 2011 ABS Census of Population and Housing, 2516 postal areas were defined to cover the whole of geographic Australia. For the purposes of describing the proportion of postcodes where diabetes educators delivered services in 2010, three postcodes have been removed from the ABS list as they were used to represent people whose address was in unclassified statistical areas, had no usual address or classified as migratory or off-shore and shipping statistical areas(<http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/736A18F4CBF81595CA2578D40012CF51?opendocument>)

<sup>26</sup> This projection was calculated using the same methodology outlined in section 9.1.5 and Appendix S.



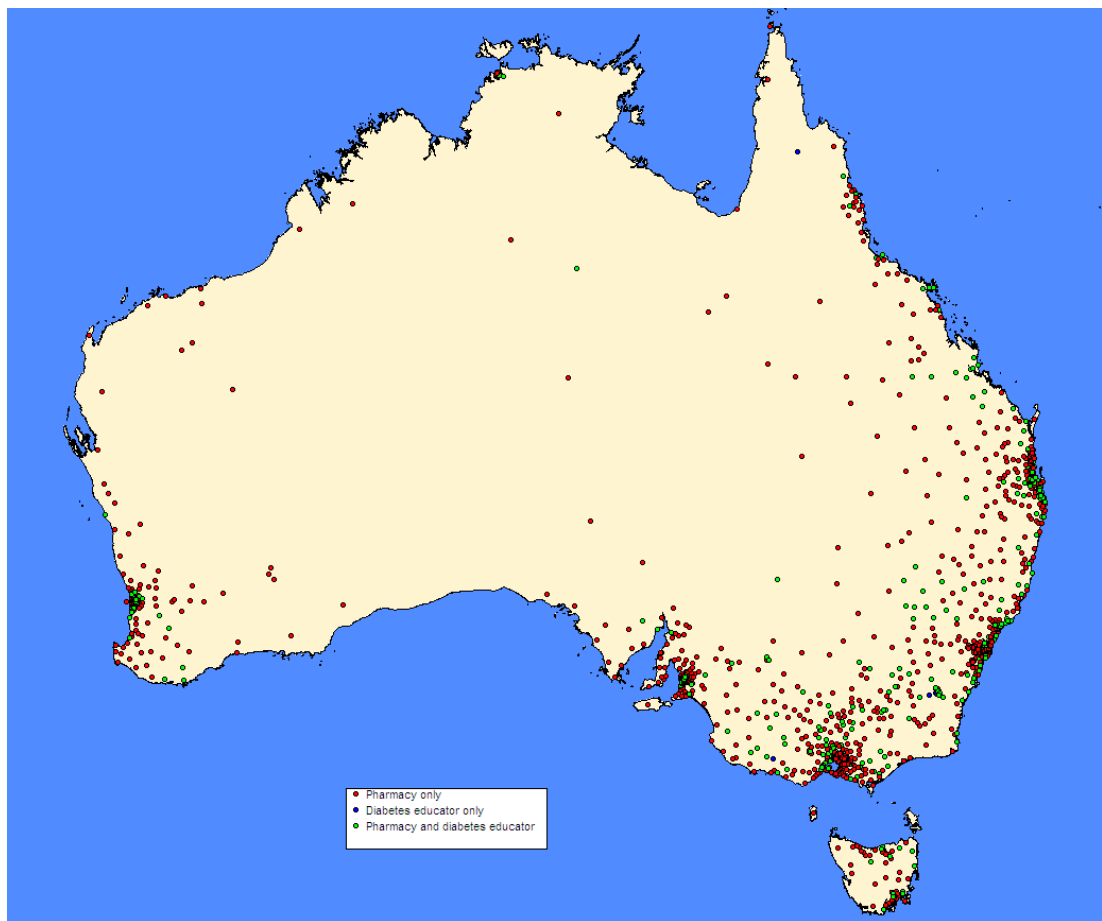
diabetes educators cannot make claims to Medicare for diabetes education services provided, therefore, additional people with type 2 diabetes would have received some diabetes education. However, there is no available data to describe the number of people who fall into this category. See Appendix U for a methodological description.

Broadly speaking, Figure 9.1 demonstrates that there is a far greater density of pharmacies throughout Australia covering a greater geographical area than diabetes educators. Pharmacies are therefore more accessible to people with type 2 diabetes than diabetes educators and could help fill some of the diabetes educational gap, especially for people living outside capital cities. Figure 9.1 shows:

- all postcodes with one or more pharmacies registered to dispense prescription medicines under the pharmaceutical benefits scheme during November 2011<sup>27</sup> (red dot, N=1179);
- all postcodes with one or more pharmacies registered to dispense prescription medicines under the Pharmaceutical Benefits Scheme in November 2011 where a diabetes educator had also made a claim for services from Medicare during 2010 and January 2011 (green dot, N=412); and
- all postcodes where a diabetes educator made a claim for services during 2010 and January of 2011 and there was no pharmacy registered to dispense prescription medicines under the Pharmaceutical Benefits Scheme in 2011 (blue dot, N=7).

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<sup>27</sup> Data supplied by the Department of Health and Ageing, received 4 November 2011.

**Figure 9.1: Pharmacies and diabetes educators across Australia, 2010 and 2011**

### 9.1.8 Conclusion: estimate of the number eligible according to current criteria

The total number of people eligible for a **MedsCheck** service under eligibility criteria in 2012 is estimated to be 1.16 million and by 2015 it is estimated to be 1.38 million, see Appendix V for a methodological description.

For the reasons mentioned above, these estimates do not consider those who experienced a 'recent significant medical event' or people taking non-PBS medicines. In addition, a proportion of those eligible for MedsCheck would also be eligible for a Diabetes MedsCheck and would hence receive the more comprehensive Diabetes MedsCheck consultation. It has been estimated that between 2012 and 2015 between 65,000 and 72,000 people taking prescription medicines will receive a HMR annually. However, there is insufficient detail in the data to determine how many people who receive HMRs are taking five or more prescription medicines and therefore how many people should be removed from the estimate of the potentially eligible population each year. In addition, the impact of MedsCheck and Diabetes MedsCheck on the number of HMR services provided does not appear to be significant at this point (see section 8.2.2). The available data does show that even if all people who receive a HMR annually are taking five or more prescription medicines they would represent a very small proportion of all people taking five or more

prescription medicines. Therefore, any influence that these figures have on the estimation of the population potentially eligible for a MedsCheck service is likely to be minimal.

The number of people eligible for a **Diabetes MedsCheck** service is estimated to be 580,100 people in 2012 growing to 637,900 people by 2015, as per Table 9.6. See Appendix W for a methodological description.

**Table 9.6: Projected population eligible for a Diabetes MedsCheck service, 2012 - 2015**

	2012	2013	2014	2015
Prevalence(a)	933,800	962,700	992,200	1,022,000
Incidence(a)	83,100	95,700	98,000	100,700
Uncontrolled(a)	561,500	572,300	590,100	608,100
<b>Total eligible(a)</b>	<b>580,100</b>	<b>601,100</b>	<b>619,300</b>	<b>637,900</b>

(a) Rounded to the nearest 100

Source: Barr 2007, ABS 2011, AIHW 2008, AIHW 2011B, National Association of Diabetes Centres 2009, Diabetes educator data received on special request from the Department of Health and Ageing, received 16<sup>th</sup> February 2012.

Similar to the estimation of the population potentially eligible for a MedsCheck service, the estimates of the population eligible for a Diabetes MedsCheck service do not account for the number people with type 2 diabetes who will receive and HMR, due to a lack of data describing the characteristics of people who received a HMR. In addition, these figures do not account for the proportion of people who could be eligible for a Diabetes MedsCheck but are residing permanently in residential aged care.

## 9.2 Adjustment to the proposed eligibility criteria

### MedsCheck

Around half of the pharmacists interviewed said patients taking fewer than five medicines who are also confused, non-adherent or appear to be experiencing adverse events could benefit from a MedsCheck consultation and proposed that the lower limit of five medicines be relaxed. Alternatively, the PSA suggested that the criteria could be expanded to allow both prescription and OTC medicines to make up the five medicines.

A few pharmacists felt the restriction on repeating MedsChecks more frequently than 12 months after the last pharmacist medication review was unhelpful for patients who have significant changes to their medications (e.g. following a hospital admission), are confused, or who don't remember the advice provided earlier.

The Guild supported this, stating that this restriction prevented MedsCheck being used as a complement to HMR services — to follow up patients and reinforce messages about

adherence with medicines. According to this line of thinking, the HMR could be used to resolve any clinical issues and possibly make changes to the patient's medicines regimen in collaboration with the GP, with the subsequent MedsCheck/Diabetes MedsCheck service used to:

- check that any changes implemented as a result of the HMR such as a DAA have been effective; and
- ensure that the patient is remaining adherent with their medicines.

### Diabetes MedsCheck

Most pharmacists felt the availability of a diabetes educator did not equate to their patients necessarily being well informed about their diabetes medicines and therefore should access to a diabetes educator not exclude patients from receiving a Diabetes MedsCheck. Pharmacists and the PSA suggested that patients may choose not to see an educator and those who do may not receive sufficient information related to medication management.

The PSA suggested that the opportune time to see a patient with type 2 diabetes may be at the time they present to the pharmacy especially in situations where the patient has an infection which can result in high blood sugar level. The possibility was raised that by the time they visit their diabetes educator their blood sugar levels may have been elevated for a long period of time thus potentially worsening their health outcomes and/or putting them at higher risk of other morbidities such as falls.

One pharmacist who is a dually accredited credentialed diabetes educator pointed out that during a diabetes education session, the educator does not have time to have an in depth discussion with the patient about their medicines. In addition, this pharmacist stated that diabetes educators may not explain medicines that are not specifically indicated for diabetes but in the context of the disease are being used to slow the progression of diabetes related complications (e.g. for kidney failure).

Another pharmacist suggested that without patients' blood results, it is impossible to tell if their diabetes is well controlled, hence eligibility for a Diabetes MedsCheck should be assessed based on the patient's level of compliance with their diabetes treatment.

### High risk medicines

The first seven months of data revealed that 32% of patients provided with a MedsCheck or Diabetes MedsCheck service were taking a medicine associated with a high risk of adverse events, (refer to Table 5.2). Pharmacists were provided with little guidance as to what a 'high risk' medicine constituted and it may be worth considering providing further clarification around this. According to the literature, the definition of a high risk medicine is relatively broad, including cardiovascular drugs (e.g. diuretics, angiotensin converting enzyme-inhibitors and digoxin) antithrombotic drugs (e.g. warfarin), musculoskeletal drugs (e.g. non-steroidal anti-inflammatory drugs) antibiotics, oral antidiabetic drugs, antidepressants, antiepileptic drugs and chemotherapeutic agents (National Prescribing Service, 2009). In addition, benzodiazepines, anticholinergics, antipsychotics, sedatives and hypnotics were specifically highlighted as high risk drugs for the elderly (National Prescribing Service, 2009). However, a patient who is taking one or two medicines that

happen to be classified as ‘high risk’ according to the literature could have their needs met through provision of a Clinical Intervention. An easy way (easier for pharmacists) to ensure these patients are captured within the MedsCheck criteria would be to lower the limit for receipt of a MedsCheck service to three or more (rather than five or more) medicines.

Notably, it would be useful to ensure medicine names are entered consistently (for example, via selection from an automated menu or via an electronic link to the dispensing software in the pharmacy). One of the benefits would be to allow accurate measurement of the proportion of people taking ‘high risk’ medicines.

### 9.2.1 Conclusions about the need for adjustments to the eligibility criteria

At this stage, it does not appear that adjustments to the eligibility criteria are necessary to ensure sustainability of the MedsCheck program. We suggest the focus should be on streamlining service delivery processes and ensuring MedsCheck and Diabetes MedsCheck services are integrated with pharmacists’ workflows, for example by ensuring integration and compatibility between relevant software systems, and making patient recruitment easier through the development of promotional materials. Once these changes are made, it may be useful to reconsider the eligibility criteria down the track.

For the national roll-out of the MedsCheck and Diabetes MedsCheck program, the SCPA provides for funding across Australia of \$29.6 million for MedsCheck service provision and \$12.2 million for Diabetes MedsCheck service provision. This is sufficient funding for approximately 120,000 MedsCheck services per year and 33,750 Diabetes MedsCheck services per year over the next four years of the agreement.

During the first seven months of the pilot program, 31% of recruited pharmacies delivered at least one service, that is, 89 pharmacies delivered 695 MedsCheck services and approximately 149 Diabetes MedsCheck services. In other words:

- approximately 13 MedsCheck services were delivered per pharmacy per year; and
- three Diabetes MedsCheck services were delivered per pharmacy per years.

During the national roll-out, if all pharmacies across Australia<sup>28</sup> provide services at this rate, 67,977 MedsCheck services and 15,687 Diabetes MedsCheck services will be provided in any 12 month period. This is significantly below the number of services for which current funding has been allocated.

It is unlikely that all pharmacies across Australia will deliver the program – service provision could be less than a third of the numbers predicted if pharmacy uptake during the national roll-out remains similar to uptake during the pilot.

*If eligibility is revisited at a later date*, based on feedback from pharmacists, the PSA and the Guild, consideration could be given to making the following refinements.

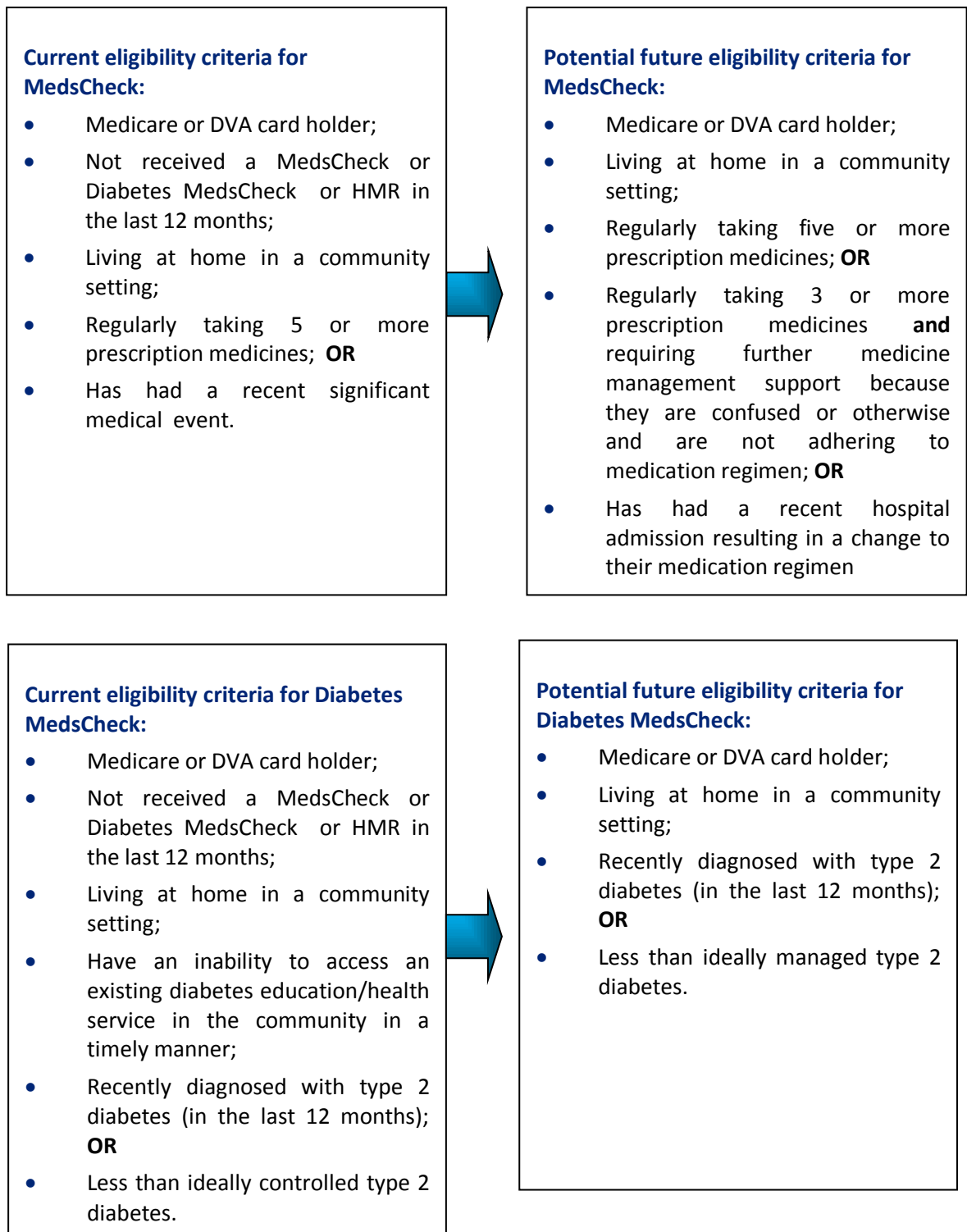
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<sup>28</sup> There were 5,229 pharmacies in Australia on 4<sup>th</sup> November 2011 with Section 90 approval numbers, data supplied by the Department

- Allow patients to receive either a MedsCheck or Diabetes MedsCheck regardless of whether they have had a HMR in the last 12 months which focuses on whether or not the patient has adhered to the recommendations in the HMR. A suitable time period between the HMR and MedsCheck or Diabetes MedsCheck service needs to be further investigated with regards to the impact of successive interventions on medicine adherence. The pharmacist would also need to access the HMR report from either patient's GP or accredited pharmacist.
- Allow patients to receive either a MedsCheck or Diabetes MedsCheck within 12 months of their previous service or HMR if they have had a recent change in their medicines regimen or are confused about any aspect of their medicines management. Data regarding the uptake and volume of service provision during the national roll-out will need to occur before this refinement is enacted.
- Allow patients to receive a Diabetes MedsCheck regardless of their access to a diabetes educator or health service which provides diabetes education – not as an alternative to a diabetes education service, but as an *addition* to a diabetes education service.
- Allow patients to access a MedsCheck if they are taking three or more medicines and appear confused regarding their medication management. Patients who have had 'a recent significant medical event' and are taking less than three medicines could have their educational needs met by the pharmacist performing and documenting a Clinical Intervention.

Possible future refinements are depicted in Figure 9.2.

**Figure 9.2: Current eligibility criteria and refinements to consider in future**



## 10 The usefulness of the content within the Assessment Tool

One of the objectives of the evaluation was to assess the usefulness of the content within the Assessment Tool. The Department has since advised that the electronic SmartForm Assessment Tool will not be used for the national roll-out of the program. Findings in relation to the Assessment Tool are nevertheless presented here for information.

The usefulness of the content within the Assessment Tool was considered from the patient, pharmacist and evaluator's points of view.

- A large majority (90%) of patients who responded to the Patient Survey agreed or strongly agreed that the information provided in the report (the Assessment Tool) was useful.
- However, only one patient of the eight interviewed recalled using the report as a tool in the management of her medicines. This is not a surprising result given that:
  - a majority of patients reported that their pharmacist was happy with the way they were managing their medicines and no changes were necessary; and
  - a majority of patients reported that they were taking their medicines as prescribed by their doctor prior to their MedsCheck or Diabetes MedsCheck service.
- Patients interviewed did not suggest any changes to the format or content in the report they received.
- A majority of pharmacists believed the patient report was helpful for patients and made several suggestions for improvement. These included:
  - adding brand names and coloured pictures of the medicines in order to aid patient recall;
  - bigger type font for elderly patients;
  - a larger Current Issues section; and
  - inclusion of a consultation date for future reference;
- Fields suggested for deletion by pharmacists were:
  - the year the medication was commenced; and
  - the height and weight for diabetics.
- Pharmacists believe that the current report is helpful for the patient's GP, to provide a complete picture of their medicines, including non – prescription items and quicker to digest than the detailed HMR medication profile. Assessment of the usefulness of the content in the report from the perspective of GPs and other health care professionals was beyond the scope of this evaluation.
- From the evaluation team's perspective, the usefulness of the content in the Assessment Tool for use in future evaluations could be improved by:
  - Incorporating drop down lists for the medicines field, the dosing field, the chronic conditions field and the significant medical events field, all of which are



currently completed using free text. This would save time for the pharmacist and also make the information easier to analyse and more consistent during the national roll-out. This may be achieved by linking the Assessment Tool with dispensing software enabling the automatic download of electronic information such as the patient's personal details and medicines.

- Tightening the definitions of categories of significant medical events would make them more meaningful, so that events are categorised more consistently by pharmacists.

# 11 Evaluation findings and recommendations for the national roll-out

## 11.1 Evaluation findings

While the Assessment Tool was evaluated as part of the pilot program, findings related to the assessment tool are not provided in detail here, as a decision was taken during the pilot to not require the Assessment Tool to be used by program participants once the program is rolled out nationally.

### Literature review

The potential benefits of improved medication management in the community have been recognised internationally. The literature demonstrates patient benefits such as improved adherence with medicines, reduced inappropriate prescribing, improvement across clinical indicators such as HbA1c and improved medication management. However, the literature demonstrates that the efficacy of pharmacist led medication review services on improving patient quality of life outcomes and reducing hospital admissions is variable.

### Patient characteristics

Patients who have been identified as most in need of a medicines use review according to the literature (chapter 4) — i.e. older people, people taking five or more medicines, and people with a chronic disease and a complex medicine regimen are receiving MedsCheck and Diabetes MedsCheck services. However, patients who traditionally are either unable to or tend not to access medication review services may also not receive a MedsCheck, specifically:

- patients post hospital discharge;
- Aboriginal and Torres Strait Islander people;
- patients living in remote locations;
- culturally and linguistically diverse (CALD) patients;
- patients who are intentionally and unintentionally highly non-adherent with their medicines.

### Benefits of services for patients

It appears that the benefits of the services for most patients are educational, realised through acquiring an increased understanding of their medicines relating to indication for use, dosing, side effects, interactions and storage. This is broadly consistent with the

original objectives of the program outlined in chapter 2. However, changes to medication therapy and medication management did *not* appear to be the major benefit of these services for *most* patients.

### Lower than expected take up of service delivery

Approximately 2%<sup>29</sup> of the expected volume of services was claimed by less than one-third (31%) of participating pharmacies during the first seven months of the pilot program.

The pilot evaluation identified that an inability to integrate MedsCheck and Diabetes MedsCheck service delivery into the daily pharmacist's workflow was the primary barrier to service provision. The time taken to deliver the services was considered prohibitive, although this may have been influenced by either IT issues or the requirement to use a SmartForm Assessment Tool. The SmartForm design itself was also considered a barrier to providing services. On the basis of feedback received during the pilot, a decision was taken by the Department to not require the SmartForm to be used in the national program.

### Service delivery facilitators in the Pilot

The main difference between highly active and less active service providers appeared to be staffing levels. Successful service providers did not find time a hindrance to service provision and appeared to have three to four FTE pharmacists. In addition, easy patient recruitment via on-going promotion and location of the pharmacy near a large private hospital was mentioned as a service delivery facilitator.

### Eligibility criteria and number of patients who currently qualify for a service

The population eligible for a MedsCheck consultation in 2012 is estimated at 1.16 million, and a Diabetes MedsCheck, 580,000. These eligible populations have been crudely estimated to increase to 1.4 million and 638,000 respectively by 2015 if the current eligibility criteria remain.

## 11.2 Recommendations for the national roll-out

The following recommendations have been formulated based on the findings from the evaluation of the MedsCheck pilot program.

- While some suggestions were made by pilot participants and organisations on possible modifications to eligibility criteria, the evaluators recommend that no changes should be made to the criteria for the national roll-out of the program. Rather, the program should be monitored and if it is found that the numbers of services delivered is less than expected, consideration could be given to modifying the number of medicines required for a MedsCheck.

<sup>29</sup> The initial expectation was that pharmacies would be able to deliver five MedsCheck services and one Diabetes MedsCheck service per week. Over 30 weeks, this equates to 51,480 services delivered by 286 pharmacies.

- Educational materials should be developed, both for pharmacies and pharmacists to assist in uptake of the program.

For the purpose of identifying future improvements to ehealth and delivery of programs, consideration should be given to the format, interoperability and functionality of the software used, prior to the program being piloted or rolled out nationally. More detailed discussion on the approach to IT issues can be found in Chapter 10.

Definitions of 'significant medical events' should be provided to enable consistent eligibility checking and categorisation of medical events. This will enable a more detailed picture of the characteristics of the population receiving services.

## 12 Indicators to monitor the success of the national roll-out

Consistent with the purview of this project, the original evaluation framework for the pilot was not designed to assess the effectiveness of MedsCheck and Diabetes MedsCheck in achieving long term outcomes for patients. However, based on the pilot evaluation, it appears that the MedsCheck and Diabetes MedsCheck pilot program achieved its original objectives that relate to:

- increasing patients' understanding about their medicines;
- increasing patient's knowledge on how to best use and store their medicines;
- identifying problems patients may be experiencing with their medicines; and
- improving patients effective use of blood glucose monitoring devices through training and education.

