



Australian Primary Health Care Research Institute

Primary Health Care Position Statement: A scoping of the evidence An update for 2009

Karen Gardner, Kirsty A. Douglas, Anna Gear, Laurann Yen,

Emily Sansoni, Ian McRae and Nicholas Glasgow

Commissioned by
Australian General Practice Network



Delivering local health solutions through general practice

Acknowledgements

The authors gratefully acknowledge the input and assistance of the staff at the Australian Primary Health Care Research Institute and the Australian General Practice Network for all their willing help.

The Australian Primary Health Care Research Institute is supported by a grant from the Australian Government Department of Health and Ageing, under the Primary Health Care Research Evaluation and Development Strategy. The information and opinions contained in this monograph do not necessarily reflect the views or policy of the Australian Government Department of Health and Ageing.



Australian General Practice Network
PO Box 4308
MANUKA ACT 2603
Telephone: 02 6228 0800
Fax: 02 6228 0899
www.agpn.com.au

For further information about AGPN, contact the Communications Manager on 02 6228 0800

*AGPN acknowledges the financial support of
the Australian Government Department of Health and Ageing*

Table of contents

Background and Introduction.....	6
International context of Primary Health Care Reform	6
National context.....	6
“Meso level” structures in health systems	6
Australian Divisions of General Practice Network.....	7
Australian Primary Health Care Research Institute	7
Scoping the Evidence.....	7
Method.....	8
References	9
1. Access	11
Introduction.....	11
Q1: Does the employment/deployment of practice nurses, allied health staff, specialists, and others within organised primary health care improve access? .	11
Q2: Can organised primary health care improve access to after hours care through regional approaches?	12
Q3: Can organised primary health care improve access for particular populations?	13
Youth and Children	13
Different cultural groups	13
Aged.....	14
Rural	14
Q4: What is the evidence that fundholding or pooling by primary health care organisations can improve access to services/outcomes for patients?.....	14
Financing and fundholding arrangements in Australia, New Zealand and the UK.....	15
Evidence relating to access.....	16
Conclusion.....	16
References	16
2. Workforce.....	23
Introduction.....	23
Q1: What do we know about the role of organised PHC in GP recruitment/retention/deployment/support?.....	23
Recruitment and Retention	23
Overseas Trained Doctors.....	26
Skills Mix Options.....	26
The Generalist	27
Conclusion.....	28
References	28
3. Integration	31
Introduction.....	31
Q1: What do we know about the benefits of integration within primary health care and between primary health care and other parts of health care systems?	32
Integration within primary care.....	32
Integration between primary health care and other providers	33
Single studies	35

What model of integration works best?	35
Q2: What is known about the impact of the use of shared patient records/ information (electronic) within PHC?	36
Conclusion.....	37
References	38
4. Chronic disease management and prevention	41
Introduction.....	41
Q1: What is known about systematic approaches to chronic disease management and prevention (CDMP) within organised PHC?.....	41
Conclusion.....	43
References	43
5. Multidisciplinary teams/networks of health care providers 47	47
Introduction.....	47
Q1: What is known about the effectiveness of multidisciplinary training of health professionals?	47
Impact of interprofessional learning.....	48
Impact of location of learning	48
Impact of timing of learning	48
Barriers to uptake	49
Q2: What is known about the effectiveness of health alliances/ partnerships? .	50
Effectiveness of partnerships and alliances	50
Effectiveness of multidisciplinary teams in providing care	51
Conclusion.....	53
References	53
6. Population Health and Health Promotion.....	56
Introduction.....	56
Q1: What do we know about organised PHC's role in health promotion and prevention?	56
Methods of intervention	56
Smoking	56
Physical activity	57
Alcohol.....	57
Nutrition	57
Mental Health	58
Q2: What do we know about organised PHC's role in screening?.....	58
Q3: What do we know about organised PHC's role in early childhood?.....	59
Conclusion.....	60
References	60
7. Community/consumer participation	67
Introduction.....	67
Q1: What is known about the impact of consumer input into organised PHC (i.e. consumer representation)?	67
Consumer involvement in organisational policy and planning	67
Q2: What is known about the involvement of clients/carers in the delivery of organised PHC?	68
Partnerships in care.....	68
Patient skills for participation in decision making about care	69
Conclusion.....	70
References	70
8. Quality and Safety	73

