



Series title: *Towards integrated primary health care  
Integration within primary health care and between  
primary health care and other sectors*

## **Integrated care: What can be done at the micro level to influence integration in primary health care?**

Report 5

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August 2013

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ISBN 978-0-9872601-9-2

**August 2013**

**Acknowledgments**

PHCRIS would like to thank Dr Tilley Pain, Adjunct Senior Research Fellow in the School of Medicine and Dentistry, James Cook University for her valuable comments on a draft of this *Policy Issue Review*. Dr Pain is highly regarded and has extensive expertise in the field of primary health care and collaborations between the acute and primary health care sectors.

**Suggested citation**

Oliver-Baxter J, Brown L, O'Connor J, Lunnay B, Bywood P. (2013). *Integrated care: What can be done at the micro level to influence integration in primary health care? PHCRIS Policy Issue Review*. Adelaide: Primary Health Care Research & Information Service

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## List of Abbreviations

ACO	Accountable Care Organization
AGPN	Australian General Practice Network
AML Alliance	Australian Medicare Local Alliance
APCC	Australian Primary Care Collaboratives
BSCDS	Brisbane South Complex Diabetes Service
CABG	Coronary Artery Bypass Graft
CCM	Chronic Care Model
CDM	Chronic Disease Management
CMDHB	Counties Manukau District Health Board
CME	Continuing Medical Education
CPHC	Comprehensive Primary Health Care
CREST	Community Rehabilitation, Enablement & Support Team
DGP	Divisions of General Practice
DHB	District Health Board
ED	Emergency Department
EHR	Electronic Health Record
ETHC	East Tamaki Healthcare
FTE	Full time Equivalent
GP	General Practitioner
HbA1c	Blood glucose
HEAL	Healthy Eating, Active Living
HiTH	Hospital in The Home
HMO	Health Maintenance Organization
IFHC	Integrated Family Health Centre
IPHCS	Integrated Primary Health Care Services
IT	Information Technology
KP	Kaiser Permanente
LDL	Low density lipoprotein
MBS	Medical Benefits Schedule
MHN	Midland Health Network
ML	Medicare Local
NGO	Non-Government Organisation
NHS	National Health Service
NSW	New South Wales
NT	Northern Territory
NZ	New Zealand
PAC	Patient Access Centre
PBMA	Program Budget Marginal Analysis
PCN	Primary Care Network
PCP	Primary Care Partnerships
PCEHR	Personally Controlled Electronic Health Record
PCMH	Patient-Centred Medical Home
PHC	Primary Health Care

PHCOs	Primary Health Care Organisations
PHCRIS	Primary Health Care Research & Information Service
PHO	Primary Health Organisation
PMS	Personal Medical Services
PRISMA	Program of Research to Integrate Services for the Maintenance of Autonomy
RACE	Rapid Access to Care for the Elderly
RACGP	Royal Australian College of General Practitioners
RCT	Randomised controlled trial
SA	South Australia
SCTT	Service Coordination Tool Templates
THG	Tararua Health Group
THO	Total Health Otago
TLC	Telephone linked care
UK	United Kingdom
US	United States
WA	Western Australia
WHO	World Health Organization



# Executive summary

## Context & background

Consumers require health services that meet their needs, are connected and well-integrated. They want to experience ‘one health system’ regardless of service structure, funding or governance. The provider-patient interface is the critical environment in which the needs and expectations of both providers and patients are considered.

## Aims

The aim of this report is to identify factors that influence the delivery of integrated services to consumers at the micro level of the primary health care (PHC) system. This report will examine national and international (NZ, England, Canada and the US) strategies to understand the initiatives which lead to improved outcomes and better consumer experiences. Enabling factors and barriers to integrated service delivery will be discussed. Priority areas for governments to consider will also be identified.

## Methods

A literature review was undertaken using a range of electronic databases, websites and the grey literature. The timeframe for inclusion of resources for this report was limited to material produced within the past 10 years. A snowballing technique was used to identify additional material. Knowledge exchange/input from experts in the PHC field specialising in integration was an important phase of the search strategy that enabled both the identification of strategies/initiatives in place in Australia and access to evaluation details where possible.

## Findings

There are 12 key findings from this review.

- 1 Continuity of care by specific personnel and teams is welcomed by patients and helps to avoid omissions in records and care
- 2 After-hours health care and advice is highly valued by consumers
- 3 Sensitivity to the individual’s personal needs and cultural sensitivity reassures the patient that they are being heard and that their care is a priority
- 4 Consumers want to be involved in their medical decision-making
- 5 Primary health care organisations have been established to provide support, education, and other infrastructure resources for health professionals to enable delivery of integrated services to patients
- 6 Health and social care arrangements are frequently linked for improved integration of services
- 7 Resources focused on community—rather than hospital-based services improve the management of transitions between these services (i.e. discharge from acute to primary care) by way of communication (electronic and interdisciplinary education)
- 8 Co-location is frequently identified as a strategy for improved access to multidisciplinary care
- 9 Integrated care strategies applied in vulnerable populations can be used to transform care for other populations
- 10 Patient-centred medical home approaches are common across many services which deliver integrated care
- 11 Physician-led multidisciplinary teams are important for improving patient outcomes
- 12 PHC services may benefit from information technology advances.

## Conclusions

Evidence from successful integration projects at the micro, service delivery level of PHC have demonstrated improved patient outcomes, experiences and satisfaction whilst being cost-effective. However, introducing complex change to complex health systems requires attention to change processes and communication modalities and pathways at the local level, and structural changes that enable easy transfer of information and collaboration may be required. Evaluation of trials of integrated service delivery conducted at the highest level of research design are essential to further knowledge of what works best for integration within the health system and service delivery.

## Context

Integrated health care is an integral element of Australian health reform and one of the priority areas in the 2010 National Primary Health Care Strategy (Commonwealth of Australia, 2010). One of four key challenges driving primary health care (PHC) reform, as identified in a recent systematic review of international PHC literature, was the “duplication and poorly coordinated care resulting from the lack of integration between primary care services” (McDonald et al., 2006). Consumers require health services that meet their needs, are connected and integrated. They want to achieve ‘one health system’ regardless of service structure, funding or governance (National Health and Hospitals Reform Commission, 2009). Thus a key direction for the Australian health system is to better integrate and coordinate the range of service providers and care organisations comprising PHC. Improving consumer access to care is fundamental to transforming a previously fragmented health system to one that is integrated and easily navigated by all patients. The aim is to achieve streamlined service delivery and improved health outcomes by reducing overlap and duplication of services and using existing resources to fill gaps.

Integration occurs across multiple levels, from the **macro** level of governments that develop policies to enable integrated health care, through the **meso** level of organisations that facilitate linkages and networks across health service provider organisations and other stakeholders, to the **micro** level of agencies and individuals that provide services directly to patients and other service users. It should be noted that the macro, meso and micro levels are *interdependent*. That is, integrated care that is delivered by a team of health care professionals (micro level integration) requires support and leadership across the different provider organisations (meso level integration), and both are enabled by macro level integration policies. Therefore, there is substantial overlap between the levels and across jurisdictions.

This report is the **fifth** in a series related to integrated health care. Each report addresses different aspects of integration at one of three levels: macro, meso, micro. Building on previous rapid reviews, this review of **micro** level integration provides a summary of effective strategies and the challenges and barriers to integration of health services, with particular emphasis on provider behaviour and consumer experience.

Report	Level	Title
1	Macro	<i>Integrated care: What policies support and influence integration in health care in Australia?</i>
2	Macro	<i>Integrated care: What policies support and influence integration in health care across New Zealand, England, Canada and the United States?</i>
3	Meso	<i>Integrated care: What strategies and other arrangements support and influence integration at the meso/organisational level?</i>
4	Meso	<i>Medicare Locals: A model for primary health care integration?</i>
<b>5</b>	<b>Micro</b>	<b><i>Integrated care: What can be done at the micro level to influence integration in primary health care?</i></b>



## Background

At the micro level integrated health care systems focus on the patient experience. At some stage during a person's lifetime, they will require different types of health care services, delivered by a variety of health care providers. This may be for a single episode of acute illness, a long-term chronic condition, or multimorbidities that require specialised care. In each case, it is likely that a patient will need to consult with a PHC provider and any number of other health care professionals within PHC (e.g. community health, allied health) and other sectors of health care (e.g. hospital, private specialist) and/or non-health services (e.g. transport, social services).

Too often, patients and providers experience poorly integrated, or fragmented care (AMLA, 2012), including circumstances in which:

- Consumers and service providers cannot find the services they need
- General practitioners (GPs) do not know when patients are admitted or discharged to/from hospital
- People with severe mental illness do not receive proper physical and dental care
- People with multiple chronic conditions receive conflicting advice from different specialists and teams
- Families with multiple challenges receive uncoordinated assistance from health, education, community services and other sectors
- Public and private sector clinicians do not understand each other's priorities or ways of working
- There is duplication of tests
- Providers have difficulty accessing test results.

A systematic review of the core dimensions of PHC (Kringos et al., 2010) suggested that the process of delivering good PHC is determined by: access, continuity of care, coordination of care and comprehensiveness of care; and the measures of a good PHC system are determined by the quality of health care received; and the efficient and equitable delivery of services.

*There is a considerable evidence base showing that primary care contributes through its dimensions to overall health system performance and health (Kringos et al., 2010).*

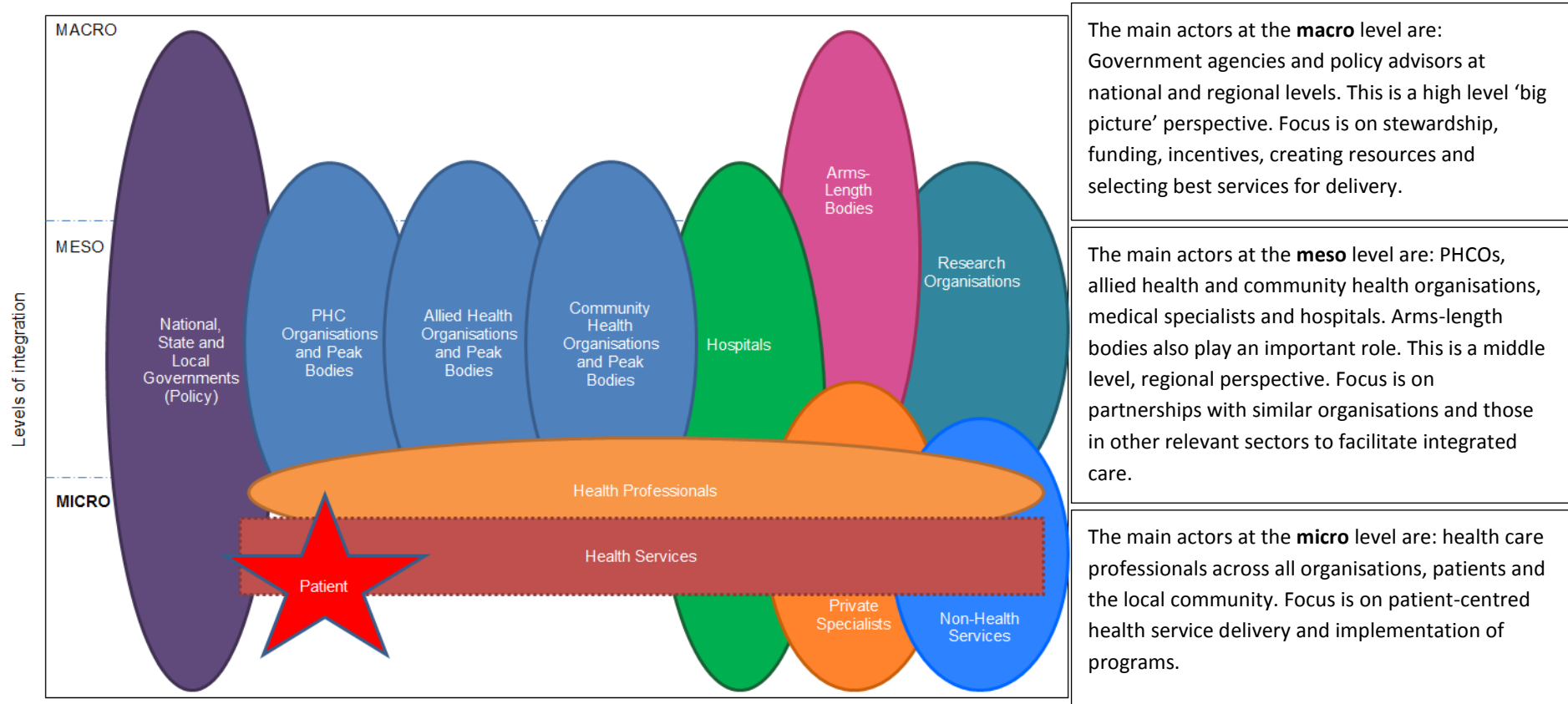
In Australia and worldwide, health systems are facing the same challenges of an ageing population, increasing prevalence of chronic illness and escalating health care costs. Evidence suggests that a well-integrated PHC system is an effective way to improve patient outcomes and efficiency in service delivery (Ham and Curry, 2011, Starfield et al., 2005).

## Defining primary health care

There is little consensus on what is meant by PHC; and the parameters of what is considered a PHC service are constantly expanding. In simple terms, PHC is: "the part of Australia's health system that people use most. It is the first – primary – point of health care delivered in, and to people living in their communities – outside of hospitals" (Australian Government Department of Health and Ageing – yourHealth website). PHC comprises many diverse services, including general practice, community health, Indigenous health services and allied health. Report 3 in this series (*Integrated care: What strategies and other arrangements support and influence integration at the meso/organisational level?*) provides more detail on the definitions and components of Australian PHC. For the purposes of this report, the following definition, which was developed by the Australian Primary Health Care Research Institute (APHCRI) is used:

*Primary health care is socially appropriate, universally accessible, scientifically sound first level care provided by health services and systems with a suitably trained workforce comprised of multi-disciplinary teams supported by integrated referral systems in a way that: gives priority to those most in need and addresses health inequalities; maximises community and individual self-reliance, participation and control; and involves collaboration and partnership with other sectors to promote public health. Comprehensive PHC includes health promotion, illness prevention, treatment and care of the sick, community development, and advocacy and rehabilitation (APHCRI, 2010).*

Figure 1 illustrates the range of peak bodies and organisations relevant to PHC including allied health, community health, non-health services, and those engaged with hospitals, specialists and researchers. The figure also shows the complexity of the interacting sectors in which PHC operates to deliver integrated health care. Whilst some integration strategies operate from the top down (i.e. policy directives to establish Medicare Locals), effective needs assessment is driven from the patient and community service delivery level (i.e. from the bottom up). Maintaining a balance between these two processes is important for system-wide integration. This report focuses on the **micro** level of service delivery recognising that integration efforts operate across all levels, both horizontally and vertically. While the delivery of health services is also underpinned by staff in health administration/management and information technology, the main actors at the micro level, and the focus of this review, are health care professionals and patients.



**Figure 1** Levels of Integration and Key Stakeholders

## Defining integration at the micro level

As acknowledged in previous reports in this series, there is a number of definitions of ‘integration’ and ‘integrated care’. Table 5 (Appendix) provides a range of definitions that illustrate the broad, intersecting domains and factors that are part of integrated care. The definition used in this set of reports is that of the World Health Organization (WHO) which defines integrated health service delivery as:

*the management and delivery of health services so that clients receive a continuum of preventive and curative services, according to their needs over time and across different levels of the health system (WHO, 2008 p 4).*

However integrated care means different things to different stakeholders. For example:

*For the **user** [patient], integration means health care that is seamless, smooth and easy to navigate. Users want a coordinated service which minimises both the number of stages in an appointment and the number of separate visits required to a health facility. They want health workers to be aware of their health as a whole (not just one clinical aspect) and for health workers from different levels of a system to communicate well. In short, clients want continuity of care (WHO, 2008, p 4).*

*For **providers** [health professionals], integration means that separate technical services (and their management support systems) are provided, managed, financed and evaluated either together, or in a closely co-ordinated way (WHO, 2008, p 4).*

Therefore, at the micro level, with its emphasis on service delivery, it is important to consider both the patient and practitioner’s experience. For the purposes of this report, the term **micro** level integration refers to integrating health care at the level of agencies and individuals that directly provide PHC to consumers/patients, such as general practice, community health services, private nursing or allied health providers. Further, horizontal integration of services occurs *between* or *across* Australian PHC organisations or providers (e.g. between GP and allied health organisations); whereas vertical integration refers to transitions between primary and acute care settings.

HealthOne NSW suggests that integrated service delivery is expected to:

- Improve a patient’s experience of the health system (e.g. improve continuity of care)
- Improve individual and population health outcomes
- Improve access to services
- Specifically address local needs
- Create efficiencies for practitioners through sharing resources and services
- Introduce more robust governance arrangements for the health and wellbeing of populations (and use of resources).

This report explores the roles of both health professionals and consumers for improving the integration of service delivery, and the impact of integrated care on their experience.

## The consumer experience

*The patient’s perspective is at the heart of any discussion about integrated care. Achieving integrated care requires those involved with planning and providing services to impose the patient’s perspective as the organising principle of service delivery (Shaw et al., 2011, p 7).*

*...if services were designed as though the patient’s time had some value, it is likely that the pattern of services currently provided would be very different (NHS Confederation, 2008, p 3).*



In broad and simple terms, patients expect to receive good quality care when they need it, to be treated with respect and dignity, to have their preferences taken into consideration, and to have some protection from inequitable financial burden of illness (WHO, 2000). A recent study explored 44 participants' perceptions of integrated care in the Californian health system (Odom Walker et al., 2013). Almost all participants had a usual source of care and 73 per cent had seen a specialist in the past two years. Box 1 shows the themes that emerged from this study. These findings highlight the broad set of areas to be considered when examining integrated service delivery from a consumer perspective.

## Box 1 Patients' perceptions of integrated care

### **Theme 1: Coordination with care team**

Patients wanted providers to know their medical history and care plan, regardless of the medical provider who knows them best. Patients described their frustration in having to repeat information and in receiving conflicting information. They also noted that duplication of effort sometimes occurred as a result.

### **Theme 2: Coordination across teams**

Patients noticed when the information about their medical history, referrals, or treatment plans was not shared with other providers and care sites. Many patients did not understand why they were often expected to be the expert for their own medical conditions, despite not fully understanding medical jargon and details about diagnoses and past treatments. Other patients noted that physicians who were providing care in other settings should just contact their personal doctor, as they were aware that no attempt was made to contact their personal doctor.

### **Theme 3: Coordination between care teams and community resources**

Several patients expressed appreciation when their primary care teams and other providers helped to facilitate connections to community-based resources. These linkages often provided additional resources and support that patients otherwise would not have had. Community-based resources could provide additional support, medical supplies, and even transportation.

### **Theme 4: Continuous familiarity with patient over time**

Patients described the sense of continuous familiarity as involving both a longitudinal relationship with a primary care physician and information sharing across settings and time... Relying on the medical charts alone is often fraught with error and incomplete or missing information. Patients shared multiple examples of how they observed that the charts had missing parts of their medical history, current medication lists or care plan.

### **Theme 5: Continuous and proactive and responsive action between visits**

Patients expressed a desire for responsiveness to their concerns and questions, regardless of whether they contacted the primary care clinician, specialist, lab, or billing office...The manner in which their needs were addressed could occur through email, phone, internet health portals, or written communication...Those who had access to medical record web-portals to review test results and communicate with their office staff or doctor were generally very pleased with this tool.

### **Theme 6: Patient-centred care**

Patients expressed satisfaction with care that was responsive to patient preferences in a respectful, culturally sensitive and supportive environment. They also described their frustration when care was not centred on their needs or experiences...With information availability, continuous conversation, and ongoing decision making around their individual needs, patients felt that the healthcare system was working on their behalf, rather than for other reasons (i.e. profits, convenience).