See Table 2.1, chapter 2 for a full list of pilot program objectives

The evaluation of the pilot program identified that:

- pharmacists appear to be targeting people in need of assistance with their medicines (based on individual characteristics of those needing assistance identified in the literature);
- patients receiving MedsCheck and Diabetes MedsCheck services appeared to have an improved understanding of their medicines including indications, side effects, interactions and storage;

However, these objectives have not been directly assessed as they were beyond the scope of this evaluation and remain untested.

For the national roll-out of the MedsCheck program, it will be important that suitable indicators are developed to enable monitoring of services to facilitate accountability, foster high quality service provision and promote good patient outcomes. While a detailed performance indicator framework or evaluation framework was not in scope, a number of suggestions for indicators and research studies which could be used to monitor and evaluate the national roll-out are provided in this chapter.

The selection of indicators would ideally reflect the objectives of the program, and how the indicators need to be used e.g. to evaluate the national roll-out and to address any requirements for accountability of the Government, pharmacy proprietors and pharmacists. The suggestions below draw on the findings of the literature review in chapter 4, the analysis and findings in this report and a knowledge of evaluation design techniques and methods.

The program logic developed for the MedsCheck/Diabetes MedsCheck program (Table 2.1, chapter 2) identifies two long-term outcomes:

- adverse events related to the use of medicines by patients living in the community who use multiple medicines and/or have had a recent significant medical event are reduced; and
- cost effectiveness: the MedsCheck programs achieve value for money (improved patient health and less wastage of medicines for a reasonable financial investment).

Four medium-term outcomes were also identified:

- eligible patients learn more about their medicines including interactions between medicines and disease states;
- problems patients are experiencing including adverse events with their medicines are identified and resolved where possible;
- medicines are used more effectively and stored correctly following the MedsCheck review; and
- an improvement in adherence with medications is observed.

To assess whether the MedsCheck program is generating the desired outcomes for patients, and doing so cost effectively, we suggest it will be important to monitor and investigate the following as part of the national roll-out.

- Monitor the characteristics of patients who receive services across several dimensions including age, gender, medicine regimen (e.g. number and type of medicines), SEIFA status, living arrangements (ie living alone), chronic conditions, recent significant medical events, CALD status and Aboriginal and Torres Strait Islander status:
  - To achieve both medium and long – term outcomes, MedsCheck and Diabetes MedsCheck services will need to continue to be targeted at patients which the existing literature identifies are most likely to benefit from a medicine review (see chapter 4). These patients have been identified as most likely to be non-adherent with their medicine regimen and as a consequence, are most likely to suffer adverse drug events therefore placing greater burdens on the health system. In addition, these patients are most likely to have gaps in their knowledge regarding their medicines that can be filled by a medicines review service such as MedsCheck or Diabetes MedsCheck. Monitoring patient characteristics will be fundamental in facilitating any future adjustments to the eligibility criteria should demand side factors need to be addressed.
- Monitoring the number of MedsCheck and Diabetes MedsCheck services delivered, the state/territory in which they were delivered, the number of pharmacies which provided services and the number of new pharmacies which commence service provision.
  - The medium and long-term outcomes of the MedsCheck and Diabetes MedsCheck program are dependent on the uptake of service provision by pharmacies. The pilot program indicated that pharmacies had significant difficulties implementing the program and also with ongoing service provision. Monitoring the quantifiable aspects of service provision during the national roll-out will enable the Department to detect service provision issues that require further investigation. Also, it will be important to ensure that service numbers are not increasing beyond the funding limits for this program.

- Research whether patient adherence with their medicines pre- and post- their MedsCheck or Diabetes MedsCheck consultation has changed.
  - Poor adherence with medication has been associated with poor outcomes (e.g. reduced therapeutic effect and mortality) and substantial financial costs to the public hospital system, estimated at up to \$380 million per year (Irvine et al. 1999) (ACSQHS, 2002 cited in PwC, 2008). The level of a patient's medication adherence pre and post their MedsCheck or Diabetes MedsCheck is a useful proxy indicator for the impact the MedsCheck program may have on patient knowledge about their medicines, adverse drug events, hospital admissions and ultimately health outcomes. To test the impact of on medication adherence for the national roll-out, measurements of medicine adherence on a random sample of patients receiving these services and a control group would ideally be taken before and at some period after they receive the service. Recent reviews have shown that assessments of medication adherence using patient self report questionnaires have a moderate correlation with electronic monitoring systems such as pill containers containing an electronic chip which records each time the container is opened (Medication Event Monitoring System –MEMS) (Shi et al. 2010a and Shi et al. 2010b). However, self report questionnaires tend to report a higher rate of adherence (Shi et al. 2010a and Shi et al. 2010b). Self report adherence questionnaires are relatively cheap to administer and non-obtrusive compared to electronic monitoring systems (Garfield et al. 2011) Self report questionnaire tools such as the Brief Medication Questionnaire, the four item Morisky Scale or the Medication Adherence Report Scale (MARS) could be used. However, the validity of these tools has been reported both positively in certain patient groups (Svarstad et al. 1998, Morisky et al. 2008), and negatively (PwC, 2008).
- Conduct a study of the cost effectiveness of MedsCheck and Diabetes MedsCheck — ie assess the benefits to patient health and use of medicines and the cost of achieving these benefits.

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# Appendix A: Evaluation methodology

On commencement of the project, an evaluation framework was developed with evaluation questions and data sources identified to address each question. The framework is summarised in Table A.3.

The focus of this Appendix is to describe the primary and secondary data collection as follows:

- Monthly SmartForm data reports;
- a survey of pharmacists participating in the pilot;
- a survey of patients who received services as part of the pilot;
- semi structured interviews with key stakeholders (patients, pharmacists, the Guild, the PSA and the Rural Pharmacy Special Interest Group);
- other data including:
  - Pharmaceutical Benefits Scheme (PBS) data;
  - Home Medicines Review (HMR) data;
  - Clinical Interventions data;
  - Medicare data regarding claims made by credentialed diabetes educators;
  - publicly available Medicare data;
  - publicly available data obtained from the Australian Bureau of Statistics (ABS); and
  - publicly available data obtained from the Australian Institute of Health and Welfare (AIHW).

## SmartForm data

The SmartForm is described in section 2.3. The Department sent the evaluators a monthly Excel report containing an extract of all the information collected from the SmartForm Assessment Tools which had been submitted by pharmacists. The evaluators were then able to analyse both the qualitative and quantitative information provided on a monthly basis between late August 2011 and March 2012. During April 2012, it was discovered that due to errors in the claiming system, some claims were not being correctly recorded. Those claims could not be included for the purposes of the analysis.

## Pharmacist Survey

The Pharmacist Survey can be viewed in Appendix B. The Pharmacist Survey instrument was informed by findings from an evaluation of the MUR program conducted as part of the UK national evaluation of the new community pharmacy contract (Belkinsopp et al., 2007), qualitative research performed on the Australian HMR program (CR&C, 2008) and an evaluation of pharmacists' experience of the Canadian MedsCheck program (Dolovich et al., 2008). The draft instrument was provided to the Department, the Guild and the PSA for comment before being pilot-tested by four pharmacists for usability and content in mid-

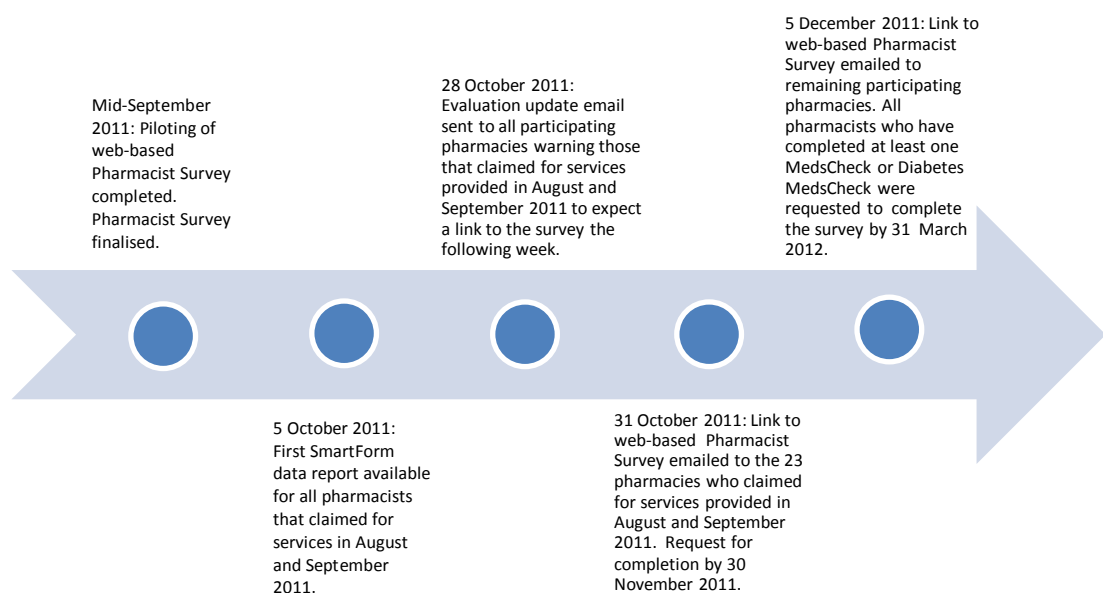
September 2011. The four pharmacists were chosen because they had performed at least one MedsCheck or Diabetes MedsCheck. Two were from NSW, one from QLD and one was from SA. Feedback from the test was used to improve the clarity of questions, ensure that the questions were relevant and meaningful, ensure that the survey was not unduly burdensome to pharmacists and that the accuracy of answers to questions was not compromised by forcing participants to respond before moving to a new page.

The timing for fielding of the survey was driven by the rate at which pharmacists delivered services (pharmacies could start providing services under the pilot program on 25<sup>th</sup> August 2011 and 23 out of 286 pharmacies claimed for services in August and September). In order to obtain informed responses, that is, responses from pharmacists with experience in delivering the MedsCheck services, the evaluators delayed fielding slightly with a view to distributing the survey to pharmacists who had delivered more than one MedsCheck or Diabetes MedsCheck.

The survey was distributed to all pharmacies in early December 2011. Pharmacists were requested to respond to the survey by 31<sup>st</sup> March 2012. Survey piloting and fielding milestones are summarised in Figure A.1. This report analyses responses from 75 pharmacists representing 63 separate pharmacies which had conducted a MedsCheck or Diabetes MedsCheck consultation by 31<sup>st</sup> March 2012. Almost all responses received were complete or almost complete, but three responses provided little information about the business responding.

A response rate of 66% was achieved based on the number of pharmacies who had provided at least one MedsCheck or Diabetes MedsCheck service (95 pharmacies<sup>30</sup>).

**Figure A.1: Pharmacist Survey distribution timeline**



<sup>30</sup> According to data supplied by the Department, 89 pharmacies claimed for services provided between August 2011 and March 2012, however, an additional six were discovered to have provided services between August 2011 and February 2012.

## Patient Survey

A paper-based Patient Survey was prepared with a view to understanding patient perceptions of the benefits of the MedsCheck or Diabetes MedsCheck services and how useful they found the consultation and the patient medication chart.

The Patient Survey can be viewed in Appendix C. In short, development of the Patient Survey instrument was informed by consumer responses collected during focus groups for a qualitative research project on the Home Medicines Review (HMR) program (CR&C, 2008), findings from the consumer evaluation of domiciliary medication management reviews (Fogg, 2001) and the Patient Satisfaction Survey used in the Medicines Use Review support and evaluation programme report (Kaulbach et al, 2010). The survey was pilot tested with four patients who received MedsChecks or Diabetes MedsChecks.

**Table A.2: Patients who piloted the Patient Survey**

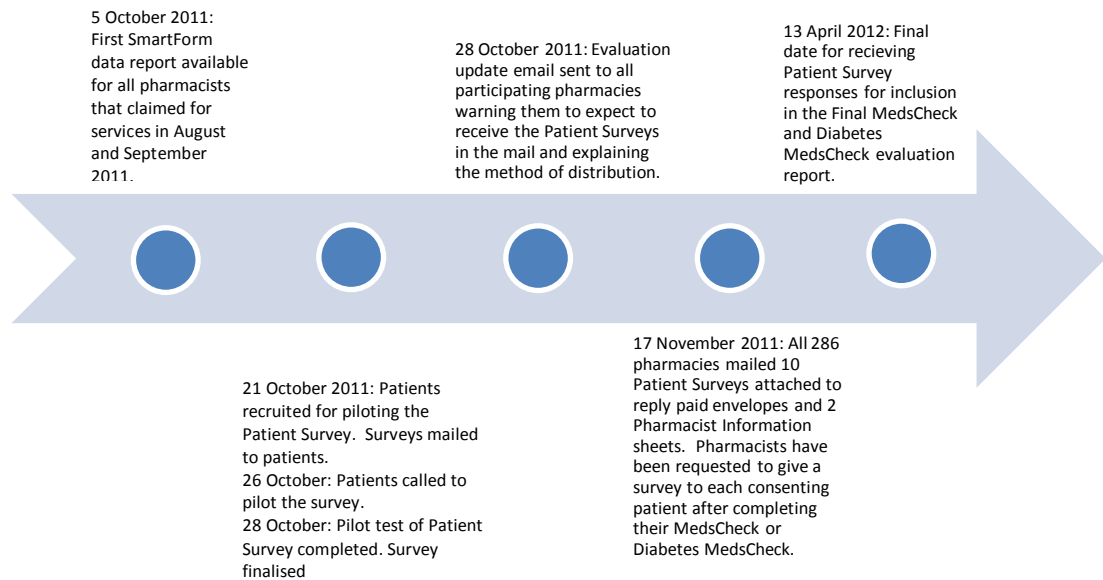
Age	Gender	Residential location
87	Male	Euroa, VIC
78	Female	Hawker, ACT
74	Male	Benalla, VIC
72	Female	Dungor, NSW

All 286 participating pharmacies were sent ten Patient Surveys each (with a reply paid envelope attached) together with Pharmacist Information sheets (see Appendix N). A timeline of the Patient Survey distribution can be found at Figure A.2. The evaluators requested that pharmacists give a Patient Survey and reply paid envelope to each patient who received a MedsCheck or Diabetes MedsCheck service and who consented to being contacted by the evaluator (pharmacists asked for this consent during every service and documented it on the SmartForm data collection tool).

This report contains an analysis of the 97 Patient Survey responses, representing a response rate of 15%<sup>31</sup>. Almost all questions received a response rate over 90%.

<sup>31</sup> The total number of services claimed by pharmacists during December 2011 and January, February and March 2012 (N= 632) has been used as the denominator in calculating the estimated response rate to the Patient Survey.

**Figure A.2: Patient Survey distribution timeline**



### Structured and semi structured interviews with pharmacists

The original method for the evaluation incorporated semi-structured interviews with pharmacists, however, as noted elsewhere, the method was adjusted in response to interim findings that service provision was much lower than initially anticipated. Only 15% of the original 286 pharmacies recruited had provided MedsCheck and Diabetes MedsCheck services by 30 November 2011. In addition, some pharmacies that were providing services appeared to stop providing services in subsequent months.

The evaluation method was therefore adjusted to specifically investigate the reasons for lower than anticipated service provision. Four distinct groups of interviews were conducted as follows.

- Group 1: Interviews with pharmacists from pharmacies that had not provided any services (see script in Appendix G).
- Group 2: Interviews with pharmacists who had provided at least one service (see script in Appendix H).
- Group 3: Interviews with pharmacists from pharmacies that started providing MedsCheck and Diabetes Medscheck services, but then stopped (see script in Appendix I).
- Group 4: Interviews with pharmacists from pharmacies that successfully continued to provide services (see script in Appendix J).

#### **Group 1: Interview with pharmacists from pharmacies that between August and December 2011, did not provide any MedsCheck or Diabetes Meds Check services.**

By 31<sup>st</sup> of January 2012, 229 pharmacies (80% of those originally enrolled in the program), had still not provided any MedsCheck or Diabetes MedsCheck service. A random sample of 154 pharmacies was chosen from these pharmacies for a short 10 - minute telephone

interview. It was conservatively estimated that there would be a 65% response rate to this interview, thus providing a sample of 100 pharmacists from 100 pharmacies that had not provided any services. The script (see Appendix G) covered four main areas:

- the main reasons why the pharmacy had not conducted any services;
- whether any other 5CPA programs had influenced this outcome;
- size of the pharmacy; and
- whether IT issues affected the pharmacy's ability or willingness to provide services.

The interviews were conducted by phone by the Social Research Centre.

### **Group 2: Interviews with pharmacists who had provided at least one service**

Interviews with pharmacists who had provided at least one service were conducted to investigate

- barriers and facilitators to future delivery of services;
- the nature of patient benefits;
- the impact of service provision on workflow;
- integration between MedsCheck, Diabetes MedsCheck and other related services;
- remuneration for MedsCheck and Diabetes MedsCheck;
- skills used and required by pharmacists;
- suitability of the patient eligibility criteria and patients most likely to benefit; and
- ways in which services could be improved.

The script is in Appendix H.

Ten interviews were conducted via teleconference, seven with individual pharmacists from different pharmacies and three multi-party interviews each containing two pharmacists from different pharmacies. Pharmacists were randomly chosen from all pharmacies that had claimed at least one MedsCheck or Diabetes MedsCheck service by the 31<sup>st</sup> of January 2012 and were not participating in other group interviews (ie not participating in group 3 or 4). Interviews took approximately 30 minutes.

### **Group 3: Interviews with pharmacists from pharmacies that started then stopped providing MedsCheck and Diabetes Medscheck services**

Interviews were conducted with pharmacists from pharmacies that delivered MedsCheck services between August and October 2011 but then stopped and did not deliver further services to January 31<sup>st</sup> 2012. The aim was to investigate barriers to the sustainability of the MedsCheck program. Fourteen pharmacies fit this requirement and two declined the interview. Ten pharmacists from these pharmacies participated in individual interviews and the remaining two pharmacists participated in a multi-party interview. Interviews were semi-structured, took approximately 20 minutes and explored six main areas:

- the main reasons why the pharmacy had ceased providing services;
- the impact of service provision on workflow;
- integration between MedsCheck, Diabetes MedsCheck and other related services;
- remuneration for MedsCheck and Diabetes MedsCheck;

- whether IT issues affected the pharmacy's ability or willingness to provide services; and
- ways in which services could be improved.

The script used for this interview can be found in Appendix I.

#### **Group 4: Interviews with pharmacists from pharmacies that have been successful in providing MedsCheck and Diabetes MedsCheck services and the Clinical Interventions program.**

Pharmacists from five pharmacies that had provided the highest volume of MedsCheck and Diabetes MedsCheck services were interviewed via telephone. The purpose of this interview was to determine what had enabled these pharmacies to provide services and how they had integrated MedsCheck and Diabetes MedsCheck services with the Clinical Interventions program and other services offered in the pharmacy. Interviews were semi-structured, took approximately 20 minutes and explored six main areas:

- the main reasons why the pharmacy had been able to provide high levels of service;
- the impact of service provision on workflow;
- integration between MedsCheck, Diabetes MedsCheck and other related services;
- remuneration for MedsCheck and Diabetes MedsCheck;
- whether IT issues affected the pharmacy's ability or willingness to provide services; and
- ways in which services could be improved.

The script used for this interview can be found in Appendix J.

#### **Semi structured interviews with the Guild, the PSA and the Rural Pharmacy Special Interest Group**

Three representatives from the Guild were interviewed during April 2012. One was involved in research and program implementation, one with the IT issues faced by pharmacists participating in the pilot program and one was a pharmacy business owner from a State which had provided a high number of services during the pilot program. The interview was semi-structured, took approximately 30 minutes and explored:

- service delivery facilitators;
- patient eligibility; and
- remuneration for services.

The script used for this interview can be found in Appendix E.

One representative from the PSA and a member of the Rural Pharmacy Special Interest Group were interviewed during June 2012. The interview was semi-structured, took approximately 45 minutes and explored:

- skills required by pharmacists to deliver a MedsCheck or Diabetes MedsCheck service effectively;
- the necessity, content and effective modes of delivery for a specific training program for pharmacy businesses who wish to deliver the MedsCheck program;

- patient eligibility; and
- barriers and facilitators for pharmacists in delivering MedsCheck services.

The script used for this interview can be found in Appendix F.

### **Semi structured interview with patients**

To explore patients' perspectives of the MedsCheck or Diabetes MedsCheck services, eight patients from across the states and territories who received a service and consented to be contacted for this project were interviewed by telephone. Selection of the patients for an interview was via a randomised process. The interview was semi-structured, took approximately 30 minutes and explored the following themes:

- how patients managed their medicines prior to receiving the service;
- benefits patients felt they had received from the service;
- whether or not patients had used the report provided with the MedsCheck or Diabetes MedsCheck and whether or not they found it useful;
- patients' overall satisfaction with the service; and
- improvements to the program suggested by patients.

The script used for this interview can be found in Appendix D.

**Table A.3: Evaluation framework: evaluation questions, performance indicators and data sources**

Evaluation questions	Performance indicators	Data sources					
		Literature	Patient surveys	Pharmacist Survey	Interviews with key stakeholders	SmartForm data	Other data
A. Eligibility criteria							
1. Are the eligibility criteria best targeting those patients who will benefit most from this service given finite funding?	<ul style="list-style-type: none"><li>Patients report benefits of service</li><li>Pharmacists report whether eligibility criteria captures all patients who would benefit</li><li>Literature scan indicates eligibility criteria used in alternative model</li><li>SmartForm data indicates uptake according to ideal candidate characteristics</li></ul>	√	√	√		√	
2. Are pharmacists clear on the target audience?	<ul style="list-style-type: none"><li>SmartForm data indicates adherence with eligibility criteria</li><li>Pharmacists report their understanding of the target group</li></ul>				√	√	
3. Should the current eligibility criteria be adjusted, and if so how?	<ul style="list-style-type: none"><li>Pharmacists report potential adjustments to eligibility criteria</li><li>SmartForm data summarises frequency of ideal characteristics among the patient group</li><li>HMR data indicates degree of client group overlap</li></ul>			√	√	√	√



4. What are the characteristics of the patients who receive the MC/DMC service?	<ul style="list-style-type: none"> <li>SmartForm data illustrates various characteristics of patients</li> </ul>					√	
<b>B. Service delivery and patient outcomes</b>							
1. What does an ideal MC/DMC MC/DMC service comprise?	<ul style="list-style-type: none"> <li>Literature scan identifies international models</li> <li>Pharmacists report on potential improvements to the current model</li> </ul>	√		√	√		
2. Do patients benefit from a MC/DMC service? If so, how?	<ul style="list-style-type: none"> <li>Patients report benefits as a result of MC/DMC</li> <li>Pharmacists report potential patient benefits</li> <li>SmartForm data indicates how often pharmacists identify significant medication issues</li> </ul>		√	√	√	√	
3. What quality and outcome measures will be needed as part of a national roll-out to measure actual patient benefit and outcomes?	<ul style="list-style-type: none"> <li>Literature scan</li> <li>SmartForm data to inform</li> </ul>						
4. How does the MC/DMC service interact or impact on the existing Homes Medicines Review service and the Clinical Interventions?	<ul style="list-style-type: none"> <li>HMR data covering the period prior to and during the MC/DMC pilot (in areas with and without MedsCheck) is examined for changes in uptake patterns.</li> <li>Client profiles for both services are compared to determine degree of overlap</li> </ul>				√	√	√

5. What expertise and skills did pharmacists use in providing a MedsCheck and Diabetes MedsCheck service?	<ul style="list-style-type: none"> <li>Pharmacists report skills and expertise required and any relevant skill gaps</li> </ul>			√	√		
6. How long does a MedsCheck and Diabetes Check service take to complete?	<ul style="list-style-type: none"> <li>Pharmacists report the average duration of service, and variations for particular patient groups</li> </ul>			√	√		
7. What are the costs to pharmacies for providing MedsCheck and Diabetes MedsCheck services (e.g. For the time, competencies, skills and infrastructure required)?	<ul style="list-style-type: none"> <li>Pharmacists report the range of costs incurred in setting up and delivering the service</li> <li>Ask Guild to estimate approximate amount of lost revenue during a consultation</li> </ul>			√	√		
8. What tools are required to effectively and efficiently deliver the service in the future?	<ul style="list-style-type: none"> <li>Pharmacists report what resources are required to set up and deliver the service and where improvements could be made to the effectiveness</li> </ul>			√	√		
9. Does the report include appropriate information for the patient?	<ul style="list-style-type: none"> <li>Patients report on usefulness of the report and consultation</li> <li>Pharmacists report on any useful changes which could be made to the SmartForm</li> </ul>		√		√		
10. What are the barriers and facilitators to the success of the service? How can any barriers be addressed?	<ul style="list-style-type: none"> <li>Literature scan indicates barriers and enablers faced by similar models</li> <li>Pharmacists report on a range of barriers and potential enablers of delivering the service</li> <li>Patients report on benefits and potential improvements</li> </ul>	√	√	√	√	√	

	<ul style="list-style-type: none"> <li>SmartForm data captures patient volume and success of targeting</li> </ul>						
<b>C. Sustainability</b>							
<b>1.</b> How many patients currently qualify for the service and what number would qualify under adjusted criteria?	<ul style="list-style-type: none"> <li>A combination of data from the SmartForms, population estimates, and other relevant data</li> </ul>					√	√
<b>2.</b> Was the payment model for these services appropriate considering the finite funds available in the future?	<ul style="list-style-type: none"> <li>Assess the actual costs of this service in terms of approximate amount of lost dispensing revenue.</li> </ul>		√	√	√		√

## Appendix B: Pharmacist Survey

The Pharmacist Survey follows. Please note that pharmacists were asked to complete the survey by 31<sup>st</sup> March 2012, not 31<sup>st</sup> December 2011 as documented on the survey.