Introduction.....	73
Q1: What is known about the role of organised PHC in improving/maintaining quality and safety?	73
Error Definition	73
Quality Improvement Strategies.....	73
Audit and Feedback	74
Organisational and Practice-level Leadership	74
Knowledge Dissemination.....	74
Continuing Medical Education.....	74
Performance Indicators	75
Governance	75
Guidelines	75
Implementing Quality Improvement Strategies in Common Error Environments	76
Organisational Culture	76
Technology.....	76
Medication.....	76
Referrals	77
Fatigue	77
Conclusion.....	77
References	77
9. Indigenous health	82
Introduction.....	82
Q1: What do we know about organised PHC working with and in indigenous communities?.....	82
Linkages between sectors.....	83
Q2: What do we know about organised PHC and indigenous clients/patients?..	84
Conclusion.....	86
References	86

Background and introduction

International context of primary health care reform

Since the Declaration of Alma Ata thirty years ago, many countries have embarked on reforms aimed at improving the quality, equity, efficiency, effectiveness and responsiveness of their health systems. Although considerable international progress has occurred it has been uneven and the demands on the health care system have changed rapidly. The 2008 World Health Report – *Primary Health Care – Now More Than Ever* reinforces the need for continued focus and reforms if the Alma Ata vision of 'Health for all' is to be achieved.¹

There is good evidence that a strong primary health care system improves health outcomes, reduces costs and health inequities, and increases patient satisfaction.² This, and other evidence summarised in the WHO Health Evidence Network publication, underpins the emphasis governments are placing on the primary health care components of health systems in their reform processes.³

National context

The election of an Australian Labor government in November 2007 has seen renewed statements of political commitment to an Australian health care reform agenda. The Rudd Government has initiated several key health reform processes including:

- National Primary Health Care Strategy⁴
- Council of Australian Governments (COAG) Health and Ageing Working Group
- National Health and Hospitals Reform Commission (NHHRC)⁵
- Preventative Health Taskforce (PHT)⁶
- Review of Maternity Services.⁷

Recent Australian governments (both Labor and Coalition) have identified the following as important elements in their plans to improve primary care^{4, 8}

- improving accessibility of care
- greater focus on preventative care
- improved management of chronic disease including support of self management
- supporting integration, co-ordination and multi-disciplinary care
- utilising effective technology and information management to support best practice
- respecting the need for local/regional flexibility as well as a variety of practice styles and skills
- building and promoting the evidence base for effective, quality primary care.

"Meso level" structures in health systems

Over the last 15 years, a manifestation of the increasing emphasis on primary health care has been the development of middle or "meso" level organisations with strong primary health care orientations that sit between the micro levels of the system where clinical care for individual patients is delivered, and the macro levels of the system where national policy, funding and public health infrastructure activity occurs. These meso level structures are variously known as "primary health organisations", "primary care organisations", "primary care trusts", and "independent practitioner associations" and, in some forms, "health maintenance organisations".

The populations they serve are often defined by geographic regions, but may also be defined by criteria that are not regionally constrained. The forms and functions these organisations take vary within and between countries,^{9, 10} but most will include a number of the functions listed in Table 1.

Australian General Practice Network

The Australian General Practice Network (AGPN) is the peak national body representing 111 divisions of general practice and their state-based organisations across Australia¹. More than 90 per cent of Australia's GPs are members of their local division.

Amongst other objectives, the Network aims to strengthen the effectiveness of the general practice sector, to contribute to the development of national health policy, and to provide national leadership in health system development.

Members of the Network are major meso level primary health care organisations in the Australian setting.

Table 1 Functions and activities of meso level primary health care organisations

- Allocation of regional budgets
- After hours care
- Brokering access to services
- Clinical and practice support
- Commissioning services
- Community engagement
- Contracting with providers
- Data management
- Funds pooling
- Local/regional decision making
- Disease management
- Education and training including continuing professional development for health professionals
- General practitioner, practice nurse and allied health professional recruitment and support
- Linkage between micro and macro levels of the system; linkage between "horizontal components of the system, including in some cases, other arms of government (eg, housing); linkage between acute and community sectors of the system
- Monitoring quality
- Patient enrolment
- Population health activities
- Triage

Australian Primary Health Care Research Institute

The Australian Primary Health Care Research Institute (APHCRI) was established in 2003 to provide national leadership in improving the quality and effectiveness of primary health care through the conduct of high quality priority-driven research and the support and promotion of best practice. The Institute's research focuses on important questions relating to the organisation, financing, delivery and performance of primary health care, including its interaction with public health and the secondary and tertiary health care sectors. The Institute has a key focus on identifying, generating and synthesising evidence to inform policy and practice.