### **Theme 7: Shared responsibility**

Patients wanted to be empowered, along with their family and at-home caregivers, in medical decision-making and care coordination...Some described experiences of care so disjointed that they had to take responsibility for their own longitudinal record of care and manage all parts of their health care needs. Even when a patient has a responsive, patient-centred medical home, patients pointed out that it is the patient who lives 24/7 with his or her medical conditions and often must deal with a myriad of care coordination needs.

Source: (Odom Walker et al., 2013).

## The health professional's experience

The provider-patient interface is the critical environment in which the needs and expectations of both providers and patients are considered. There are five concepts which have been perceived as underlying interprofessional collaboration including sharing, partnership, balanced power, interdependency and an evolving process (D'Amour et al., 2005). However, McDonald et al. (2012) suggest that the practitioner experience is compounded by the complex interaction between the public and private sector and the nature of the relationships between the two. Studies identified three main challenges for health professionals including appeasing power struggles, delineating roles in a multidisciplinary team and developing trust (Carpenter et al., 2003, McDonald et al., 2012).

Evidence suggests that integration of services may have an impact on several areas of health care providers' practice (Carpenter et al., 2003, Chan et al., 2010, Chan et al., 2011, McDonald et al., 2012) including:

- **Workload:** collaborations and working in multidisciplinary teams may increase their clinical and administrative workload; alternatively, sharing the workload with other health providers in a team may be advantageous
- **Patient flow:** working together may reduce duplication of information-gathering and allow patients to move smoothly through a continuum of care
- **Job satisfaction:** sharing responsibilities and dividing workload may improve job satisfaction among health professionals working in collaboration with others
- **Team functioning:** members of integrated teams are involved in decision-making, share responsibility, note decreased feelings of isolation, support innovation, have shared and attainable visions, are persistent in striving for excellence and illustrate organisational efficiency
- Improved two-way **communication** pathways: opportunity for informal communication (e.g. corridor conversations) in co-located teams, development of rapport due to frequent contact
- **Professional development:** collaboration with practitioners in other fields of health care (e.g. specialties, allied health) may increase providers' knowledge base and allow health professionals to develop an understanding of the complementary nature of other practitioners' skills.



## Aims of this Report

This report considers the factors that facilitate and consolidate integrated care at the **micro** level of the PHC system. At this direct service delivery level, the report aims to identify:

- 1 The factors that influence health professionals to deliver integrated services leading to improved outcomes and higher consumer satisfaction
- 2 The main barriers to integration
- 3 The priorities for service delivery integration.

Specific research objectives and review questions are presented in Table 1.

**Table 1 Research objectives and key review questions**

Research Objectives	Key Review Questions
Identify micro level strategies for integration in the Australian health care system.	<ul style="list-style-type: none"> <li>• What strategies have been developed in the Australian health care system to influence micro level integration?</li> <li>• What examples illustrate successful integration?</li> </ul>
Identify international strategies for integration at the micro level; and how these may apply in the Australian context.	<ul style="list-style-type: none"> <li>• What strategies to address integration at the micro level exist internationally? (e.g. NZ, England, Canada, US)</li> <li>• What examples illustrate successful integration?</li> </ul>
Consider initiatives for integrating health care at the micro level; which initiatives influence integrated care and health service delivery; and provide examples of best practice.	<ul style="list-style-type: none"> <li>• What initiatives are used to promote integrated care at the micro level (drawn from Australian and International models)?</li> <li>• How do they influence health service delivery?</li> <li>• What examples illustrate successful integration?</li> </ul>
Summarise barriers and enablers to integration at the micro level. Identify potential risks or unintended consequences of implementing integration strategies at the micro level. Prioritise options for the Australian context.	<ul style="list-style-type: none"> <li>• What are the main barriers and enablers to integration at the micro level?</li> <li>• What are the potential unintended consequences of implementing micro level integration strategies?</li> <li>• What could be done to improve integration at the service delivery level in Australia?</li> </ul>

This report presents examples of strategies and initiatives of health service delivery which promote integration at the micro level within the Australian health system and internationally (where the example is instructive and comparable to Australia). Some notable case studies are used to illustrate good examples of well-integrated health services. Where possible, outcomes are reported in terms of both the consumers' and health care providers' experiences.

## Limitations

Due to time constraints, the timeframe for inclusion of resources for this report was limited to recent material (i.e. within the past 10 years) that aims to influence integration in PHC. In addition, it must be noted that we have included material related to organisations that may be in effect during a transition phase. For example, some material relates to the Divisions of General Practice (DGP) while other details reflect recent transitions and address the newly formed MLs. Further, information on integration at the service delivery level in other countries was limited primarily to NZ, the UK, Canada and the US where relevant. These countries were selected on the basis that they were

perceived as being comparable countries in terms of the organisation, funding and delivery of PHC; or that they had a diversity of innovative PHC delivery models. While information from countries other than those listed above was not explicitly excluded, specific searches in other countries were not undertaken.

## Methods

This report followed a 'rapid review' format. Rapid reviews are pragmatic literature reviews that focus on research evidence, with a view to facilitating evidence-based policy development. Due to the limited timeframe, searches and critical appraisal of the literature were not systematic or comprehensive. In order to obtain the most relevant material quickly, search terms varied across different databases. Consequently, replication of this review may result in a different literature base. This report also contains reference to earlier reports in this series where they are germane to areas of overlap.

Table 2 lists examples of the information sources used to identify relevant literature for this rapid review. While some articles were located in the peer-reviewed literature, much of the relevant information for this report was located by searching the grey literature, including from government or organisational websites. Specific journals were hand searched for relevant articles (see Table 2). Once relevant material was located, a snowballing approach was used to identify additional material. Where possible the information was triangulated in order to confirm reliability of sources. Only articles from the past 10 years were included to ensure relevance to the current Australian health system context. Individual studies that were included in existing systematic reviews were not examined separately. Knowledge exchange/input from experts in the PHC field specialising in integration was an important phase of the search strategy that enabled both the identification of strategies/initiatives in place in Australia and access to evaluation details where possible.

**Table 2 Information sources**

<b>Electronic bibliographic databases</b>	PHC Search Filter using PubMed MEDLINE, CINAHL, PsycLIT, ISI Web of Science, PubMed, AUSTHealth
<b>Websites</b>	Commonwealth Department of Health and Ageing PHCRIS Australian Policy Online
<b>Grey literature</b>	Google, Google Scholar
<b>International websites</b> with relevant literature	<b>NZ</b> - <a href="http://www.health.govt.nz">http://www.health.govt.nz</a> <b>UK</b> - <a href="http://www.dh.gov.uk/en/index.htm">http://www.dh.gov.uk/en/index.htm</a> <b>Canada</b> - <a href="http://www.health.gov.on.ca/en/">http://www.health.gov.on.ca/en/</a> , <a href="https://www.divisionsbc.ca/provincial/home">https://www.divisionsbc.ca/provincial/home</a> <b>US</b> - <a href="http://www.hhs.gov/safety/index.html">http://www.hhs.gov/safety/index.html</a>
<b>Specific journals (hand searched)</b>	Australian Journal of Primary Health, International Journal of Integrated Care, International Journal of Coordinated Care, American Journal of Managed Care





## Findings

The following sections address the research questions outlined in the Aims section above. The sections below outline:

- Australian strategies to integrate health service delivery
- International strategies to integrate health service delivery
- Initiatives that enable micro level integration
  - Communication and support initiatives for providers and patients
  - Structural arrangements to support integration
  - Information technology to support integration
- Barriers and enablers for integration
- Risks or unintended consequences of integration
- Priorities for improving integrated service delivery (i.e. factors that governments can influence).

### Australian strategies to integrate health service delivery

#### *Key lessons from Australia*

- Diverse models of integrated care have been established across Australia
- Evidence of effectiveness is limited; more evaluation is required
- PCPs demonstrate positive experience of integrated care for patients; however, services are not always well aligned with other service boundaries
- SCTTs are potentially useful tools to facilitate integration of services in PCPs
- Community-oriented integrated PHC centres show promise with improved access to disadvantaged populations, quality of care measures and some health outcomes
- Uni-Clinic in Cessnock increased diversity in range of services provided by broadening scope of practice of health professionals
- GP Super Clinics demonstrate improved access, referrals, and communication about patient care; little evidence of integration with hospitals or planning for local health needs
- Comprehensive PHC approaches have been implemented in various forms across Australia, with good patient outcomes reported in preliminary studies.

Service delivery involves both consumers of health care (patients, caregivers) and health care providers (health professionals); hence strategies to integrate health service delivery targets consumers and/or providers. There are several strategies which aim to improve health professionals' capacity to provide integrated service delivery and the outcomes are usually patient driven (i.e. satisfaction, clinical markers, etc.). While some of these strategies operate at the meso level to influence integration, there are often elements within them that impact on service delivery. Those relevant to improving the integration of service delivery are discussed in this section.

#### *Medicare Locals*

The establishment of Medicare Locals (MLs) has been one of the key building blocks to improving integration of health services for Australians. MLs are organisations that act at the meso level to facilitate links between other organisations and agencies. Reports 3 (*Integrated care: What strategies and other arrangements support and influence integration at the meso/organisational level?*) and 4 (*Medicare Locals: A model for primary health care integration*) provide a comprehensive discussion about MLs and their roles in integration at the meso level. MLs are also responsible for activities that may impact on health service delivery at the micro level, including conducting needs assessments; supporting and implementing health promotion/prevention

campaigns at a local level; and coordinating after-hours health services. To date, no evaluations of their impact at the micro level of service delivery are available. However, there is currently an evaluation of the MLs program underway, to be completed in June 2014.

### *Primary Care Partnerships*

Primary health care networks or partnerships (PCNs or PCPs) have been established as voluntary alliances of predominantly state government-funded primary and community health care agencies (McDonald et al., 2007a) (Refer to previous Reports 1<sup>i</sup> and 3<sup>ii</sup> for more details on how PCPs influence macro and meso level integration). In terms of the micro perspective, an evaluation of the PCP strategy identified consumer participation as an agency (i.e. service provider) responsibility and “not a priority for them” (Australian Institute for Primary Care, 2005, p 47). Despite this, the *Survey of Consumer Experiences 2005*, which is part of the Evaluation of the Primary Care Strategy (Australian Institute for Primary Care, 2005), reported that patient experience of health services delivered by providers within the regions governed by PCPs were rated highly in terms of:

- *Consumer interactions with health professionals*: sufficient time was spent with a health care provider; adequate information was provided about their condition; and there was adequate opportunity to discuss and make choices about treatment
- *Information sharing between agencies*: information was received on time; and consumer was referred to useful services
- *Service information*: appropriate information was received; and services were convenient
- *Consumer information*: adequate general health information was provided; useful information was available in the waiting room; and adequate information about health promotion activities was provided.

The PCP evaluation (Australian Institute for Primary Care, 2005) cited the uptake of Service Coordination Tool Templates (SCTT) and their associated protocols as a reason for this observed positive patient experience across PCPs. SCTT documents/ protocols include:

- A Consumer Charter
- A Community Health Plan
- Templates around consumer information (initial contact), summary and referral, consumer consent form, profiles, and service coordination plan (care planning)
- Protocols for each SCTT where available – Initial Contact, Initial Needs Identification, Care Planning and Sharing of Information
- Entry in the local service directory
- Contribution in the Integrated Health Promotion Plan
- Received funding or payments from PCP.

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<sup>i</sup> Report 1: *Integrated care: What policies support and influence integration in health care?* This report introduces the PCP Strategy, a Victorian government initiative which provides funding for collaborative and coordinated planning. It is a social model of health encompassing integrated chronic disease management and integrated health promotion. Functional integration is achieved through sharing resources such as protocols, procedures and practices for service coordination; and attention to the financial, qualitative and quantitative benefits of integration.

<sup>ii</sup> Report 3: *Integrated care: What strategies and other arrangements support and influence integration at the meso/organisational level?* This report describes how PCPs function to integrate organisations to meet the needs of local communities, often through use of representative committees and memorandum of understanding. Service providers become members to improve relationships, reduce duplication of services and address gaps in service provision. Many of the PCPs are geographically-based bodies which improve planning innovation and coordination across primary and community services and form part of a decentralised network that includes community health, hospitals, general practice and local government.

Between the inception of this strategy in 2005 through to the evaluation in 2009, there was an increase in the proportion of agencies using the different SCTT, clearly reflecting the roll-out of the Service Coordination strategy. Critically for some providers, SCTT were not always relevant or appropriate to some services (Australian Institute for Primary Care, 2005). One criticism identified in this evaluation was that these were largely paper-based tools and inappropriate use of assessment tools led to persistent duplications. Although the overall evaluation of PCPs was positive for agencies and consumers, one review (Powell Davies et al., 2009) suggests that, in some cases, they are not always aligned with other health service boundaries and there has been variable engagement with general practice.

### *Collaborative care*

#### **Australian Primary Care Collaboratives (APCC)**

The APCC was established in 2004 to support general practices to close the gap between best practice and usual practice and improve patient outcomes for a number of chronic and complex conditions (e.g. diabetes, chronic obstructive pulmonary disease). The key principles of the APCC are to establish an expert reference group for the condition; provide a series of learning workshops for general practices; test and implement small incremental changes in practices through 'plan-do-study-act' cycles; collect and analyse data to inform future practice; and to spread the learnings through the PHCOs (MLs and former DGP) (Ford and Knight, 2010). Data from seven 'waves' (between 2004 and 2009) showed steady improvement in control of blood sugar, cholesterol and blood pressure for patients on diabetes registers (Knight et al., 2012).

#### **IMPACT model for depression care**

The core key elements of the IMPACT model for depression care involve close collaboration between the patient's primary care provider and a depression care manager and consulting psychiatrist (Hunkeler et al., 2006). The program involves two main processes: systematic diagnosis and tracking of depression outcomes; and stepped care, involving dynamic treatment according to an evidence-based algorithm if the patient does not improve. Results from a RCT reported significant improvement in depression scores, physical functioning, quality of life and satisfaction with care (Hunkeler et al., 2006). This model has been implemented in the Greater Green Triangle with promising results (Dunbar and Reddy, 2009).

### *Integrated Primary Health Care Services*

There are two main types of Integrated Primary Health Care Services (IPHCS) in Australia: Extended General Practice and Broader PHC Centres that encompass community services. The former are usually private sector and tend to be professionally oriented, and to focus on more integrated care for patients using (and often registered with) the service. The latter are usually public or non-government, community-oriented centres focusing on the needs of identified communities or populations, with greater emphasis on health promotion and the determinants of health. A review of integrated PHC centres and polyclinics reported that evidence of effectiveness is limited, but showed improved integration within some Extended General Practice services<sup>iii</sup> (but not with other services); whereas Broader PHC Centres provided improved access for disadvantaged populations, better quality of care and some improvements in health outcomes. This is consistent with Lamarche's distinction between professionally and community-oriented PHC (Lamarche et al., 2003). The professional models of PHC involve health care professionals that operate their own practices, provide care to those who seek their services and are paid on a fee-for-service basis; whereas the community models operate in a more integrated way, focusing on improving the health of a

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<sup>iii</sup> Evidence was primarily from the US Kaiser Permanente model of care.

geographically-specific population. Research suggests there is a need to consider the types of PHC that are required in particular communities, the mix of integrated PHC services needed to provide care, and how these can be combined in a coherent system (Lamarche et al., 2003).

Each state has taken the integrated PHC centre model and adapted it in its own context. The current service providers who are actively addressing integration at the micro level using this model include: Multipurpose Centres (NSW), GP Plus Centres (SA) and Integrated Care Centres (TAS). It has been suggested that IPHCS are developing in relative isolation from one another (McDonald et al., 2012). Although government policies outline directions and limits, McDonald et al. suggest that these relatively new services reflect the individual history, organisational culture, local opportunities and stages of development. While these services illustrate potential in terms of breaking down some organisational and professional silos, there is currently no formal evaluation to report on outcomes. While IPHCS show early signs of tapping professional enthusiasm and overcoming some of the traditional sector, organisational and professional boundaries, McDonald et al. suggest it will be some time before this can be assessed with confidence.

### **Uni-Clinic (Cessnock, NSW)**

An example of the application of a Broader PHC Centre is the Cessnock Uni-Clinic which offers an Integrated Primary Health and Community Care (IPHCC) model of service delivery. The clinic was established in September 2004 to address the shortages in PHC services in the Cessnock and Kurri Kurri Local Government Areas. This model of integration, which was introduced by Jackson and Marley in 2007, was designed to link research and clinical education (Jackson and Marley, 2007).

The main objective of the NSW Department of Health's IPHCC model is to achieve "collaboration and continuity of care between general practice and both hospital-based and community health services" (Pond et al., 2006). This requires general practice, state government-funded community health, and allied health practitioners all working together in a multidisciplinary team to provide coordinated and patient-centred care for patients in their local communities. Led by GPs, services are delivered by a multidisciplinary team of health care professionals and are informed by research. The model introduces a new approach to governance and clinical responsibility in order to achieve this team practice.

Evaluation of this pilot program focused on whether the Clinic had an impact on health service usage (i.e. increased screening rates) and patient satisfaction with receiving care from a multidisciplinary team approach (Goode et al., 2007). Preliminary findings suggested there was no change in the GP-to-population ratio, but the Clinic had added variety to the GP workforce in the Cessnock area. Extensions to the Clinic have led to an increased range of specialised PHC services offered (e.g. house calls, telephone advice, nursing services, dietetics consultations), as well as greater collaboration with other PHC services in the community (Goode et al., 2007, Pond et al., 2005). The Cessnock Uni-Clinic shows that key drivers behind such an IPHCC model are seamless delivery of care, early intervention approaches, and emphasis on patient-centred practices and population health. Thus, Pond et al.'s (2006) evaluation report suggests that priority areas for policy development are integrated service planning and delivery, models of care focusing on partnerships, coordinated information and knowledge sharing and increased workforce capacity.

### **GP Super Clinics**

GP Super Clinics, a form of IPHCS, consist of newly constructed, or significantly extended, facilities that support the delivery of integrated, multidisciplinary PHC services; and the training and education of the future PHC workforce (Australian Government Department of Health and Ageing,

2010). There is no single model for GP Super Clinics. Currently, there are 60 GP Super Clinics either delivering services or under construction across Australia. At the end of 2012, more than 2.7 million services had been provided to patients through GP Super Clinics (Department of Health and Ageing, 2010).

One fiscal initiative to encourage integration of health professionals in GP Super Clinics is a *relocation incentive*. This financial incentive is available for the recruitment of allied health, nurses, mental health workers and/or Aboriginal and Torres Strait Islander health workers, and in some cases pharmacies/ists, to relocate to practices at the GP Super Clinic. This funding is paid in two instalments directly to the GP Super Clinic; and distribution of funding is the responsibility of the funding recipient. The first instalment is received once the health professional's relocation is confirmed; and the balance is received after 12 months of service at the GP Super Clinic. Relocating health professionals are required to commit to a minimum of 10 hours of professional service per week for at least 42 weeks per annum (Australian Government Department of Health and Ageing, 2010).

Evaluation of the GP Super Clinic Program 2007-2008 explored multidisciplinary and integrated care with both a patient survey sample and clinician interview (Consan Consulting, 2012). Participating clinicians commonly reported that multidisciplinary care was in place and was providing significant benefits for patients. Of the patients completing the survey, 83 per cent indicated agreement or strong agreement that they attended the GP Super Clinics so that they could see a range of other health professionals in the one location; and 66 per cent agreed or strongly agreed that the GP Super Clinic staff coordinated all aspects of their care (Consan Consulting, 2012). Several initiatives were reported to improve referral, access and communication about patient care, including:

- Multidisciplinary care, particularly through the use of shared health records
- Physical co-location, which enabled 'corridor conversations' - considered to be more valuable than more systematic approaches to integration supported by multidisciplinary clinical guidelines
- Financial incentives, such as access to Medicare items for Team Care Arrangements or Chronic Disease Management
- Care planning, which was mostly undertaken by a specific discipline such as a practice nurse or allied health staff, following assessment and clinical treatment advice by a GP.