### Introduction and pharmacy details

The following survey is only intended for pharmacists who have completed at least one MedsCheck or Diabetes MedsCheck consultation. None of the information you provide will be reported in a way which could identify you or your pharmacy.

This survey is part of an evaluation of the MedsCheck and Diabetes MedsCheck pilot. It will be complemented by a survey of patients and interviews with selected participating pharmacists and patients. Data from the SmartForm will also be analysed.

Pharmacists participating in the MedsCheck and Diabetes MedsCheck pilot program are required to fill out this survey. We value your feedback which will be used to ensure the services are targeted to appropriate patients, are seamlessly administered and as easy as possible to provide.

The survey takes around 20 minutes to complete. If you do not finish the survey in one sitting you can save your incomplete response by clicking 'Next' at the bottom of the page to save entered data and then 'Exit incomplete survey' at the top right of the page. When you revisit the survey, please use the same computer and web browser.

The due date for completion is 31st December 2011.

#### Pharmacy and pharmacist information

The following questions aim to collect information regarding the delivery of MedsCheck and Diabetes MedsCheck services in order to provide context for the analysis of data collected which will inform the national rollout. The pharmacy Section 90 number is requested so that characteristics of service provision can be analysed at a pharmacy level and where relevant at a pharmacist level.

#### 1. Post code of pharmacy:

#### 2. Pharmacy Section 90 number:

#### 3. Location of the pharmacy

- ☐ Major shopping centre
- ☐ Minor shopping centre
- ☐ Shopping strip
- ☐ Medical centre
- ☐ Other

#### 4. How many MedsCheck consultations have you (pharmacist) performed?

- ☐ None
- ☐ 1-2
- ☐ 3-4
- ☐ 5-6
- ☐ >6

### 5. On average, how many minutes were spent

Face to face during a MedsCheck consultation:

Preparing for a MedsCheck consultation:

*(This includes the time required to confirm eligibility, organise the consultation, make reminder phone calls to the patient, gather information and complete documentation prior to the consultation, access medication lists from other pharmacies etc.)*

Finalising and submitting the report

### 6. How many Diabetes MedsCheck consultations have you (pharmacist) performed?

 None

 1-2

 3-4

 5-6

 >6

### 7. On average, how many minutes were spent

Face to face during a Diabetes MedsCheck consultation:

Preparing for a Diabetes MedsCheck consultation:

*(This includes the time required to confirm eligibility, organise the consultation, make reminder phone calls to the patient, gather information and complete documentation prior to the consultation, access medication lists from other pharmacies etc.)*

Finalising and submitting the report

### 8. Are all MedsCheck and/or Diabetes MedsCheck services provided while the pharmacy is open to the general public?

- ☐ No, some or all services are provided after the pharmacy is closed to the general public
- ☐ Yes, all services are provided while the pharmacy is open to the general public

### 9. What is your employment status at the pharmacy (select only one option)?

- ☐ Pharmacy proprietor
- ☐ Pharmacy manager
- ☐ Pharmacist in charge
- ☐ Full-time employed pharmacist
- ☐ Part- time employed pharmacist
- ☐ Locum pharmacist
- ☐ Casual pharmacist

## Pharmacy workload

The following questions capture information on the impact on workflow and workload of pharmacists and associated pharmacy staff of providing the MedsCheck and Diabetes MedsCheck services.

### 10. What is the approximate script volume per week at the pharmacy?

- ☐ < 500
- ☐ 501 – 750
- ☐ 751 – 1000
- ☐ 1001 – 1250
- ☐ 1251 – 1500
- ☐ >1501

### 11. How many hours per week is the pharmacy open to the public?

Hours per week

6

### 12. Please indicate the number of full-time equivalent (FTE) staff employed at the pharmacy before provision of MedsCheck and Diabetes MedsCheck services commenced:

(1.0 FTE equals an average of 38 hours per week)

Number of FTE Pharmacists:

Number of FTE Pharmacy

Dispensary Technicians:

Number of FTE Pharmacy

Staff (not including  
pharmacists and  
technicians):

### 13. Were more staff (pharmacists, pharmacy technicians, or other staff) employed to accommodate the provision of MedsCheck/Diabetes MedsCheck services?






- ☐ No, numbers of staff working at the pharmacy did not change
- ☐ Yes, numbers of staff working at the pharmacy increased
- ☐ No, numbers of staff working at the pharmacy decreased

**14. Please indicate the change in FTE pharmacists from the options below:**☐ No change in FTE pharmacists☐ 0.1 - 0.4 FTE☐ 0.5 – 0.9 FTE☐ 1.0 – 1.5 FTE☐ 1.6 – 1.9. FTE☐ 2+ FTE**15. Please indicate the change in FTE pharmacy technicians from the options below:**☐ No change in FTE pharmacy technicians☐ 0.1 - 0.4 FTE☐ 0.5 – 0.9 FTE☐ 1.0 – 1.5 FTE☐ 1.6 – 1.9. FTE☐ 2+ FTE**16. Please indicate the change in FTE pharmacy staff (not including pharmacists or technicians):**☐ No change in FTE pharmacy staff☐ 0.1 - 0.4 FTE☐ 0.5 – 0.9 FTE☐ 1.0 – 1.5 FTE☐ 1.6 – 1.9. FTE☐ 2+ FTE**17. While FTE, number of staff employed and rosters may not have changed during the pilot, do you think these will be affected once the program is rolled out nationally?**

	Remain unchanged	Need to be increased or changed
FTE	<input type="radio"/>	<input type="radio"/>
Number staff employed	<input type="radio"/>	<input type="radio"/>
Rosters	<input type="radio"/>	<input type="radio"/>



**18. Using the rating scale below, please indicate the effect MedsCheck and Diabetes MedsCheck services will have on the pharmacy's workload once the program is rolled out nationally:**

	no impact	small impact	moderate impact	large impact	unmanageable increase in workload
Impact on pharmacy's workload:					

**19. How many *MedsChecks* have been completed at this pharmacy? (This includes MedsChecks completed by you and all of the other pharmacists working in your pharmacy)**


**20. How many *Diabetes Medschecks* have been completed at this pharmacy? (This includes Diabetes MedsChecks completed by you and all of the other pharmacists working in your pharmacy).**

**Infrastructure, equipment, information technology and communications**

The next questions aim to understand what impact the provision of services had on pharmacy infrastructure (walls, floor, ceiling, doors), equipment (furniture, screens) or information technology or communications requirements.

**21. Was new infrastructure (e.g. walls, floor, ceiling works, doors) needed to create the private area required for MedsCheck and Diabetes MedsCheck consultations?**


 No

 Yes - Please enter the approximate amount spent on this new infrastructure

\$

**22. Was new equipment needed for MedsCheck and Diabetes MedsCheck consultations? (e.g. furniture, screens, weighing scales, blood pressure measuring devices, computers, printers, phones)**


 No

 Yes - Please enter the approximate amount spent on this new equipment

\$

**23. Was any formal in-house training provided to pharmacists or pharmacy staff on the provision of MedsCheck/Diabetes MedsCheck services?**

 No

 Yes - Please enter the approximate amount spent on delivering this training

\$

### Consultation time

These questions aim to capture the factors which influence time spent in consultation with patients and the responses to patients not attending scheduled appointments or forgetting to bring their medicines.

**24. Did you (pharmacist) ever have to contact a patient and request that a scheduled appointment for a MedsCheck or Diabetes MedsCheck be changed because the pharmacy became too busy?**

- ☐ this situation never occurred
- ☐ this situation occasionally occurred
- ☐ this situation often occurred

**25. Did you ever have to perform other duties in the pharmacy for another patient during a consultation?**

**(Duties include dispensing, checking a dispensed prescription, counselling for a scheduled medicine and any other services that only a pharmacist is authorised to perform according to the Pharmacy Board Guidelines and relevant state and federal legislation)**

- ☐ every consultation
- ☐ around half of the consultations
- ☐ infrequently
- ☐ never

**26. Using the rating scale below, please indicate the effect MedsCheck and Diabetes MedsCheck services has had on the pharmacy's workload:**

	no impact	small impact	moderate impact	large impact	unmanageable increase in workload	Not applicable
Impact on pharmacy's workload:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### MedsCheck patients

This section asks how you responded when patients did not attend their appointments or when they forgot to bring their medicines. We also ask about factors which influence the length of the consultation.

**27. How many patients (due to their own reasons) did NOT attend their scheduled appointments at the pharmacy and did not re-schedule their appointment? (This includes all appointments scheduled with all staff members working at your pharmacy – not just your own appointments).**



No appointments were missed



Appointments were missed - Please specify the approximate number of missed appointments

**28. How did you respond when patients did NOT attend for scheduled appointments?**

☐ I phoned the patient with the aim of re-scheduling the appointment

☐ I did not respond

☐ Other

☐ Not applicable

**29. How many patients did NOT bring their medicines to the appointment?**

☐ All patients brought their medication to the appointment

☐ Some patients did not bring their medication - Please specify the approximate number of patients

**30. How did you respond when patients forgot to bring their medicines? (More than one option can be selected)**

- ☐ I re-scheduled the appointment
- ☐ I conducted the MedsCheck/Diabetes MedsCheck service using the pharmacy dispensing history and the patient's recall of how they take their medicines.
- ☐ I conducted the service and relied on the patient's memory
- ☐ I contacted the patient's general practitioner to obtain a prescribing history then carried out the consultation
- ☐ I contacted a family member of the patient's to obtain a medication history then carried out the consultation.
- ☐ Other
- ☐ Not applicable

**31. In your opinion, based on your experience in delivering the MedsCheck or Diabetes MedsCheck service, please indicate how the following patient characteristics affect the length of time spent with a patient in delivering the service.**

**We want to know if there is a characteristic of a patient that appears to be a causal factor in increasing the amount of time spent. For patients with multiple characteristics (e.g. multiple prescribers and dexterity and vision problems, please focus on the most important factor affecting time spent).**

	Substantially shorter than average	Shorter than average	No effect on the time spent providing the service	Longer than average	Substantially longer than average	Don't know
Patients with multiple prescribers						
Patient with a recent change to their medication regimen						
Patient with a chronic respiratory condition such as asthma or chronic obstructive airways disease						
Older age, e.g. over 75 years old						
Patients with dexterity, vision or hearing problems						
Patients with a physical disability						
Patients with literacy/language barriers						
Patients with an intellectual disability or cognitive impairment						
Patients with a mental illness						
Patients who are living by themselves						
Patients who experienced a recent significant medical event						

**32. If there are any other patient characteristics that appeared to be correlated with longer than average appointments, please specify:**

5

6

### Professional development needs, pharmacist education and knowledge

The following questions are intended to assess areas of further professional development required for pharmacists in delivering the MedsCheck and Diabetes MedsCheck services effectively.

#### 33. Please describe the extent to which you feel confident discussing the following information areas with patients:

	not at all confident	not confident	unsure	somewhat confident	confident
Information relating to the healthy ranges for the clinical measurements taken during the Diabetes MedsCheck (weight, height, body mass index, blood pressure and waist circumference)					
Information relating to medicines, e.g. the indication, potential interactions and potential side effects					
Information on how to improve inhaler technique					
Information on how compliance can be improved					
Information relating to blood glucose monitoring devices, e.g. how to calibrate and how to use correctly					
Information on the risks associated with uncontrolled diabetes					
Information relating to smoking cessation					
Information relating to lifestyle and daily living such as alcohol consumption, diet and exercise recommendations					



**34. While performing a MedsCheck or Diabetes MedsCheck, if you did not have expertise to provide advice relating to a certain issue, did you refer the patient to other health care practitioners? <br>(more than one option can be chosen)**

- ☐ No
- ☐ Yes, Nutritionist/Dietician
- ☐ Yes, Diabetes educator
- ☐ Yes, Physiotherapist
- ☐ Yes, General practitioner
- ☐ Yes, Psychologist
- ☐ Yes, Exercise physiologist
- ☐ Yes, Other

**35. Are there other professional development needs that you think are necessary for pharmacists and pharmacy staff to deliver this service more effectively? If so, please describe.**

	5
	6

### Patient eligibility criteria for MedsCheck and Diabetes MedsCheck services

The following questions aim to help us understand how patients were identified as potentially eligible for a MedsCheck or Diabetes MedsCheck and whether this process was easy or difficult. The questions also aim to capture pharmacists' opinions on whether the population who could most benefit from MedsCheck or Diabetes MedsCheck is being targeted.

#### 36. What were the main referral sources for the MedsCheck/Diabetes MedsCheck patients? (Please choose up to 3 referral sources only)

	Main referral source	2nd referral source	3rd referral source
I identified the patient in my capacity as a pharmacist.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other pharmacists at the pharmacy identified the patient but I undertook the review.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other pharmacy staff (e.g. pharmacy technician and/or shop assistants) identified the patient but I undertook the review.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The patient identified himself or herself as a candidate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The patient's general practitioner referred him or her.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Another health professional (excluding GPs) referred him or her.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The patient's carer referred him or her.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 37. Were potentially eligible patients identified at the pharmacy?

☐ Yes

☐ No, potentially eligible patients were never identified at the pharmacy.

**38. How were potentially eligible patients identified in the pharmacy? (Please choose up to 3 methods of identification)**

	Main way of identification	2nd	3rd
Patients were identified through the dispensing records at the pharmacy.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Patients were identified through the paper prescription records kept at the pharmacy.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Patients were identified due to background knowledge of their circumstances possessed by either pharmacists or pharmacy staff.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Patients were identified whilst counselling them on their dispensed medicines.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Patients were identified through incidental conversations with pharmacists or pharmacy staff/information provided to pharmacists or pharmacy staff by patients and or their family.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Patients were identified during the provision of other services in the pharmacy e.g. requests for S2 (Pharmacy) or S3 (Pharmacist) medicines or enquiry about or receiving a dose administration aid (DAA).	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Patients were identified during the provision of the <i>Clinical Interventions</i> service under the 5th Pharmacy Agreement Pharmacy Practice Incentives Program	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Other	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**39. To what extent did you find patients who might be eligible for a MedsCheck or Diabetes MedsCheck easy to identify?**

- ☐ very easy
- ☐ somewhat easy
- ☐ neither easy or difficult
- ☐ difficult
- ☐ very difficult

**40. Is your pharmacy also reporting Clinical Interventions to Medicare under the 5th Pharmacy Agreement Pharmacy Practice Incentives Program?**

- ☐ Yes
- ☐ No

**41. How many patients did you identify as possibly able to benefit from a MedsCheck or Diabetes MedsCheck as a result of a Clinical Intervention you performed?  
(If you do not know exactly, please approximate)**

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15+
Number of patients:																

**42. Of these patients, how many received a MedsCheck or Diabetes MedsCheck at your pharmacy?**

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15+	Not applicable
Number of patients:																	

Please use the following information as a guide when answering the following questions:

Target group/ideal patient characteristics for MedsCheck and Diabetes MedsCheck services

MedsCheck services

- Patients with multiple prescribers.
- Patients who have a mental illness.
- Patients who have experienced a recent significant medical event.
- Patients who have an intellectual disability or cognitive impairment.
- Patients who have a chronic respiratory condition.
- Patients without timely access to a diabetes educator.
- Patients with literacy or language barriers.
- Patients with dexterity, vision or hearing problems.
- Patients with a recent change to their medication regimen.
- Patients who are living by themselves
- Patients who are suspected as being unable or lacking confidence to manage their medicines.
- Patients who are, or are suspected as being unintentionally non-compliant.
- Patients who have reached the PBS Safety Net.

Eligibility criteria for MedsCheck and Diabetes MedsCheck services.

Patients:

- Must be a Medicare or Department of Veterans Affairs card holder;
- Must not have received a MedsCheck, Diabetes MedsCheck or Home Medicines Review in the last 12 months;
- and • Must be living in a community setting.

To receive a MedsCheck, patients:


- Must be regularly taking five or more prescription medicines OR
- must have had a recent significant medical event.

To receive a Diabetes MedsCheck, patients:

- Must be unable to access an existing diabetes education/health service in their community in a timely manner; and
- Must have recently been diagnosed with type 2 diabetes (in the last 12 months) OR
- Must have less than ideally controlled type 2 diabetes.

**43. With reference to the current target group, in your opinion, are all patient groups who could benefit from MedsCheck or Diabetes MedsCheck eligible to receive a MedsCheck or Diabetes MedsCheck?**

 Yes

 No - please describe which patients you believe would benefit from a MedsCheck or Diabetes MedsCheck but do not meet the current eligibility criteria

Comments:

**44. With reference to the current target group, in your opinion, are there patient groups who could benefit from a medicines check but who are not able to access the MedsCheck or Diabetes MedsCheck? (e.g. patients unable to access the pharmacy due to distance or because they are housebound)**


 No

 Yes

Please specify which patients could benefit from a MedsCheck but are unable to access the program:

**45. Does the eligibility criteria capture patients who were unlikely to benefit from a MedsCheck or Diabetes MedsCheck? (i.e. do you think the eligibility criteria are too broad)**

 No































 Yes - please describe which patients included in the current eligibility criteria are unlikely to benefit from a MedsCheck or Diabetes MedsCheck?

Comments:

### The benefits of the MedsCheck and Diabetes MedsCheck services

The following questions aim to capture pharmacists' perspectives on what the benefits of MedsCheck and Diabetes MedsCheck have been for their patients. The responses to this question complement surveys which are being conducted with patients.

#### 46. To what extent do you believe MedsCheck or Diabetes MedsCheck achieved the following outcomes for your patients?

	very likely	somewhat likely	not sure	somewhat unlikely	very unlikely
Patients have an improved understanding of what conditions their medicines are for					
Patients have an improved understanding of the potential for interactions between their medicines and other prescription medicines, over-the-counter medicines or natural medicines					
Patient's compliance with their medicine has improved					
Patients now store their medicines more appropriately					
Patients now use their blood glucose monitoring devices more effectively					
Patients have a better understanding of how to reduce the risk of developing complications associated with diabetes					

#### 47. Please specify any other patient outcomes you think were achieved:

5

6

**48. As a result of the MedsCheck and Diabetes MedsCheck services, did you refer the patient or provide the patient with any of the below pharmacy provided services?**

☐ No referrals made to other pharmacy services

☐ Dosage Administration Aid

☐ Staged supply of pharmaceuticals

☐ Other (please specify)

**49. Integration with the Home Medicines Review (HMR)**

**Is your pharmacy a HMR Service Provider?**

☐ No

☐ Yes, but we have not received any referrals in the last 12 months

☐ Yes, we have received 1-5 referrals in the last 12 months

☐ Yes, we have received 6-15 referrals in the last 12 months

☐ Yes, we have received >15 referrals in the last 12 months

**50. Did you refer any patients who received a *MedsCheck* for a HMR?**

☐ No

☐ Yes, 1-2 patients

☐ Yes, 3-4 patients

☐ Yes, 5+ patients

**51. Did you refer any patients who received a *Diabetes MedsCheck* for a HMR?**

☐ No

☐ Yes, 1-2 patients

☐ Yes, 3-4 patients

☐ Yes, 5+ patients




## Software Tools for MedsCheck and Diabetes MedsCheck

The Assessment Tool (SmartForm) used for the MedsCheck and Diabetes MedsCheck will not be used for the national rollout. We would value your views on the format and functionality of tools that would facilitate the provision of medication review services in the future.


### 52. Are the outputs of the MedsCheck and Diabetes MedsCheck services such as the Patient Report and the Health Professional Report fit for their intended purpose?


 Yes

 No - Please describe ways the outputs could be improved

Comments:

### 53. For the purposes of further software tools development for the MedsCheck program, are there areas where the current tool could be improved, and if so how?


 The software worked very well and I cannot think of any improvements that could be made to make it easier to use or more suitable for the national rollout

 The software could be improved - Please provide details below

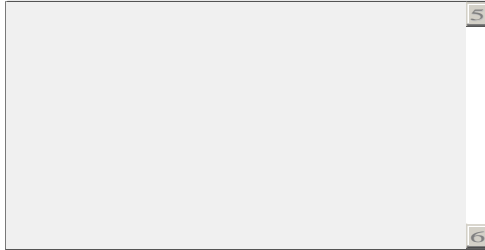
Comments:

**54. Are you aware of another tool for collecting information during medication reviews or presenting information to patients and health professionals that you would recommend over the Assessment Tool used in the MedsCheck/Diabetes MedsCheck pilot program?**


 No


 Yes - Please name the tool, explain what you liked about it, and what made it better than the MedsCheck/Diabetes MedsCheck assessment tool

Comments:

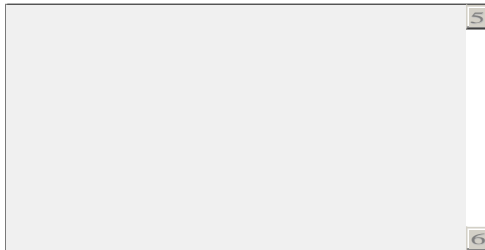
A large, empty rectangular text input area with a light gray background and a thin black border. It includes a vertical scrollbar on the right side.

**55. In your view was the process of submitting for payment:**

 Straight forward

 Could be improved - Please explain how

Comments:

A large, empty rectangular text input area with a light gray background and a thin black border. It includes a vertical scrollbar on the right side.

**56. Would you be happy to offer the MedsCheck and Diabetes MedsCheck in the future?**

☐ Yes

☐ No

**57. Please choose up to 3 reasons why you would not like to provide these services in the future**

	Most important reason	2nd most important	3rd most important
The services are too costly to provide			
I did not have enough time to provide the services to the required quality			
Pharmacists require further professional development before being able to provide these services effectively			
I did not think the service benefited patients			
Other			

**58. Please choose up to 3 reasons why you are happy to provide these services in the future**

	Most important reason	2nd most important	3rd most important
I felt that patients benefited from these services.			
I received positive feedback from patients about these services.			
I received positive feedback from GPs about these services.			
I received positive feedback from other health professionals about these services.			
I received positive feedback from patients' carers about these services.			
The services are adequately reimbursed.			
I felt these services enabled me to use my professional knowledge and skill more extensively.			

**End of survey. Thank you for completing the MedsCheck and Diabetes MedsCheck pharmacist survey. We value your feedback which will be used to ensure that services are targeted to appropriate patients, are seamlessly administered and as easy as possible to provide.**

## Appendix C: Patient Survey

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**Pharmacist to fill in:** Section 90 Approval number \_ \_ \_ \_ \_

Mark with an X the service provided:

☐ MedsCheck

☐ Diabetes MedsCheck

### **MedsCheck or Diabetes MedsCheck Patient Questionnaire**

**Why:** We would like to find out what you think about the MedsCheck or Diabetes MedsCheck service.

Your views about the service will feed into a research report for the Australian Government

**Instructions:** Please wait around one week after you received the service before you fill out the survey. When you've finished the questions, please put the survey in the reply paid envelope and place it in an Australia Post letter box

**Your privacy:** You will remain anonymous. The survey does not contain any questions that enable us to identify you.

**Your opinions and experiences are valuable to our research.**

**Who we are:** Our name is Deloitte Access Economics. We have been appointed by the Department of Health and Ageing to carry out the research and write the report.