Scoping the evidence

In 2005, AGPN (then known as the Australian Divisions of General Practice [ADGP]) launched its first *Primary Health Care Position Statement*.¹² The Statement outlined a vision for reform, including ways in which the Network could expand its roles and functions to contribute to "better population health outcomes, and improved equity, access and continuity and lower costs".¹² The Position Statement focused on nine domains listed in the table below:

¹ The current number of divisions is lower than the original 119 due to several amalgamations

1. Access
2. Integration
3. Chronic disease management
4. General practice teams / networks of health service providers
5. Population health and health promotion
6. Community / consumer participation
7. Workforce
8. Quality and safety
9. Indigenous Health

At that time, the Network commissioned the Australian Primary Health Care Research Institute (APHCRI) to undertake a rapid “review of reviews”¹³ to identify existing evidence which could inform each of these nine domains. The results of the work were published as a monograph entitled *The Primary Health Care Position Statement: A Scoping of the Evidence*¹¹.

In mid 2008 AGPN undertook a review of its original *Primary Health Care Position Statement* and approached the Institute to update the nine domains in the original Scoping document in light of new evidence and a new policy environment.

Neither version of the monograph purports to be a comprehensive review of all primary and secondary research evidence relevant to the nine domains. Rather, it provides a solid foundation for discussion and debate around which the evidence base will develop over time.

Method

The method in 2008 and 2005 focused on identifying existing systematic reviews that addressed the nine domains, and supplementing these with key papers identified within the Australian literature, or from four other countries (Canada, United Kingdom (UK), New Zealand (NZ) and the United States of America (USA)), if data were not found in Australian sources. Material published as a “systematic review” was accepted as meeting appropriate quality standards for systematic reviews – no separate process of assessing quality was undertaken. The authors identified the key questions that would be addressed within each domain, the data sources that would be used and the search terms employed. These questions remain unaltered in this updated version. In each domain material was sourced, read and summarised and then an initial draft prepared. Draft documents were discussed, edited and refined by authors.

The monograph is intended to be a *narrative review*¹³ of the identified material, which outlines the knowledge base relating to the nine domains in the original position statement.

In total, more than six hundred papers were reviewed. They included systematic reviews, reviews and single studies. Of these, over 400 were considered relevant to the questions posed and were included. In several topic areas, a number of reports,

working papers and single case studies were also identified in the grey literature². These have been included for policy context and where other published evidence was not available. In most cases however, the monograph has been limited to stronger evidence relating to reviews and single studies.

Databases searched include PubMed, Medline, The Cochrane Database of Systematic Reviews, WHO Health Evidence Network, Health Services/Technology Assessment Text (HSTAT), National Centre for Reviews and Dissemination, Google Scholar, and HealthInfoNet. Government websites from Australia, New Zealand, Canada, the USA and the UK were examined, and hand searches of individual journals such as the *Journal of Interprofessional Care* were performed where necessary. Search terms were based on the nine major domains (access, integration, multidisciplinary, chronic disease management/prevention, population health/health promotion, consumer/community participation, workforce, quality and safety, indigenous health), as well as the terms "managed care", "organised care", "health system", "health maintenance organisation", and "National Health Service". Additional terms included "divisions of general practice", "health promotion", "recruitment", "performance indicator systems", "aged services" and the like.

There has been a dramatic expansion in the evidence base available even in the three years since the last monograph was produced. In 2008 Australian research evidence and some systematic reviews were available covering areas where previously only overseas studies were cited. Clearly Australian primary health care research is expanding and strengthening and this bodes well for current and future evidence based development of primary health care strategies in this country.