In terms of specific links with local programs, the Consan Consulting evaluation (2012) highlighted some challenges. Some partnerships between GP Super Clinics and other health care settings had been established, most commonly in aged care settings. However, while non-GP medical specialists provided services at GP Super Clinics, there was limited support for integrated approaches with acute hospitals or planning for local health needs. The report indicated that these findings are likely to be a reflection of the GP Super Clinics' initial priorities and suggested that future evaluations may see a variation in these patterns.

### *Comprehensive Primary Health Care Model*

In simple terms, Comprehensive Primary Health Care (CPHC) approaches take into account the social determinants of health, health inequalities, health promotion, illness prevention, treatment and care of the sick, community development, advocacy, rehabilitation, intersectoral action and population health approaches (McDonald et al., 2006). This is in contrast to selective PHC, which focuses on treatment, rehabilitation and primary medical care. The CPHC model has recently been employed across several strategies in Australia (discussed below). In addition, recent work has been undertaken to devise a framework for assessing the performance of CPHC services and organisations

and to assist in research and evaluation (Powell Davies et al., 2011). Application of the CPHC model in Australia is done by way of two broad labels - integrated PHC and community services (such as the Cessnock Uni-Clinic described in the previous section) and the primary care amplification approach. Within these approaches there are strategies to support integrated service delivery.

### **The Primary Care Amplification Model**

The Primary Care Amplification Model is an example of CPHC which refers to first contact, continuous, comprehensive and coordinated care to a specific population (Jackson et al., 2008). This model has been described in detail in Report 3 (*Integrated care: What strategies and other arrangements support and influence integration at the meso/organisational level?*) in terms of its role at the meso level. The following two case studies describe applications and evaluations of the service delivery aspects of this model.

### **The Brisbane South Comprehensive Primary Care Network**

Based on Jackson's "working from the ground up" approach, the Brisbane South Comprehensive Primary Care Network represents a network of PHC services with links (physical and virtual) to outreach specialist services in areas of nursing, allied health, pharmacy, radiology and hospital-in-the-home (Jackson and Marley, 2007). In addition to the primary care amplification model, the "3Cs" model of integration used in this approach comprises communication and access, cultural change and teamwork, and commitment and incentives to integrate (Jackson et al., 2007). At the service delivery level, Jackson et al. (2007) suggested that the benefits of co-location were enhanced when common information transfer systems were available; shared "clinical initiatives or strategic health service objectives" (p 265) were in place; where health professionals shared a common client base; and where there was shared physical space (e.g. meeting, common and lunch rooms). However, the authors emphasised that physical co-location was unlikely to achieve optimal integration without "a clear, relevant and multi-faceted integration strategy that promoted regular contact in service planning and delivery" (Jackson et al., 2007, p 266).

An evaluation of health professionals participating in the Brisbane South Comprehensive Primary Care Network's co-location initiative revealed that the physical co-location significantly improved their knowledge of other co-locating groups (Jackson and Marley, 2007). However, in other areas, their experience did not match their initial expectations. For example, after co-locating, participants' perceptions of the potential to reduce duplication of services, and opportunities to develop professional relationships with people in organisations not involved in co-location were significantly lower than their initial expectations (Jackson et al., 2007). The professionals participating in this evaluation did identify enhanced communication, increased opportunities for collaboration and partnerships and improved workspace as positive outcomes of physical co-location, but also noted drawbacks, mostly related to access and parking. While this 12 month evaluation indicates that the model holds promise, a follow-up that includes patients' experiences is needed to determine the effectiveness of this strategy in terms of delivering good quality integrated care.

### **The Brisbane South Complex Diabetes Service**

The Primary Care Amplification Model has also been applied in Brisbane South for patients with complex type 2 diabetes. This trial of co-located coordinated care was instigated as a response to an unacceptable waiting list of 12 months for patients requiring assessment and care for complex diabetes (Jackson et al., 2010). The Endocrinology Department of the Princess Alexandra Hospital partnered with the University Of Queensland Discipline of General Practice to instigate an integrated primary/specialist community model of type 2 diabetes mellitus care, the Brisbane South Complex Diabetes Service (BSCDS). The multidisciplinary team consisted of an endocrinologist, GPs ('clinical



fellows' with advanced training and skills in diabetes care), a diabetes educator and a podiatrist, with additional allied health available if required. Treatment consisted of a comprehensive assessment followed by development of a management plan by the clinical fellow addressing all health care and lifestyle-related issues. The plan was then discussed with the attending endocrinologist, who in turn conferred with the patient in the presence of the clinical fellow (this efficiency allowed the endocrinologist to see two to three times as many patients in a visit to the centre). Based on those care plans discussed, those patients initiating or altering their insulin regimens were contacted by the educator by phone twice a week, in addition to consultation during the centre appointment. The referring GP was kept updated by letter (the mode of communication has since changed to a web-based record). All patients were contacted by the educator at three and six months "to assess progress, motivate and troubleshoot" (Jackson et al., 2010, p 973). GPs were able to call the program directly for advice or to discuss concerns. Patients were discharged from the program back to the care of their GP once targets were met or if there was no prospect of improvement after 12 months. The BSCDS was also used as a training hub for continuing education in advanced diabetes care. The cost for the clinical fellows' time was covered by Medicare, whilst a grant from Queensland Health (subsequently replaced by funding from District Health) covered the educator, endocrinologist and podiatrist input. An evaluation of the trial was undertaken to assess the efficiency and effectiveness of care (Jackson et al., 2010).

Initial results of the trial were positive, with findings that included:

- Significant improvements in glycaemic control in the BSCDS group, from 14.1 per cent of the patient sample with glycaemic control at baseline ( $n=14$ ) to 45.5 per cent ( $n=45$ ) at 12 months. The specialist outpatient group, with 19 per cent at intake ( $n=19$ ), illustrated only a modest improvement to 32.8 per cent ( $n=22$ ) at 12 months.
- Average reduction in glycaemic levels was statistically significant for the BSCDS group, but not so for the specialist outpatient group. This finding remained even after adjusting for the poorer glycaemic presentation of the trial group (probably due to lower socio-economic standing in the Inala catchment).
- Clinical outcomes for the integrated trial group cost just \$150 per visit compared to \$774 for the specialist outpatient group (these costs were inclusive of all aspects of the service).
- Despite the integrated trial group having more visits (6.7 on average compared to 2.1 for the specialist outpatients), the average total cost remained lower at \$1,005 compared to \$1,625.
- There was a reduction in waiting list time from 12 months (baseline) to four weeks for the co-ordinated trial group (no data were available for the control group).

In summary, this trial of integrated care produced greater improvements in health outcomes for trial participants compared to individuals experiencing treatment as 'normal' (specialist outpatient), and cost approximately 38 per cent less (despite three times as many visits). This model of integrated PHC is currently being replicated in a number of other areas in Queensland and is the endorsed model at the University of Queensland's three GP Super Clinics.

## International strategies to integrate health service delivery

This section focuses on international strategies (from NZ, the UK, Canada and the US) which target integrated service delivery. Many of these strategies are embedded within broader multi-level integration policies or organisational models. However, this report only includes descriptions of the strategies and findings from evaluations, where available.

### New Zealand

#### *Key lessons from New Zealand*

- Integrated care strategies in NZ focus primarily on improving service delivery for older adults
- Strategies used in a variety of models across NZ include:
  - Multidisciplinary teams
  - Cooperative network
  - E-health services for patients, such as on-line access to personal health information
  - Electronic shared care, with single patient management system used by general practices and the hospital
  - Stratified model of care (e.g. from home care to high intensity care, Eldercare)
  - Co-location model of PHC, with specialised functions for specific populations, such as mother/child; chronic disease; aged care (e.g. East Tamaki healthcare)
  - InterRAI assessment tool used to determine needs for vulnerable populations.

Recently, the NZ Ministry of Health developed a toolkit highlighting several different integration strategies for improving the health care system (Ministry of Health, 2012). Strategies were based around “streamlining the patient journey, reducing variation, anticipating patient care needs and working collaboratively with key stakeholders. These strategies include:

- 1 Whole-of-system thinking:** this approach aims to improve the patient flow by examining the whole context of service, “spanning primary and community through secondary and tertiary aspects of care” (Ministry of Health, 2012, p 3) (P3). For example, the Canterbury DHB introduced a GP liaison role to bring together GPs and medical specialists, triage referrals, identify gaps in services, and arrange education and upskilling sessions for GPs. The *HealthPathways* website and eReferral system was also introduced to facilitate referrals to hospitals. *HealthPathways* are local agreements between GPs and specialists. They contain the criteria, processes and templates for referrals to public hospitals. Since 2010, these templates have been available electronically and are pre-populated with each GP’s data. Development of the pathways occurs through iterative discussions between GPs and specialists about the requirements, workflow and management issues relevant to each condition (Gu et al., 2012).
- 2 Integrated care pathways:** an outline for the anticipated course of treatment is planned in advance, with patient and multidisciplinary team, to develop care partnerships, reduce variation in processes and quality of care and to empower patients. For example, the surgical experience for patients may be improved by considering the patient’s whole journey from the point of referral through discharge and post-surgical management. Access to specialist advice is improved through redesigning processes (e.g. GPs get access to on-call specialist advice by telephone, email, ‘hot’ clinics and telemedicine).
- 3 Use of alternative providers** may increase capacity across primary and secondary care interface, enhance professional competencies and improve integration across the system. Examples include: GPs with special interests, nurse practitioners, practice nurses and allied health care professionals. “Working smarter with the team” entails making better use of the



available human resources by selecting the most suitable person to undertake work, ensure they are working “at the top of their scope” and working together as a team.

Key programs addressing integrated service delivery in NZ are described below and include the Canterbury Community Rehabilitation, Enablement and Support Team; the Grey Lynn Family Medical Centre Shared Care Pilot; East Health Trust’s ElderCare; East Tamaki Healthcare’s Integrated Family Health Centre; the Tararua Health Groups’ aged care strategy and the Midlands Health Network’s Integrated Family Health Centre. Most of the information presented here reflects the findings from a report from the Greater Auckland Integrated Health Network, which examined the implementation experiences and efficacy of integrated care strategies occurring in NZ in order to progress its own integration efforts in the Auckland region (Baird and Smith, 2011).

### *Canterbury Clinical Network—CREST*

The key features of the CREST (Community Rehabilitation, Enablement and Support Team) are that it is a community-based, rehabilitative service with three service components including supported discharge, rapid response for admission avoidance and intake prior to long term support (the latter is yet to be implemented). The CREST comprises a multidisciplinary team including general practice, community service providers and older adult health specialist services. It was established to reduce the length of stay in hospital and avoid hospital admission and residential care placement. The CREST provides clients with up to four visits a day, seven days a week (for up to six weeks) (Baird and Smith, 2011).

The key functions of the CREST are (Baird and Smith, 2011):

- Supported discharge for older people being discharged home from hospital
- Direct referral from primary care to avoid an emergency department (ED) attendance or hospital
- ‘Rapid response’ for older people attending Christchurch Hospital ED
- Intake service for all older people referred for long term home care or requiring ‘rest home’ placement, if clinical discretion allows.

The key targets of the CREST are:

- Improvement in client function and independence
- Reduced length of stay in hospital
- Increased time spent at home over a year
- Reduction in residential care placement
- Reduction in the need for long-term residential care.

The foundations for the CREST were based on established collaborative relationships between clinicians (general practice, primary, community, specialist services and others) within the Aged Care Workstream, which had a history of developing initiatives aimed at improving care systems within Canterbury. The CREST’s activity was motivated by the understanding that increasing demand over time would not meet needs merely by ramping up the existing systems of care. However, Canterbury’s February 2011 earthquake prompted the need for a rapid response. The CREST was implemented within three weeks after three meetings of 30 people. The expectation was to ‘learn by doing’, making ongoing improvements as more experience was gained, clear communication channels were established and a quality improvement regime was put in place. A formalised project structure included a steering group, an operational/working group and a peer review group. A cooperative network-based approach was adopted with discussions and feedback to drive improvements, training and development and tool development (Baird and Smith, 2011).

### *Grey Lynn Family Medical Centre—Shared Care Pilot*

The Shared Care Pilot project reflects the implementation of the shared care initiative, including understanding the interactions between clinicians in the treatment of a chronically ill patient.

The key features of the shared care initiative (Baird and Smith, 2011) are that:

- The key contact is the patient's GP
- There is an electronic shared care plan able to be accessed by the clinicians treating the patient
- There is early involvement by a wide range of specialist health professionals with access to the shared care plan
- There is patient engagement with the shared care plan (goal setting).

The key expected benefits include:

- Improved efficiency (e.g. turnaround of test results, specialist input)
- Increased patient involvement in managing their care
- Stronger patient relationships, improved safety, and better communication between clinicians.

The main observations from an evaluation of the shared care pilot (Baird and Smith, 2011) were that it demonstrates enhanced proactive and reactive case management; targets highly complex patients; demonstrates how a shared care plan works across a remote team involving general practice, specialist nursing, and specialist medical care; illustrates how technology enables communication and agreed roles can lead to much more rapid liaison activity from teams (e.g. nurse practitioner aged care, respiratory nurse specialist and cardiologist responding quickly to updated information in care plan); and requires more work to develop common processes for similar patient issues (Baird and Smith, 2011).

### *East Health Trust—ElderCare*

East Health Trust is a primary health organisation (PHO) which operates in regions throughout the north island and has an enrolled population of approximately 90 000 New Zealanders. Since 2000, East Health Trust has been providing a program called ElderCare to enable coordinated care for the elderly (East Health Trust, 2006). The key features of ElderCare include a process oriented around supporting general practice to deliver improved care for the elderly by emphasising health education for individuals and communities, co-ordination of services, availability of clinical pharmacist input and involvement from a community geriatrician (Baird and Smith, 2011, East Health Trust, 2006). Two full time coordinators have been employed to: extend the GP role, respond to patient issues arising at general practices, coordinate patient interaction with clinical services and non-government organisations, and provide follow-up for hospital discharges to ensure that patients are reconnected with general practice and other services as required (Baird and Smith, 2011).

The benefits of the current form of ElderCare include (Baird and Smith, 2011, East Health Trust, 2006):

- Achieving patient-determined goals (care plans and updates)
- Supporting older adults to live independently in the community
- Providing information and support to enable older adults to access services appropriate to their needs
- Reducing admission and readmission rates
- Reducing duplication of assessment
- Increased referrals to Primary Options for Acute Care Programme (Aish et al., 2003)
- Number of multidisciplinary case conferences
- Improved communication between health professionals.

The ElderCare initiative is currently being extended to establish a Care Cluster of general practices from East Health integrated with Counties-Manukau District Health Board (DHB) Community Health Services (Baird and Smith, 2011). These Care Clusters will include: home health care (district nurses and allied health); needs assessment and service coordination; community geriatric services; a very high intensity user programme; an ElderCare PHO coordinator; a 24 hour observation unit within East Care and the Botany community health hub to service a number of Care Clusters and prevent admissions to hospital (feasibility is still being assessed); and a service level alliance with key stakeholders to ensure effective implementation of the proposed model.

Baird and Smith's (2011) main observations of ElderCare were that it is a well-established coordinated care regime for elderly people with proactive risk stratification which demonstrates what can be achieved across a local network and how the 'navigator' role supports general practice. The authors described it as a good example of specialist consult liaison within a PHC setting and note that it should bring together existing PHC development with hospital and community services with its intended future developments.

### *East Tamaki Healthcare (ETHC) Limited—Integrated Family Health Centre*

East Tamaki is a group of 15 practices staffed by GPs who are salaried workers but also have shares in the company. Services are provided to enrolled patients and through casual consultations, most of which occur through the accident and emergency clinics and pharmacies owned by the group. ETHC is the largest PHC provider for Māori and Pacifica populations (Baird and Smith, 2011). One of their unique features is that ETHC developed a model for integrated family health centres - i.e. centres which include clinics and health professionals each working with specific populations with particular needs. There are three centres, namely the Mother and Child Centre, which incorporates a women's clinic (addressing maternity, wellness, adolescence and menopause) and children's clinic; the Chronic Disease Management Centre, which incorporates diabetes and endocrine, cardiovascular, pulmonary, musculoskeletal, skin, depression and integrated chronic disease management clinics; and the Ambulatory Surgery and Special Procedure Centre, which includes general outpatient surgery, orthopaedic and sports, pain management, physiotherapy, ear, nose, throat and eye, colorectal and urology clinics (Baird and Smith, 2011). These centres are serviced by multidisciplinary teams comprising a clinical lead, GPs on rotation, clinical support and specialty champions.

All of ETHC's centres are supported by comprehensive planning, including a documented business plan, health promotion plans and a Māori health plan (Baird and Smith, 2011). The Māori Health Action Plan had been developed in consultation with Māori peoples. The Chairman of the Total Healthcare Otago (THO) Board was Māori and led the development of the plan in consultation with the General Manager for Māori Health, Counties Manukau District Health Board (CMDHB). The staff members represent a number of ethnic groups within the local community and are fluent in a number of languages. Additional cultural support is available by referral to community health workers (including people of Māori, Pacific and Indian cultures) and health promotion programs at Otago Health Incorporated. Further, there is 50 per cent community participation at governance level. An audit report noted that the PHC organisation demonstrated well-developed governance, business and healthcare management systems and processes (Baird and Smith, 2011).

Baird and Smith's (2011) key observations of ETHC's IFHC model are that it:

- Is a stratified model of care operating in general practice with developed guidelines and protocols
- Is supported by well-developed personal medical services supporting guidelines and protocol implementation
- Provides low cost access which allows opportunistic treatment activity
- Uses 'navigator type' (a three stage triage and patient care system) roles to retain and gain connection with patients and provide value for money
- Offers a walk-in service with no appointments required
- Has clinics located in shopping centres with adjacent public transport
- Ensures availability of cultural support provided by the Community Health Workers
- Is a potential model for extended primary care activity that would reduce secondary care utilisation.

### *Tararua Health Group (THG) Limited—Aged Care*

THG, a network of three GP practices (two in Dannevirke and one in Pahiatua) and a community hospital, was established in 2009. It operates a hub and spoke arrangement across wide geography. The hospital provides eight GP beds (cared for by GPs on a roster system); is a maternity facility (three beds); has an x-ray service; and provides ultrasound service two days per week. An after-hours telephone triage system is also provided by the hospital. It has 100 staff with 60 clinicians serving 14 600 patients (of a possible 16 000 in the area). It has a single patient management system linked by 90 kms of fibre optic cable. Patient records from all four sites are integrated to allow sharing of information between the practices, linkages to a radiology service and participation from specialists (Baird and Smith, 2011).

In Dannevirke, THG offers a specific aged care model, a general practice-based model, which allows smooth transition back to the GP once support is put in place, with multi-disciplinary case management. In addition to the input of the Central PHO clinical pharmacist, the Health of Older People service agreement enabled part-time positions of a GP with special interest, a clinical nurse specialist, a registered nurse with special interest, an allied health professional and two InterRAI<sup>iv</sup> assessors completing Contact and Minimum Data Set for Home Care assessments (Gray et al., 2008, Hirdes et al., 2008). Additionally, the model stratified high needs/high risk patients, namely the entire Māori/Pacific population (over 55 years) and Pākehā population (over 65 years) according to risk of an event; and algorithms were set in place to determine priority and direct the Health of Older People team. For example, weightings applied to the practice profile to flag those most at risk of harm, injury and/or admission rate individuals from Pacific backgrounds; those on multiple long term medications; individuals with numerable acute admissions, reported falls or PHC presentations; and individuals living alone as priorities. Other features of the aged care model include the use of proactive assessment (the Inter-RAI instruments) to inform needs assessment services coordination processes, and care planning. The model also includes reviews by clinical pharmacists and community pharmacists who have full access to THG's personal medical services (Baird and Smith, 2011).