**Patient survey starts here:**

**1. Do you live alone?**

☐ Yes ☐ No

**2. Please select the options that best describe how you were managing your medicines *BEFORE* you received your MedsCheck or Diabetes MedsCheck service: (*More than one option can be selected*)**

**Your response:**

☐ I was taking my medicine(s) correctly as prescribed by my doctor

***(options continue on the next page)***

☐ I sometimes became confused about when to take my medicine(s) or sometimes forgot to take my medicine(s)

☐ I was unsure if I was taking my medicine(s) correctly

☐ I was unsure if I was using my puffer(s) correctly

**3. How did you find out about the service? (*More than one option can be selected*)**

**Your response:**

☐ The pharmacist approached me and asked if I would be interested

- ☐ The pharmacy assistant approached me and asked if I would be interested
- ☐ I saw information (e.g. a sign at the pharmacy) advertising the service and asked the pharmacist
- ☐ My doctor told me about the service
- ☐ A friend or family member told me about the service
- ☐ A pharmacist from another community pharmacy or the hospital told me about the service
- ☐ Other

**4. The following statements are designed to assess the quality of the service you received. Please mark an “X” in the box which best describes how you feel:**

- a.** The information given to me by the pharmacist was useful.

☐ Strongly disagree   ☐ Disagree   ☐ Uncertain   ☐ Agree   ☐ Strongly agree

- b.** The report given to me by the pharmacist was useful.

***(Options on the next page)***

☐ Strongly disagree   ☐ Disagree   ☐ Uncertain   ☐ Agree   ☐ Strongly agree

- c.** I was comfortable with the environment in which the service was conducted.

☐ Strongly disagree   ☐ Disagree   ☐ Uncertain   ☐ Agree   ☐ Strongly agree

**d.** I was satisfied with the service.

☐ Strongly disagree   ☐ Disagree   ☐ Uncertain   ☐ Agree   ☐ Strongly agree

**e.** I would recommend this service to others.

☐ Strongly disagree   ☐ Disagree   ☐ Uncertain   ☐ Agree   ☐ Strongly agree

**5. The following statements are designed to assess how you benefited from the service. We want to know if the service helped you understand and manage your medicines better. Please mark an “X” in the box which best describes how you feel.**

**a.** As a result of the service, I now have increased confidence in the way I manage my medicine(s) (*e.g. the dose, when to take the medicine, how to take the medicine*).

☐ Strongly disagree   ☐ Disagree   ☐ Uncertain   ☐ Agree   ☐ Strongly agree

**b.** As a result of the service, I have a better understanding of the conditions my medicine(s) treat.



☐ Strongly disagree   ☐ Disagree   ☐ Uncertain   ☐ Agree   ☐ Strongly agree

**c.** As a result of the service, I now have a better understanding about the side effects of my medicine(s).

☐ Strongly disagree   ☐ Disagree   ☐ Uncertain   ☐ Agree   ☐ Strongly agree

**d.** As a result of the service, I now have a better understanding about which medicines and/or other health products and/ or foods I should avoid when taking my regular medicine(s).

☐ Strongly disagree   ☐ Disagree   ☐ Uncertain   ☐ Agree   ☐ Strongly agree

**e.** As a result of the service, I now have a better understanding of how to store my medicine(s).

☐ Strongly disagree   ☐ Disagree   ☐ Uncertain   ☐ Agree   ☐ Strongly agree

**f.** Overall, I feel that I have benefited from this service.

☐ Strongly disagree   ☐ Disagree   ☐ Uncertain   ☐ Agree   ☐ Strongly agree

**6. We want to know if you have changed the way you manage your medicines as a result of receiving the service. Please rate how strongly you disagree or agree with the following statements by marking an “X” in the box which best reflects your actions.**

- a.** As a result of the service, have you made changes to the way you manage your medicines? *(Examples of changes include using a dosette box or dose administration aid for your tablets, using a spacer with your puffer, changing the way you use your puffers, or changing the place you use to store your medicines etc.).*

**Your response:**

- ☐ I have not made any changes. The pharmacist was happy with the way I manage my medicines.
- ☐ I have not made the changes recommended by the pharmacist as I did not think they would help me.
- ☐ I have not made the changes recommended by the pharmacist as yet, but I intend to in the future.
- ☐ I have made the changes recommended by the pharmacist.

- b.** As a result of the service, have you approached another health care provider for assistance? *(Examples of other health providers include a dietician, a GP, an exercise physiologist, a physiotherapist, etc).*

**Your response:**

☐ I have not approached another health care provider.  
The pharmacist did **not** recommend this.

☐ I have not approached another health care provider as  
recommended by the pharmacist as I did not think this  
would be useful.

☐ I have not approached another health care provider as  
recommended by the pharmacist as yet, but I intend to in  
the future.

☐ I have approached another health care provider as  
recommended by the pharmacist.

c. Did the pharmacist recommend you have a home  
medicines review?

**Your response:**

☐ Yes      ☐ No      ☐ Not sure.

**Please only answer this final question if you received a Diabetes  
MedsCheck**

**7. How strongly do you agree with the following? (Please mark  
an “X” in the box which best describes how you feel).**

a. The pharmacist provided me with useful information to help  
me monitor my blood sugar levels.

☐ Strongly disagree   ☐ Disagree   ☐ Uncertain   ☐ Agree   ☐  
Strongly agree

**THANK YOU FOR COMPLETING THE SURVEY. PLEASE POST IT BACK  
USING THE REPLY PAID ENVELOPE**



## Appendix D: Patient interview

### Introduction

In the script below, text in italics is for the interviewer to read out to the respondent while the text coloured in blue provides prompts or notes for the interviewer to adapt to the respondent's needs or situation. The scripts below are intended to be a guide only and the calls should take on a conversational manner.

### Telephone script for DAE phone call to patients who have received a MedsCheck or Diabetes MedsCheck service

*Hello, my name is [interviewer name here]. Can I please speak to [insert name]?*

*Thank you [insert name] for agreeing to be interviewed as part of our evaluation of the medicine review service you recently received in your pharmacy. I am from Deloitte Access Economics and we are conducting an evaluation of the medicines review program called the MedsCheck or Diabetes MedsCheck on behalf of the Australian Government. Your input will help the Government to modify the service to make it as successful and effective as possible. I expect this chat will take about 30 minutes.*

*Just to remind you, the information you provide will be treated as private and confidential and will be stored separately to your name, address and phone. We will not mention your name in any reports produced with this information and no one will be able to identify you in any way. We will also not pass your personal details on to any other parties.*

### **Clarify that the patient remembers the service and is able to answer questions about it**

*Do you recall having an in-depth discussion about your medicines with your pharmacist and receiving a medicines report from your pharmacist after the discussion? (CLOSED)*

[if no]: prompt by describing the service and mentioning the name of the service: "In this service, the pharmacist discussed your medicines with you, asked you how you were using your medicines, clarified any problems you were having with your medicines and created a medicine chart and Action Plan for you to refer to or pass on to other people who look after your health. The service was called a MedsCheck or a Diabetes MedsCheck." If still 'no', 'Okay, never mind, thank you for your time today'.]

[if yes]: If they don't mention the name, say "it was called the MedsCheck or Diabetes MedsCheck, do you recall which service you had?" (CLOSED)

### **Before the MedsCheck or Diabetes MedsCheck**

*I would like to understand how the service has affected the way you manage your medicines.*

*Did you have any issues or concerns in managing your medicines before you received this service? (OPEN)*

*[prompt: Did you have a system to help remind you to take your medicines? Did you have a helper or a dosette box or dose administration aid?] (OPEN)*

*[prompt: did you ever forget to take any medicines? Were you ever uncertain as to whether you were taking your medicines correctly?] (OPEN)*

*Before the medication review, did you want to learn more, or were you unsure about your medicines? (OPEN)*

*[prompt: For example, did you want to learn about what they were for, side effects, interactions with other medicines, how to take them or when to take them, or any other aspects?]*

### **Benefits**

*Now, I would like to understand whether you found the service beneficial and if so, what the benefits were.*

*Did you have any expectations of the service beforehand, and if so, what were your expectations? (OPEN)*

*[If the patient had expectation:] Did the service meet your expectations?*

*Did you find the service beneficial and if so, are you able to describe any benefits you feel you received from the service? (OPEN)*

*[if not described above] Do you think the service you received helped you increase your understanding of your medicines or changed the way you use your medicines? (OPEN)*

- [prompt if yes]: Can you describe how it helped increase your understanding of your medicines or changed the way you take your medicines?*
- [prompt if no]: Can you describe why you think it did not help increase your understanding of your medicines? (OPEN)*

*[if not described above] Did the pharmacist suggest that you to make any changes to the way you take your medicines? (OPEN)*

- [prompt if yes] Have you been able to make the suggested changes? (CLOSED)*
- [prompt if no] Do you think you will make the suggested changes? (CLOSED)*
- Why/Why not? (OPEN)*

*Did the pharmacist suggest that you visit another professional who looks after your health? (CLOSED)*

- [prompt if yes] Have you been able to visit that health professional or do you think you will visit that health professional? (CLOSED) Why/Why not? (OPEN)

### **The report**

Do you recall the report the pharmacist gave you, or sent to you after your service? (CLOSED)

- [prompt if yes] Have you looked at that report for your own information or provided it to another professional who looks after your health for their information? (OPEN)
- [prompt: did you find the report useful or did the health professional find the report useful and what did you find it useful for? ]

Would you change anything about this report to make it more helpful for you? (CLOSED)

If so, what changes would you like to make? (OPEN)

### **Overall feedback**

Overall, were you satisfied with the MedsCheck or Diabetes MedsCheck service you received?(OPEN)

- [prompt if yes/no:] Can you describe what you liked/disliked about this service?

Do you have any suggestions about how to improve the service? (OPEN)

- [prompt: changes to the way you found out about the service, changes relating to where the visit was held or the way the pharmacist conducted the service, changes to the length of the service].

We have finished the interview. Thank you very much for your assistance. The information collected will be helpful to the Government in ensuring the MedsCheck program is as useful as possible.

## Appendix E: Interview with the Pharmacy Guild of Australia

The script below is intended to be a guide only and the calls should take on a conversational manner.

*Thank you for agreeing to be interviewed for the MedsCheck program evaluation. Deloitte Access Economics is completing this evaluation on behalf of the Department of Health and Ageing. I expect this interview will take 30 minutes.*

*The main purpose of this interview is to discuss the veracity of some of the findings from the MedsCheck evaluation. This will help ensure that the findings have been correctly interpreted and that subsequently, key lessons are appropriately applied to the national roll-out. Your input will help the Department to modify the MedsCheck program to make it more successful.*

*The evaluation findings to date indicate that a majority of patients believe they were taking their medicines correctly as prescribed by their GP prior to their MedsCheck and that a lower proportion of patients than expected were identified by the pharmacist as taking one or more medicines incorrectly. The main benefit of the MedsCheck service for patients has been educational –realised through an increased understanding of their medicines relating to indication, dosing, side effects and storage.*

1. *Taking the existing eligibility criteria into account, how do you believe the MedsCheck program could more effectively target the population likely to benefit?*
2. *Do you believe that a more integrated approach between for example pharmacies and GP surgeries would help target patients more effectively or increase the scope of patient benefits?*

*During interviews with pharmacists, a majority considered that the current payment model of \$60 per MedsCheck and \$90 per Diabetes MedsCheck is fair for a service which takes 30 – 60 minutes to complete.*

3. *If the program is refined so that each service takes 30-60 minutes to complete, do you believe that the current payment is of a sufficient amount to encourage pharmacy businesses across Australia to provide regular services? (Please keep in mind the value of pharmacists performing other duties and the infrastructure requirements for service delivery).*
4. *Keeping in mind the finite funds available for this program, do you believe that this payment model (i.e. fee for service, paid to the pharmacy) is appropriate?*
5. *Other than payment, what other facilitators would encourage pharmacy businesses to take-up this program and pharmacists to subsequently deliver services?*



6. *Are there any improvements (other) to the MedsCheck program model that you would like to suggest?*

## Appendix F: Interview with the Pharmaceutical Society of Australia and the Rural Pharmacy Special Interest Group

In the script below, text in *italics* is for the interviewer to read out to the respondent while the text coloured in blue provides prompts or notes for the interviewer to adapt to the respondent's needs or situation. The scripts below are intended to be a guide only and the calls should take on a conversational manner.

*Thank you for agreeing to be interviewed for the MedsCheck program evaluation. Deloitte Access Economics is completing this evaluation on behalf of the Department of Health and Ageing. I expect this interview will take 30 minutes.*

*The main purpose of this interview is to discuss in more depth some issues raised by the findings from the MedsCheck evaluation as they relate to the pharmacy profession. Your input will help the Department to modify the MedsCheck program to make it more successful.*

1. *Has the PSA been involved in any aspects of the MedsCheck pilot program?*

[prompt: what is the nature of PSA's involvement?]

*The evaluation of MedsCheck is close to completion and we would like to know your thoughts on a few findings to date.*

*During the evaluation, pharmacists reported confidence in discussing a range of topics covered by the MedsCheck service including healthy ranges for the clinical measurements, drug indications, interactions and side effects, techniques to improve compliance, the risks associated with uncontrolled diabetes, smoking cessation techniques, alcohol consumption issues and diet and exercise recommendations.*

2. *Other than these topics, do you believe pharmacists need any other skills to deliver a MedsCheck or Diabetes MedsCheck service effectively?*

[prompt: do you believe a majority of pharmacists possess these skills to an adequate level to deliver the MedsCheck program?]

*Currently, there is no training program for pharmacies who wish to deliver the MedsCheck program. Despite pharmacists reporting confidence across a number of topics, a majority of pharmacists interviewed also stated that they would like specific training on the MedsCheck program to help them deliver services.*

3. *Do you believe that a specific training program is necessary for pharmacy businesses who wish to deliver the MedsCheck program?*

[prompt: why/why not?] [prompt: If you believe training is necessary, what do you believe would be the most important areas to cover?

*The evaluation findings to date indicate that a majority of patients believe they were taking their medicines correctly as prescribed by their GP prior to their MedsCheck and that a lower proportion of patients than expected were identified by the pharmacist as taking one or more medicines incorrectly. The main benefit of the MedsCheck service for patients has been educational –realised through an increased understanding of their medicines relating to indication, dosing, side effects and storage.*

4. *Taking the existing eligibility criteria into account, how do you believe the MedsCheck program could more effectively target the population likely to benefit?*
5. *Do you believe that a more integrated approach between for example pharmacies and GP surgeries would help target patients more effectively or increase the scope of patient benefits?*
6. *What do you believe are some of the perceived or real barriers and facilitators for pharmacists in delivering MedsCheck services?*
7. *Do you have any other suggestions for improvements to the MedsCheck program?*

*We have finished the interview. Thank you very much for your assistance. The information collected will be helpful to the Government in ensuring the MedsCheck program is as useful as possible.*

# Appendix G: Group 1 pharmacist interview

## INTRODUCTION AND SCREENING

INTRO Good (...). My name is (...). I'm calling from the on behalf of the team evaluating the 'MedsCheck and Diabetes MedsCheck' pilot program. May I please speak to <PRIMARYNAME>?

IF PRIMARY CONTACT UNAVAILABLE: Then may I please speak to <ALTERNATIVEName>?

IF PRIMARY AND ALTERNATIVE CONTACT BOTH NO LONGER WORKING THERE OR BOTH UNAVAILABLE FOR DURATION: Could I please speak to a pharmacist working today, who may be familiar with the MedsCheck and Diabetes MedsCheck program?

IF NECESSARY: It's the medicines management service, and diabetes medicines management service, currently being piloted by the Department of Health and Ageing under the Fifth Community Pharmacy Agreement. We believe your pharmacy registered to provide these services starting in August 2011.

\*(NAMED OR NOMINATED PERSON)

We're conducting a short survey on behalf of the Deloitte Access Economics team evaluating this pilot program for the Department of Health and Ageing. They would like to understand the reasons why some pharmacies, who registered to take part in the pilot, have not provided these services or not submitted forms to the Department for payment. Your participation in the interview will help to refine the MedsCheck and Diabetes MedsCheck program so it's delivered more efficiently and effectively.

IF REQUESTED: For technical advice, you can contact the 5CPA helpline on 1300 555 262.

1. Continue
2. Wants to know how they were chosen (GOTO ASELECT)
3. Stop interview, make appointment  
(RECORD NAME AND ARRANGE CALL BACK)
4. Business refusal (ATTEMPT CONVERSION / RECORD REASON)  
(GOTO RR1)
5. Respondent refusal (ATTEMPT CONVERSION / RECORD REASON)  
(GOTO RR1)
6. Queried about how telephone number was obtained (DISPLAY ATELQ)
7. Denies pharmacy registered in MedsCheck pilot (CONFIRM / GOTO TERM1)

8. Claims pharmacy has both provided and claimed for MedsCheck services (GOTO TERM2)

INTRO2 It should only take about 10-15 minutes, depending on your answers. Your answers are totally confidential and will be used for research purposes only.

Is now a good time for us to talk?

IF NECESSARY: If you need to stop at any time during the interview, we can arrange to complete the interview at another time.

1. Start survey (GOTO S1)
2. Wants to know how they were chosen (GOTO ASELECT)
3. Stop interview, make appointment (RECORD NAME AND ARRANGE CALL BACK)
4. Business refusal (ATTEMPT CONVERSION / RECORD REASON) (GOTO RR1)
5. Respondent refusal (ATTEMPT CONVERSION / RECORD REASON) (GOTO RR1)
6. Queried about how telephone number was obtained (DISPLAY ATELQ)

\*(QUERIED HOW SELECTED TO PARTICIPATE)

ASELECT This pharmacy was chosen at random from those registered as participants in the MedsCheck and Diabetes MedsCheck program, who have not yet claimed for payment for delivering any services.

\*SNAP BACK TO PREVIOUS QUESTION

\*(QUERIED HOW TELEPHONE NUMBER WAS OBTAINED)

ATELQ Telephone numbers of registered participants in the MedsCheck and Diabetes MedsCheck pilot were provided by Deloitte Access Economics, who are evaluating this program for the Department of Health and Ageing. Your pharmacy's number will not be used by us for any other purposes or passed on to any other parties.

\*SNAP BACK TO PREVIOUS QUESTION

\*(REFUSED)

RR1 OK, that's fine, no problem, but could you tell me the main reason you don't want to participate, because that will help us?

1. No comment / just hung up
2. Too busy
3. Not interested
4. Too personal / intrusive

5. Don't like subject matter
6. Don't believe surveys are confidential / privacy concerns
7. Don't trust surveys / government
8. Never do surveys
9. Get too many calls for surveys / telemarketing
10. Not a business number
11. Going away (CODE AS AWAY DURATION)
12. Already spoke to someone about this program (Specify\_\_\_\_\_)
13. Other (Specify\_\_\_\_\_)

\*(AGREED TO SURVEY)

S1 Our call may be monitored by my supervisor for quality assurance purposes. Please tell me if you don't want this to happen.

1. Monitoring allowed
2. Monitoring not permitted

\*(AGREED TO SURVEY)

S2 While we'd prefer that you answer all questions, if at any time during this interview there is a question you don't want to answer that's fine, just let me know.

1. Continue

\*(ALL)

TS1 TIMESTAMP 1

\*(AGREED TO SURVEY)

S3a Before we begin, I just need to confirm a couple of details with you.

Has your pharmacy already provided any MedsCheck or Diabetes MedsCheck services?

1. Yes, provided either service
2. No, not provided services
3. (Don't know)

PRES3b ASK IF S3a=1. OTHERS GOTO PRES3c

\*(PROVIDED SERVICES)

S3b And has a SmartForm Assessment Tool been **successfully** submitted to claim payment for any of those MedsCheck or Diabetes MedsCheck services you have provided?

IF NECESSARY: The SmartForm is the electronic form filled out during each service and submitted to the Department to claim for payment.

INTERVIEWER NOTE: IF CLAIM SUCCESSFULLY SUBMITTED BUT NOT YET PAID. USE CODE 1

1. Yes, SmartForm successfully submitted (GOTO TERM2)
2. No, SmartForm not successfully submitted
3. (Don't know)

PRES3c ASK IF S3a=2,3. OTHERS GOTO PREA

\*(NOT PROVIDED SERVICES/DK)

S3c Does your pharmacy intend to commence providing MedsCheck and Diabetes MedsCheck services in the future?

1. Yes, intend to commence providing services
2. No, not intend to commence providing services
3. (Don't know)

\*(ALL)

TS2 TIMESTAMP 2

## **MODULE a: EXPERIENCE OF / BARRIERS TO FULL PARTICIPATION IN PILOT**

PREA: FOR REST OF SURVEY 'ALL' = ('NOT PROVIDED SERVICE' (S3a=2,3) OR 'PROVIDED SERVICE BUT NOT SUBMITTED SMARTFORM' (S3b=2,3))

PROGRAMMER NOTE: IN A1:

IF S3c=2 (NOT INTEND TO COMMENCE) INSERT "but decided not to provide"

IF S3c=1,3 (INTEND TO COMMENCE/DK) INSERT "but hasn't started providing"

IF S3b=2,3 (NOT SUBMITTED/DK) INSERT "and has delivered but not claimed for providing"

(\*ALL)

A1 Now a few questions about the MedsCheck and Diabetes MedsCheck pilot program.

What are the MAIN reasons why your pharmacy registered for the pilot (but decided not to provide / but hasn't started providing / and has delivered, but not claimed for providing) any MedsCheck or Diabetes MedsCheck services?

PROBE FULLY ON MAIN REASONS – Can you tell me a bit more about that?

1. Specify (\_\_\_\_)
2. (Don't know)
3. (Refused)

PREA2a ASK IF S3a=2,3. OTHERS GO TO A3a

PROGRAMMER NOTE:

IF S3c=1,3 (INTEND TO COMMENCE/DK) INSERT “is currently up to”

IF S3c=2 (NOT INTEND TO COMMENCE) INSERT “decided NOT to proceed with these services”

\*(NOT PROVIDED SERVICES/DK)

A2a We would like to know more about where in the process of preparing to deliver MedsCheck and Diabetes MedsCheck services, your pharmacy (is currently up to / decided NOT to proceed with these services).

Firstly, could you please tell me which of the following steps your pharmacy (has) completed? Did you...

IF NECESSARY: The **AUSkey** allows online transactions with the government, such as submitting Business Activity Statements. For MedsCheck and Diabetes MedsCheck, the AUSkey is needed to submit patient records and claims for payments.

INTERVIEWER NOTE: READ OUT STEPS AS APPROPRIATE

\*(STATEMENTS)

- a) Receive the Pilot Resource CD with the MedsCheck program software.
- b) Successfully locate your pharmacy's existing AUSkey or attain a new AUSkey.
- c) Successfully install the AUSkey and SmartForm Signing Utility software from the CD.
- d) Successfully download the SmartForm Assessment Tool from the Department of Health and Ageing or Pharmacy Guild website.
- e) Offer or promote MedsCheck and Diabetes MedsCheck services to eligible patients.
- f) Deliver a MedsCheck or Diabetes MedsCheck, including completing a SmartForm Assessment Tool.
- g) Successfully submit a SmartForm Assessment Tool to the Department to claim payment, using your AUSkey.



\*(RESPONSE FRAME)

1. Yes
2. No
3. (Don't know)
4. (Refused)

\*(NOT PROVIDED SERVICES/DK)

A2b Could you tell me a bit more about (the step(s) you could complete and) the steps you didn't complete (yet). Did you have any particular difficulties or problems occur at specific steps in the process?

PROBE FOR PROBLEMS AT SPECIFIC STEPS – Can you tell me a bit more about that? Did you have any other difficulties at specific steps in the process?

1. Specify (\_\_\_\_)
2. (Don't know)
3. (Refused)

\*(ALL)

A3a The MedsCheck and Diabetes MedsCheck services are part of a wider suite of programs offered by pharmacies under the Fifth Community Pharmacy Agreement, or 5CPA, which includes other Medication Management programs and the Pharmacy Practice Incentive Program, involving Clinical Interventions and so on.

Which other 5CPA programs, if any, does your pharmacy offer?

MULTIPLE RESPONSE.

1. Home Medicines Review
2. Residential Medication Management Review
3. Recording of Clinical Interventions
4. Supply of Dose Administration Aids
5. Staged Supply
6. Primary Health care
7. Community Services Support
8. Working with others
9. Other (Specify\_\_\_\_)
10. None ^s
11. Don't know ^s

PREA3b ASK IF A3a=ANY 1-9. OTHERS GOTO A4

\*(DELIVER ANY 5CPA PROGRAMS)

A3b In what ways, if any, has providing those other 5CPA programs influenced your pharmacy's decision or capacity to provide the MedsCheck and Diabetes MedsCheck services?

PROBE FOR FEEDBACK ON SPECIFIC PROGRAMS – Can you tell me a bit more about that? Did any other programs influence your delivery of the MedsCheck services?

1. Specify (\_\_\_\_)
2. (Don't know)
3. (Refused)

\*(ALL)

- A4 Thinking about different types of support, educational materials and promotional materials that could be provided to pharmacists involved in this program....

What types of support and materials would help pharmacies like yours to implement and deliver MedsCheck and Diabetes MedsCheck services in the future?

PROBE FOR FORM AND CONTENT OF SUPPORT, MATERIALS

1. Specify (\_\_\_\_)
2. (Don't know)
3. (Refused)

\*(ALL)

- A5 We would like to understand some general workload characteristics of pharmacies....

Could you tell me how many Full Time Equivalent pharmacists are on duty at your pharmacy most days?

IF MORE THAN ONE PHARMACY: What would be the average number per pharmacy, among those registered to provide MedsCheck services?

INTERVIEWER NOTE: RECORD NUMBER TO ONE DECIMAL PLACE

1. Record number per day (\_\_\_\_) (ALLOWABLE RANGE 0.5-9.9)
2. (Don't know)
3. (Refused)

\*(ALL)

- A6 What is the approximate prescription volume per week dispensed at your pharmacy? Would it be....?

IF MORE THAN ONE PHARMACY: What would be the average volume per pharmacy, among those registered to provide MedsCheck services?

less than 500 scripts

1. 501 to 750
2. 751 to 1,000
3. 1,001 to 1,250
4. 1,251 to 1,500
5. Or, more than 1,500 scripts
6. (Don't know)
8. (Refused)

\*(ALL)

A7 Just finally, is there anything else you would like to tell us about your pharmacy's experience with the MedsCheck and Diabetes MedsCheck pilot program or any other comments you would like to make?

1. Specify (\_\_\_\_)
2. No
3. (Don't know)
4. (Refused)

\*(ALL)

TS3 TIMESTAMP 3

**END**

\*(ALL)

END Thank you for your time today. Just in case you missed it my name is (...) and this survey was conducted on behalf of Deloitte Access Economics for the Department of Health and Ageing. If you have any questions about the research or the MedsCheck programs, there are some phone numbers I can give you if you like.....

IF ASKED: (For program) For technical advice regarding the MedsCheck and Diabetes MedsCheck programs you can contact the 5CPA helpline on 1300 555 262.

PROGRAMMER NOTE: INSERT INTERVIEWER DECLARATION

\*(DENIES REGISTERED FOR PILOT)

TERM1 For this study we are just speaking to pharmacies involved in that pilot program. Thank you for your time today.

\*(FORM SUCCESSFULLY SUBMITTED)

TERM2 For this study we are just speaking to pharmacies that have not yet provided and claimed for delivering MedsCheck and Diabetes MedsCheck services. Thank you

for your time today. If you have any questions about service delivery, you can contact the 5CPA helpline on 1300 555 262.

\*(ALLTERM)

1. Business refusal (INTRO=4) REFUSAL
2. Respondent refusal (INTRO=5) REFUSAL
3. Denies registered for pilot (INTRO=7) OUT OF SCOPE
4. Claims provided and claimed for services (IF INTRO=8) OUT OF SCOPE
5. Business refusal (INTRO2=4) REFUSAL
6. Respondent refusal (INTRO2=5) REFUSAL
7. Form successfully submitted (S3b=1) OUT OF SCOPE

# Appendix H: Group 2 pharmacist interview

## Introduction

In the script below, text in italics is for the interviewer to read out to the respondent while the text coloured in blue provides prompts or notes for the interviewer to adapt to the respondent's needs or situation. The scripts below are intended to be a guide only and the calls should take on a conversational manner.

### Telephone script for DAE phone call to pharmacies which have provided some MedsCheck services - General interview

*Hello, my name is [interviewer name here] and I am calling from Deloitte Access Economics about the MedsCheck and Diabetes MedsCheck pilot program. Can I please speak to [insert name]?*

*Thank you [insert name] for agreeing to be interviewed for the MedsCheck program evaluation. As I said when we spoke earlier, Deloitte Access Economics is completing this evaluation on behalf of the Department of Health and Ageing. I expect this interview will take 30 minutes.*

*The main purpose of this interview is to discuss in more depth some issues raised through the online Pharmacist Survey. Your input will help the Department to modify the MedsCheck program to make it more successful.*

#### **Barriers to future delivery of services**

*We noticed in your response to the Pharmacist Survey that you would/would not (this will depend on the response) be happy to continue providing MedsCheck and Diabetes MedsCheck services in the future. Is this still correct? (CLOSED)*

*Would you mind clarifying why you would be happy/not be happy to continue providing services? (OPEN)*

#### **Program benefits:**

*The MedsCheck and Diabetes MedsCheck Program involves the delivery of a medication management program including educating the patient about their medicines, the provision of a medicines chart, action plan and recommendations for the patient.*

*What do you think the main benefits of the program are for patients (EQB2)? (OPEN)*

*Do you think the content you recorded within the MedsCheck and Diabetes MedsCheck print-out provided to patients and health care professionals is useful to patients and other health care professionals and if so why or if not why not?(OPEN)*

(Further prompts, for example, the usefulness the of the section documenting patient current issues and lifestyle factors in the health professional print-out).

If the pharmacist has not already answered this question in the context of their response above, please ask: *Could you suggest information that could be deleted or added to the print-outs and why i.e. any changes that could be made to the printed information that is provided to health professionals and patients? (3<sup>rd</sup> objective, EQB1, EQB10))(OPEN)*

**Impact of MedsCheck on work flow:**

*When answering the online Pharmacist Survey your pharmacy said, on average, the MedsCheck consultation took x minutes and the Diabetes MedsCheck, y minutes. Is this approximately correct? (CLOSED)*

*How does this total consultation time affect your ability to undertake MedsCheck consultations (EQB11)? (OPEN)*

[prompt: Currently, on average, what is the maximum number of MedsCheck and Diabetes MedsCheck you could perform per week]

[prompt: Are there any factors or issues that make the amount of time taken to deliver a MedsCheck or Diabetes MedsCheck longer or shorter?]

*Once the program is rolled out nationally, do you believe your pharmacy would keep providing MedsCheck consultations with your current staffing levels? (CLOSED)*

*Why/Why not? (OPEN)*

[prompt: Do you think your pharmacy would consider employing another pharmacist or increasing the hours of work of the current pharmacists to help provide services? If so, by how much? ]

**Integration between MedsCheck, Diabetes MedsCheck and other related services**

*Overall, has your involvement in any other 5CPA programs impacted on your ability or willingness to keep providing MedsCheck services? (OPEN)*

*Why?*

[prompt: How about the Clinical intervention program? Are you able to provide any insight as to why documenting Clinical Interventions may be more popular than providing MedsCheck and Diabetes MedsCheck services?]

*More broadly, how do you believe MedsCheck and Diabetes MedsCheck differs from other Fifth Community Pharmacy Agreement services such as the Home Medicines Review or Clinical Interventions? (EQ B4)? (OPEN)*

[Prompt: can you describe this further?]

**Remuneration for services**

*Is the level of remuneration for MedsCheck and Diabetes MedsCheck services appropriate? (OPEN)*

*Why/Why not?*

**Skills requirements**

*We have noticed from the online survey that you were confident or somewhat confident [interviewer will need to check this with the on-line survey response] in your ability to deliver most/some [will depend on the response in the online survey] aspects of the MedsCheck and Diabetes MedsCheck services identified by us.*

*Can you identify any skills that you would like to enhance in order to deliver MedsCheck and Diabetes MedsCheck services more effectively (EQ5)? (OPEN)*

**Patients:**

*The current patient eligibility criteria will be emailed to all pharmacists who are being interviewed prior to their interview. They will be asked to have it available during the interview.*

*How would you suggest refining the eligibility criteria so that it better targets those who would benefit most from these services — remembering that*

*(a) there are limits to funding and*

*(b) it is useful to have criteria which make it easy for pharmacists to use (EQA1, EQA3)?*

*[prompt: ask “ Why?” for suggested changes if they have not been explained already] (OPEN)*

*(c) Do you have any other suggested changes to the eligibility criteria? (OPEN).*

*We’re almost finished the interview. Only a few more questions.*

**General**

*We would like to know your thoughts on how the program could be refined or improved so it is as efficient and as effective as it can be.*

*Are there any additional resources which would help you or changes you would make to the program which may enhance the efficiency or effectiveness of service delivery including ways to enhance the benefit to patients (EQB1, EQB9, EQ B11)? (OPEN)*

*Thank you very much for your assistance.*

# Appendix I: Group 3 pharmacist interview

## Introduction

In the script below, text in italics is for the interviewer to read out to the respondent while the text coloured in blue provides prompts or notes for the interviewer to adapt to the client's needs or situation. The scripts below are intended to be a guide only and the calls should take on a conversational manner.

### Telephone script for DAE phone call to pharmacies which initially provided MedsCheck services but then stopped.

*Hello, my name is [interviewer name here] and I am calling from Deloitte Access Economics about the MedsCheck program. Can I please speak to [insert name]?*

*Thank you [insert name] for agreeing to be interviewed for the MedsCheck program evaluation. As I said when we spoke earlier, we are completing this evaluation on behalf of the Department of Health and Ageing and I expect this will take 20 minutes.*

*The main purpose of this interview is to discuss in more depth some issues raised through the online Pharmacist Survey and by the Department of Health and Ageing. Your input will help the Department to modify the MedsCheck program to ensure it is successful.*

#### **Reasons for uptake and/or ceasing service delivery:**

*It seems you provided MedsCheck services early on but more recently have not been providing services.*

*What were the reasons behind your pharmacy stopping the provision of MedsCheck and Diabetes MedsCheck services? (OPEN)*

*What are the main reasons you initially became involved in the MedsCheck program? (OPEN)*

#### **Impact of MedsCheck work flow:**

*When answering the online Pharmacist Survey your pharmacy said, on average, the MedsCheck consultation took x minutes and the Diabetes MedsCheck, y minutes. Is this approximately correct? (CLOSED)*

*How does this total consultation time affect your ability to undertake MedsCheck consultations? (OPEN)*



[prompt: Currently, on average, what is the maximum number of MedsCheck and Diabetes MedsCheck services you could perform per week]

**Integration between MedsCheck, Diabetes MedsCheck and other related services**

*Overall, has your involvement in any other 5CPA programs impacted on your ability or willingness to keep providing MedsCheck services? (OPEN)*

*Why?*

[prompt: How about the Clinical intervention program? Are you able to provide any insight as to why documenting Clinical Interventions may be more popular than providing MedsCheck and Diabetes MedsCheck services?]

*More broadly, how do you believe MedsCheck and Diabetes MedsCheck differs from other Fifth Community Pharmacy Agreement services such as the Home Medicines Review or Clinical Interventions? (EQ B4)? (OPEN)*

[Prompt: can you describe this further?]

**Remuneration for services**

*Is the level of remuneration for MedsCheck and Diabetes MedsCheck services appropriate? (OPEN)*

*Why/Why not? (OPEN)*

**IT**

*Some pharmacies reported problems with the software required for the MedsCheck Pilot Program.*

*If computer issues affected your pharmacy's ability or willingness to provide MedsCheck services, please explain how (OPEN)*

*We're almost finished the interview. Only a few more questions*

**General**

*We would like to know your thoughts on how the program could be refined or improved so it is as efficient and as effective as it can be.*

*Are there any additional resources which would help you or changes you would make to the program which may enhance the efficiency or effectiveness of service delivery including ways to enhance the benefit to patients (EQB1, EQB9, EQ B11)? (OPEN)*

*Thank you very much for your assistance.*

# Appendix J: Group 4 pharmacist interview

## Introduction

In the script below, text in italics is for the interviewer to read out to the respondent while the text coloured in blue provides prompts or notes for the interviewer to adapt to the client's needs or situation. The scripts below are intended to be a guide only and the calls should take on a conversational manner.

### Telephone script for DAE phone call to pharmacies which are delivering a successful integrated service.

*Hello, my name is [interviewer name here] and I am calling from Deloitte Access Economics about the MedsCheck program. Can I please speak to [insert name]?*

*Thank you [insert name] for agreeing to be interviewed for the MedsCheck program evaluation. As I said when we spoke earlier, we are completing this evaluation on behalf of the Department of Health and Ageing and I expect this will take 20 minutes.*

*Your input will help the Department further develop the MedsCheck program to ensure the national roll-out is successful.*

#### **Program benefits:**

*What are the main reasons you became involved in the MedsCheck program? (OPEN)*

*Your pharmacy has been providing several MedsCheck and Diabetes MedsCheck services over the past few months and we would like to understand why your pharmacy has been successful in delivering services regularly.*

*Have you found it easy to provide services regularly? (CLOSED)*

*What factors have made it easy for you to deliver services regularly? (OPEN)*

- [prompt: if more clarification is sought or pharmacist does not comment on the following:] Are you able to comment on whether your approach to patient recruitment, staff rosters, ongoing advertising, collaboration with other HCPs and/or access to additional IT resources such as a new PC or laptop for the consultation area influenced your pharmacy's success?(OPEN)

*Have there been any issues associated with service provision that could be improved so you can deliver services more effectively and efficiently?*

#### **Impact of MedsCheck work flow:**

*When answering the online Pharmacist Survey your pharmacy said, on average, the MedsCheck consultation took x minutes and the Diabetes MedsCheck, y minutes. Is this approximately correct? (CLOSED)*

*How does this total consultation time affect your ability to undertake MedsCheck consultations? (OPEN)*

[prompt: Currently, on average, what is the maximum number of MedsCheck and Diabetes MedsCheck services you could perform per week]

*Once the program is rolled out nationally, do you believe your pharmacy would keep providing MedsCheck consultations with your current staffing levels? (CLOSED)*

*Why/Why not? (OPEN)*

[prompt: Do you think your pharmacy would consider employing another pharmacist or increasing the hours of work of the current pharmacists to help provide services? If so, by how much? ]

**Integration between MedsCheck, Diabetes MedsCheck and other related services**

[Only ask this question if the data demonstrates this for the pharmacy- see interview schedule and ask question if more than 40 recorded ] *Since the MedsCheck program began last August, we note that your pharmacy has successfully provided other programs under the Fifth Pharmacy Agreement such as recording of Clinical Interventions. [Only ask this question if the data demonstrates this for the pharmacy] Please describe how your pharmacy has managed to consistently provide both these services? (OPEN)*

[Ask all interviewees this question] *Overall, has your involvement in any other 5CPA programs impacted on your ability or willingness to keep providing MedsCheck services? (OPEN)*

*Why?*

[prompt: How about the Clinical intervention program? Are you able to provide any insight as to why documenting Clinical Interventions may be more popular than providing MedsCheck and Diabetes MedsCheck services? ]

*More broadly, how do you believe MedsCheck and Diabetes MedsCheck differ from other Fifth Community Pharmacy Agreement services such as the Home Medicines Review or Clinical Interventions? (EQ B4)? (OPEN)*

[Prompt: can you describe this further?]

**Remuneration for services**

*Is the level of remuneration for MedsCheck and Diabetes MedsCheck services appropriate? (OPEN)*

*Why/Why not? (OPEN)*

**IT**

*Some pharmacies reported problems with the software required for the MedsCheck Pilot Program.*

*If computer issues affected your pharmacy's ability or willingness to provide MedsCheck services, please explain how (OPEN)*

*We're almost finished the interview. Only a few more questions*

**General**

*We would like to know your thoughts on how the program could be refined or improved so it is as efficient and as effective as it can be.*

*Are there any additional resources which would help you or changes you would make to the program which may enhance the efficiency or effectiveness of service delivery including ways to enhance the benefit to patients (EQB1, EQB9, EQ B11)? (OPEN)*

*Thank you very much for your assistance.*

## Appendix K: Overview of medication review programs

Table K.1: Overview of medication review programs

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
<b>Home Medicines Review (HMR)</b>	Australia	<ul style="list-style-type: none"> <li>No specific eligibility criteria however documented risk factors to help general practitioners and patients appropriately identify who may benefit. These include: 1) currently taking five or more regular medicines 2) taking more than 12 doses of medicine per day 3) with significant changes</li> </ul>	<ul style="list-style-type: none"> <li>Pharmacy Guild of Australia and the Department of Health and Ageing (DoHA)</li> <li>Launched in 2001.</li> </ul>	<ul style="list-style-type: none"> <li>The main objective of HMRs are to achieve safe and effective use of medicines; improve the patient's quality of life and health outcomes using best practice approaches that involve cooperation between the general practitioner, pharmacist, and other relevant health professionals; improve the patient's and health professional's knowledge and understanding about medicines; and facilitate cooperative working relationships between members of the health care team in the interests of patient health</li> </ul>	<ul style="list-style-type: none"> <li>Home</li> </ul>	<ul style="list-style-type: none"> <li>Fee for GP: 2011\$A 148.90</li> <li>Fee for pharmacist: 2011\$A 197.76</li> <li>Expected to take 60 minutes</li> </ul>

<sup>32</sup> All costs have been converted to 2011\$A using Monthly comparative price levels on 22 November 2011, <http://stats.oecd.org/Index.aspx?DataSetCode=CPL> and the exchange rate on 22 November 2011 found at <http://www.xe.com/>.

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
		<p>to medicine regimen in the last three months, including a recent discharge from hospital 4) taking medicine with a narrow therapeutic index or requiring therapeutic monitoring 5) with symptoms suggestive of an adverse drug reaction 6)having difficulty managing their own medicines because of literacy or language difficulties 6) attending a number of different doctors, both general practitioners and specialists.</p> <ul style="list-style-type: none"> <li>• The HMR is not</li> </ul>		<p>and wellbeing.</p> <ul style="list-style-type: none"> <li>• General practitioners must refer patients who they deem appropriate to their preferred community pharmacy. The community pharmacist must then contact a HMR accredited pharmacist who will conduct the review.</li> <li>• The HMR is a private consultation undertaken by HMR accredited pharmacists with patients in their home. The pharmacist assesses the patient's use of medication in his/her environment and also reviews the medicine regime and storage practices. The pharmacist writes a report back to the referring GP who will discuss the recommendations with the patient, develop a medication management plan and make the appropriate changes.</li> </ul>		

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
		available to in-patients of a hospital, day hospital facility or care recipients in residential aged care facilities. <sup>33</sup>		<ul style="list-style-type: none"> <li>Pharmacists who conduct HMRs must be Accredited Pharmacists. That is, they must be accredited through either the Australian Association of Consultant Pharmacy (AACP) or the Society of Hospital Pharmacists of Australia (SHPA) via a competency assessment following a prescribed course of study.</li> </ul>		
<b>Medscheck<sup>34</sup></b> <b>Follow Up</b> <b>Medscheck</b> <b>Consult</b>  <b>Expanded services:</b>  <b>Medscheck for Diabetes.</b>	Canada-Ontario	<ul style="list-style-type: none"> <li>For a MedsCheck, patients must be taking a minimum of 3 prescription medications and have a chronic medical condition. It can be conducted with a caregiver providing the patient has given</li> </ul>	<ul style="list-style-type: none"> <li>Ontario Pharmacist's Association and the Ontario Pharmacy Council with the Ontario Ministry of Health and Long-Term</li> </ul>	<ul style="list-style-type: none"> <li>The main objective of the MedsCheck Program to create and maintain an accurate record of what medication(s) the patient's medicines; investigate and if appropriate correct any discrepancies between the doctor's orders and what the patient is taking; minimize potential adverse effects and medication errors. It is</li> </ul>	<ul style="list-style-type: none"> <li>Community pharmacy for MedsCheck and MedsCheck for Diabetes.</li> <li>MedsCheck for LTC Residents can be initiated in the pharmacy but carried out</li> </ul>	<ul style="list-style-type: none"> <li>20-30 minutes is expected per MedsCheck.</li> <li>2011\$ A 72.71 per year per patient for a MedsCheck and 2011\$ A 30.29 per patient MedsCheck</li> </ul>

<sup>33</sup> <http://www.medicareaustralia.gov.au/provider/pbs/fourth-agreement/hmr.jsp>

<sup>34</sup> [http://www.health.gov.on.ca/en/pro/programs/drugs/medscheck/medscheck\\_original.aspx](http://www.health.gov.on.ca/en/pro/programs/drugs/medscheck/medscheck_original.aspx)

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
<b>MedsCheck for Long-Term Care (LTC) Residents</b>  <b>MedsCheck at Home</b>		<p>consent for this to happen. It is conducted in the community pharmacy</p> <ul style="list-style-type: none"> <li>Patients can have more than one MedsCheck per year if necessary. This is a Follow-up MedsCheck and is due to situations such as hospital discharge, planned hospital admission, a physician referral or a pharmacist' documented decision due to 1) significant changes made to an existing medication profile or addition of new medications, 2) documented evidence of a</li> </ul>	<p>Care.</p> <ul style="list-style-type: none"> <li>The original MedsCheck program was launched in 2007. The expanded services were launched in 2010</li> </ul>	<p>conducted as a 30-minute one-on one consultation with a pharmacist, or a pharmacy student or pharmacy intern under the supervision of a registered pharmacist.</p> <ul style="list-style-type: none"> <li>During a MedsCheck, an up to date list of the patient medication is created- one is kept at the pharmacy, one is given to the patient and one may be forwarded to the family physician.</li> <li>MedsCheck for Diabetes includes training on the use and disposal of diabetic supplies, education and advice on medication adjustments and a discussion on the impact of lifestyle changes.</li> <li>The MedsCheck Program for LTC home residents involves a pharmacist reviewing patient's medicines once every three months. An annual in-depth</li> </ul>	<p>in the LTC home. The report must be kept in the patient chart at the LTC home.</p> <ul style="list-style-type: none"> <li>MedsCheck at Home conducted in the patient's home.</li> </ul>	<p>follow up</p> <ul style="list-style-type: none"> <li>2011\$A 90.87 per year per patient for the MedsCheck for Diabetes. 2011\$A 30.29 per patient diabetes follow-up.</li> <li>2011\$A 60.58 per quarterly LTC assessment and 2011\$A 109.02 for the annual assessment per year per patient.</li> <li>2011\$A 181.70 per year per patient for a MedsCheck at Home.</li> <li>The program is</li> </ul>



Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
		<p>patient's non-adherence or 3) a patient has changed their place of residence and changed pharmacies necessitating review of medications by the new pharmacist.</p> <ul style="list-style-type: none"> <li>• Must be diagnosed with either type 1 or type 2 diabetes for a MedsCheck for Diabetes. The number of medications is not a consideration and patients may be on no medication and still be eligible.</li> <li>• MedsCheck for LTC Home Residents is for residents at</li> </ul>		<p>medication review which replaces one of the quarterly reviews is also conducted for residents with complex chronic conditions. The main objectives are promoting healthier patient outcomes and better resident focused care, improving and optimizing drug therapy for residents, promoting interdisciplinary collaboration in patient care. The review will be of patient's medicine selection, dosage, hours, allergies and drug and food interactions. Any possible drug related problems that require more in-depth analysis will be followed up in collaboration with the healthcare team, the carer and the patient.</p> <ul style="list-style-type: none"> <li>• MedsCheck at Home is for patients who cannot visit their community pharmacy due to their physical or mental health condition. It is a one-on-one in-home medicine consultation with</li> </ul>		paid for by the Ontario Ministry of Health and Long-Term Care.