Baird and Smith's (2011) key observations of THG's aged care model were that it: demonstrates a stratified approach with proactive management of the entire over 55/65 population; is a consistently

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<sup>iv</sup> Inter-RAI is a group of assessment instruments designed for vulnerable populations. RAI = Resident Assessment Instrument (Hirdes et al., 2008).

applied approach across general practices with a solid base infrastructure (IT and buildings) in hub and spoke arrangement; has high potential for prevention of ED visits and inpatient, aged residential care admission (though the evidence is only anecdotal at present); provides horizontal career development and contributes to maintaining core competencies in a semi-rural area; offers high follow-up on Client Assessment Protocols; demonstrates that change to the model of care is enabled by local risk taking and driven by local personnel; and is supported by DHBs' key enabling contracts (e.g. aged care team and InterRAI assessments).

In order to ensure long-term sustainability of the THG model, Baird and Smith (2011) suggest that it is necessary to understand how to support further change—notional aged residential care, ED and inpatient budgets versus further enabling contracts. They suggest that a local alliance will be required to support further integration. In their review, the authors noted that there are a number of issues still to be addressed by THG in relation to the aged care model. These include interaction with specialist services for older people, access to allied health services to assist with aged care, preventing duplication of services, addressing the needs assessment services/coordination interface and exploring opportunities presented by pursuing horizontal versus vertical integration.

### *Midlands Health Network (MHN)—Integrated Family Health Centre*

The Midlands Health Network in Hamilton has led NZ in the implementation of Integrated Family Health Centres (IFHC). Key components of the MHN (IFHC) model of care cover the full range of health care: creation of a telephone patient access centre (PAC); patient access to personal health information on-line; development of care plans; formalised practice-initiated patient contacts; visit pre-work; reorganisation of practice premises; and employment of a clinical pharmacist and medical centre assistants (Raymont and Jackson, 2012). The IFHC model seeks to improve a patient's journey through the health system and proactively engage the patient to self-manage their health at the same time as improving the clinician's experience. The first stage (2010/2011) involved a reconfiguration of practice processes in three affiliated practices in Hamilton. This has been adapted from a similar model developed by Group Health in Seattle, US. The pilot evaluation used a mixed-method design with the research structured around two key objectives:

- 1 To document the patient's experience of, and satisfaction with, belonging to an IFHC.
- 2 To understand the impact of working within an IFHC model for GPs, practice nurses and practice management staff in terms of personal and professional satisfaction and career progression (Raymont and Jackson, 2012).

For objective 1, the patient survey results largely indicated that the change towards innovative ways to integrate care by the IFHC generated positive responses from 80-90 per cent of respondents ( $N=447$ ). A series of questions were asked, designed to establish patient experience and satisfaction with:

- The medical centre
- Ease of contact with the medical centre
- Getting what they needed from the PAC and the medical centre
- Face-to-face contact with a doctor or a nurse
- Telephone and email contacts with doctors or nurses
- System initiated contacts from the PAC
- Health centre knowledge of their history etc.
- Being able to see the person they wanted to see
- Working together with the staff as a team.

Four themes emerged from the research around patient interaction and satisfaction with: 1) access to care; 2) relationship with general practice; 3) coordination between primary and secondary care and between secondary and primary care; and 4) patient perceived/identified health benefits. Critically, no clinical health outcomes were included in this report.

## United Kingdom

### *Key lessons from the United Kingdom*

- Integrated care strategies were formally implemented in a series of Integrated Care Pilots, which focused on four vulnerable populations (elderly, chronically ill, those with mental health and substance misuse problems)
- Most integration efforts focused on horizontal integration between general practice and community-based health and social services; no specific integration with acute care services was addressed in these pilots; but more shift towards acute/primary integration currently (i.e. Foundation Trust)
- Flexibility and freedom to experiment with integration initiatives led to substantial variability in approaches
- Some common features included:
  - Virtual wards, virtual teams
  - Single point of access
  - Multidisciplinary teams included general practice, specialists, community health and social care services
  - Proactive case management and personal care plans.

In the UK, the main initiatives for integrating health care at the service delivery level have been informed by the Integrated Care Pilots, described in the following section. In brief, the integrated care pilots introduced two-year initiatives to explore different ways to provide health and social care services to improve the health and wellbeing of four vulnerable groups: elderly people, people with long term chronic conditions (diabetes, cardiovascular disease, chronic lung disease) at risk of emergency hospital admissions, people with mental health problems and dementia, and people engaging in substance misuse.

### *Integrated Care Pilot Evaluation*

The following UK service delivery-focused programs are drawn from the Integrated Care Pilot Evaluation ([RAND Europe and Ernst & Young, 2012](#)). An overview of the 15 pilot studies is provided in Table 3. The evaluation of these pilots entailed a mixed methods approach with data sources including staff interviews and questionnaires, patient/service-user questionnaires, outpatient and inpatient utilisation statistics and local evaluation findings ([RAND Europe and Ernst & Young, 2012](#)). The quantitative component included pre- and post-intervention data to assess changes in staff and patient experiences. Qualitative data were from interviews at two time points for staff and one time point for patients. There was also a cost analysis in which resources required to develop and run the pilots were examined.

Many of these pilots had multiple streams with both meso and micro integration initiatives. This report focuses on the micro level initiatives. Since integration as a concept was not rigidly pre-defined for the pilot sites, a degree of experimentation was encouraged and, as a result, there were differences in the chosen approaches to integration. The most common activity, implemented in almost all sites, was integration of practitioners working in different organisations. A small number of sites focused on integration within their organisation to improve the integration/coordination of patient care at the micro level. Most pilots concentrated on horizontal integration (e.g. integration between community-based services, such as general practices, community nursing services and social services) rather than vertical integration (e.g. between primary care and secondary care).





**Table 3 Service delivery initiatives drawn from the UK Integrated Care Pilot Evaluation**

Pilot	Main integration focus/client group with a micro level focus	Initiatives
Bournemouth & Poole	Structured care for dementia	<ul style="list-style-type: none"> <li>○ Developing grass roots ‘sign-posting’ for dementia</li> <li>○ Single point of access – intermediate community care teams</li> <li>○ Life diaries<sup>v</sup> (Bournemouth and Poole Community Health Services, 2011)</li> </ul>
Church View, Sunderland	Older people at risk of admission	<ul style="list-style-type: none"> <li>○ Virtual ward rounds with integrated team (GP, specialist, community nursing, social service)</li> <li>○ Individual care planning</li> <li>○ Predictive modelling to identify admissions for the virtual ward</li> </ul>
Cockermouth, Cumbria	People at risk of admission (self-management)	<ul style="list-style-type: none"> <li>○ Design of new co-located premises to include children’s centre, NHS dentistry, diagnostic centre, voluntary services, community beds and teaching centre</li> </ul>
Durham Dales	Rapid access medical assessment clinic with reclassification of acute hospital as community hospital; moving services closer to home; fuel poverty intervention; improved transport to services; older people’s mental health	<ul style="list-style-type: none"> <li>○ Shifting services out of hospital to community-based setting</li> <li>○ Creation of a rural mental health service directory</li> </ul>
Nene (Northamptonshire Integrated Care Partnership)	People at risk of admission to hospital	<ul style="list-style-type: none"> <li>○ ProActive Care case management program<sup>vi</sup>, identifying at-risk patients, tracking through virtual wards</li> </ul>
Newquay	Structured care for dementia	<ul style="list-style-type: none"> <li>○ Development of virtual dementia team drawn from health and social care, anchored around GP practices</li> </ul>
Norfolk	Long-term conditions	<ul style="list-style-type: none"> <li>○ Development of local health and social teams comprising GPs, community health staff and adult social care</li> <li>○ Standardised assessment processes including clinical</li> </ul>

<sup>v</sup> Life diaries refer to a decision support tool designed to assist an integrated ‘intermediate’ care community team to provide a single point of access to multiple health and social care assessments. The diaries include a patient’s personal details, beliefs, contact information, likes and dislikes, activities of daily living, history and interests. Members of the team use integrated information systems and an agreed data-sharing protocol to access each other’s records (Bournemouth and Poole Community Health Services, 2011).

<sup>vi</sup> This case management program was used across two of the integrated care pilot sites. The function was to identify patients at high risk of hospital admission and track these patients through virtual wards. Clinicians identified at-risk patients using predictive risk modelling techniques, and personalised care plans were provided to reduce the risk of admission and provide more choice to patients regarding end-of-life care. Use of this initiative allowed better communication across professions, organisations and sectors, new roles, new skills, coordinated services and proactive care management – as such, the NHS described establishing and normalising processes such as ProActive Care to build a ‘platform’ for integrated care (RAND Europe & Ernst & Young, 2012).

		<p>judgement and predictive risk score</p> <ul style="list-style-type: none"> <li>○ Joint assessments for health and social care – patients on shared care list</li> <li>○ Integrated care liaison officer – access to multiple IT systems containing patient data and referrals able to relay information to health and social care colleagues</li> <li>○ Monthly multidisciplinary team meetings at GP practices</li> <li>○ Groups of health and social care clinicians taught generic care skills in order to respond within four hours preventing hospital admission</li> </ul>
North Cornwall	Mental health	<ul style="list-style-type: none"> <li>○ Formation of virtual teams with mental health and social care organisation representatives</li> <li>○ Development across virtual team of single agreed-care pathway from prevention through to treatment and discharge for a patient</li> <li>○ Management of virtual teams occurs at the GP practice level with practice managers facilitating these meetings monthly</li> </ul>
North Tyneside	Falls in over-60s	<ul style="list-style-type: none"> <li>○ Identification of high-risk patients</li> <li>○ Provision of community-based, rapid access falls and syncope assessment clinics, community-centred strength and balance training classes in partnership with voluntary sector</li> </ul>
Northumbria	Chronic obstructive pulmonary disease (COPD)	<ul style="list-style-type: none"> <li>○ Community implementation of agreed best-practice pathways for people with moderate to severe COPD involving care planning and self-management</li> <li>○ Shift of specialist care into primary/community settings by way of a key worker (community or practice nurse) for each patient. Two initial visits for care planning and self-management plus proactive regular follow-up and reactive contacts</li> <li>○ Single standardised assessment of disease severity and review of therapy</li> <li>○ Use of patient-held records</li> <li>○ Use of single care by all providers – including out of hours, secondary, social care</li> </ul>
Principia, Nottinghamshire	People at risk of admission for COPD	<ul style="list-style-type: none"> <li>○ Virtual community wards</li> <li>○ Integrated clinical pathways</li> <li>○ Cross-provider communication and collaboration, regular multidisciplinary team meetings, ProActive Care case management and planning</li> </ul>
Tameside & Glossop	People at risk of cardiovascular disease (CVD) or with CVD	<ul style="list-style-type: none"> <li>○ Identification of at-risk patients</li> <li>○ Invited to book assessment appointment with GP practice or a local pharmacy. Supported in developing a personal action plan</li> </ul>
Torbay	Prevention of admission of older	<ul style="list-style-type: none"> <li>○ Rapid Access to Care for the Elderly clinics</li> <li>○ Community-based geriatrician service</li> </ul>

	people to hospital, enhanced discharge planning, people in nursing homes with COPD/congestive cardiac failure, services for low-level dementia	<ul style="list-style-type: none"> <li>○ Addition of a hospital discharge coordinator and physiotherapist to existing multidisciplinary and accident and emergency teams to provide more holistic assessment of patient need</li> <li>○ A hotline for GPs to contact geriatricians directly</li> <li>○ Geriatricians working two days per week in community clinics</li> <li>○ End-of-life training program for staff in all nursing homes</li> </ul>
Tower Hamlets	Structured care for diabetes	<ul style="list-style-type: none"> <li>○ Implementation of care packages for long-term conditions (initially diabetes)</li> </ul>
Wakefield	Substance misuse	<ul style="list-style-type: none"> <li>○ Development of the 'balanced scorecard' used to feedback information on performance (including patient evaluation) to providers. Used to define exemplar service for local service users, commissioners and providers, provide feedback on performance of various contributors</li> </ul>

Source: (RAND Europe and Ernst & Young, 2012)

## Canada

### *Key lessons from Canada*

- A collaborative partnership model was used in the Taber integrated PHC project to restructure health care services, based on local needs assessment and available financial resources. Using a common approach to chronic disease management, more efficient and effective integrated care was delivered for specialised services (e.g. Well Baby, Well Women, Asthma, Diabetes education)
- PRISMA is a well-established model of care to support vulnerable elderly populations living in the community. It has a strong focus on coordination at all levels – between decision-makers, managers and at the clinical level.

The section below highlights two key Canadian micro level integration programs termed the Taber Integrated Primary Healthcare Project and the Program of Research to Integrate the Services for the Maintenance of Autonomy (PRISMA). These approaches both focus on the service delivery outcomes. However, the implementation frequently relies on organisational coordination and collaboration facilitated by strong policy.

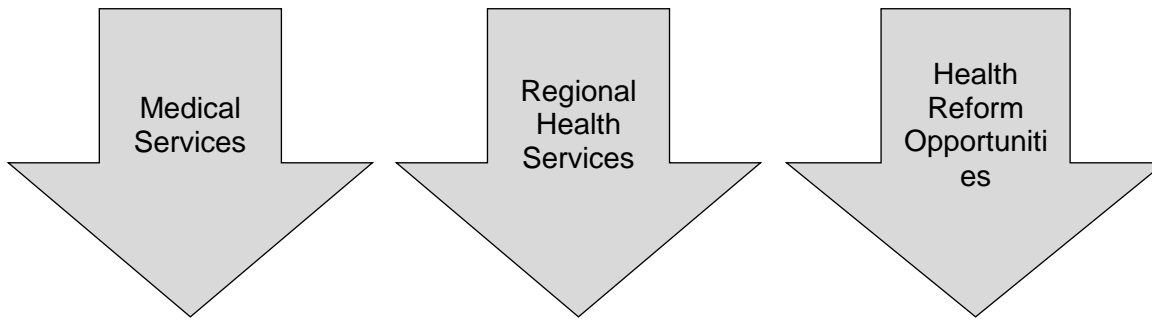
### *Taber Integrated Primary Healthcare Project*

The Taber Health Project from Alberta provides one example of how an integrated PHC project was implemented in one rural Canadian community to achieve better health care service delivery. Taber's 15 000 residents are younger and have a higher income than the regional average but record lower education levels. The project used the operational model shown in Figure 2 and local evidence to implement an interdisciplinary care approach. Through this method it was acknowledged that at the local level integration must occur simultaneously within an interdisciplinary environment that incorporates all of medical assessments, clinical management, health education and population health services. Figure 2 illustrates how the wellness, self-care, community medical services, home support, team-based care and urgent care components are integrated to support the functioning of acute care services (Wedel et al., 2007).

After assessing community needs, a collaborative partnership model<sup>vii</sup> based on the work of Korabek et al. (2004) was used to inform recruitment of an interdisciplinary team. The team involved physicians, nurses, front-line healthcare providers and managers. These team members used a program budget marginal analysis tool in conjunction with community assessment information to define priorities and develop success indicators for service delivery that would enable efficient, client-centred health care outcomes. For example, this framework was used to integrate chronic disease services within a fixed budget. After reviewing Taber's current chronic disease management programs and exploring alternatives based on program priorities and costs/benefits of potential changes; team members developed a mission statement and set of chronic disease management goals to inform practice (Wedel et al., 2007).

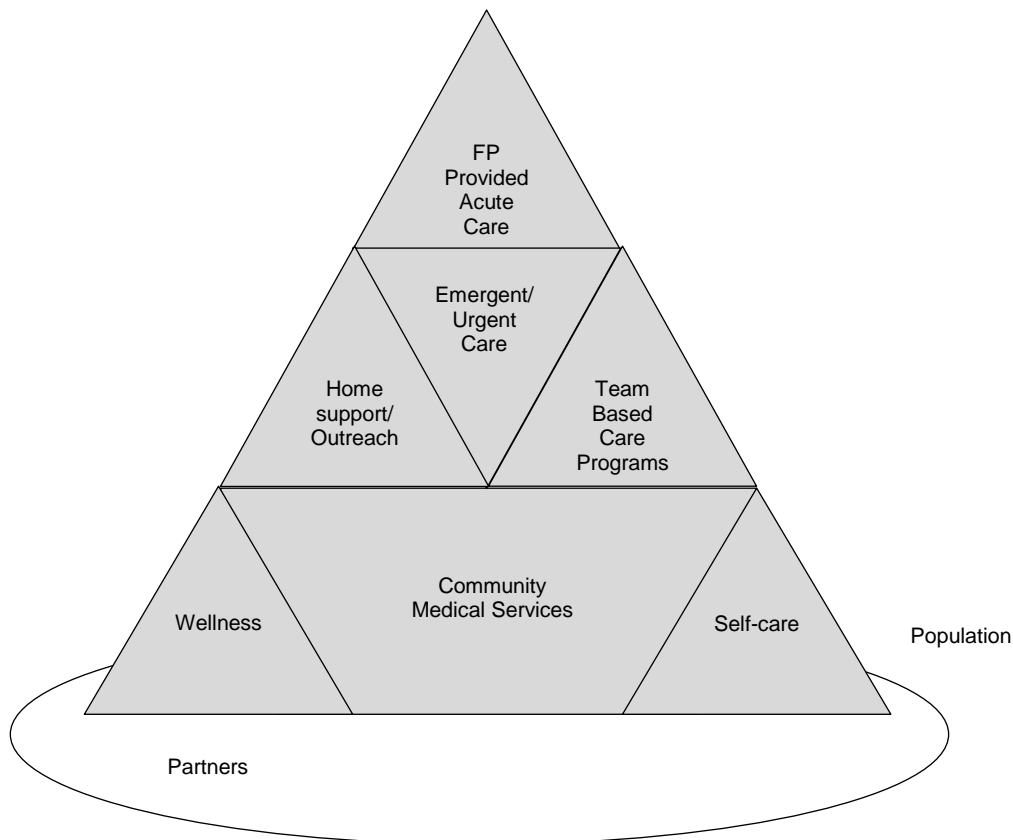
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<sup>vii</sup> This model presents partnerships as a process which involves an interrelationship between three key components that each act on a continuum: relationship perspective (partnership, appreciative, informative, reporting); approach (collegial, collaborative, enlisting, controlling); and outcome (shared accountability, initiation, compliance, passivity) (Korabek et al., 2004).



**PHC Coalition among autonomous organizations serving a common population through:**

- 1 Community assessment and shared planning
- 2 Evidence-based, interdisciplinary care
- 3 Integrated electronic information systems
- 4 Investments in processes and structures that support change



**Figure 2 Primary Health Care Coalition Operational Model**

Three examples illustrating interdisciplinary teamwork within the local healthcare community include Well Baby services, chronic disease management programs and a Well Women clinic. Taber health care providers used Well Baby services as a case study to better understand integrated service delivery. The lessons learned were applied to other areas of health services integration. This included relocating clinics to avoid duplication and enable patients to save time by booking back-to-

back appointments with co-located services (Wedel et al., 2007). In the past, there were numerous, separate clinical working groups tackling chronic disease management; and after the Well Baby case study it became evident that it would be both more efficient and more effective to employ a common approach for treating all types of chronic conditions. Wedel et al. (2007) suggest that the benefits of using one common approach are that it is user friendly, aligns operational processes and reduces administrative workload. This idea has since been applied to a number of chronic disease management areas, such as the Taber Asthma Program and the Diabetes Education Program.

## *PRISMA*

As part of its objective to support the frail elderly population living in the community, the Quebec government implemented the Program of Research to Integrate the Services for the Maintenance of Autonomy (PRISMA) in 2005 (MacAdam and MacKenzie, 2008). From a policy perspective, PRISMA elicits improvements to the integration of health services because it involves strong stewardship elements by way of *partnerships between researchers* (including Canadian Institutes of Health Research, Canadian Health Services Research Foundation, Quebec Health Research Fund, Quebec Aging Research Network, Sherbrooke Geriatric University Institute), *government* (Quebec Ministry of Health and Social Services, Quebec National Institute of Public Health) and five regional health authorities (RHAs). Each of these entities shares the funding and decision-making over the strategic direction. Preliminary results from pilot studies of PRISMA were used to inform development of new legislation in Quebec, particularly related to established integrated infrastructure such as Health and Social Services Centres, which merged with hospitals, community health centres and nursing homes in 2005 (MacAdam and MacKenzie, 2008).

In brief, the PRISMA model comprises the following six elements (Hébert et al., 2010):

- Coordination between decision-makers and managers at regional/local levels
- Single entry point
- Single assessment instrument, with case-mix management system
- Case management
- Individual tailored service plans
- Computerised clinical chart.

Coordination is at the heart of every level of the participating organisations in the PRISMA model, from the strategic governance level (e.g. establishment of a Joint Governing Board of all health, social and community service agencies), through the management level (e.g. a service coordination committee of public and community representatives), to the clinical service delivery level (e.g. multidisciplinary team). The single entry point serves as a portal for patients, carers and health care providers to access a range of relevant services (e.g. home care, rehabilitation services, hospital services, volunteer agencies, social services).

A longitudinal (four year) quasi-experimental study of the PRISMA model (Hébert et al., 2010) showed that, compared to usual care, there were lower rates of functional decline, half as many unmet needs, higher levels of patient satisfaction with services, higher levels of patient empowerment and more appropriate use of health services in the PRISMA group. Overall, Hébert et al. concluded that the PRISMA model improved the efficacy of the health care system for frail elderly people.

## United States

### *Key lessons from the United States*

- The patient-centred medical home is the current model employed in most integration efforts in the US, including several HMOs. Evidence shows improved access and decreased waiting times for patients
- The key features of this model include:
  - Virtual case management
  - Proactive evidence-based care
  - Telehealth services
  - Electronic health records for patients and providers to improve compliance and reduce duplication of services
  - Personal Health Navigator to identify potential problems before they escalate
  - Telephone assessment for vulnerable patients transitioning between hospital and home (Interactive voice response system)
- Practice-based payment system fosters practitioner engagement and mitigates costs
- A 'bundle' of evidence-based condition-specific care elements are implemented and financial incentives are linked to achieving the full 'bundle' of optimal care
- Group Health Cooperative's medical home used additional strategies to facilitate integrated care, including:
  - Increase in number of staff and fostering advanced roles for staff
  - Increase in patient consultation times
  - Scheduled time for care teams to discuss and plan patient care
  - Electronic tracking of patient care.

With the implementation of Accountable Care Organizations<sup>viii</sup> (ACOs) at the meso level and a shift at the policy level towards pay for performance, there have been innovative efforts to improve the integration of patient care in the US. The key new approach discussed below is the patient-centred medical home (PCMH) strategy, which has been applied in a range of contexts, including Health Maintenance Organisations (HMOs). Application of the PCMH is discussed below for Geisinger, ProvenCare and the Group Health Medical Home.

### *Patient-Centred Medical Home*

The basic principles of the PCMH<sup>ix</sup> include:

- **Personal physician:** "each patient has an ongoing relationship with a personal physician trained to provide first contact, continuous and comprehensive care."
- **Physician directed medical practice:** "the personal physician leads a team of individuals at the practice level who collectively take responsibility for the ongoing care of patients."
- **Whole person orientation:** "the personal physician is responsible for providing for all the patient's health care needs or taking responsibility for appropriately arranging care with other qualified professionals" (PCPCC, 2007).

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<sup>viii</sup> Integrated delivery systems, globally capitated to control the cost and quality of care for a population, with emphasis on local accountability, shared savings and performance measurement. Introduced in Report 3: *Integrated care: What strategies and other arrangements support and influence integration at the meso/organisational level?*

<sup>ix</sup> This model has been proposed in Australia by the RACGP in the Federal Budget 2013-14 (The Royal Australian College of General Practitioners, 2013).

A recent study exploring patient experiences in PCMHs noted an increase in patients' self-reported access to care over time as practices gained experience with the PCMH, with authors noting particular improvements in terms of availability of appointments for urgent problems and decrease in waiting times once at the clinic (Kern et al., 2013).

When reviewing the literature to inform their study, Little et al. (2001) noted that in terms of criticisms of the PCMH model, it has been suggested that patients "may not prefer a patient-centred approach" and hence its universal adoption would be "unwise". This concern rests on the misconception that being patient-centred means sharing all information and all decisions. As illustrated by the examples described below, being patient-centred actually means taking into account the patient's desire for information and for sharing decision making and responding appropriately (Stewart, 2001). In their observational study, Little et al. found that most patients prefer a patient-centred approach with emphasis on effective communication between patient and practitioner, the opportunity to consider health promotion, and a partnership approach when addressing problems and treatment options.

**Electronic Health Records (EHR)** are central to PCMH models used by Integrated Delivery Systems and are provided to all participants, physicians, care managers and consumers. EHR comprise a range of features that assist patients with self-management of their conditions, including: lab results with trends over time, reminders for appointments and prescription refills, educational material, a scheduling function, and secure email with relevant providers (Paulus et al., 2008). Geisinger and participating PHC providers generate a network of 'referral' providers that include "high-volume, low-cost medical and surgical specialists, imaging facilities, and other ancillary providers" (p 1239); and which is linked with the PHC practice. This tool automatically relays related messages to facilitate flow and keep the broader care delivery team informed.

Optimal care for **chronically ill patients** (e.g. with diabetes, congestive heart failure, chronic kidney disease, coronary artery disease and hypertension) typically extends beyond a specific PCMH to include "all Geisinger community practice sites" (Paulus et al., 2008, p 1240). Programs initiated by Geisinger use the EHR and existing infrastructure to embed care workflows, standardise practices, and automate tasks, where possible. The automated electronic system identifies patients' care plan needs, incorporates physician orders and health maintenance alerts, and generates a condition-specific "snapshot report" with aggregated clinical information on one screen. Using an "all-or-none bundle approach" individual performance is scored as successful only where there is full compliance with optimal care. For example, the 'bundle' for patients with diabetes includes nine evidence-based elements: measures of HbA1c, low-density lipoprotein (LDL) and blood pressure; non-smoking status; urine protein measurement; and influenza and pneumococcal vaccination (Paulus et al., 2008). In addition to the reminders and self-scheduling that is part of the EHR, patients also receive an after-visit summary tracking their progress related to achieving improvement in the 'bundle' of elements; and outlining the risks of failing to reach the goal. Both practices and patients receive a 'report card' of their performance; and financial incentives for practitioners (up to 20% of total cash compensation) are linked to patient satisfaction and improvements in their 'bundle' score. Paulus et al. reported that initial results from a study involving more than 20 000 diabetic patients have been promising, with statistically significant improvement in overall performance (i.e. glucose control, blood pressure control, and vaccination rates).

### **Geisinger ProvenCare program**

The **ProvenCare program** was initiated by reengineering episodes of acute care (Eagle et al., 2004). For example, a model of care for coronary artery bypass graft (CABG) surgery was developed



comprising three core components: 1) establishing implementable best practices across the entire episode of care (from acute to primary); 2) developing risk-based pricing, including an upfront discount to the health plan or payer for the historical readmission rate; and 3) establishing a mechanism for patient engagement.

Evidence from an evaluation of the ProvenCare program shows that implementation of all the steps of these ‘bundled’ best-practice care packages increased from 59 to 100 per cent over a four month period (Paulus et al., 2008). Berry and colleagues evaluated 30-day clinical outcomes from this program. Trends in eight (of nine) measures showed improvement (e.g. patient readmissions to ICU decreased from 2.9% to 0.9% and blood products usage decreased from 23.4% to 16.2%). Frequency and length of readmissions fell, as did mean hospital charges (Berry et al., 2009). Uptake of ProvenCare was facilitated by a Pay-for-Performance system, whereby a two-year warranty period was associated with a 50 per cent discount for the provider (Geisinger) if no postoperative readmission costs were experienced. This mechanism places the financial risk of managing increased or unchanged risks of complications to the clinical enterprise (Paulus et al., 2008). ProvenCare models have since been expanded to hip replacement, cataract surgery, bariatric surgery, lower back surgery and most recently perinatal care.

A key component of the Geisinger’s PCMH is a functional ‘**Personal Health Navigator**’, which comprises: round the clock primary and specialty access; a Geisinger-funded nurse care coordinator in each practice site; predictive analytics to identify risk trends; virtual care management; and a focus on proactive, evidence-based care to reduce hospitalisations, promote health and optimise chronic disease management. Other features include home-based monitoring, interactive voice response surveillance, and support for end of life care decisions. Using monthly performance reports on quality and efficiency of the Personal Health Navigator, the Geisinger practice team identifies potential problem areas as well as opportunities to improve practice across the Geisinger system (Paulus et al., 2008). Geisinger’s Personal Health Navigator is designed to move resources further “upstream” in the PHC setting to reduce “downstream” costs from the highest acuity settings. The PCMH initiative (Paulus et al., 2008) aims to deliver value by improving care coordination and optimising health status for each individual. There are five core program components: 1) patient-centred PHC; 2) integrated population management; 3) medical “neighbourhood” (i.e. alignment of key community partners, such as home health agencies, skilled nursing facilities, outpatient/ancillary services, hospital facilities, and community pharmacies); 4) comprehensive quality improvement; and 5) value-based reimbursement redesign that includes a quality, outcome-based pay-for-performance program (Maeng et al., 2012).

A key area where integration strategies can make a difference to patient experience and clinical outcomes (e.g. hospital readmissions) is among vulnerable populations, such as patients transitioning from hospital to home. The **Interactive Voice Response system** has been developed to facilitate these transitions. During the critical 24-72 hours after discharge, an automated phone assessment is used to measure patient satisfaction with care and gather data on their risk factors. This information is computerised and a condition-specific risk score is calculated. Based on this information, alerts about high-risk patients can be transmitted to a care manager or triage nurse at a hospital/care facility. This is expected to improve the patient’s experience, encourage coordinated care and improve communication systems.

The interactive voice response system was piloted in the Geisinger HMO in Danville in a particularly vulnerable group of patients transitioning home following congestive heart failure. Evidence has shown that use of this initiative can significantly reduce hospital readmissions (Graham et al., 2012).

Outcomes have focused on reductions in hospitalisations as a primary target for medical home initiatives, and early results from pilots show preliminary reductions of 20 per cent in all cause admissions and seven per cent in total medical costs. While the focus of this report is on integration efforts in PHC, it is recognised that patients transition vertically as well as horizontally. Therefore, results from this pilot study may be relevant; and the model may be modified for implementation at the practice level, with feedback instead to a practice manager, or practice nurse role in order to manage prevention and promotion for individual patients (Lee et al., 2003).

A system of **practice-based payments** is used to foster practitioner engagement and to mitigate the costs related to implementing the PCHM approach (Paulus et al., 2008). Recognising the expanded scope of practice required for this model, practitioners receive \$1800 per month; and the practice receives a monthly Medicare stipend of \$5000 per 1000 Medicare members to cover costs related to additional staff, extended hours and other changes in infrastructure. Other financial incentives include pooled incentive payments, which may be accessed based on achieving performance quality indicators; and individual payments (split between individual providers and the practice), which are used to encourage effective team-based support/care (Paulus et al., 2008).

### **Group Health Medical Home**

In 2006, Group Health Cooperative, an integrated health insurance and care delivery system developed a medical home based on EHR technology (Reid et al., 2010). Developing the medical home included employing extra staff and offering advanced roles so that for every 10 000 patients there were 5.6 physicians, 5.6 medical assistants, 2.0 practice nurses, 1.5 nurse practitioners, 1.2 registered nurses and 1.0 clinical pharmacist; this was proposed to promote stronger relationships with patients, comprehensive care and more time for health professionals to coordinate care for their patients. Additionally, patient consultations were increased from 20 to 30 minute blocks with time scheduled each day for care teams to discuss, plan and coordinate patients' care using visual displays to track issues. Each of the care teams, led by a primary physician was accountable for delivering PHC to patients attending their practices. A 2008 pilot study of the Seattle Group Health medical home initiative (21 and 24 months after implementation) reported a decrease of 29 per cent in annual ED visits, six per cent fewer preventable hospitalisations, statistically and clinically significant reductions in staff burnout, and total cost savings of \$10 per patient per month (Reid et al., 2010).

### **On Lok Lifeways (California, US)**

On Lok Lifeways is an example of the Program of All-inclusive Care for the Elderly (PACE) program, which is a certified Medicare program in the US (Lehning and Austin, 2011, Li et al., 2009). On Lok Lifeways PACE, which is located in California, is designed to assist seniors living with disabilities or chronic illness to remain living in their own home for as long as possible. Initially aimed at supporting elder immigrants from Italy, China and the Philippines, this model is now implemented nationwide.

The program entails two main elements:

- 1 A home care assistant to visit participants in their own homes as needed. The assistant helps with personal needs (e.g. getting dressed, meals, medications), shopping, laundry and other errands.
- 2 The participant is collected from their home to attend the On Lok Lifeways centre, where they have access to medical care; physical therapy exercise; and a range of social activities (e.g. lunch, entertainment).

Evaluation of the program suggests that it is cost-effective and that it matches participants' preferences to remain in their own homes for as long as possible (Lehning and Austin, 2011, Li et al., 2009).

## Initiatives that enable micro level integration

This section identifies specific initiatives that enable integration at the micro level and have been applied across Australian and international examples, including in some of the strategies described in the preceding sections. Evidence from a systematic review of the literature (Powell Davies et al., 2006, Powell Davies et al., 2008) relating to care coordination across Australia, the US, the UK, NZ and the Netherlands suggested that the types of integrated care initiatives that demonstrate the highest proportion of significant positive outcomes for patients are those that enable strong relationships between service providers. These can be divided into:

- factors relating to **communication and support for both providers and patients** (including continuing medical education, case conferences, health literacy and self-management, reminders and prompts, audit and feedback)
- **structural arrangements to support coordination** (including PHCOs, multidisciplinary teams, new roles in the PHC workforce, care plans, case management approaches, physical environment/co-location, shared care, discharge planning)
- **information technology resources to promote integration** (including electronic health records, telemedicine and telehealth).

Despite variations in infrastructure and funding approaches across different countries' health systems, when it comes to service delivery, the initiatives that are used to integrate micro level health care are relatively consistent across nations. All of the initiatives described in the following sections have been implemented in Australia, unless specifically stated otherwise. It must be acknowledged that initiatives are not mutually exclusive and some strategies use more than one type. Table 6 (Appendix) shows the types of integrated care initiatives and proportions of studies reporting positive outcomes for patients (data from Powell Davies et al., 2008). Table 7 (Appendix) summarises the findings of systematic reviews of effectiveness of initiatives to inform, educate and involve patients in their treatment (data from Coulter and Ellins, 2006).

### *Communication and support for providers and patients*

There are a number of strategies to address integration at the micro level which specifically relate to enabling communication and providing support to health professionals and patients. Described below, these include continuing medical education, case conferencing, health literacy and self-management, reminders and prompts, and audit and feedback.

### **Inter-professional Education**

Part of the process of promoting integrated systems includes educating practitioners about the benefits and applied ways to achieve integration in their practice. Continuing Medical Education (CME) is a form of ongoing education that focuses on maintaining, developing, and increasing the knowledge, skills, and professional performance of practitioners to provide services across health settings (Bywood et al., 2008). CME, which includes conferences, meetings, seminars, workshops and symposia, varies substantially in intensity (frequency and duration of sessions), complexity (from didactic lectures to interactive workshops) and content (targeting specific condition or population).

While the quality of evidence is limited, findings from several systematic reviews on the effectiveness of CME consistently report that CME appears to be effective at increasing practitioners' knowledge, skills and behaviours and patients' health outcomes to some degree (Forsetlund et al., 2009, Mansouri and Lockyer, 2007, Renders et al., 2001, Thomson O'Brien et al., 2001, Weingarten et al., 2002). Where more complex practitioner behaviour change is needed, CME was likely to work better in combination with other interventions (Forsetlund et al., 2009). Evidence

from a systematic review (Bywood et al., 2008) indicates that both practitioners and patients benefit more when CME contains the following elements:

- More interactive (less didactic) format using a variety of methods
- Small groups of practitioners from the same discipline, with face-to-face sessions
- Simple (less complex) content, which requires smaller magnitude of change
- More focused on specific problem (tailored rather than generic)
- Additional interventions, such as feedback on performance
- Motivated practitioners (self-selected professionals may be more motivated to change).

CME that requires only modest time, financial or staff resource commitments may be more successful for health care providers working in a 'patient-rich, time-poor' environment (Bywood et al., 2008). One example of this in the Australian setting is the Inala Chronic Disease Management program (Russell and Jackson, n.d.), which involved the up-skilling of GPs caring for patients in lower socioeconomic groups with complex chronic disease.

An additional initiative for integrating systems includes a push towards training in inter-professional collaborative practice. The idea behind this kind of inter-professional education is to empower students in health professions so that as they enter the workforce they are armed with strategies to promote effective teamwork and team-based care, and to provide them with a basic understanding of the roles of other health practitioners. A US report noted several core competencies for successful inter-professional practice, including: values/ethics for inter-professional practice, understanding roles/responsibilities in collaborative practice, responsive and responsible inter-professional communication practices, and effective and efficient inter-professional teamwork and team-based practice teamwork. Findings from this report suggest that encouraging integrated practice in the future requires understanding the benefits of multidisciplinary teams and efficient communication; and this must start during training (Interprofessional Education Collaborative Expert Panel, 2011).

### Case Conferences

Case conferences involve multidisciplinary meetings with health professionals for planning activities across the continuum of care for patients with chronic and complex care needs. Conferences can be face-to-face, via phone or video or a combination (Department of Health and Ageing, n.d.). A systematic review (Tieman et al., 2006) examined the effects of case conferencing on care planning for palliative patients. Results showed some positive benefits for patients including: assistance in discharge from hospital; identification of medication-related problems; increased patient and caregiver awareness of services; and reduced planned and unplanned hospitalisations. However, case conferences did not reduce the length of hospital stay or influence quality of life and were most successful in areas that were influenced directly by the PHC team. In contrast, a RCT found some improvement in quality of life scores for palliative care patients whose care had included case conferences, possibly due to improved clinical relationships and the design of emergency care plans that could be implemented at times of clinical deterioration (Mitchell et al., 2008).

### Health Literacy and Self-Management

Some integration initiatives (Coulter and Ellins, 2006) have made an effort to engage patients in their own health care by improving:

- **Health literacy:** provision of printed materials and internet health information; targeted mass media campaigns and tailored approaches for disadvantaged groups with low literacy
- **Clinical decision-making:** decision aids and question prompts for patients; enhanced communication skills for health care providers

- **Self-care:** self-management education; self-help groups and peer support
- **Patient safety:** infection control; adherence to treatment; monitoring adverse drug events.

Of the 8 766 hours in a year<sup>x</sup>, the Australian health system currently offers six hours of health professional contact for patients with chronic conditions; hence Oldenburg (2013) notes that there are 8 760 hours in a year in which chronically ill patients are required to self-manage. Thus, patients are key players in multidisciplinary health care teams. Patient-focused interventions are “those that recognise the role of patients as active participants in the process of securing appropriate, effective, safe and responsive healthcare” (Coulter and Ellins, 2006, p 7). However, a survey of adults’ literacy and life skills revealed that 47 per cent of adult Australians had less than the minimum level of skill needed to locate, use and understand health care information (Australian Bureau of Statistics, 2006). Therefore, a key aspect of health literacy is not only the availability of health information, but also individuals’ capacity to comprehend it. One systematic review examined the four factors listed above and measured patient outcomes in terms of the effects of interventions on their knowledge, experience, use of health services, behaviours and health status (Coulter and Ellins, 2006). The review concluded that engaging patients in their own decision-making and integrating consumers’ voices into the health system can lead to improved health literacy, enhanced experiences with care resources, better health behaviours and improved health. This may be due to improved partnerships between patients and practitioners with more effective communication regarding patient needs and health service options. The authors reported a general improvement in patients’ knowledge, experience and use of appropriate services in patients who received a health literacy intervention. However, of the few studies included in the review that examined health behaviour and health status, most showed mixed results.