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
		<p>licensed Long-Term Care Homes.</p> <ul style="list-style-type: none"> <li>• MedsCheck at Home is for people taking three or more prescription medicines for a chronic condition and must not be able to visit the pharmacy in person due to a physical or mental health condition.</li> </ul>		<p>their community pharmacist similar to the in-store MedsCheck. The pharmacist will also dispose of unused or expired medicines. The objectives are to improve and optimize drug therapy for those who are frail, elderly or living in isolated conditions, achieve safe effective and appropriate use of medicines and medicine devices, promote healthier patient outcomes and quality of life and ensure proper disposal of unused and /or expired medicine.</p> <ul style="list-style-type: none"> <li>• To deliver all the different MedsCheck services, the provider must be a licensed Part A pharmacist. A Part A pharmacist means that the pharmacist is registered to provide pharmacy services directly to the public.</li> </ul>		

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
<b>Medication Management Project<sup>35</sup></b> <b>Medication Review Services<sup>36</sup>.</b>	Canada  British Columbia (B.C)	<p>Patients eligible for the BC Medication Management Project require only one medication in their PharmaNet record.</p> <p>Patients eligible for the Medication Review Service must be B.C. residents with a B.C Personal Health Number who have at least seven different qualifying medications that have been entered into PharmNet<sup>37</sup> within the last six months, have a</p>	<ul style="list-style-type: none"> <li>British Columbia Pharmacy Association and Pharmaceutical Services Division of the British Columbia Ministry of Health</li> <li>The Medication Management Project was launched in</li> </ul>	<ul style="list-style-type: none"> <li>The Medication Management Project Currently offered in 120 pharmacies across B.C.</li> <li>In the Medication Management Project, the pharmacist reviews the patient's medication history with the patient, identifies any medication management issues, sets patient-focused goals, implements solutions to address issues and meet goals, monitors effects and modifies solutions according to changes in patient needs, prevents further medication management issues, documents the service and communicates and collaborates</li> </ul>	<p>Community pharmacy</p> <p>The Medication Review Service can be carried out anywhere as long as it is provided in a suitable area that respects the patient's right to privacy and the patient is present i.e., it cannot be conducted by telephone or other electronic means</p>	<p>The fee scheduled for the Medication Management Project is based on patient complexity. Fees are paid by both the BC Pharmacy Association and the BC Ministry of Health. Fees vary from 2011 \$A 72.68 to 2011 \$A 115.08 for the full work-up contact. Fees for follow-up contacts for the medication</p>

<sup>35</sup> <http://www.medsforme.ca/faqs>

<sup>36</sup> <http://www.health.gov.bc.ca/pharmacare/suppliers.html#pharmanet>

<sup>37</sup> PharmaNet is a network administered by the Ministry of Health and the College of Pharmacists of B.C. that links all B.C. pharmacies to a central set of data systems. All prescriptions dispensed in B.C are entered into PharmaNet and pharmacists can access up-to-date information about all prescription medicines dispensed to patients from anywhere in B.C. More information can be obtained at <http://www.health.gov.bc.ca/pharmacare/pharmanet/netindex.html>

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
		clinical need for the service and give informed consent to receive the service and if applicable, give written consent to sharing the information gathered with a patient representative <sup>38</sup> . To receive a Medication Review Consultation, the patient must have already had the Standard service and had a Medication Management Issue identified during the service. To receive a Medication Review Follow-up, the patient must have received the Standard service	<p>September 2010 and will run to January 2012.</p> <ul style="list-style-type: none"> <li>The Medication Management Review was launched in 2011.</li> </ul>	<p>with other members of the patients healthcare team<sup>39</sup>. During the first consultation (the full work-up contact), the pharmacist prepares a Best Possible Medication History (BPMH). This service is available once every 6 months.</p> <ul style="list-style-type: none"> <li>Under the Medication Management Project, the patient can return for unlimited follow-ups within 6 months of their full work-up contact. The pharmacist follows-up on the patient's progress based on an existing care plan and determines that no previously existing or new medication management issues have arisen or re-arisen.</li> <li>Pharmacies participating in the Medication Management Project are paid a minimum monthly</li> </ul>		<p>management project are also based on the number of medication management issues to resolve.</p> <p>The Medication Review- Standard fee is 2011 \$A 72.68 paid by PharmaCare which is administered by the British Columbia Ministry of Health.</p> <p>The Medication Review Consultation fee is 2011 \$A 84.79 paid by PharmaCare.</p>

<sup>38</sup> <http://www.health.gov.bc.ca/pharmacare/pdf/medrevguide.pdf>

<sup>39</sup> [http://library.bcpharmacists.org/H-Resources/H-3\\_ReadLinks/ReadLinks-JulAugSep2010.pdf](http://library.bcpharmacists.org/H-Resources/H-3_ReadLinks/ReadLinks-JulAugSep2010.pdf)

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
		<p>or consultation and require follow-up due to a subsequent medication change.</p> <ul style="list-style-type: none"> <li>The fee for the Medication Review-Standard may be claimed once every 6 months per patient. Either, but not both of a Medication Review Standard or an Medication Review-Pharmacist Consultation may be claimed every 6 months. The Medication Review-Follow up may be claimed four times per patient per year. The Medication Review-Follow Up must be preceded by a</li> </ul>		<p>payment of \$650 for the provision of services. Monthly service fee claims that total more than \$650 satisfy the minimum monthly guarantee.</p> <ul style="list-style-type: none"> <li>The objective of the B.C. Medication Review Services program is to increase communication between patient and pharmacist to promote safe and effective medication use and improve health outcomes. It is split into three different categories Standard, Consultation and Follow-Up. These services can be undertaken for each patient every 6 months.</li> <li>Under the Medication Review-Standard the pharmacist meets with the patient to review their medications and prepare a Best Possible Medication History. The purpose is to improve the patient's understanding of their</li> </ul>		<p>The Medication Review-Follow-Up fee is 2011 \$A 18.17 paid by PharmaCare</p>

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
		Medication Review –Standard or a Medication Review-Consultation.		medications, what they are taking, why they are taking it and how best to take it. The Consultation is only undertaken when a medication management issue has been identified during the Standard Medication Review. Under this service, the pharmacist in collaboration with the patient and if necessary, the prescriber works to resolve the issue. This can include implementing a care plan and evaluating the results. The Medication Review- Follow-Up only occurs after the Medication Review- Standard or Medication Review Consultation if the patient requires follow-up to review a subsequent medication change, address difficulties with understanding and/or implementing the care plan or to evaluate the care plan developed.		
<b>Medicines</b>	<b>United</b>	• People living	• Pharmacy	• The MUR is a private consultation	• Community	• 2011 \$A 57.79

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
<b>Use Review and Prescription Intervention (MUR)</b>	<b>Kingdom</b>	independently in the community or who have one or more chronic disease states and meet one or more of the following conditions: 1) taking 3 or more medicines and/or 12 or more daily doses, 2) have multiple prescribers, 3) had a recent hospital admission, 4) are taking or about to commence taking a medicine with a high risk of adverse effects, 5) have a particular medicine related problem (adverse effect, poor adherence), 6)	<p>Services Negotiating Committee (NSNC) and the National Health Service (NHS) and Primary Care Trust (PCT)</p> <ul style="list-style-type: none"> <li>Launched in 2005</li> </ul>	<p>undertaken by pharmacists with patients in pharmacies.</p> <ul style="list-style-type: none"> <li>Pharmacists and pharmacies must hold additional accreditation to provide the service.</li> <li>The MUR aims to improve the knowledge and use of medicines by “(a) establishing the patient’s actual use, understanding and experience of taking drugs; (b) identifying, discussing and resolving poor or ineffective use of drugs by the patient; (c) identifying side effects and drug interactions that may affect the patient’s adherence with instructions provided by a health care professional for taking of drugs; and (d) improving the clinical and cost effectiveness of drugs prescribed to patients thereby reducing the wastage of</li> </ul>	<p>pharmacy</p> <ul style="list-style-type: none"> <li>Special approval from the PCT must be sought to provide an MUR in another location. (National Health Service Act 1977, Pharmaceutical Services,(England), Amendment Directions, 2006.<sup>41</sup></li> </ul>	<p>from the NHS for each MUR.</p> <ul style="list-style-type: none"> <li>Annual maximum of 400 MURs per pharmacy.</li> </ul>

<sup>41</sup> <http://www.psn.org.uk/pages/mur.html>, accessed 3 August, 2011

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
		are experiencing or at risk of sub-optimal response to pharmacotherapy, 7) are non-adherent or unable to manage their medicines, 8) have literacy or language difficulties, dexterity problems, impaired sight or cognitive deficiencies that impact on their ability to manage their medicines, 9) are taking or about to commence a narrow therapeutic index medicine, 10) are taking or about to commence taking a medicine(s) suspected of being		<p>such drugs (DH 2005 cited in Blenkinsopp et al. 2008).</p> <ul style="list-style-type: none"> <li>• A copy of the report of the consultation with recommendations is given to the patient and must also be sent to the patient's GP.</li> <li>• Community pharmacies are remunerated per service provided by the NHS</li> <li>• Annual maximum of 400 services per pharmacy (National Health Service Act 1977, Pharmaceutical Services,(England), Amendment Directions, 2006.<sup>40</sup></li> </ul>		

<sup>40</sup> <http://www.psn.org.uk/pages/mur.html>, accessed 3 August, 2011



Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
		inappropriately used based on regional utilisation data				
<b>Medicines Use Review and Adherence Support (MUR) Services<sup>42</sup></b>	New Zealand	<ul style="list-style-type: none"> <li>Eligibility criteria may vary slightly depending on the District Health Board. However, the criteria listed below covers most of the criteria for receiving a MUR and is taken from DHBNZ, 2007.</li> <li>People living independently in the community who fall into one or more of the following categories and have one or</li> </ul>	<ul style="list-style-type: none"> <li>New Zealand College of Pharmacists and Pharmacy Council of New Zealand and New Zealand Ministry of Health</li> <li>Launched in 2007.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation is flexible and is determined by District Health Boards (DHBs) in line with available resources and local need. Hence it is not compulsory for a DHB to fund this service</li> <li>The MUR service aims to improve the patient's understanding of their medicines and medical conditions, assist patients and their families to monitor and self-manage their medicines for chronic medical conditions, support patients to achieve better health outcomes and quality of life through improved understanding of safe and effective use of medicines and</li> </ul>	Unrestricted- can be in the patient's home, in a private area in the pharmacy and via phone.	<p>56 minutes (Brandt et al. 2009).</p> <p>The median initial consultation time was found to be 57 minutes (Lee et al. 2009).</p> <p>Not nationally funded- local schemes must be agreed with District Health Boards. In May 2008, 5 of 21 DHBs were funding MURs (Lee et al.</p>

<sup>42</sup> [https://www.aacp.com.au/FourpointRoot/portal/shared/Assets/mmr\\_manual\\_09/Linked\\_documents/NATIONAL\\_FRAMEWORK\\_FOR\\_PHARMACIST\\_SERVICES.pdf](https://www.aacp.com.au/FourpointRoot/portal/shared/Assets/mmr_manual_09/Linked_documents/NATIONAL_FRAMEWORK_FOR_PHARMACIST_SERVICES.pdf), accessed 25 August 2011

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
		<p>more chronic disease states:</p> <p>(a) Are taking three or more medicines and/or 12+ doses per day;</p> <p>(b) Have multiple prescribers;</p> <p>(c) Had a recent admission to hospital (especially if there had been a medicine change) e.g. within 4 weeks;</p> <p>(d) Are taking or about to commence taking medicine(s) with a high risk of adverse effects;</p> <p>(e) With a particular medicine related problem e.g. adverse</p>		<p>facilitate a cooperative working relationship between pharmacists and other members of the primary health care team. It is not a clinical review however, the pharmacist undertaking the MUR has an ethical responsibility to address inappropriate selection, prescribing or use of medicine if identified.</p> <ul style="list-style-type: none"> <li>The consultation is conducted by a pharmacist with the patient and intervention is largely at the patient level. The service often involves four quarterly consultations between the pharmacist and patient and the pharmacist must have access to the patient's medication profile but not necessarily their clinical information. It must be conducted in a private area. It involves a review of and counselling about all current medicines, assessment of</li> </ul>		<p>2009).</p> <p>The payment ranges between 2011 \$A 101.10 to \$A 150.09 for three interviews to \$A 181.11-\$A 200.11 for four interviews (Lee et al. 2009).</p>

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
		<p>reaction, non-adherence;</p> <p>(f) Experience or are at risk of experiencing sub-optimal response to pharmacotherapy;</p> <p>(g) Are non-adherent or unable to manage their medicines;</p> <p>(h) Have difficulty managing their medicines due to, for example, literacy or language difficulties, dexterity problems, impaired sight, or cognitive deficiencies;</p> <p>(i) Take or are about to commence taking a narrow therapeutic index medicine &amp;/or one requiring</p>		<p>medication adherence, counselling about appropriate management of medicines and current medical conditions, reporting of significant adverse medicine effects and removal of out of date medicines or those no longer required with the consent of the patient. A record of all current medications must be provided to the prescriber and to the patient unless practical circumstances deem that this would not be beneficial. The pharmacist may formally refer and report to other health professionals on issues beyond the pharmacist's scope. The pharmacist may also liaise with prescribers, patients and community pharmacists to align dispensing of medicines and be involved in peer review/support. Services provided must be appropriately documented.</p> <ul style="list-style-type: none"> <li>• The patient does not have to be</li> </ul>		

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
		<p>monitoring; &amp;/ or</p> <p>(j) Take or are about to commence taking a medicine(s) suspected of being inappropriately used based on regional utilisation data.</p> <ul style="list-style-type: none"> <li>Patients are not eligible if they are currently participating in Medicines Therapy Assessment or Comprehensive Medicines Management, if they are not living independently in the community, if they decline follow-up, if they move out of the district and if they do not</li> </ul>		<p>present if due to disability or geographical isolation this is not possible.</p> <ul style="list-style-type: none"> <li>Pharmacists must be registered with the Pharmacy Council of New Zealand with a current practicing certificate and they must complete the MUR training course provided by the New Zealand College of Pharmacists to be accredited to provide this service.</li> <li>Adherence support involves ongoing monitoring of patient utilisation of one or more medicine, provision of regular verbal, written or other support tools, collaboration with the prescriber and other members of the health care team to review and report on any changes in utilisation of medicines and consequential changes in their effectiveness as reported by</li> </ul>		

Program	Country	Target population	Coordinating organisation and launch year	Overview	Location of service	Time/cost <sup>32</sup>
		consent.		<p>patients.</p> <ul style="list-style-type: none"> <li>Patients eligible for this service may be identified by their primary health organisers (e.g. their General Practice team), community pharmacists, primary health care nurses, nurse practitioners, other healthcare providers and patients family/carer. Patients can also self-refer.</li> </ul>		

## Appendix L: Other evaluation findings on medicine review programs

Table L.1: Evaluations performed on medication review programs

Program	Evaluated by	Evaluation methodologies	Findings including barriers & facilitators
<b>Home Medicines Review (HMR)</b>	Campbell Research and Consulting (2010) Campbell Research and Consulting (2008), Sanburg (2009), Urbis Keys Young (2005)	<ul style="list-style-type: none"> <li>Stakeholder consultation with the Guild, PSA, SHPA, AACP, and Medicare Australia (CR&amp;C, 2010).</li> <li>Interviews with pharmacists (CR&amp;C, 2010)</li> <li>On-line survey (26 questions) of pharmacists: 19% response rate of accredited pharmacists and 5% response rate of non-accredited pharmacists (CR&amp;C, 2010)</li> <li>Case studies with pharmacists (CR&amp;C, 2010)</li> <li>Stakeholder consultation via interviews with GPs, Divisions of General Practice, Medical organisations,</li> </ul>	<p><b>General Findings</b></p> <ul style="list-style-type: none"> <li>HMRs are not meeting a number of their objectives mainly because they are not reaching people most at risk of medication misadventure. In addition, health professionals have not reported an improvement in the understanding of their medications, nor has there been an improvement in co-operation within the healthcare team (CR&amp;C, 2008).</li> <li>In the first 3.5 years of the program, around 74% of HMRs to date were provided to people aged over 65 years and around 62% of people receiving HMRs were women (UrbisJHD, 2005).</li> <li>Those in the greatest need of a HMR are the least likely to receive one. The greatest gap in access is amongst those most likely to benefit (CR&amp;C, 2008):</li> <li>Certain patients post discharge from hospital.</li> <li>Indigenous consumers</li> <li>Culturally linguistically diverse consumers</li> </ul>

Program	Evaluated by	Evaluation methodologies	Findings including barriers & facilitators
		<p>Pharmacists/pharmacist associations/pharmacy associations and HMR facilitators, Consumer and carer associations, peak bodies, research organisations and other health and government organisations (CR&amp;C, 2008).</p> <ul style="list-style-type: none"> <li>• 109 Interviews with health professionals. Recruitment of health professionals occurred via cold calling, onwards referral from other health professionals and via contact lists supplied by Division Facilitators. (CR&amp;C, 2008).</li> <li>• 10 focus groups with consumers and 28 interviews with consumers. Recruitment of eligible non-HMR receivers for the focus groups was done by an independent field company using a combination of cold calling and onward referral and contact with local seniors groups. Recruitment of people who had received HMRs was done via onward</li> </ul>	<ul style="list-style-type: none"> <li>• Palliative care patients; and</li> <li>• Non- adherent consumers.</li> <li>• Urbis Keys Young (2005) also identified that older males, people living in rural and remote areas, young people with chronic illness and/or other serious health problems and customers of smaller (e.g. one-pharmacist) community pharmacies are under-served by the HMR program.</li> <li>• Consumers have been satisfied with the HMR services provided and pharmacists found it to be a satisfying way of using their professional skills and of strengthening their customer and community relationships (Urbis Keys Young, 2005).</li> <li>• There was a variable level of contact between consumer's GPs and the consumer's community pharmacy after the HMR report was delivered and pharmacies were not consistently receiving copies of the Medication Management Plan from GPs (Urbis Keys Young, 2005)</li> </ul> <p><b>Facilitators</b></p> <ul style="list-style-type: none"> <li>• GPs who have had positive experiences of the HMR program (Urbis Keys Young in Urbis Keys Young, 2005).</li> <li>• Where there is good relationships built on mutual respect between the GP, community pharmacist and accredited pharmacist.</li> <li>• Where general practice managers set up systems to identify</li> </ul>

Program	Evaluated by	Evaluation methodologies	Findings including barriers & facilitators
		<p>referral from accredited pharmacists, GPs and community pharmacies(CR&amp;C 2008).</p> <ul style="list-style-type: none"> <li>• Calls for submissions advertised in the national press, the Department website and as a pdf attachment through stakeholder channels (CR&amp;C, 2008)..</li> <li>• Review of Aboriginal health service records, stakeholder consultation, questionnaire for GPs, questionnaires for community pharmacies, interviews with Aboriginal health workers (Sanburg, 2009)</li> <li>• Semi-structured interviews with key stakeholder groups, focus groups with accredited and non-accredited medication management review pharmacists, a national postal survey of accredited pharmacists and the proprietors or managers</li> </ul>	<p>eligible, at risk patients.</p> <ul style="list-style-type: none"> <li>• Adequate remuneration for GPs and pharmacists.</li> <li>• GP feedback to the reviewing pharmacist.</li> <li>• Positive feedback from patient to the GP.</li> <li>• CR&amp;C (2008) found strong support for a direct referral option from GPs to accredited pharmacists as this may improve barriers to access where there local pharmacies have no accredited pharmacists or where patients were located 1000kms from a community pharmacy.</li> <li>• Improving access for those in need could also be achieved by allowing other health practitioners to refer, such as palliative care nurse practitioners, hospital pharmacists and hospital doctors (CR&amp;C, 2008).</li> <li>• 76% of non-accredited pharmacists at the time of study, would be more likely to apply for accreditation in the future if financial incentives are offered (CR&amp;C, 2010).</li> <li>• Incentive payments for pharmacists to become accredited were initially a facilitator as the number of accredited pharmacists appeared to increase but this was then followed by a slight decline. Most accredited pharmacists reported that they would have become accredited without the incentive. (CR&amp;C, 2010).</li> <li>• The main driver for accreditation is commitment to professional service and an interest in clinical pharmacy (CR&amp;C, 2010).</li> <li>• Increasing the flexibility of the referral pathway in the context of Indigenous patients- patients who are not taking their</li> </ul>



Program	Evaluated by	Evaluation methodologies	Findings including barriers & facilitators
		<p>of community pharmacies (29% response rate), in-depth interviews with 25 pharmacists, telephone interviews with 50 consumers across Australia who had participated in a HMR during the preceding 3-12 months, 9 HMR case studies involving interviews with a consumer, the relevant GP and the pharmacist who had conducted the review, qualitative interviews with 26 medication management review facilitators, financial analysis, literature review and review of statistical data available from the Health Insurance Commission (UrbisJHD, 2005)</p>	<p>medications do not routinely present to their GP and often, Aboriginal Health Workers or community pharmacists are best placed to identify these clients (Sanburg, 2009).</p> <ul style="list-style-type: none"> <li>Aboriginal Health Workers attending HMR visits for indigenous patients with the pharmacist (Sanburg, 2009)</li> </ul> <p><b>Barriers</b></p> <ul style="list-style-type: none"> <li>Greatest barrier to pharmacists becoming accredited is the lack of time for study and exams (CR&amp;C, 2010)..</li> <li>1/3 of non-Accredited Pharmacists who do not intend to become accredited state that the high-costs and low incentives associated with accreditation are a barrier (CR&amp;C, 2010).</li> <li>Reluctance of GPs to involve pharmacists in the HMR Program was identified by stakeholders as a barrier to pharmacist participation (CR&amp;C, 2008)</li> <li>Complexity of the HMR program for GPs: (CR&amp;C, 2008)</li> <li>GPs often identify eligible patients opportunistically rather than systematically which is inefficient as they can find it difficult to remember the patient guidelines for the HMR. (CR&amp;C, 2008)</li> <li>GPs do not receive payments for referrals unless the entire process is followed through (CR&amp;C, 2008).</li> <li>Patients do not often return to their GP after the process and GPs do not often communicate with the accredited pharmacist by phone as required in the program guidelines (CR&amp;C, 2008).</li> <li>Remuneration for pharmacists in rural areas is inadequate due to long travel distances involved (CR&amp;C, 2008).</li> </ul>

Program	Evaluated by	Evaluation methodologies	Findings including barriers & facilitators
			<ul style="list-style-type: none"> <li>• Workforce shortages of GPs and pharmacists, particularly accredited pharmacists in rural areas limit the uptake of HMRs (CR&amp;C, 2008).</li> <li>• Inconsistent quality of reporting from pharmacists to GPs including clinically inappropriate reports and from GPs to pharmacists about the HMR plan (CR&amp;C, 2008).</li> <li>• Limited referrals from GPs may be due to the difficulties of incorporating HMRs into traditional general practice business models, perceptions among GPs that the HMR process is complicated and time consuming, possible GP reluctance to work collaboratively with the pharmacy profession in the way the HMR requires, dissatisfaction with some aspects of pharmacy HMR services received and a lack of patient pressure (Urbis Keys Young, 2004 in Urbis Keys Young, 2005)</li> </ul>
<b>Medscheck Ontario Canada</b>	Dolovich et al (2008)	<ul style="list-style-type: none"> <li>• Semi-structured questionnaire mailed survey of pharmacists (33.2% response rate) and a semi-structured telephone interview of pharmacists. Pharmacists who worked part time at the pharmacy or had worked less than 3 months at the pharmacy were excluded (Dolovich et al. 2008).</li> </ul>	<p><b>General findings</b></p> <ul style="list-style-type: none"> <li>• MedsCheck take an average of 30 minutes to complete but due to misinterpretation, this may only include face-to-face time and not the amount of time spent preparing for the MedsCheck and for the required documentation. A more accurate estimate is around 50 minutes for the entire process (Dolovich et al. 2008).</li> <li>• Pharmacists received the service well and had increased levels of personal satisfaction in offering this service (Dolovich et al. 2008).</li> <li>• Patients surveyed by Leung et al. 2008 reported that MedsCheck helped them understand their medications better.</li> </ul> <p><b>Facilitators (Dolovich et al. 2008)</b></p>

Program	Evaluated by	Evaluation methodologies	Findings including barriers & facilitators
			<ul style="list-style-type: none"> <li>• Scheduling reviews during quiet times in the pharmacy, developing posters advertising the service, reducing documentation, maximising the use of pharmacy technicians, increasing physician awareness of the program, motivating patients to value the service, providing a pharmacist overlap, educating all pharmacy staff on the importance of MedsCheck to minimize interruptions during the review.</li> <li>• Having a private area to conduct the review, access to a computer during the review and allowing a pharmacy intern or technician to conduct part of the MedsCheck.</li> <li>• Electronic tools/forms, the ability to take patient information directly out of the pharmacy computer profiles and put it directly into an electronic form to reduce administrative work.</li> <li>• To facilitate recruitment: Ensure all pharmacy staff are aware of the program and promoting it, television and radio advertisements, flagging eligible patient records, cold calling eligible patients, spend time telling each patient about the program and encourage them to participate.</li> </ul> <p><b>Barriers (Dolovic et al. 2008)</b></p> <ul style="list-style-type: none"> <li>• Lack of time including time involved in preparing for the MedsCheck, lack of pharmacist overlap coverage and insufficient reimbursement to cover the cost of an additional pharmacist for the overlap.</li> <li>• Frequent interruptions, forgetting to offer the service, lack of a private room and the documentation requirements.</li> <li>• Lack of patient awareness and interest in the service.</li> </ul>