To facilitate communication and information sharing, the Australian Team-Link study assessed the effectiveness of an intervention to improve teamwork among GPs, their staff and allied health professionals (Harris et al., 2010). One of the key elements of the intervention was an enhanced information sharing arrangement, using three-way communication via phone between the GP, patient and allied health professional. A qualitative evaluation of the study reported evidence of increased patients’ empowerment and participation in their own care (Chan et al., 2010).

### **Reminders and Prompts**

Reminders are interventions that provide an evidence-based summary of key clinical information to aid practitioners’ decision-making and prompt them to perform a clinical action or record patient information (Bennett and Glasziou, 2003). Examples include reminders for screening (e.g. PAP smear) and chronic disease management (e.g. HbA1c check for patients with diabetes). As a tool to facilitate integration of services, reminders and prompts support practitioners’ decision-making and facilitate communication with patients and other health care providers.

While a number of systematic reviews have evaluated the effectiveness of prompts and reminders within a clinical decision support system, most have focussed on the process outcomes related to prompting practitioners’ behaviour. A meta-analysis of studies reported that physician prompts induced a significant increase in all 16 preventive care procedures examined (cancer screening, immunisations, management of diabetes, blood pressure, cholesterol, haemoglobin, glaucoma screening, prenatal care, tuberculosis testing and counselling for smoking cessation and alcohol abuse) (Balas et al., 2000). There was no significant difference between modes of prompt delivery (electronic, manual). Similarly, significant improvement in prescribing practices was reported in

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<sup>x</sup> Calculated over four years to include a leap year.



another systematic review of RCTs of computerised reminders and feedback (Bennett and Glasziou, 2003). Few studies have measured the impact of provider reminders on patient health outcomes and only 13 per cent of those studies that did documented significant improvements in patients' health status or compliance with medication or medical advice (Garg et al., 2005).

### **Audit and Feedback**

While prompts and reminders are delivered before, or at the time a clinical decision is made, feedback is delivered after decisions have been made and involves evaluating the consequences of decisions. It entails aggregating information on performance with the aim of changing future decision-making (Bennett and Glasziou, 2003). The rationale underlying audit and feedback is that health care providers may not be aware that their behaviours (e.g. prescribing patterns) are not optimal and will be more likely to change their behaviour if feedback shows that their clinical practice deviates from that of their peers or the recommended clinical practice guidelines. In terms of facilitating integrated care, these initiatives, which focus on health care provider behaviour, encourage providers to take actions that require inter-professional communication.

A systematic review (Jamtvedt et al., 2003) examined the effectiveness of various audit and feedback interventions in 85 RCTs on preventive care, test ordering, or general management of health conditions. Findings indicated that audit and feedback was effective at improving professional practice, although the effects were generally small to moderate unless the baseline performance was poor. An inherent part of feedback lies in the timing and the interval between the performance and the feedback. If feedback is infrequent, or the interval between action and feedback is too long, it is possible that the feedback becomes disassociated from the initial activity and may fail to influence subsequent actions. If the feedback is too frequent and the interval too short, it may become tedious and be ignored. While the intensity, complexity and timing of feedback may be important factors, evidence suggests that the best predictors of the effectiveness of audit and feedback interventions were low baseline performance (limited benefits for providers that are already performing well); and providers' predisposition to change (Jamtvedt et al., 2003).

### ***Structural arrangements to support integration***

Structural arrangements provide support for integrating health service delivery through emphasis on the role of PHC organisations, multidisciplinary teamwork, developing new roles in the PHC workforce, implementing care plans, using case management approaches, considering physical environment factors, activating shared care and developing effective discharge planning. These are described in the following sections.

### **Primary Health Care Organisations**

PCPs in Victoria, and the recently established national MLs, are both models of Primary Health Care Organisations (PHCOs). Other examples of PHCOs have been discussed in detail in Report 3 (*Integrated care: What strategies and other arrangements support and influence integration at the meso/organisational level?*) and are mentioned here as they are an important part of structural arrangements to support integrated service delivery at the micro level. For example, as described in an earlier section, Canada's PRISMA plays an important role in service delivery (Hébert et al., 2010). In order to integrate community care, hospital stays, respite, and residential care for the elderly in Quebec, the PRISMA program is an Integrated Service Delivery system bringing together all participating organisations under one umbrella organisation to ensure both vertical and horizontal integration. A meta-analysis of the 45 articles and two books that the trial has spawned has recently been conducted, finding strong evidence for a reduction in functional decline and handicap levels and increased feelings of empowerment and satisfaction with care among patients (Stewart et al.,

2013). Stewart et al. suggest that one key lesson learnt from this trial is that it is important to work within existing structures and resources (“off-the-shelf” systems that are imposed do not enable integration). A further example is the use of an existing hotline which also helped to reduce costs (an Australian equivalent would be the National Health Call Centre Network). Another important lesson was the need to retain flexibility in the program to reflect local arrangements and needs.

### **Multidisciplinary teams**

Almost by definition, strategies to integrate services are likely to include a multidisciplinary team, which involves collaborations of providers, including doctors, nurses and allied health care professionals, working together under appropriate leadership to improve patients’ outcomes. In some areas, the team may include other professionals, such as social workers or chaplains (e.g. palliative care). For example, the NSW Chronic Care Program (previously the NSW Chronic and Complex Care Program) employs a multidisciplinary team approach to achieve integration of chronic care services to ensure well-coordinated chronic care (NSW Department of Health, 2004). The multidisciplinary teams in this program consist of staff from medicine, nursing, physiotherapy, psychology, social work, occupational therapy and dietetics. Program managers have reported that strong multidisciplinary teams enhance effective chronic disease management by improving access to allied health care professionals. In addition, as an integration initiative, multidisciplinary teams have been shown to improve patient outcomes. For example, a systematic review (Wensing et al., 2006) reported overall improvement in patient outcomes associated with interventions to enhance collaboration in multidisciplinary teams. In RCTs (included in Wensing et al.), palliative care teams that used a specialist coordinated approach resulted in improvements in the control of symptoms, pain, anxiety and patient and family satisfaction compared to the control (usual care) group. Overall, most patient outcomes were improved and cost savings were reported in groups that used multidisciplinary teams (Wensing et al., 2006). However, in another review of integrated care, Kodner (2009) reported that outcomes for patients with chronic conditions are sometimes equivocal and may reflect how well health care providers work together to achieve outcomes. Thus, the internal dynamics of a multidisciplinary team may be the critical element for beneficial outcomes for patients; with these dynamics often affected by the method of recruitment of team players (e.g. through use of financial incentives, memoranda of understanding or alliancing models etc.).

### **New roles in the PHC workforce**

Extending health professionals’ practice to the top of their scope of practice is another innovative way to improve integration of health service delivery. One example is advancing nursing practice (Por, 2008). Advanced practice nurses or other suitably trained staff may play a valuable role working as part of a ‘teamlet’ with the PHC provider to handle all actions associated with care coordination, such as arranging tests, referrals and following up on paperwork (Bodenheimer, 2008). Given that GPs cannot provide all the recommended preventive services to their patients in a typical working day, Yarnall et al. (2003) suggest that the ‘teamlet’ model may also address the limitations of the 15-minute consultation. South Australian policy documents suggest that integration between general practice, the PHC sector and the acute care sector has been improved by the practice nurse role with effective communication, partnerships and referral pathways in place when managing people with chronic disease (Department of Health - Government of South Australia, 2009).

In South Australia, PHC reform includes introduction of GP Plus Health Care Centres, which typically employ community nurses, allied health professionals, social workers, counsellors, health promotion officers, community development workers and some doctors to provide support around management of chronic diseases, mental health and other health concerns (Wiese et al., 2011). The GP Plus Practice Nurse initiative aims to support nurses to move into ‘advanced roles’ in general



practice to collaborate and create comprehensive systems to improve patient care (Improvement Foundation, 2011). GP Plus Practice Nurses work collaboratively with GPs, acting as a catalyst for change within general practice. They are involved in promoting good health and preventive health care by increasing the focus on chronic disease management. In addition, they conduct health screening checks on population groups and provide education to individuals and the community. The care coordination aspect of the project focuses on coordinating comprehensive general practice care of patients at risk of hospitalisation. Nurses identify patients for initial needs assessment, comprehensive assessment and care planning. They act as a key contact to coordinate, communicate, navigate and advocate for the patients at risk of hospitalisation.

### Care plans/pathways

In general, a care plan is a 3-step model of care<sup>xi</sup>, which involves:

- **Assess and plan:** An assessment of the physiological, psychological and social factors predisposing, precipitating, perpetuating and/or protecting against a health problem; consultation with the patient and/or caregiver; discussion about referral and treatment options; and setting goals
- **Provide and/or refer for appropriate treatment and services:** Arrange referrals, treatment, and support services; provide patient education; document actions; and provide patients with a copy of the care plan
- **Review and manage as required:** Review patient's progress against the goals, modify the plan as required, and provide additional patient education as needed.

A systematic review (Tieman et al., 2006) examined the outcomes of multidisciplinary care planning for four groups: the frail elderly, and those with diabetes, chronic obstructive pulmonary disease and stroke. Care planning was frequently implemented as one component of a multifaceted program. While the review found that coordination improved outcomes for patients, variation in study design, populations and interventions limited the validity of comparisons. The most critical factors for success were identified as:

- **Active coordination:** positive interaction between participants, including team members, case conference group and liaison for care planning (e.g. between hospital discharge officer and GPs)
- **Participation of many disciplines:** different perspectives, methods of inquiry and responsibility resulted in better identification of potential needs as well as more comprehensive response to needs.

**Care pathways** have also been developed as the next step up from care plans. Care pathways are developed based on information at the population level for diseases, conditions or population groups which require specific service delivery that effectively meets community health needs and matches national and state priority areas. A care pathway outlines best practice patient care delivery through the application of a set of service principles across identified clinical streams and patient flow continuums. Since 2006 in WA, multiple care pathways have been developed with underlying principles central to integration - i.e. the people get the right care, at the right time, by the right team and in the right place (Government of Western Australia, 2007). The Models of Care Survey aimed to provide information about the extent and implementation of models of care in WA by all service providers. Evaluation targeted health service providers ( $N=537$ ) who were familiar with one or more models of care. Critically only one question pertained to integration across health care services (data were not available). In Queensland, a GP referral system was implemented to reduce

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<sup>xi</sup> Adapted from AGPN's "Better Access to Mental Health Care Orientation Manual" (AGPN, 2006).

long waiting lists to attend hospital specialist clinics (Stainkey et al., 2010). The updated referrals resulted in substantial reductions in the wait time to access a specialist appointment (from eight to two years).

### **Case management**

Case management, which also includes a range of patient-centred multidisciplinary services, involves coordination and follow-up of medical care that is managed by a single designated health care provider. Activities include an initial assessment, development of an individualised care plan, coordination of services to implement the plan, review and monitoring of a patient's progress to assess the effectiveness of the plan and regular adjustment of the care plan as needed. It may include face-to-face encounters as well as other forms of communication. A systematic review of case management for people with mental health problems described a number of different case management approaches, which involve an eclectic combination of different elements and intensities (Marshall et al., 2000). Examples included Assertive Community Treatment, Strengths model and brokerage. Overall, Marshall et al. found little evidence to support case management for community mental health care, except where appropriately targeted Assertive Community Treatment was implemented (Marshall and Lockwood, 2000).

More recently, a case management model was identified as the most promising way to promote continuity and coordination and minimise the risk of diffusion of responsibility across providers (Knightbridge et al., 2006). However, it was also recognised that case managers often have heavy patient loads that are distributed over large distances with dispersed resources, a lack of specialised services and few support structures.

Wensing et al. (2006) evaluated several reviews that focused on integrated care services using a case management (or disease management<sup>xii</sup>) model. Overall, case (and disease) management led to a variety of patient outcomes, including:

- Improved clinical outcomes in patients with heart failure, asthma, diabetes and geriatric conditions
- Improved quality of life and functional status in patients with heart failure
- Reduced hospitalisation, but no reduction in all-cause mortality in ambulatory patients with heart failure.

In Quebec, trials of case management in the PRISMA program for the frail and elderly have proved successful at reducing functional decline, improving patient satisfaction and perceived empowerment and decreasing emergency department visits (Hébert et al., 2003, MacAdam, 2008, Hébert et al., 2008). No differences were observed in hospitalisations, length of stay or readmissions but these results led the Government of Quebec to generalise the model to the entire province.

### **Physical environment/Co-location**

Health care services may be physically located within or adjacent to a PHC, hospital or community care facility. The type of central organisation and population served is likely to determine the mix of services provided. For example, preventive, diagnostic and treatment services may be co-located at a community-based site to deliver services to injecting drug users (Sylla et al., 2007); whereas paediatric and psychiatric services may be co-located within a general practice for the identification and treatment of behavioural disorders in children (Williams et al., 2006). Some service providers

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<sup>xii</sup> In contrast to case management, which has a more patient-centred focus, disease management focuses on reducing the impact of a particular disease and improving the quality of life and wellbeing in patients with a specific chronic illness.

that actively embrace the co-location model include the GP Super Clinics, CPHC and the IPHCS models.

Evidence from consumers' perceptions of pharmacies co-located with GPs have indicated that they are easier to access and less stressful compared to a doctor's surgery; and the verbal and written information from a pharmacist seems to be presented in more user-friendly language (University of South Australia: Quality use of Medicines and Pharmacy Research Centre et al., 2005). One systematic review reported significant improvements in patients' health outcomes when PHC was co-located with other service providers (Powell Davies et al., 2006). However, another review showed no significant improvement in older patient outcomes for co-location of multidisciplinary teams (Tieman et al., 2006). Findings from a comparative study also revealed that co-location of services did not lead to significant differences in patient outcomes compared to a traditional non-integrated method of service delivery (Brown et al., 2003). It is necessary to acknowledge that the likelihood of success depends on the local community and their needs.

*The initial stages of the process of seeking help and being assessed for a service may have improved through better communication, understanding and exchange of information amongst different professional groups (Brown et al., 2003, p 85).*

However, simple co-location was insufficient to improve outcomes for older people. Interviews of elderly participants revealed that:

*They had little interest in who organised or delivered their services as long as they received what they felt they were entitled to (Brown et al., 2003, p 92).*

In a retrospective analysis of audited data, co-location of geriatric and psychogeriatric services at Bankstown in NSW resulted in reductions in hospital length of stay and improved psychosocial performance for patients compared to traditional care (Chiu et al., 2009). Similarly, co-location was part of the Brisbane South Centre for Health Services Integration initiative that aimed to integrate health services across three different organisations; Brisbane South Community Health Service (Queensland Health), Mater Centre for Integrated Health care<sup>xiii</sup> (Jackson et al., 2007). The approach included integration across four key areas:

- undergraduate and postgraduate multidisciplinary education
- clinical interaction between organisations/groups
- information technology and information management
- governance.

While evaluation of co-location revealed largely positive views for health care providers, patients' perspectives were not solicited.

In its review of polyclinics, the NHS Confederation (2008), has argued that **physical design features of centres** are fundamental to centres delivering highly efficient and effective services:

*It is important to have a well-designed building that makes extensive use of natural light, shared common areas and reception space, and a flexible design that allows multiple uses with a few rooms dedicated to special purposes. The ability to extend and to dock mobile imaging or other services is also an advantage. Professional interaction is one of the key benefits of the polyclinic models, so including space that allows different professionals to meet and work together is very important and should not be regarded as a luxury. Good access to public transport and the availability of car parking is an issue (NHS Confederation, 2008, p 10).*

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<sup>xiii</sup> Representing the MCIHC&GP and Domiciliary Allied Health Acute Care and Rehabilitation Team and the Brisbane Inner South Division of General Practice.

## Shared care

Shared care has been defined as “the joint participation of primary care physicians and specialty care physicians<sup>xiv</sup> in the planned delivery of care, informed by an enhanced information exchange over and above routine discharge and referral notices” (Smith et al., 2007b, p 1). Many shared care initiatives between GPs and specialists or specialist services have been established in Australia in mental health, maternity care, chronic disease and cancer care; and many of these were facilitated through the DGP network. There are also international examples such as the Grey Lynn Family Medical Centre strategy described in the NZ section of this report. Systematic reviews of the effectiveness of shared care for chronic disease (Smith et al., 2007b, Smith et al., 2008) have found mixed results related to patient outcomes. While there was a significant improvement in prescribing, there were no consistent improvements in physical health, mental health or psychosocial outcomes, hospital admissions or satisfaction with treatment.

## Discharge planning

Patients’ decisions to see a GP post-discharge may be influenced by a range of factors including: concerns about aspects of their health, the need to renew prescriptions, and the need for clarification about medical management of their conditions (Yang et al., 2010). The transition between hospital and home is often a vulnerable period for patients who must cope with complicated information about diagnoses, treatment and medications. Patients may leave hospital or their GP’s office without a clear understanding of what was said (Crane, 1997). Thus, relying on a patient’s memory to communicate important clinical information is risky. Continuity of care is a challenge for PHC providers if they receive fragmented information about their patient’s hospital stay and recommended post-discharge care.

Continuity of care on discharge from hospital has been evaluated in several systematic reviews (Mistiaen and Poot, 2006, Phillips et al., 2004, Richards and Coast, 2003, Yang et al., 2010). A meta-analysis showed that comprehensive discharge planning (including post-discharge support) for older patients with congestive heart failure led to significantly lower rates of readmission and improved quality of life (without increased costs) compared to usual care controls (Phillips et al., 2004). In Western Australia, a hospital computer-generated coordinated discharge plan (Preen et al., 2005) was completed before discharge and faxed to the patient’s GP who was able to make alterations based on their knowledge of the patient’s history (e.g. cardiorespiratory illness) and make an appointment for review. The completed care plan, which was part of the Enhanced Primary Care package, was then provided to the patient on discharge and copies were faxed to all identified service providers. Mental quality of life and satisfaction with discharge planning were significantly improved for the intervention group but not the control patients who were discharged under usual hospital discharge processes. The intervention group also rated more highly the importance of notifying their GP of discharge arrangements. Significantly, 11.6 per cent of the control group’s GPs were never contacted by the hospital. Problems with the discharge plan related to inadequacies in a number of areas: incomplete hospital notes, insufficient caregiver consultation, inappropriate goals developed with the patient and caregiver, and lack of interventions and community service providers to meet the patient’s needs.

Post-hospital support programs, including coordination with community pharmacists and early discharge rehabilitation services may improve patient outcomes after discharge and reduce hospital readmissions (Cummings et al., 2010). In many cases, discharge plans are an essential part of a

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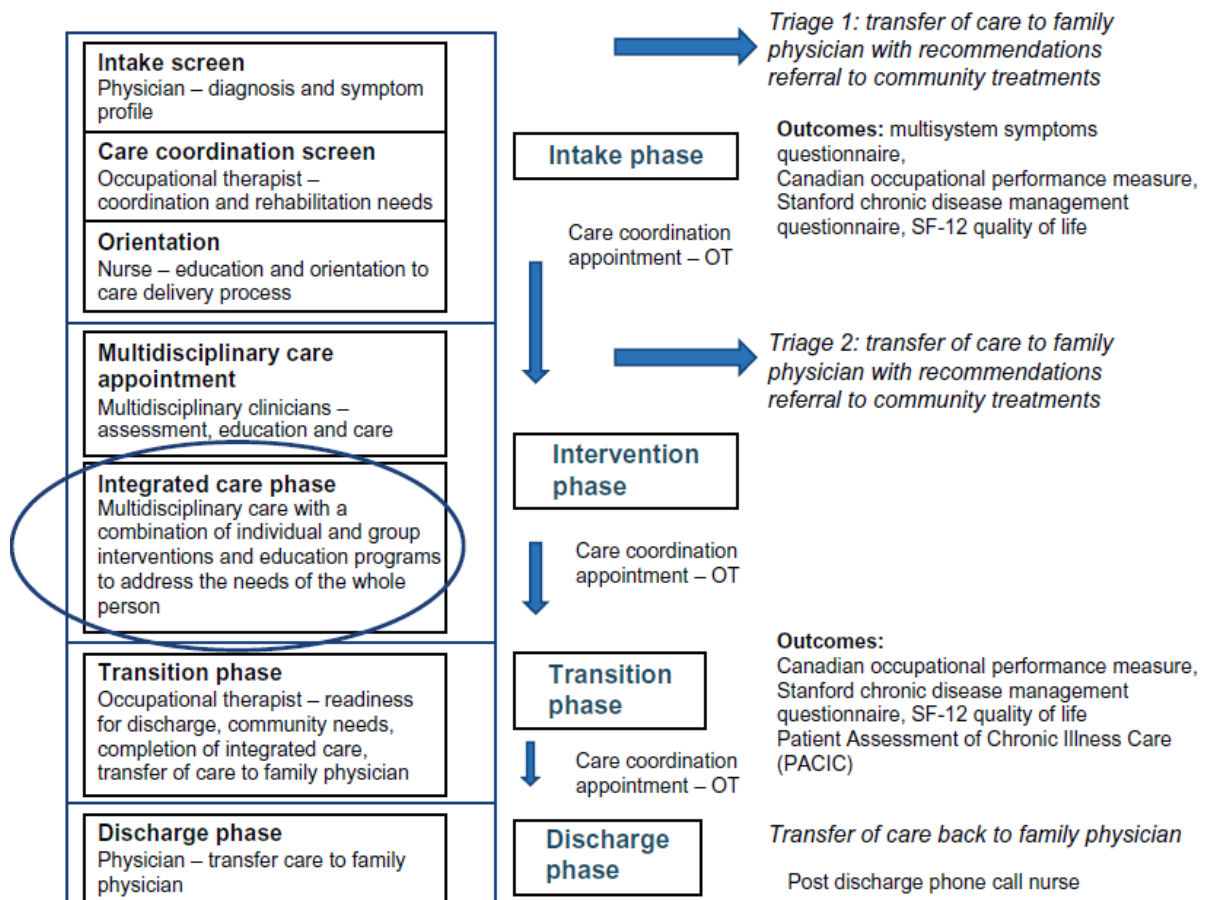
<sup>xiv</sup> Shared care may also occur between primary health care providers and community health and/or allied health care professionals.

comprehensive integrated care package, making it more difficult to determine the effectiveness of discharge planning alone (Shepperd et al., 2004). Discharge plans are also increasing in popularity in the current 'new technologies' space. For example, personally controlled eHealth records (PCEHRs) or the facilities for automated follow-up calls may symbolise the future in discharge planning.

One example of discharge planning initiatives can be seen in the Multimorbidity Integrated Trial from Nova Scotia (Sampalli et al., 2012). This small trial targeted patients with multimorbidities (on average nearly four chronic conditions) aged under 65 years (mean age 42 years) in a dedicated service. Whilst this study includes time as an inpatient, it is an instructive case study in the context of PHC in that much focus was on the transition/discharge phase to ensure adequate engagement with community-based services. Figure 3 illustrates the proposed model of integrated care. The intake phase involved a comprehensive multidisciplinary assessment involving a physician, an occupational therapist, and a nurse. In addition to assessing physical needs, patient motivation and barriers to change were identified:

*The overall goal of this phase is to help individuals shift from a fragmented to an integrated and non-disease specific view of their health problems in addition to raising their self-awareness regarding the potential enablers for positive shifts in health (Sampalli et al., 2012, p 760).*

The integrated care phase involved treatment, education and integrated care for physical, functional, psychosocial, and vocational needs identified in the intake phase of care (Sampalli et al., 2012). The transition phase identified any gaps needing to be addressed for self-management of health, and patients were involved in formulating action plans. The discharge phase included an appointment with their GPs and a one-month follow-up appointment with a nurse. Although this was a pilot trial with no control group, the outcomes were very encouraging, particularly given the degree of multimorbidities in the participants. Patient self-ratings of care were in the higher end range, with mean scores above four (on a 5-point scale) for delivery system/practice design, goal setting/tailoring and problem solving. Canadian Occupational Performance Measure scores increased by 4-5 points on a 10-point scale (from well below the mid-point to well above), with the top-rated categories including exercise, work, energy levels, housework and preparation of meals. Symptom scores showed similar improvement (health, fatigue and pain).



**Figure 3 Proposed Model of Care for Multimorbidity**

Source: (Sampalli et al., 2012, p 761)

**Hospital in the Home (HITH)** programs are also related to discharge planning and provide a way to bridge the gap between hospital and community care. This is important for PHC as patients need a range of services that often span the acute, primary and specialist sectors. Providing cohesive and consistent coordinated care requires a well-integrated multidisciplinary care team. HITH programs are broadly divided into two groups (Centre for GP Integration Studies, 2001):

- 1 Alternative to hospitalisation:** Instead of being admitted to hospital, hospital-type care is provided in the patient's home, with a team of health care professionals, including doctors, nurses and allied health care workers, to maintain continuity of care for the patient, without hospitalisation. A systematic review of the HITH service showed mixed outcomes for patients (Shepperd et al., 2008). While patients generally reported increased satisfaction compared to in-hospital care, there was some evidence of increased admissions in the longer term; and no difference in quality of life or functional status compared to usual hospital care.
- 2 Early hospital discharge:** Instead of remaining in an acute hospital ward, patients are discharged early from hospital under a formal coordinated care program, with a team of health care professionals who provide acute hospital care services to the patient in their own home. A systematic review of this service showed that patients were more satisfied with their care at home; their caregivers did not report increased burden; and there was no significant difference in their quality of life, functional status, or risk of adverse events compared to usual hospital care (Shepperd et al., 2009).



A HITH program has been embedded into the NSW health system to reduce the demand for acute care beds and integrate hospital care with primary and community care provided outside hospitals (ARCHI, 2012).

### *Information technology to support integration*

With rapid technological advances worldwide, information technology represents a recent innovation to support integration in PHC and improve both the practitioners' and patients' experiences. Described in the following sections are some of the key information technology initiatives including electronic health records, and the various facets of telemedicine and telehealth (i.e. telephone and internet patient information services, e-transfer and e-consultations).

#### **Electronic Health Records**

Worldwide there is a move towards the use of EHRs, for example, Australia has formed a National E-Health Transition Authority in order to implement a Personally Controlled Electronic Health Record (PCEHR). Models of integrated care typically propose that health care professionals from different organisations and disciplines need to share information about patients' health care to provide high quality, coordinated health care. EHR systems have been proposed as a key component of shared information systems (Protti, 2009). EHRs are central to the functioning of several successful models, such as the Kaiser Permanente, Veterans Administration and PCMH models in the USA.

Patient-controlled records comprise full details or a summary of a patient's records. Typically, patient-controlled records contain diagnoses, details of treatments and other health problems or advice and other relevant health information. Patients have full access to the contents which are uploaded by the health professionals who ordered the test, gave the diagnosis, or prescribed the medication etc. Given the extent of the literature, inconsistencies in use and structure of EHRs and complexities of implementing them, a comprehensive evaluation of EHRs, particularly in terms of their impact on patients, is beyond the scope of the current review; however the following sections will highlight some of the key lessons and challenges in promoting eHealth.

The Portable Health File, stemming from a pilot study conducted in NSW (Lassere et al., 2008), is a type of patient-controlled record, which is used to exchange patients' information between GPs and specialists<sup>xv</sup>. In a study of 76 patients, 62 GPs and four specialists, patients carried their own medical records and asked health care professionals to complete the record after each consultation. Results showed that 95 per cent of patients liked carrying their own record and 80 per cent would recommend it to others. While most providers were willing to fill in the record, 15 per cent of GPs were concerned about confidentiality and accuracy and 13 per cent did not wish to participate. Patients who took greater responsibility and were active in decision-making related to their own health care were more receptive to carrying their records (Forsyth et al., 2010).

A recent systematic review evaluated studies that implemented patient-held records for patients with chronic disease (Ko et al., 2010). Patient outcomes included the usefulness of patient-held records, the quality of information exchange and clinical/physiological indicators. Findings showed no significant advantage to using patient-held records. However, due to the high risk of bias and overall poor quality of reviewed studies, these results must be interpreted with caution. Further good quality studies are required to properly evaluate the effectiveness of patient-held records.

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<sup>xv</sup> A RCT is currently underway, but no results have been posted <http://clinicaltrials.gov/ct2/show/record/NCT01082978>

A variation on patient-controlled records is a patient-held summary of their specific clinical encounter, including details of their condition, test results, medications, care plans and follow-up appointments (Tang and Newcomb, 1998). Patient focus groups revealed that patients perceived an improved understanding of their treatment, increased motivation to adhere to a care plan, greater satisfaction with their care and more confidence in their health care provider when they received clear, concise and illustrated printouts after a clinical consultation.

There is an extensive literature pertaining to the rationale for EHRs and there is substantial variability in the way they are structured, used and shared (Häyrinen et al., 2008). However, evidence related to their impact on patient outcomes is often lacking. In addition, a number of challenges remain, including the availability of funding to establish an EHR system and concerns about privacy (Angst and Agarwal, 2009). At a more pragmatic level, the standardisation of processes and interoperability of systems across organisations and jurisdictions needs to be resolved.

*Although interoperable (compatible) electronic health records will greatly improve information availability at the point of care, they will not ensure that care is integrated (Reid and Wagner, 2008, p 987).*

### **Telemedicine and telehealth**

Telemedicine, telehealth and telecare are used here as umbrella terms to cover a range of health services that involve delivering health care from a distance. They involve the “transfer of information about health-related issues between one or more sites, so that the health of individuals and their communities can be advanced” (Craig and Patterson, 2006, p 4). Telemedicine is a key technology for achieving equity of access and outcomes in health care (Kidd et al., 2008), particularly for those with chronic disease/disability and/or those who live a long distance from health services. Telehealth is not a single, uniform type of technology; rather it is a targeted approach appropriate to the individual’s needs, combining process, organisational and responsibility changes supported by monitoring and collaboration technologies (Cruickshank et al., 2010). Telemedicine may be used during a primary consultation, a ‘second opinion’ consultation, diagnosis, disease management and monitoring, and/or for administrative purposes, such as referrals (Caffery and Smith, 2010). It has been used across a wide range of specialties, including general practice, pathology, dermatology, radiology, neurology, dentistry, endocrinology, oncology, mental health and wound care. The effectiveness of telemedicine approaches for different populations has been assessed in a number of studies pertaining to integrated care (Wootton et al., 2009). While overall outcomes for patients have been promising, study findings are limited by the use of uncontrolled, non-randomised study designs, small sample sizes and short follow-up periods.

The main types of telemedicine services are:

- 1 **Telephone and internet patient information services:** health advice and triage service
- 2 **Electronic referrals and patient transfer:** on-line booking system
- 3 **Telehealth consultations:** diagnoses and health management advice (e.g. teleradiology, teledermatology, remote mental health assessments)
- 4 **Telemonitoring: patients** with controlled chronic conditions upload information or routinely check in by telephone or on-line for preventive care.

A recent systematic review examined the impact of eHealth technologies (e.g. EHRs, prescribing, communication, decision support and provider order entry systems) from the perspective of quality and safety of health care (Black et al., 2011). The review reported that:



*The evidence base in support of eHealth technologies was weak and inconsistent and importantly, there was insubstantial evidence to support the cost-effectiveness of these technologies (Black et al., 2011, p 8).*

Moreover, Black et al. (2011) reported some evidence of increased risk of *negative* outcomes as practitioners' clinical skills may deteriorate if they rely more on computerised clinical decision-making and overestimate the functionality of such technologies; and potential loss of "opportunistic interactions" between practitioners and other health care professionals.

### **Telephone and internet patient information services**

Patient information services (telephone and/or internet), which range from relatively simple information depositories to more interactive telephone triage systems, have been introduced in Australia and overseas. This is another initiative to influence integration by providing a directory that consumers and local health practitioners can access.

HealthDirect Australia is a free 24-hour telephone health advice line, which is staffed by registered nurses who provide fast and simple advice about health issues and what callers should do next. It received three million calls in its first six years of operation (NHCCN, 2012). Recently, an *After Hours GP helpline* was added, receiving 150 000 calls in its first year of operation (Sunday is the most popular day). Cumulative data from four customer satisfaction surveys conducted in 2009-2010 revealed overall high levels of customer satisfaction (>99%) in the 20 per cent of customers who participated in the survey (National Health Call Centre Network, 2010). In addition, data showed that the service successfully directed callers to appropriate care. For example, 58 per cent of callers (from a sample of 307 respondents) were diverted from going to the ED/hospital and advised to manage their condition at home or see their GP; whereas 19 per cent who originally intended to care for themselves at home were triaged to the hospital ED.

An example of an automated voice recognition program is the Australian Telephone-Linked Care (TLC) Diabetes, a program that has been developed in Australia as a joint initiative between Monash University, Boston University, the University of Queensland, and Queensland University of Technology (Williams et al., 2012, Bird et al., 2010, Bird et al., 2008). TLC was first developed by the Medical Information Systems Unit at Boston Medical Center, Boston University, in association with colleagues at other institutions in the USA. TLC programs have now been used by over 3 000 participants in more than 20 randomised control trials conducted over more than 10 years throughout the US in both clinical and community samples, aged between five and 100 years old. The majority of the clinical interventions have been with patients between 40-75 years.

Trials in the US have demonstrated the benefits of TLC programs in improving physical activity, nutrition and medication taking (Williams et al., 2012, Bird et al., 2010, Bird et al., 2008). TLC system users in the US have reported high acceptability with more than 60 per cent of individuals in a number of studies rating the system high on satisfaction and helpfulness. The main advantage of this system is that participants can call at a time and place that suits them, at no cost. For someone with diabetes, having access to support and advice when they need it is vital. Early trials of the TLC system in Australia have been very positively received by participants; and a major advantage of using the system is that it provides round-the-clock help and advice for patients. The Australian TLC Diabetes Program was evaluated in two trials funded by HCF Health, the National Health and Medical Research Council and Queensland Health. Recruitment and data collection for these trials is now complete (Bird et al., 2010, Williams et al., 2012). At six months, participants in the TLC diabetes program showed significant decreases in mean HbA1c and improvements in health-related quality of life scores (compared to the usual care group) (Williams et al., 2012).

A systematic review of telephone triage and advice services in Australia and overseas found overall reduction in immediate medical workload (Leibowitz et al., 2003). However, overall patient satisfaction was reduced when in-person consultations were replaced by telephone consultations.

### **Electronic referral (e-transfer)**

E-Transfer systems have been developed to improve access to specialty care, reduce costs and improve coordination of care. An electronic or on-line booking system for referral appointments is a unidirectional system that streamlines referral appointments for patients using a collaborative approach and common or shared resources. For example, a state-wide framework for electronic referral in Victoria utilises SCTTs, which enable service providers to collect information in a common format and share information (with patients' consent) with other providers; and a State-wide Services Directory, which is a comprehensive source of services that are available locally (Akyalcin, 2004). Referrals may also be completed electronically from the GP's desktop to facilitate the transfer of patients from one health service to another (e.g. general practice to hospital/specialist care).

Evidence shows that GPs are often concerned about the delay of formal reports from allied health professionals after referring patients to them (Chan et al., 2011). E-transfer systems may address this issue and improve the nature of communication and collaboration among practitioners. The simplest e-transfer system is by email, with files attached as needed (Wootton et al., 2003). The advantages of this system are the universality of the format and widespread availability of the software. The main disadvantages are the lack of coordination with electronic medical records and accounting systems; and risks to privacy and security unless appropriate encryption is used. Alternate methods are by message transfer or web link. Message transfer requires a compatible EHR system and agreements between participating providers, and involves use of standardised message syntax. Web link, which may be used with or without an EHR system, requires a secure connection and may involve copying patient information from the local system to the web server (Wootton et al., 2003).

An on-line referral application for GPs to book hospital outpatient appointments from their desktop was implemented as a pilot project in Brisbane (Nicholson et al., 2006). Nineteen GPs in the Brisbane Inner South E-referral Project were satisfied with the approach and an assessment of patient satisfaction revealed no perceived disadvantages in this type of outpatient referral.

### **Telehealth consultations (e-Consultations)**

An electronic consultation system (e-Consultation) is a bi-directional referral and interactive advice system, without the need for face-to-face consultation. E-consultations involve diagnoses and management advice, including counselling and patient support, particularly for patients with chronic disease and/or comorbidities. For example, a GP may email laboratory data, medication and patient history to an endocrinologist who then provides advice on a patient's diabetes care (Bodenheimer, 2008).

A survey of PHC providers using an electronic referral system at San Francisco General Hospital showed that 72 per cent reported overall improvement in clinical care, quality of care and access to health care (Kim et al., 2009). Similarly, UK patients were prioritised more efficiently and had shorter waiting times when digital photographs of suspected skin cancers were electronically referred in a 'store-and-forward' teledermatology triage compared to those in the conventional referral group (May et al., 2008); and patients in Scotland reported high levels of satisfaction with the service, with comparable rates of diagnostic accuracy (Tadros et al., 2009). While a similar service, which was

trialed in regional Queensland, was shown to be feasible, limitations included variability in the quality of images sent by GPs and Internet problems<sup>xvi</sup> (Hockey et al., 2004). However, issues of remuneration in a fee-for-service environment and specialists' time for handing electronic referrals may need to be addressed.

NSW Health has established telehealth infrastructure across NSW and videoconferencing is now routine practice in most Area Health Services (Eagar et al., 2008). There are examples of use of telehealth in radiology, ophthalmology, psychiatry and diabetes foot care. For example, a review of patients' satisfaction with a telehealth diabetes podiatry program (Devine, 2007) showed that, across a number of telehealth programs, the largest benefits perceived by patients were elimination of the stress and cost of travel and rapid access to specialty care. However, while there are systems of remuneration for specialists (Medicare eligible), rebates are available only for selected allied health or other PHC services (MBS Online, 2012); thus there has been limited uptake in some fields. Problems include the cost of telephone and broadband to community health services, lack of formal networks and protocols with specialist providers and no system for remunerating allied health or nursing consulting time (Eagar et al., 2008). In addition, a recent RCT of telephone-supported coordinated care for Australian Veterans with congestive heart failure reported no difference in costs or quality of life in the coordinated care group compared to usual care (Wootton et al., 2009). However, other studies have shown that benefits may be "slow to emerge" (Wootton et al., 2009, p 182) and longer intervention and follow-up (>12 months), including economic analyses, may be needed to determine effectiveness and cost-effectiveness of such interventions (Wootton et al., 2009).

A systematic review of economic analyses of synchronous video communication (Wade et al., 2010) found that this strategy was cost effective for home care and access to hospital specialists; but showed mixed results for rural service delivery and was not cost effective for local delivery of services between hospitals and PHC. Similarly, a review of interactive clinical consultations using real-time video and data collection was a cost-effective model (Pan et al., 2008) and a systematic review of telemedicine services (Roine et al., 2001) suggested that teleradiology can be cost saving. Additionally, costs associated with a telepaediatric service demonstrated significant savings compared to a usual care outpatient service at the Royal Children's Hospital in Brisbane (Smith et al., 2007a).

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<sup>xvi</sup> The National Broadband Network may alleviate some of the connectivity problems reported in earlier studies.

## Barriers and enablers

A summary of the main barriers and enablers of integration are listed in Table 4 and described below.

**Table 4 Key barriers and enablers of integration**

Barriers	Enablers
<ul style="list-style-type: none"> <li>○ Poor access</li> <li>○ Lack of sustainability</li> <li>○ Lack of evaluations</li> <li>○ Limited preparedness to change</li> <li>○ Complexity of health conditions</li> <li>○ Coordinating providers across systems</li> <li>○ Inadequate resources</li> </ul>	<ul style="list-style-type: none"> <li>○ Clear and regular communication</li> <li>○ Appropriate infrastructure</li> <li>○ Information technology</li> <li>○ Appropriate program planning</li> <li>○ Specific funding for sustainability</li> </ul>

### *Barriers for Integration*

One of the key barriers to integration at the micro level is **poor access** to services. No matter how well a model of integrated care may be working for the majority of people within a catchment area, there will still be those who are poorly connected or for whom it is difficult to co-ordinate care. These vulnerable populations may include newly arrived refugees, some Indigenous people, those with limited resources to coordinate their own care, people with physical or intellectual disabilities, those with language or cultural barriers and those in remote/rural locations. These groups refer to communities at high risk of poor health outcomes or for whom access to services is a challenge due to location of services, transport options, language barriers etc. For example, patients in rural and remote areas have particular problems accessing specialists due to the failure of the market to attract specialists to their area (National Rural Health Alliance, 2004). While the preceding sections have highlighted a number of strategies and initiatives designed to improve integration of health services for these populations, in some cases there are still challenges to contend.