Program	Evaluated by	Evaluation methodologies	Findings including barriers & facilitators
			<ul style="list-style-type: none"> <li>• MedsCheck was found to have a negative impact on the pharmacist's workload and the workload of others in the pharmacy.</li> </ul>
<b>Medicines Use Review (MUR) UK</b>	Kaulbach et al 2010 Latif and Boardman, 2008. Bradley et al. 2008 Belnkinsopp et al. 2007. Latif et al. 2011 Harding and Wilcock, 2010	<ul style="list-style-type: none"> <li>• Questionnaire of pharmacists (Latif and Boardman, 2008 and Harding and Wilcock, 2010).</li> <li>• Observation for 10 weeks and interviews with patients and pharmacy staff (Latif et al. 2011)</li> <li>• Survey of all primary care organisations and case study investigations of 10 PCOs involving interviews with 43 key stakeholders (Bradley et al. 2008)</li> <li>• Survey of community pharmacies, data scans of the Prescription Pricing Authority in Years 1 and 2 of the MUR service, focus groups and interviews in five case study primary care organisation sites with community pharmacists, GPs, patients and PCO staff (Belnkinsopp et</li> </ul>	<b>General findings</b> <ul style="list-style-type: none"> <li>• MUR uptake increased steadily in the 2 years after introduction. By the end of the second year, uptake of MURs was at 25% of capacity (Belnkinsopp et al. 2007).</li> <li>• The main driver of involvement in the MUR was pharmacists themselves or their employer.</li> <li>• Mean time of 51 minutes per MUR. 22 minutes of this time was spent with patients (Blenkinsopp et al.2007).</li> <li>• 77% of pharmacists reported that they were the main identifiers of potential patients.</li> <li>• Most patients value the time pharmacists spent with them and see pharmacists as experts who were able to reassure them about their medicines (Latif et al. 2011).</li> <li>• 75% of customers (n=400) enjoyed participating in the MUR.</li> <li>• Kaulbach et al. (2010) found that a majority of patients felt that following the MUR they had learnt more about their condition and how their medicines would help them. They would recommend the service to other people. Fewer patients felt that a follow-up visit would benefit them.</li> <li>• However, patients were found to be unfamiliar with the MUR and have low expectations and knowledge of the pharmacist's role (Latif et al. 2011).</li> </ul>

Program	Evaluated by	Evaluation methodologies	Findings including barriers & facilitators
		<p>al. 2007).</p> <ul style="list-style-type: none"> <li>Four PCTs (81 pharmacists from 64 pharmacies) were selected as pilot sites for the role out of an educational intervention. Pharmacists were asked to provide data monthly which was transferred electronically to a local project team. Feedback on the intervention was obtained through questionnaire of pharmacists (23/81 response rate). A patient satisfaction survey was also performed (326/481 response rate). This survey was given to the patient by the pharmacist after the MUR (Kaulbach et al. 2010).</li> </ul>	<ul style="list-style-type: none"> <li>Pharmacists have a common sense of what constitutes a “poor” MUR, but not what defines a quality one. For peer review to operate as an effective mechanism to assure quality of MURs, pharmacists need to develop an effective forum to share their practice experiences (Harding and Wilcock, 2010)</li> </ul> <p><b>Facilitators:</b></p> <ul style="list-style-type: none"> <li>Good consultation skills. This has been identified as an area where pharmacists need to improve (Belkinsopp et al. 2007, Latif et al. 2011 and Salter, C et al. 2007). Pharmacists need more training in conducting a more open discussion with patients rather than delivering information in an instructional manner (Latif et al. 2011). There was little evidence of two-way reciprocated discussion or concordance (Salter, 2010).</li> <li>Training in consultation skills and in the core principals of MURs was found to increase pharmacists confidence in performing MURs thus giving them greater satisfaction.</li> <li>Clear presentation of recommendations/information in the MUR for the GP report and electronic transmission may improve usability of MUR reports amongst GPs (Kaulbach et al 2010).</li> <li>Having a second pharmacist or dispensary technician present to cover the dispensary (Belkinsopp et al. 2007).</li> <li>The ability to use other qualified support staff to gather information on the patient, then the pharmacist only has to review the result and intervene if necessary (Belkinsopp et al. 2007).</li> <li>A good working relationship with GPs to facilitate open lines of communication and generate referrals from GPs (Belkinsopp et al.</li> </ul>

Program	Evaluated by	Evaluation methodologies	Findings including barriers & facilitators
			<p>2007).</p> <ul style="list-style-type: none"> <li>The ownership category has been found to be the most significant determinant of MUR uptake. Rates of MUR provision by pharmacies with multiple branches were almost twice that of independent pharmacies. Organisational pressure within multiple pharmacies may be driving forward MUR activity (Bradley et al. 2008).</li> </ul> <p><b>Barriers to uptake by pharmacies of the MUR include:</b></p> <p><b>Workload-</b></p> <ul style="list-style-type: none"> <li>Three-quarters of reviews have been conducted without additional pharmacist cover (Blenkinsopp et al. 2007). Time interviewing and preparing for the MUR was also identified as the biggest challenge in running an MUR service (Kaulbach et al. 2010).</li> <li>Reviews mostly conducted by regular and full-time pharmacists, not relief pharmacists (Latif and Boardman, 2008). Only 23% of pharmacies had specifically employed a locum to either conduct the MUR or provide cover for them whilst the MUR was conducted (Belkinsopp et al. 2007). Lack of time and support staff to conduct MURs was also identified by Latif and Boardman (2008) as a barrier to conducting MURs.</li> <li>Lack of availability of consultation areas limits the number of consultations (Latif and Boardman, 2008 and Blenkinsopp et al. 2007).</li> <li>Pharmacists were deterred from doing MURs for patients on several medications as they perceived that it would take a much longer time than patients on less medications (Belkinsopp et al.</li> </ul>

Program	Evaluated by	Evaluation methodologies	Findings including barriers & facilitators
			<p>2007).</p> <ul style="list-style-type: none"> <li>• Difficulty fitting service into daily practice and the cost of employing locums to increase capacity.</li> </ul> <p><b>Recruitment of patients:</b></p> <ul style="list-style-type: none"> <li>• Pharmacists did not like recruiting patients due to the time and effort involved, and feeling demoralised through rejection (Belkinsopp et al. 2007)</li> <li>• Lack of public awareness regarding the availability of the MUR (Belkinsopp et al. 2007).</li> <li>• High targets for MUR completions changes the focus from quality to quantity- i.e. throughput (Belkinsopp et al. 2007 and Bradley et al. 2008).</li> </ul> <p><b>Support from GPs for the program:</b></p> <ul style="list-style-type: none"> <li>• Lack of support from GPs for GPs was identified by primary care organisations and pharmacists as a barrier to implementation of the MUR program. (Bradley et al. 2008, Latif and Boardman, 2008). This may have been because the documentation was complex and difficult for GPs to use. Electronic transmission was identified as a potential facilitator for usage of the MUR report by GPs. Poor communication between pharmacists and GPs was also identified as a reason (Belkinsopp et al. 2007)</li> <li>• 76% of pharmacists reported providing a copy of the MUR report to the GP, but only a quarter of these pharmacists reported feedback from GPs (Blenkinsopp et al. 2008, Blenkinsopp et al. 2007)</li> </ul>

Program	Evaluated by	Evaluation methodologies	Findings including barriers & facilitators
			<p><b>Lack of clarity over the scope of an MUR :</b></p> <ul style="list-style-type: none"> <li>• Pharmacists perceiving the MUR as a clinical review rather than a concordance based review (Latif and Boardman, 2008).</li> <li>• Finding that MURs were making clinical recommendations which was not the intent of the service (Belkinsopp, 2007).</li> <li>• Lack of clarity as to how an MUR differed from what was expected of usual practice when dispensing medicines (Belkinsopp et al. 2007)</li> </ul>
<p><b>Medicines Use Review (MUR) NZ</b></p>	<p>Brandt et al (2009) Lee et al (2009)</p>	<ul style="list-style-type: none"> <li>• Combination of MUR visit data from , face-to-face interviews on two to three occasions with pharmacists, semi-structured phone interviews with 27 patients- the interviewer filled out paper based questionnaires with their responses. Patient interviews occurred at least 6 months after initial pharmacist contact for most patients i.e. after the 6 month follow-up visit by pharmacists. District Health Board data for each patient from 6 months before the initial pharmacist visit to 6 months after the initial pharmacist visit. This</li> </ul>	<p><b>General findings:</b></p> <ul style="list-style-type: none"> <li>• Most initial interviews are carried out in the patient's home (Brandt et al. 2009).</li> <li>• Average duration of the initial consultation was 56 minutes, 22 minutes for the first follow-up and 15 minutes for the second follow-up (Brandt et al. 2009). Lee et al. 2009, found the average time for the initial interview was 57 minutes. However, this did not include pre-interview report writing and preparations.</li> <li>• Patients used fewer medicines at the time of the follow ups compared to the initial MUR, the largest reductions were in use of calcium channel blockers, sedatives and analgesics. Patient's perception of adherence did not appear to improve over time, pharmacists perception of patients' overall knowledge of medicines improved over time, patients' self rated quality of life improved over time (Brandt et al. 2009).</li> <li>• The most common issues identified was that patients were' Lacking knowledge of prescribed medicines' and 'medicines not</li> </ul>



Program	Evaluated by	Evaluation methodologies	Findings including barriers & facilitators
		<p>data contained information relating to hospital admissions and reasons for admission. New Zealand Deprivation Index data was also collected (Brandt et al, 2009)</p> <ul style="list-style-type: none"> <li>• Questionnaire-based cross-sectional survey of pharmacists (79% response rate achieved).</li> </ul>	<p>synchronised'. Missing doses and inadequate control of symptoms via their medications were also common issues (Brandt et al. 2009).</p> <ul style="list-style-type: none"> <li>• 63% of patient issues were resolved from the initial interview to the first follow-up (Brandt et al. 2009).</li> <li>• The key area of learning for patients related to taking their medicines in the correct way (Brandt et al. 2009).</li> <li>• 30% of patients interviewed indicated that they would be more likely to seek advice from the pharmacist in the future (Brandt et al. 2009).</li> <li>• Lee et al. 2009 found that a majority of patients were referred by general practitioners.</li> <li>• Just over one third of pharmacists offering the service agreed that the payment was adequate (Lee et al. 2009).</li> <li>• Pharmacists perceived the service as being highly valuable to patients (Lee et al. 2009)</li> <li>• In general terms there did not seem to be any differences between before and after MUR periods in terms of hospital admissions.</li> </ul> <p><b>Facilitators</b></p> <ul style="list-style-type: none"> <li>• Decreasing repetition in the MUR data collection tool especially with regards to the first and second follow-ups (Brandt et al. 2009).</li> <li>• Development of an electronic form which links into existing medical data held within the pharmacy database (Brandt et al. 2009).</li> </ul>

Program	Evaluated by	Evaluation methodologies	Findings including barriers & facilitators
			<ul style="list-style-type: none"> <li>• In general, there was no indication of any differences between the before and after MUR periods in terms of inpatient hospital admissions (Brandt et al. 2009).</li> <li>• A small but significant improvement in patient quality of life was noted between the initial MUR visit and the second follow-up (Brandt et al. 2009).</li> <li>• Promoting the service more strongly to GPs (Lee et al. 2009)</li> </ul> <p><b>Barriers</b></p> <ul style="list-style-type: none"> <li>• Additional time required by pharmacists to recruit patients and do MUR visits was difficult to find without locum cover or staff dedicated to this purpose. Pharmacies with lower staffing levels had lower recruitment success (Brandt et al. 2009 and Lee et al. 2009)).</li> <li>• Training and accreditation was perceived as necessary by pharmacists but took too long (Brandt et al. 2009).</li> <li>• Performing MURs in patient's homes presented staff safety issues (Brandt et al. 2009).</li> <li>• High load of paperwork which was done predominantly after hours (Brandt et al. 2009).</li> <li>• Lack of a local contract (Lee et al. 2009)</li> </ul>

## Appendix M: Methodologies used and outcomes measured in a selection of evaluations of medicine review programs

**Table M.1: Methodologies used and outcomes measured in a selection of medicine review evaluations**

Evaluation	Methodology	Description	Outcomes measured
<b>CR &amp;C (2008)</b>	<ul style="list-style-type: none"> <li>Literature review</li> </ul>	<ul style="list-style-type: none"> <li>Literature from 2005 that examines adverse drug events and hospitalisation related to adverse drug events, data relating to populations most at risk, drivers of participation by health professionals and consumers and description of similar programs in Australia.</li> </ul>	<ul style="list-style-type: none"> <li>Identification of gaps in access for people and the reasons for the gaps in access including, gender, ethnicity, geographic location and workforce issues.</li> <li>To determine what drives participation in the program including identifying barriers and enablers relative to different target groups and geographic locations across Australia.</li> </ul>
	<ul style="list-style-type: none"> <li>Stakeholder Consultations to capture a range of views.</li> </ul>	<ul style="list-style-type: none"> <li>31 in depth interviews with GPs, Divisions of General Practice, Medical organisations, pharmacists/pharmacist associations/pharmacy associations HMR facilitators, consumer and carer associations, peak bodies and research organisations and other health and government organisations.</li> <li>Most interviews were via telephone, but a few were face-to-face where timing and location allowed. Interviews were for around 1 hour and were recorded with the interviewee's consent.</li> </ul>	

Evaluation	Methodology	Description	Outcomes measured
	<ul style="list-style-type: none"> <li>• Call for Submissions to expand on views identified in Stakeholder Consultations and the Literature Review.</li> </ul>	<ul style="list-style-type: none"> <li>• Call for Submissions was advertised in the national press, through the Department website and as a pdf attachment through Stakeholder channels.</li> <li>• 84 submissions were received in digital and hardcopy format over a three week period from academics, accredited pharmacists, community pharmacy business owners and managers, Divisions, Division Facilitators, Health Services, Peak Bodies and The Guild.</li> </ul>	
	<ul style="list-style-type: none"> <li>• 109 in-depth interviews with health professionals to explore perspectives of the HMR Program hands-on (or hands-off)-</li> </ul>	<ul style="list-style-type: none"> <li>• Interview participants consisted of GPs (27), accredited pharmacists (10) and accredited pharmacists working in community pharmacies, community pharmacy business owners or managers (40), hospital pharmacists (6), practice nurses, practice managers, a palliative care practitioner, Aboriginal Health Workers (4) and Culturally and Linguistically Diverse community workers (5).</li> <li>• GPs with no involvement or interest in HMRs tended to decline invitations to participate. Therefore, GPs who participated probably biased the results towards more positive views than would be expected if a broader range of GPs were involved.</li> <li>• Over 50% recruited via cold calling, 27% recruited by onward referrals from other health professionals, 17% recruited by contact lists</li> </ul>	

Evaluation	Methodology	Description	Outcomes measured
		<p>provided by Division Facilitators.</p> <ul style="list-style-type: none"> <li>• A majority of interviews conducted face-to-face.</li> <li>• Interviews took around 40 minutes.</li> <li>• GPs were compensated \$200 for their time.</li> <li>• Pharmacists were compensated with \$150 for their time.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Focus groups</li> </ul>	<ul style="list-style-type: none"> <li>• 10 focus groups with around 100 consumers who met the criteria for a HMR and had a range of risk factors but had not received a HMR. This explored perceptions and attitudes relating to GPs and community pharmacies and experiences with taking multiple medications.</li> <li>• One focus group conducted in each of the ten Divisions and groups were stratified by age.</li> <li>• Focus groups had 6-12 participants and lasted around 90 minutes.</li> <li>• Participants were reimbursed between \$60-\$70 to cover expenses incurred.</li> <li>• Participants were recruited through cold-calling and onwards referral and contact with local seniors groups. A screening questionnaire was used to select participants.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Interviews with consumers who had received HMRs</li> </ul>	<ul style="list-style-type: none"> <li>• 28 interviews with consumers and where necessary, their carers who had received HMRs. Interviews explored perceptions of and</li> </ul>	

Evaluation	Methodology	Description	Outcomes measured
		<p>relationships with GPs and community pharmacies and experiences with taking multiple medications.</p> <ul style="list-style-type: none"> <li>• Most interviews were conducted in patients homes and took around 45 minutes.</li> <li>• Recruitment was conducted using onwards referral from accredited pharmacists, community pharmacies and GPs.</li> </ul>	
<b>CR&amp;C (2010)</b>	<ul style="list-style-type: none"> <li>• Stakeholder consultations</li> </ul>	<ul style="list-style-type: none"> <li>• Consultations with peak bodies and professional associations including the Pharmacy Guild of Australia (the Guild), the Pharmacy Society of Australia, the Australian Association of Consultant Pharmacy (AACP) and the Society of Hospital Pharmacists of Australia and representatives from Medicare Australia.</li> </ul>	<ul style="list-style-type: none"> <li>• To gain an understanding of the Incentives program and how accreditation influenced the uptake of HMR and RMMR Programs.</li> <li>• To determine what differences incentives for accreditation make to the workforce.</li> <li>• How accreditation influences the uptake of HMRs and RMMRs Programs.</li> <li>• Review the current funding model for the HMR and RMMR programs.</li> <li>• Who benefits from these initiatives.</li> </ul>
	<ul style="list-style-type: none"> <li>• In-depth interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews with Accredited Pharmacists (19), non-Accredited Pharmacists (10) and pharmacists at Aged Care Home supply pharmacies or RMMR Provider companies (5)</li> <li>• Carried out face-to-face in six locations across Australia, a small number were carried out via telephone.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Data scan of</li> </ul>	<ul style="list-style-type: none"> <li>• Scan of de-identified claims by pharmacists for payment under the Medication Review Accreditation Incentives Program.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Online survey</li> </ul>	<ul style="list-style-type: none"> <li>• Survey with 338 responses from Accredited Pharmacists and 260 responses from non-</li> </ul>	

Evaluation	Methodology	Description	Outcomes measured
		<p>Accredited Pharmacists to quantify the findings from the qualitative research to assess how issues and opinions raised by stakeholders held across the section and to broaden the input.</p> <ul style="list-style-type: none"> <li>The response rate from Accredited Pharmacists was 19% and from non-Accredited Pharmacists was 5%</li> <li>The survey was distributed through the AACP and the Guild</li> <li>The survey for non-Accredited pharmacists had 26 questions, the survey for Accredited pharmacists was not available in the report.</li> <li>The survey was self-completion and was available for 20 days.</li> </ul>	
	<ul style="list-style-type: none"> <li>Five case studies</li> </ul>	<ul style="list-style-type: none"> <li>Case studies conducted with non-accredited pharmacists in rural and remote regions (PhARIA 4,5,6)</li> <li>Pharmacists were chosen from a diverse range of socio-economic backgrounds, geographical locations, current working arrangements and accreditation.</li> </ul>	
<b>Sanburg, 2009</b>	<ul style="list-style-type: none"> <li>Review of clinic medical records of 95 people who had received HMRs</li> </ul>	<ul style="list-style-type: none"> <li>All Four GPs who had referred clients for HMRs completed the questionnaire.</li> </ul>	<ul style="list-style-type: none"> <li>To review characteristics of the HMR process including number of HMR recommendations accepted and acted upon.</li> </ul>
	<ul style="list-style-type: none"> <li>Survey of the Pika Wiya Health Service (PWHS) GPs</li> </ul>	<ul style="list-style-type: none"> <li>Questionnaire contained seven open response questions about their general opinions of the HMR service.</li> </ul>	

Evaluation	Methodology	Description	Outcomes measured
	<ul style="list-style-type: none"> <li>Survey of the community pharmacist supplying DAA's to the Pika Wiya Health Service</li> </ul>	<ul style="list-style-type: none"> <li>Questionnaire contained nine open response questions regarding their general opinion of the HMR service</li> </ul>	<ul style="list-style-type: none"> <li>To assess barriers to access to HMRs for Aboriginal clients</li> <li>To develop a referral system to capture clients recently discharged from hospital.</li> <li>To collate a pool of counselling resources for Aboriginal clients.</li> </ul>
	<ul style="list-style-type: none"> <li>Survey of Aboriginal Health Workers who attend HMRs with the Accredited Pharmacist</li> </ul>	<ul style="list-style-type: none"> <li>Questions were asked in an interview format.</li> <li>All eight ABHs that had attended HMR appointments completed the interview.</li> <li>There were nine open response questions regarding their general opinions of the HMR services.</li> </ul>	
	<ul style="list-style-type: none"> <li>Consultations</li> </ul>	<ul style="list-style-type: none"> <li>Consultations with hospital, community pharmacy and Pika Wiya Health Service Staff were undertaken to develop a referral system for Aboriginal clients who were judged as likely to benefit from a HMR following hospital discharge.</li> </ul>	
<b>Urbis Keys Young, 2005</b>	<ul style="list-style-type: none"> <li>Analysis of data relating to the HMR program</li> </ul>		<ul style="list-style-type: none"> <li>Process evaluation including barriers and enablers, mapping the program progression, quantitative information on the services delivered, e.g. referral rates, target population, pharmacists and GPs involved etc., achievements against the objectives, operational outcomes, workforce issues, protocols</li> </ul>
	<ul style="list-style-type: none"> <li>Systematic literature review</li> </ul>	<ul style="list-style-type: none"> <li>Focuses on patient outcomes from medication reviews</li> </ul>	
	<ul style="list-style-type: none"> <li>Stakeholder consultations</li> </ul>	<ul style="list-style-type: none"> <li>Key stakeholders included the PSA, the AACP, the AMA, the ADGP, the Royal Australian College of General Practitioners, the Guild and the National Prescribing Service, DoHA and representatives of the community and consumers such as the Consumers Health Forum and the National Aboriginal Community Controlled Health</li> </ul>	



Evaluation	Methodology	Description	Outcomes measured
		<p>Organisation.</p> <ul style="list-style-type: none"> <li>Consultations were according to a semi-structured interview outline, but the emphasis varied according to the expertise in each group.</li> </ul>	<p>established.</p> <ul style="list-style-type: none"> <li>Analysis of impact on the health care system- volume of services delivered, costs of providing services, availability of services.</li> <li>Access rural an urban pharmacist attitudes, opinions, worth, benefits, barriers, benefits, expectations, training recommendations, remuneration etc relating to HMR.</li> <li>For consumer: asses health outcomes, adjusted QALYs (measured using the EQ-5D survey instrument), self-management techniques gained by patients.</li> <li>Evaluate the MMR Facilitator Program.</li> <li>Impact of HMR's on optimizing therapy and quality use of medicines.</li> <li>Cost impact on pharmacies</li> </ul>
	<ul style="list-style-type: none"> <li>Focus groups with pharmacists</li> </ul>	<ul style="list-style-type: none"> <li>Four focus groups with pharmacists in metropolitan and regional locations</li> </ul>	
	<ul style="list-style-type: none"> <li>A national pharmacist survey</li> </ul>	<ul style="list-style-type: none"> <li>A paper-based survey was mailed to 1579 accredited pharmacists and 4356 pharmacy proprietors. 1718 surveys were returned by the requested date giving a response rate around 29% (there was some cross over between the accredited pharmacists and the pharmacy proprietors).</li> <li>The survey had 49 closed response and open response questions.</li> </ul>	
	<ul style="list-style-type: none"> <li>In-depth interviews with pharmacists</li> </ul>	<ul style="list-style-type: none"> <li>25 pharmacists from diverse locations participated</li> <li>Interviews were conducted by telephone and captured pharmacists opinions on the objectives and impacts of HMRs, the differing roles of health professionals in delivering HMRs, the appropriateness of remuneration, follow-up by GPs, the role of Facilitators, opinions with regards to Accreditation.</li> </ul>	
	<ul style="list-style-type: none"> <li>In-depth interviews with consumers who had had a HMR in the previous 12 months</li> </ul>	<ul style="list-style-type: none"> <li>50 consumers participated.</li> <li>Interviews were conducted by phone and consisted of 17 questions.</li> </ul>	

Evaluation	Methodology	Description	Outcomes measured
		<ul style="list-style-type: none"> <li>Questions mainly regarding the HMR visit and the EQ-5D survey instrument.</li> </ul>	<ul style="list-style-type: none"> <li>Suggested future performance indicators suggested:               <ul style="list-style-type: none"> <li>HMR claims by pharmacies over time;</li> <li>Number of pharmacies registered to participate in the HMR program versus the number actually making claims;</li> <li>Number of accredited pharmacists versus the number actually doing HMRs;</li> <li>Time required to conduct a HMR;</li> <li>Number of HMRs provided to particular target groups;</li> <li>The extent to which accredited pharmacists' reports address issues raised in the GP's referral; and</li> <li>Level of uptake of pharmacist's recommendations by GPs.</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>Case studies</li> </ul>	<ul style="list-style-type: none"> <li>Nine case studies conducted in metropolitan and regional locations, each involving a HMR consumer, his or her GP and the accredited pharmacist who conducted the HMR interview.</li> <li>Interviews were conducted face-to-face and the consumer interviews used the same questions as the in-depth phone interviews consisted of 16 questions</li> <li>Accredited pharmacist interviews had 26 questions, GP interviews had 23 questions and community pharmacist interviews had 16 questions.</li> </ul>	
	<ul style="list-style-type: none"> <li>In-depth interviews with 26 MMR Facilitators</li> </ul>	<ul style="list-style-type: none"> <li>Seven interviews were Facilitators at a State/Territory level and nineteen were Facilitators at a GP Divisional level</li> </ul>	
	<ul style="list-style-type: none"> <li>Financial analysis of the HMR.</li> </ul>	<ul style="list-style-type: none"> <li>Consideration of various costs and potential benefits associated with the program.</li> </ul>	
	<ul style="list-style-type: none"> <li>Review of statistical data</li> </ul>	<ul style="list-style-type: none"> <li>Review of statistical data relating to the HMR, available from sources including the records of the Health Insurance Commission.</li> </ul>	