A further barrier relates to **sustainability** of strategies or initiatives. Erosion of initial gains achieved by an intervention is a well-documented phenomenon; thus planning for sustainability of improved service delivery should occur at the outset of any new project or initiative (Gruen et al., 2008). It has been noted that a congruence of organisational routines and institutional standards is required (Pluye et al., 2004) to enable sustainability. Organisational routines refer to stable, regular and reliable behaviours established in an organisation's policies and procedures while institutional standards refer to social system-wide principles, norms, laws and rules. Further, both time and funding will have major influence on sustainability. Pluye et al. suggest that one of the challenges of integration is that often initiatives are supported by short-term funding, which may be insufficient to enable appropriate implementation, establishment and evaluation. Time is also a vital factor in introducing any new initiative to a community; and it takes time to develop a plan specific to the local community's needs, to engage consumers and clinicians, and to entrench the initiative into local practice.

As noted throughout this series of reports on integrated care in Australia, there is limited evaluative data and this theme continues at the micro level. While there is a large body of literature that describes integration initiatives and services, there are few examples of integrated service delivery **evaluation** hence one of the challenges for integration is the lack of evidence-base. Of those evaluations that are available, often they do not meet the traditional standards of high quality evaluations (e.g. pre-post measures, comparison groups, and statistical control of potentially

confounding intermediary variables). In many cases ‘evaluations’ are in the form of progress updates or annual reviews; hence they provide less objective discussions on the value of certain programs. Even when a relatively rigorous study is conducted, measurement is often hampered by a lack of consensus on how to measure the concept of integrated health care delivery or to monitor the progress of organisations’ integration efforts (Strandberg-Larsen and Krasnik, 2009).

When undergoing major reforms to practice such as implementing strategies to integrate health services it is necessary to consider **preparedness to change**. For many service providers these new approaches e.g. co-location, shared resources, electronic records, may be a departure from usual practice and health professionals must be prepared and ready to change for these initiatives to be fully embraced. Individual behaviour change (i.e. to embrace integration) from health professionals working in the front line of health service delivery requires a supportive culture and infrastructure. However, workers on the ground may struggle to comprehend how change at the direct service level relates to the model’s governing restructures. Achieving full understanding of this as a process, and gaining stakeholders’ commitment to change takes time to evolve. The ‘process of change model’, which may help to explain and manage difficult change for patients (e.g. modifying addictive behaviours, combating depression), can also be useful in explaining organisational change and clinical practice change (Appendix, Table 8) (Prochaska and Diclemente, 1982). The process of change model recognises that difficult change requires both a cognitive and a behavioural shift. The individual needs to be convinced that the advantages and merits of change outweigh the advantages of the status quo (and as a corollary, that the status quo has comparative disadvantages). When contemplation is well advanced, progression occurs to the stage of *preparation or readiness* for change in which the necessary structural/environmental conditions for change are established in local practices/by individual health professionals to help ensure that the change effort can occur in a helpful context. In the context of health delivery, it has been observed that,

*change in performance (practice behaviour) is complex and often is not easily accomplished. Activities and events that encourage reassessment of the environment, raise consciousness and allow self-evaluation are useful. When people are predisposed to change, they actively seek information on the advantages and disadvantages the change would bring them. They are likely to become more aware of performance problems. To decide to change, the person must feel capable of making the changes required. This can be done often through actively rehearsing the change, and by providing reminders and incentives to change. Furthermore, it requires an environment that will continue to support the changes made. Planning for change involves identifying incentives and strategies to assist in effecting the change to higher quality care. If the environment continues to support old behaviours, people will revert back to their old behaviour patterns. The person’s personal environment, the immediate practice environment, the educational, professional and community environments must all be considered. In addition, the administrative, social and cultural environment and the existing economic and political environment can either foster, or act as deterrents, to change (Woodward, 2000, p 1).*

Many of the barriers encountered in any endeavour to improve integration are context-specific. For example, when seeking to improve the integration of chronic disease care services, barriers include the **complexity of chronic illnesses** and the fact that the care systems required for optimal management are multifaceted and varied/variable according to the case for which care is required (NSW Department of Health, 2005).

*Lack of systems and structures to support integration include unreliable referral systems, inconsistent eligibility criteria, no electronic records or secure messaging, and a lack of explicit clinical governance systems (AMLA, 2012, p 7).*

Further, it can be difficult for multiple providers and services, particularly for those from **different parts of the health and social care systems**, to coordinate discharge, transfer, and ongoing care, especially when there are multimorbidities compounded with chronic mental illness, disabilities and degenerative conditions of the elderly. Further, some clinicians and services may lack the capacity and or **resources** to work effectively with other services (e.g. some solo general practices). Without extra support they may not be in a position to action initiatives to achieve integration.

### *Enablers of Integration*

In the previous section initiatives were categorised according to three key elements: communication and support, structural arrangements and information technology. These are the main enablers of integration at the micro level (Bywood et al., 2011, Powell Davies et al., 2006, Powell Davies et al., 2008). Developing tools (e.g. common assessments, care plans, decision support resources) that can be used across services, and developing systems for **communication** and sharing information, particularly by embracing **information technology** (i.e. use of electronic tools) represent the way of the future. Improving **structural arrangements** is also important, i.e. developing networks and pathways to improve patient access to health services through shared care or co-location and investing in strategies to support coordination of care. Strengthening multidisciplinary teams for chronic disease management and developing stronger networks of service providers are also valuable.

However, as described above, these enablers often function in a context-specific way. That is, in a systematic review of international literature relating to care coordination (Powell Davies et al., 2006, Powell Davies et al., 2008), evidence suggests that integration initiatives are used differentially across health care issues. For example, communication between service providers was the most common strategy relating to mental health and aged care issues, whereas systems to support coordination of care was the most commonly used strategy relating to chronic disease management. Overall, findings showed that more than 50 per cent of studies reported better patient health outcomes as well as increased patient satisfaction when initiatives included support for clinicians, a specific communication strategy and initiatives to enhance relationships between service providers.





## Risks or unintended consequences of integration

In any endeavour which aims to implement changes to a system there are risks and potential consequences. In terms of integrating health service delivery the unintended consequences typically relate to the providers' experience. For example, in some cases the notion of collaboration presents a challenge to professional autonomy and independence (McDonald et al., 2012). This can lead to **conflict** among parties rather than collaborative practice, particularly when trying to coordinate individuals from different sectors who hold different beliefs, performance measures and reasons for collaborating (Bouwen and Taillieu, 2004, Exworthy, 2008, Van Herten et al., 2001). Further, it is generally acknowledged that, "because of its complexity, the behaviour of a health system is not easy to control" (Roberts et al., 2003, p 4). It has been argued that the system is typically **resistant to change**, contains diversity of perspectives and practice, and therefore any reform will have an episodic and cyclical character and will often lead to unanticipated problems. It may in fact be the case that changing practices to promote integration will result in ceasing strategies that had previously been effective and well-respected by patients in particular areas. Consequently, and this is highly pertinent to the implementation of integrated care at the micro scale of delivery, matters of practicality and implementation should be foremost, with no assumptions made that what worked (relatively well) elsewhere will necessarily transport or translate well to another local jurisdiction. At the micro level of implementation of integrated care, measurement and evaluation of consequences is crucial to ensure that the benefits of reform outweigh any unintended costs.

A further risk of integration at the micro level is increasing **costs** for health professionals, many of whom operate under tight funding arrangements. This may be the result of supporting new infrastructure or employing additional administrative staff or setting up initiatives such as the information technology requirements needed to support eHealth and telehealth initiatives. While these may be short-term costs that lead to long-term benefits, the time taken to implement strategies and see these benefits is extensive. It may be that increasing costs are not only fiscal but there may be costs in terms of practitioners' **time**. Communicating with different health professionals, sharing resources and updating EHRs will all require time which may limit health practitioner's availability for other activities e.g. additional administrative tasks may take up time in their day that reduces the number of patients they are able to see and increases waiting times for patients. In relation to this, there is likely to be extra training required for health professionals embracing different initiatives i.e. not only CME but training around shared care methods and telehealth approaches.

Generally the aim of integrating health care services is to improve patient outcomes hence there are few risks or unintended consequences for this cohort. Nevertheless, as raised in a previous section, the introduction of EHRs in which a patient's personal data is available to a range of specialists may lead to privacy or confidentiality threats for patients. Further, it is possible that high and sometimes unrealistic expectations may arise from patients who are promised the right care, at the right time, by the right team and in the right place.





## Priorities for integration: What can governments do?

From a service delivery perspective, integrated care is a priority for patients where service delivery gaps or poor care coordination negatively affects their experience of the health service and their care outcomes. The priorities for action need to tackle barriers, centre on the factors that enable and reinforce providers to engage in activities and adopt procedures that make the patient-provider interface with various aspects of care as seamless as possible.

This report has highlighted the diverse factors that influence health professionals to deliver integrated services leading to improved outcomes and better consumer experiences. The key lessons emphasise the importance of multidisciplinary teams, co-location of services, improved communication both between service providers and between patients and providers, and embracing the potential of information technology advances. The main barriers to integration are around access, sustainability, evidence from evaluations, preparedness to change, complex conditions and breaking down silos.

Consistent with the themes that have emerged in this report, priorities for service delivery integration are thus to:

- Reinforce the value of a patient-centred approach informed by local community needs
- Involve patients, families and caregivers in health care teams
- Introduce PCMH strategies to Australian health services i.e. an ongoing relationship with a primary physician who coordinates all aspects of a patient's health care needs
- Continue to support initiatives designed to improve access for vulnerable population groups but apply them to different population samples to reinforce their value
- Support PHC organisations in their processes of recruiting health professionals to fill local gaps and provide sustainable health services
- Develop infrastructure in local practices to promote multidisciplinary teamwork
- Ensure that horizontal integration involves health, social and community services, particularly when using case management initiatives
- Encourage ongoing staff training and education to advance skills, increase inter-professional understanding and improve readiness to embrace change
- Implement structural arrangements that allow integration, especially co-location of professionals
- Establish communication and support strategies for both providers and patients
- Support the rollout of improved internet facilities to enable the uptake of eHealth and telehealth initiatives
- Conduct comprehensive evaluations of new initiatives which address uptake, reach, equity, satisfaction, cost effectiveness, efficiency, efficacy and sustainability (AMLA, 2012) to discover which elements of programs really do deliver improved integrated care; and involve an evaluator at the start of the program to ensure the appropriate data are collected
- Continue to support the effective and promising programs strategies in place (but only with a comprehensive evaluation plan in place) to promote sustainability (i.e. longer term funding).



## Conclusion

### *Key findings*

- Consumers want to be involved in their medical decision-making
- Clinical outcomes and patient experience are central to integrated service delivery, contemporaneous evaluation of both are rare
- PHC organisations provide much needed support for health professionals to deliver integrated services to consumers
- Trends internationally are shifting towards linking health and social care in community-based services
- Co-location and multidisciplinary care is one aspect for improving integration by way of access
- Development of Models of Care for defined populations is a promising approach
- Evaluation- implementation phase, trial phase and ongoing benchmarking is required to improve and then continue to deliver high standards of integrated health services
- Lessons learnt from specific conditions Models of Care can be used to generate innovative developments in other populations or health conditions
- Patient-centred medical home approaches are promising models of integrated care
- Investment, implementation, uptake and utilisation of effective information technology systems influences integrated service delivery, and is important for appropriate monitoring and evaluation of programs.

Integration may be judged as successful if it contributes to better care experiences and improved patient outcomes that are delivered more cost effectively or at neutral cost (i.e. better patient outcomes at equivalent cost). Many strategies designed to achieve or improve integration are in their early stages and have not yet been evaluated. Overall, available evidence indicates that integrated care interventions have improved some patient outcomes in different conditions across a broad spectrum of clinical settings (McDonald et al., 2007b). There is consistent evidence of benefits for specific patient populations, including those with diabetes (Jackson et al., 2010), stroke, heart failure, depression and other mental illnesses, and for those with multimorbidities (Sampalli et al., 2012). In particular, multidisciplinary teams and case management, which are common elements in integrated care initiatives, have led to reduced mortality and dependency in stroke patients, reduced mortality and hospital (re)admissions in heart failure patients, improved continuity of services for mentally ill patients, and reduced clinical symptoms for terminally ill patients (McDonald et al., 2007b). Evidence is less consistent in other patient populations, such as those with complex comorbidities, the frail elderly and disabled, and patients transferring between care settings.

The key patient-centred lessons are that continuity of care by specific personnel and health care teams is welcomed by patients and helps to avoid omissions in records and care. As well as micro level integration taking into consideration local community needs, sensitivity to an individual's personal needs and cultural sensitivity reassures patients that they are being heard and their care is a priority. Consumers want to be involved in their medical decision-making hence the aim of integrating service delivery should be to enable seamless transitions across providers, ensure the patient is heard and improve their overall experience in the health system.

Introducing complex change to complex health systems requires attention to change processes and communication modalities and pathways at the service delivery level, and structural changes that enable easy transfer of information and collaboration will be required (Powell Davies et al., 2006). Notwithstanding the limitations of undertaking research in some circumstances (e.g. rural/remote

areas), evaluation of trials of integrated service delivery should be elevated to the highest level of research design possible to further understandings of what works best for both patients and providers in an integrated health system.

There are a number of initiatives that have been shown to support integration of health services at the micro level, with evidence for each of them presented in this report. As illustrated, different combinations of these initiatives have been applied in strategies both in Australia and internationally, to address integrated service delivery needs relevant to particular areas. It is important to take into account both the health professional and the patient's experience and focus on tackling barriers and encouraging enablers i.e. improving communication, developing networks of providers and embracing technologies to support practitioners to work together to ultimately improve patient health outcomes

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# Appendix

## Types of integration and integrated care

**Table 5** Definitions of integration and integrated care

Original term/Author	Definition
Integrated care (Øvretveit, 1998)	The methods and type of organisation that will provide the most cost-effective preventative and caring services to those with the greatest health needs and that will ensure continuity of care and co-ordination between different services.
Integration (Leutz, 1999)	The search to connect the health care system (acute, primary medical and skilled) with other human service systems (e.g. long-term care, education and vocational and housing services) to improve outcomes (clinical, satisfaction and efficiency).
Integrated care (Gröne and Garcia Barbero, 2001)	A concept bringing together inputs, delivery, management and organisation of services related to diagnosis, treatment, care, rehabilitation and health promotion ... [as] a means to improve the services in relation to access, quality, user satisfaction and efficiency.
Integrated care (Kodner and Spreeuwenberg, 2002)	A coherent set of methods and models on the funding, administrative, organisational, service delivery and clinical levels designed to create connectivity, alignment and collaboration within and between the cure and care sectors ... [to] enhance quality of care and quality of life, consumer satisfaction and system efficiency for patients with complex problems cutting across multiple services, providers and settings.
Integrated care (WHO, 2008)	The management and delivery of health services so that clients receive a continuum of preventive and curative services, according to their needs over time and across different levels of the health system

Source: (Kodner, 2009, p 7).

**Table 6 Integrated care strategies and proportions of studies reporting positive patient outcomes**

***	Patient health outcomes		Patient satisfaction	
	<i>N</i> *	%**	<i>N</i> *	%**
<b>Types of integrated care (No. of studies)</b>				
<b><i>Communication and support for providers and patients</i></b>				
Support for clinicians ( <i>N</i> =33)	16 (28)	57.1	8 (14)	57.1
Communication between service providers ( <i>N</i> =56)	26 (47)	55.3	12 (22)	54.5
Support for patients ( <i>N</i> =19)	6 (17)	35.3	3 (6)	50.0
<b><i>Structural arrangements to support coordination</i></b>				
Relationships between service providers ( <i>N</i> =33)	19 (29)	65.5	8 (12)	66.7
Coordination of clinical activities ( <i>N</i> =37)	19 (31)	61.3	4 (12)	33.3
Systems to support coordination ( <i>N</i> =47)	23 (38)	60.5	7 (19)	36.8
All studies ( <i>N</i> =80)	36 (65)	55.4	14 (31)	45.2

\* Number of studies with statistically significant positive findings (Number of studies that recorded positive health, patient or economic outcomes)

\*\* The proportion of studies measuring outcomes (health, patient, economic) that recorded a statistically significant result.

\*\*\* Modified from Powell Davies, Williams et al. (2008).

**Table 7 Summarised findings of systematic reviews on effectiveness of strategies to inform, educate, and involve patients in their treatment**

<b>Topic</b>	<b>No. of reviews</b>	<b>Effects on patients' knowledge</b>			<b>Effects on patients' experience</b>			<b>Effects on use of health services</b>			<b>Effects on health behaviour and health status</b>		
Health literacy	25	<i>N</i> = 13 reviews			<i>N</i> = 16 reviews			<i>N</i> = 14 reviews			<i>N</i> = 13 reviews		
		+ve	-ve	mixed	+ve	-ve	mixed	+ve	-ve	mixed	+ve	-ve	mixed
		10	1	2	10	1	5	9	2	3	4	3	6
Clinical decision making	22	<i>N</i> = 10 reviews			<i>N</i> = 19 reviews			<i>N</i> = 10 reviews			<i>N</i> = 8 reviews		
		+ve	-ve	mixed	+ve	-ve	mixed	+ve	-ve	mixed	+ve	-ve	mixed
		8	0	2	12	1	6	6	0	4	2	5	1
Self-care and self-management of chronic disease	67	<i>N</i> = 19 reviews			<i>N</i> = 40 reviews			<i>N</i> = 25 reviews			<i>N</i> = 50 reviews		
		+ve	-ve	mixed	+ve	-ve	mixed	+ve	-ve	mixed	+ve	-ve	mixed
		19	0	0	24	5	11	14	2	9	39	6	15
Patient safety	18	<i>N</i> = 4 reviews			<i>N</i> = 1 review			<i>N</i> = 3 reviews			<i>N</i> = 17 reviews		
		+ve	-ve	mixed	+ve	-ve	mixed	+ve	-ve	mixed	+ve	-ve	mixed
		4	0	0	1	0	0	2	1	0	8	0	9

Modified from Coulter and Ellins (2007).

**Table 8 Stages of change model of behaviour change**

Stage	Description	Activities needed to move to next stage
Pre-contemplative	Unaware of need for change; or aware but not considering change	<ul style="list-style-type: none"> <li>• Consciousness raising</li> <li>• Re-evaluation of the environment</li> <li>• Exploration of feelings about changing</li> </ul>
Contemplative	Considers behavioural change, seeks out information about personal advantages; may be ambivalent about changing	<ul style="list-style-type: none"> <li>• Self-evaluation</li> </ul>
Preparation/decision	Actively makes plans to change, takes steps towards action	<ul style="list-style-type: none"> <li>• Perception of environmental and social supports for change</li> </ul>
Action	Actively modulates behaviour; learns new skills; effects changes in environment to support change	<ul style="list-style-type: none"> <li>• Belief in ability to change and commitment to act</li> <li>• Rehearsal of new learning; substitution of new behaviour for old ones</li> <li>• Management of reinforcers to maintain gain</li> <li>• Restructuring of environment and experiences to avoid cues to old behaviour</li> <li>• Creation of environmental supports</li> </ul>
Maintenance	Maintains gains made; requires environmental support for change to assist in maintenance	<ul style="list-style-type: none"> <li>• Maintenance of environmental supports for change</li> </ul>

Source: (Woodward, 2000, p 18).