Evaluation	Methodology	Description	Outcomes measured
<b>Brandt et al. 2009</b>	<ul style="list-style-type: none"> <li>Interviews with all pharmacists</li> </ul>	<ul style="list-style-type: none"> <li>All pharmacists from the six pharmacies taking part in the project were interviewed 2-3 times.</li> <li>Interviews were conducted face-to-face.</li> <li>Interviews collected information regarding pharmacists' previous service experience, expectations and preparations for the MUR pilot. Later interviews focused on facilitators and barriers to the pilot.</li> </ul>	<ul style="list-style-type: none"> <li>Patient population measures- e.g. age, ethnicity, gender, NZ Deprivation Index etc.</li> <li>Multidisciplinary approach to comprehensive healthcare- source of referral, level of communication between health professionals, pharmacists experiences, patients' reported attitude to pharmacy vs. GP care.</li> <li>Process- number of reviews, timeliness of initial and subsequent reviews, venue and duration of MUR.</li> <li>Outcomes of care- medication related issues, Quality of life using the EQ5D and Visual Analogue Scale, patient adherence, patient understanding and perception, rate of hospitalisation, use of hospital services, planned and unplanned.</li> </ul>
	<ul style="list-style-type: none"> <li>Interviews with patients</li> </ul>	<ul style="list-style-type: none"> <li>Semi-structured phone interviews with 27 patients. Interviewers filled out a paper-based questionnaire with their responses.</li> <li>Mix of open and close ended questions about their experience with the MUR process.</li> <li>Mostly conducted after the MUR 6 month follow-up had occurred.</li> </ul>	
	<ul style="list-style-type: none"> <li>Data scan of District Health Board data</li> </ul>	<ul style="list-style-type: none"> <li>De-identified data on all patients was provided covering a period 6 months before and 6 months after the MUR. Data included information regarding patient hospital admissions.</li> </ul>	
	<ul style="list-style-type: none"> <li>Data from the MUR record of the 74 patients who participated.</li> </ul>	<p>Patient details from MUR record were manually entered into a data collection sheet. These included: patient age, gender, ethnicity, inclusion criteria, health conditions identified during the visit, factors affecting medicine use, smoking status, alcohol consumption, venue of consultation, medication usage, medicines by class,</p>	

Evaluation	Methodology	Description	Outcomes measured
		<p>change in medicine use from the initial consultation to follow-up 1 then to follow-up 2, number of medicines taken as directed across the 2 follow-ups, adherence across the 2 follow-ups etc.</p> <ul style="list-style-type: none"> <li>Pharmacists also administered the EQ5D survey and the Visual Analogue Scale to patients- only 43 patients were included in the final analysis as some from the original group did not have a second follow-up.</li> </ul>	
<b>Dolovich et al. 2008</b>	<ul style="list-style-type: none"> <li>Semi-structured survey of pharmacists</li> </ul>	<ul style="list-style-type: none"> <li>All pharmacists practicing in Hamilton Ontario were identified from a database and supplemented by the Yellow Pages website. Pharmacists worked less than 24 hours per week or had worked at the pharmacy for less than 3 months were excluded.</li> <li>A total of 265 pharmacists were invited to take part in the survey and 88 returned completed surveys (response rate of 33.2%)</li> </ul>	<ul style="list-style-type: none"> <li>Pharmacists perceptions of the effects of delivering MedsCheck.</li> <li>Facilitators, barriers and operational issues in delivering MedsCheck.</li> <li>Qualitative value added.</li> </ul>
	<ul style="list-style-type: none"> <li>Interviews with pharmacists</li> </ul>	<ul style="list-style-type: none"> <li>Telephone interview using open-ended questions.</li> <li>13 pharmacists interviewed based on geographical proximity to the physician groups, types of pharmacies, average length of time taken to complete a MedsCheck (as identified by the survey) .</li> <li>Interviews took approximately 12 minutes and 50 seconds.</li> </ul>	

Evaluation	Methodology	Description	Outcomes measured
<b>Belkinsop et al. 2007</b>	<ul style="list-style-type: none"> <li>A survey of 31 Primary Care Organisations (PCO) in the UK (10% of the total)</li> </ul>	<ul style="list-style-type: none"> <li>Mixed open and closed ended questions</li> </ul>	<ul style="list-style-type: none"> <li>Quantification of the provision of MURs</li> <li>Description of the effect of MURs on workload and workforce (e.g., skill mix, role satisfaction, clinical decision making, inter-professional working.</li> <li>To describe feedback from service users.</li> <li>To describe PCO commissioning and quality assurance approaches.</li> <li>To identify examples of good practice in implementation for wider dissemination.</li> <li>Identify whether the role of community pharmacy has changed.</li> <li>To make recommendations regarding the future development of the community pharmacy</li> </ul>
	<ul style="list-style-type: none"> <li>A survey of all pharmacies in the 31 PCOs</li> </ul>	<ul style="list-style-type: none"> <li>1080 pharmacies were invited to do the mail based survey. A reply-paid envelope was supplied.</li> <li>Questionnaire was pre- piloted on 6 pharmacists. It was then piloted on 95 pharmacists. The response rate to the invitation to participate in the pilot was low at 24%. Telephone interviews were conducted with 22 non-respondents to find out why the response rate was low. The second pilot was tested on 228 people.</li> <li>405 community pharmacies from large multiple participated and evaluators had the surveys mailed out through the company head offices with a supportive head office covering letter.</li> <li>Three reminders with a further copy of the questionnaire were sent to non-responders.</li> <li>A response rate of 50% was received and a subsequent telephone reminder method was used until a response rate of 60% was received in each PCO. At this stage, pharmacists in charge were offered further questionnaires to complete or were given the option of completing a shorter version of the survey</li> </ul>	

Evaluation	Methodology	Description	Outcomes measured
	<ul style="list-style-type: none"> <li>A survey of Strategic Health Authorities and the Welsh Assembly Government.</li> </ul>	<ul style="list-style-type: none"> <li>Carried out as a structured interview with the key lead person identified as having responsibility for implementing the community pharmacy. contractual framework.</li> <li>Interviews lasted between 15 and 40 minutes.</li> </ul>	contractual framework.
	<ul style="list-style-type: none"> <li>Data scan.</li> </ul>	<ul style="list-style-type: none"> <li>Scan of routine data on MURs from the Prescription Pricing Authority in England , collected for Years 1 and 2 of the service.</li> <li>Scan of specific data from the third annual Keele University/Webstar Health national survey of community pharmacy development in Primary Care Organisations.</li> </ul>	
	<ul style="list-style-type: none"> <li>Focus groups and interviews</li> </ul>	<ul style="list-style-type: none"> <li>Carried out in five case study PCO sites with community pharmacists, GPs, patients and PCO Staff.</li> <li>Case study sites were chosen on the basis of KPI scores, ethnicity of the population, the relative percentages of pharmacies that were independents and multiples, deprivation scores across the individual PCOs and the geographical spread of the case study sites.</li> <li>GPs and pharmacists from the PCO sites were invited to participate in the focus groups. If 3 or less participants confirmed attendance from a PCO, interviews were substituted for focus groups. Participants taking part in focus groups</li> </ul>	

Evaluation	Methodology	Description	Outcomes measured
		were paid £50 plus travel expenses and those taking part in the telephone interview were paid £50.	
	<ul style="list-style-type: none"> <li>Documentary analysis</li> </ul>	<ul style="list-style-type: none"> <li>Analysis of key public documents in the case study sites</li> </ul>	

## Appendix N: Information for pharmacists

### The evaluation of the MedsCheck and Diabetes MedsCheck pilot program

#### Information for pharmacists

The Department has appointed Deloitte Access Economics to evaluate the MedsCheck and Diabetes MedsCheck pilot. The evaluation will involve:

- A web-based *Pharmacist Questionnaire*. This was emailed to pharmacies who claimed for services in August and September on 31 October 2011. It will be emailed to remaining pharmacies by 1 December 2011. The deadline for responses for these remaining pharmacies will be 30 December 2011. The survey instrument was developed in consultation with the Guild and the PSA. **Pharmacists are required to complete the survey as part of their participation in the pilot.** More information about the survey will be emailed to pharmacies when the survey is distributed.
- A paper-based *Patient Questionnaire*. We request that *all* pharmacists offer the survey to *all* patients receiving MedsCheck or Diabetes MedsCheck immediately after their consultation.
- Analysis of patient specific data collected in the MedsCheck and Diabetes MedsCheck Assessment Tool (SmartForm).
- Focus groups and interviews with a selection of key stakeholders including the Guild, the PSA, individual pharmacists, and patients. Focus groups and interviews are to commence early in 2012. The evaluator will randomly select and invite pharmacists to be involved. *Patients that consent to being contacted by the evaluator as documented on the Assessment Tool may be invited to participate in an interview via the contact details provided on the Assessment Tool.*
- If you have any queries regarding the evaluation, please contact the Barbara at Deloitte Access Economics on **(03) 9671 7551**. For technical support please contact the MedsCheck Helpline on 02 6289 8555 or email [medscheck@health.gov.au](mailto:medscheck@health.gov.au) and for general enquiries and program information go to [www.5cpa.com.au](http://www.5cpa.com.au), contact the 5CPA information line on 1300 555 262 or email [support@5cpa.com.au](mailto:support@5cpa.com.au)

• **All the information you and your patients share with the evaluator during these data collection phases will be strictly confidential and will not be passed on to any other parties by the evaluator in a manner that identifies you, the patient or the pharmacy in which you performed the MedsCheck or Diabetes MedsCheck.**



**Your involvement in the *Patient Questionnaire*:**

- The paper-based *Patient Questionnaire* forms have been enclosed in this package. They are accompanied by reply paid envelopes addressed to the evaluator. Upon receiving the surveys, we request that you offer the survey to every patient after you have performed his or her MedsCheck or Diabetes MedsCheck. Patients can refuse to take the questionnaire if they do not wish to complete it. The evaluator will notify you via email of the date to stop the distribution.
- Please fill in the header on page 1 as indicated on the questionnaire.
- Please remind the patient to not begin the questionnaire until at least a week has elapsed.
- Please remind the patient that that he or she must return the questionnaire by posting it to the evaluator in the reply paid envelope.

## Appendix O: Step reached in the implementation of the MedsCheck and Diabetes MedsCheck pilot program

Table O.1: Step in implementation of the MedsCheck and Diabetes MedsCheck pilot program reached by pharmacies

Step	Number of pharmacies that completed the step	Number of pharmacies that did not complete the step	Number of pharmacies where status is unknown (complete or incomplete)	Total number of pharmacies that did not complete the step and where the status is unknown	Number of pharmacies that dropped out at each step	Number of pharmacies that dropped out as a proportion of total pharmacies that did not claim for services (%) (N=100)
1	92	5	3	8	8	8
2	62	32	6	38	30	30
3	47	49	4	53	15	15
4	46	43	11	54	1	1
5	30	70	0	70	16	16
6	15	85	0	85	15	15
7	0	96	4	100	15	15

## Appendix P: Projection of the Australian population

Table P.1: Australian population projected to 2015

Age range (years)	2010	2011	2012	2013	2014	2015
Population* at 30 June						
0-14	4,170,781	4,209,156	4,250,023	4,294,587	4,339,748	4,385,857
15-64	14,802,146	14,990,884	15,140,834	15,299,907	15,464,671	15,624,026
65-74	1,622,220	1,688,888	1,789,563	1,877,310	1,955,854	2,037,117
75-84	994,865	1,009,456	1,028,247	1,047,897	1,072,584	1,099,521
85 and over	400,999	420,682	438,797	456,666	473,041	489,588
Total population <65 years	18,972,927	19,200,040	19,390,857	19,594,494	19,804,419	20,009,883
Average Annual growth rate in population <65 years		1.2%	0.99%	1.05%	1.07%	1.04%
Total population ≥ 65 years	3,018,084	3,119,026	3,256,607	3,381,873	3,501,479	3,626,226
Annual growth rate in population ≥ 65 years		3.34%	4.41%	3.85%	3.54%	3.56%
<b>Total population</b>	<b>21,991,011</b>	<b>22,319,066</b>	<b>22,647,464</b>	<b>22,976,367</b>	<b>23,305,898</b>	<b>23,636,109</b>

\*Series B ABS data used, largely reflecting the current trends in fertility, life expectancy at birth and net overseas migration.

Source: ABS 2008, Population Projections, Australia, 2006 to 2101, cat. no. 3222.0, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3222.02006%20to%202101?OpenDocument>, accessed 15 February, 2012

## Appendix Q: Residential aged care

The number of people permanently residing in residential aged care facilities by age has been projected out to 30<sup>th</sup> June 2015 by using the percentage change in the number of people across each age group as a proportion of all people residing in permanent residential aged care from 2006 to 2010.

**Table Q.1: Number of people permanently residing in aged care to 2015**

30 June	Less than 65 years	65-74 years	75 to 84 years	85 years and over	Total##
2006*	6,562	13,049	52,027	80,099	151,737
2007*	6,467	13,138	50,950	82,871	153,426
2008*	6,606	13,577	50,992	85,912	157,087
2009*	6,452	13,801	49,893	87,348	157,494
2010*	6,438	14,296	49,905	90,955	161,594
<b>Annual % change between 2006 and 2010</b>	-0.09%	0.06%	-0.85%	0.87%	
2011#	6,400	14,700	49,600	94,500	165,300
2012#	6,400	15,000	48,900	97,300	167,700
2013#	6,300	15,400	48,200	100,200	170,100
2014#	6,300	15,700	47,400	103,200	172,600
2015#	6,200	16,000	46,600	106,200	175,000

\*historical data

#projected

##Totals for projected values are not necessarily the sum of values across the age groups due to the effect of rounding.

Data Source: Australian Institute of Health and Welfare (AIHW) 2009a, AIHW 2010, AIHW 2011a,

The number of Australians permanently residing in Residential Aged Care facilities (by age) has been subtracted from the total number of Medicare card holders to estimate the number of people enrolled with Medicare *and* living in the community and therefore potentially eligible for a MedsCheck or Diabetes MedsCheck consultation, see Table Q.2. The number of Australians living in other institutions such as correctional facilities and mental health hospitals was considered insignificant in the context of this calculation.

**Table Q.2: Number of Medicare enrolled residents living in the community by age group projected to 2015**

<b>Year</b>	<b>Less than 65 years</b>	<b>65-74 years</b>	<b>75-84 years</b>	<b>85 years and over</b>	<b>Total</b>
2012	19,384,500	1,774,500	979,300	341,500	22,479,800
2013	19,588,200	1,861,900	999,700	356,400	22,806,200
2014	19,798,100	1,940,200	1,025,200	369,900	23,133,300
2015	20,003,700	2,021,100	1,052,900	383,400	23,461,100

Source: Deloitte Access Economics internal analysis.

## Appendix R: Average percentage increase in the volume of people taking PBS medicines

To provide crude estimates of PBS dispensing from 2012 to 2015, the average annual percentage increase between 2008 and 2010 in the volume of people taking medicines was calculated, see Table R.1.

**Table R.1: Average annual percentage increase in the volume of people taking medicines for the month of November**

Number of medicines per person	Average annual percentage increase in volume of people
1	3.2%
2	2.1%
3	2.1%
4	2.9%
5	4.0%
6	4.6%
7	5.1%
8	7.1%
9	7.9%
10 or more	11.2%
5 or more	5.7%

Source: Special data request from the Department of Health and Ageing, received 19 December 2011 and Deloitte Access Economics internal analysis.

These average annual percentage increases were used to project the volume of people taking a certain number of medicines forward to 2015.

## Appendix S: Methodology for estimating the eligible population for Diabetes MedsCheck services

The intended population for Diabetes MedsCheck consultations is the adult population aged 18 years and above. However, ABS figures for the entire projected population was used because all published prevalence and incidence of type 2 diabetes in Australia were presented as population-based figures. This does not affect the estimates presented later in this section because the prevalence of type 2 diabetes in the non-adult population is extremely low; the most recent estimate in people younger than 35 years was 0.1% (AIHW 2011b).

The prevalence of diagnosed type 2 diabetes in Australia was sourced from the published figures reported by the AIHW for 2004-2005 (AIHW 2008) and 2007-2008 (AIHW 2011b). The AIHW reported figures were based on the data collected from the ABS National Health Surveys. These survey results provide the most up-to-date data source for diagnosed type 2 diabetes available in Australia. The most recent two surveys in 2004-05 and 2007-08 reported that 3.6% (700,183) and 3.8% (787,500) of Australians had a diagnosis of type 2 diabetes, respectively. This corresponds to an annual growth of 0.07%, see Table 9.3.

The incidence data represented in Table 9.4 can be calculated from the prevalence data (in Table 9.3) and mortality rate for diabetics. This rate was calculated by multiplying the most recent standardised death rate for the Australian population from all causes (5.7%, ABS 2011) by the increased risk of death which results from a new type 2 diabetes diagnosis (1.3), based on the Australian Diabetes, Obesity and Lifestyle (AusDiab) study (Barr et al 2007) which equals 7.4%<sup>43</sup>. It was assumed people are not cured of their diabetes although acknowledged that some may go into remission, for instance, from weight loss.

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<sup>43</sup> This may overestimate the rate of all cause mortality as individuals with type 2 diabetes are captured in the standardised Australian death rate.

## Appendix T: Methodology for estimating the eligible population for Diabetes MedsCheck services

The 2009 Australian National Diabetes Information Audit & Benchmarking (ANDIAB) study conducted by the National Association of Diabetes Centres provides an estimation of the proportion of Australians with type 2 diabetes who have uncontrolled blood sugar levels<sup>44</sup> (National Association of Diabetes Centres, 2009). The ANDIAB study found that the mean HbA1c for their sample of adults (N=3646) with type 2 diabetes was 7.9% ± 1.7%. National Health and Medical Research Council guidelines recommend that the general HbA1c target in people with type 2 diabetes is less than or equal to 7% except in patients who have a history of severe hypoglycaemia, a limited life expectancy, co-morbidities or are elderly (Colagiuri et al. 2009). The ANDIAB findings regarding blood glucose control in patients with type 2 diabetes have been summarised in Table T.1. The normal HbA1c range is considered to be 4 to 6%, therefore a HbA1c greater than 1% above the upper limit of normal (ULN) would be approximately 7% and considered uncontrolled.

**Table T.1: Blood glucose control in patients with type 2 diabetes (Glycated Haemoglobin (HbA1c)- % above the upper limit of normal (ULN))**

HbA1c- % above ULN	≤0%	>0% to ≤1%	>1% to ≤2%	>2%	Total
Number of patients (N)	275	964	1056	1351	3646
% of patients (N)	7.5	26.4	29.0	37.1	100

Source: National Association of Diabetes Centres, 2009

Therefore, the ANDIAB study findings estimate that 66.1% of patients with type 2 diabetes have an average HbA1c above 7% and are thus eligible for a Diabetes MedsCheck (if an educator cannot be accessed).

<sup>44</sup> The ANDIAB study collected de-identified data on 8563 patients with diabetes from 40 Diabetes Centre members of the National Association of Diabetes Centres and 2 specialist endocrinologists. Of the 8563 patients, 4411 patients (51.5%) had type 2 diabetes, that is, 4373 adults and 38 children. Of the total number of patients with type 2 diabetes, 3646 adults and 34 children had an HbA1c (%) result which was either the most recent result or a level taken within the last 12 months available for analysis.



## Appendix U: Methodology for estimating the eligible population for Diabetes MedsCheck services

In 2010, the most recent year with 12 months of consecutive data supplied on special request, 58,671 individual diabetes education health services were provided to people with diabetes by a credentialed diabetes educator (MBS items 10951 and 81305). In the same year 2,096 diabetes education group services were held for people with type 2 diabetes with the maximum group size containing 12 people (MBS item 81105). Therefore, taking an optimistic view, these group services could have reached a maximum of 25,152 people and in addition to the individual services provided, we can estimate that diabetes education from a credentialed diabetes educator reached a maximum of 83,823 people in 2010. This is likely to be an inflated figure as the individual services could have been supplied a maximum of five times per calendar year to an eligible person with diabetes and likewise, the group services could have been supplied up to eight times per calendar year to an eligible person. In addition, the figures for individual services supplied relate to services for people with type 1 and type 2 diabetes. In 2010, it is estimated that 3.93% of the Australian population, that is 848,800 people had type 2 diabetes<sup>45</sup>. Therefore, even an optimistic estimation suggests that diabetes education services delivered by credentialed diabetes educators reached less than 10% of people with type 2 diabetes in 2010.

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<sup>45</sup> This projection was calculated using the same methodology outlined in Section 9.1.5 and Appendix S.

## Appendix V: Methodology for estimating the eligible population for MedsCheck services

The number of people living in Australia and taking five or more PBS medicines is estimated to be 1.2 million people in 2012 and by 2015 approximately 1.4 million people. MedsCheck and Diabetes MedsCheck services are limited to those who hold a Medicare or DVA card (a necessity for a PBS prescription) and are living in the community. Removing people residing permanently in residential aged care reduces these estimates slightly.

An approximate estimate of the number of people who would be eligible for a MedsCheck in 2012 and 2015 is in Table V.1. For example, in 2012 in Australia, approximately 37% of people aged 65 years or over and on prescription medication will be taking five or more medicines, of these, close to 60,000 will be permanently residing in residential aged care facilities. In 2012, approximately 10% of people aged under 65 years and on prescription medication will be taking five or more medicines, of these, approximately 640 will be permanently residing in residential aged care facilities<sup>46</sup>. Simply subtracting these two groups from our total population estimate of people on five or more medicines in 2012 suggests that around 1.16 million people living in the community will be taking five or more medicines.

**Table V.1: Projected number of people eligible for a MedsCheck service from 2012 to 2015**

	2012	2015
% of people 65 years or older taking medicines who are taking five or more medicines	37%	40%
% of people under 65 years taking medicines who are taking five or more medicines	10%	10%
Number of people permanently residing in aged care who are 65 years and older	161,312	168,801
Number of people permanently residing in residential aged care aged	6,396	6228

<sup>46</sup> It is assumed that all people residing permanently in residential aged care are taking at least one prescription medicine and the proportion of people taking five or more medicines in permanent residential aged care is approximated by the proportion of all people in each age group (< 65 years and ≥ 65 years) who are taking prescription medicines who are taking five or more prescription medicines in the Australian population.

under 65 years		
Number of people 65 years and older taking 5 or more medicines living in permanent residential aged care	59,685	67,520
Number of people under 65 years taking 5 or more medicines living in permanent residential aged care	640	623
Total Number of people taking five or more medicines(a)	1,220,000	1,450,000
<b>Number of people taking 5 or more medicines living in the community(a)</b>	<b>1,160,000</b>	<b>1,380,000</b>
(a) Rounded to the nearest 10,000		

## Appendix W: Methodology for estimating the eligible population for Diabetes MedsCheck services

The number of people newly diagnosed with type 2 diabetes (incidence) in 2012 is estimated at around 83,100 (Table 9.4). Subtracting this value from the estimated 2012 prevalence (933,800, Table 9.3) suggests about 851,000 people with type 2 diabetes. Based on the ANDIAB study results, the proportion of people whose diabetes is less than ideally controlled among this group is 66%, or 561,000. In summary, the number of individuals who are newly diagnosed or have uncontrolled type 2 diabetes is approximately 644,600.

As eligibility for a Diabetes MedsCheck service is contingent on an inability to see a diabetes educator, this population needs to be multiplied by the proportion of people who cannot see an educator. Section 9.1.7 provided an approximation of the proportion of individuals who accessed an educator in 2010 (9.9%<sup>47</sup>) and based on this (best available) data, about 90% did not have a consultation that year. Multiplying the population of newly diagnosed and those with uncontrolled blood sugar levels by 90% equals about 580,100 eligible for a Diabetes MedsCheck service in 2012. This figure was extrapolated to 2015 using type 2 diabetes prevalence and incidence projections from Table 9.3 and Table 9.4 respectively. The proportion of diabetics with uncontrolled blood sugar levels and the proportion not able to access an educator were held constant at 66% and 90% respectively due to inadequate data

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<sup>47</sup> Calculated by dividing the maximum number of educator consultations (83,823) by the total diabetic population (848,800) in 2010. Further explanation provided in Section 9.1.7.

# Limitation of our work

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## Contact us

Deloitte Access Economics  
ACN: 49 633 116

Level 1  
9 Sydney Avenue  
Barton ACT 2600  
PO Box 6334  
Kingston ACT 2604 Australia

Tel: +61 2 6175 2000  
Fax: +61 2 6175 2001

[www.deloitteaccesseconomics.om.au](http://www.deloitteaccesseconomics.om.au)

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