References

1. World Health Report 2008; Primary Health Care - Now More Than Ever. World Health Organization 2008, Geneva.
2. Macinko J, S.B., L Shi, The contribution of primary care systems to health outcomes in OECD countries, 1970-1998. *Health Services Research*, 2003. 38(3): p. 819-854.
3. What are the advantages and disadvantages of restructuring a health care system to be more focused on primary care services? *WHO Regional Office for Europe's Health Evidence Network (HEN) January 2004* <http://www.euro.who.int/document/e82997.pdf>
4. "Towards a National Primary Health Care Strategy a discussion paper". Australian Government Department of Health and Ageing. Canberra 2008. [http://www.health.gov.au/internet/main/publishing.nsf/Content/D66FEE14F736A789CA2574E3001783C0/\\$File/DiscussionPaper.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/D66FEE14F736A789CA2574E3001783C0/$File/DiscussionPaper.pdf)
5. National Health and Hospital Reform Commission. <http://www.nhhrc.org.au/internet/nhhrc/publishing.nsf/Content/home-1>
6. National Preventative Health Taskforce. <http://www.preventativehealth.org.au/>
7. Improving Maternity Services in Australia - A Discussion Paper from the Australian Government. Department of Health and Ageing. Canberra 2008. [http://www.health.gov.au/internet/main/publishing.nsf/Content/25923C2181709220CA2574BB00001D9F/\\$File/Improving_Maternity_Services_In_Australia.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/25923C2181709220CA2574BB00001D9F/$File/Improving_Maternity_Services_In_Australia.pdf)
8. Future Directions. Government Response to the Report of the review of the role of Divisions of General Practice April 2004 [http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-pcd-programs-divisions-index.htm/\\$FILE/fut_dir.pdf](http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-pcd-programs-divisions-index.htm/$FILE/fut_dir.pdf)

² The term 'grey literature' refers to publications, often technical reports or working papers that are sometimes published directly on the web but not easily obtainable through the usual academic channels

9. Smith J, Mays N, Dixon J, Goodwin N, Lewis R, McClelland S, McLeod H, Wyke S. A review of the effectiveness of primary care-led commissioning and its place in the NHS 2004 The Health Foundation. 90 Long Acre, London WC2E 9RA
10. Simeons, S., Scott, A. Integrated primary care organizations: to what extent is integration occurring and why? *Health Services Management Research*, 2005; 18:25-40
11. Glasgow N, Sibthorpe B, Gear A. Primary Health Care Position Statement: A scoping of the evidence. Australian Primary Health Care Research Institute. Canberra 2005
12. Australian Divisions of General Practice 2005. Primary Health Care Position Statement.
13. Mays N, Pope C, Popay J. Systematically reviewing qualitative and quantitative evidence to inform management and policy-making in the health field *J Health Serv Res Policy* 2005; 10:S1:6-20

1. Access

Introduction

Being able to access health services is an essential prerequisite to receiving care. Research into access is multifaceted, especially in relation to access inequalities¹. While Australia compares favourably in country comparisons of the relative access to primary health care services by different socioeconomic groups,^{2,3} the level of out of pocket expenses paid remains an issue of concern². It has also been argued that current widespread health sector reforms threaten equity of access in countries with universal health care systems and that ongoing monitoring of the impacts of policy changes on capacity to achieve equity goals is important.³

In Australia, Divisions have begun to address access issues⁴. One of the current drivers of health care reform is the perceived reduction in access to general practitioners and other health services^{4,5}. In this section we consider four separate research questions that examine evidence relating to various strategies for achieving improvements in access to primary health care services.

Q1: Does the employment/deployment of practice nurses, allied health staff, specialists, and others within organised primary health care improve access?

Nine systematic reviews, six reviews and a small number of articles were included. Although based on "very little robust evidence", access in underserved populations and other groups may be increased in National Health Service (NHS) (UK) settings by increasing personal medical services targeting locally defined needs, introducing salaried general practitioners, and through the provision of a wider range of services (eg, nurse substitution, nurse telephone triage). However, there are likely to be trade-offs between different kinds of access eg, with patients preferring to see a general practitioner⁶ or where patients with complex needs require comprehensive and continuous care⁷. However walk-in centres⁸ and NHS direct (a 24 hour phone service in the UK) may increase discrepancies in access by catering mainly to middle class, white populations.⁶

Some evidence supports substituting face-to-face consultations between doctors or nurses and patients with telephone consultations^{6,9}, and substituting nursing practitioners or pharmacists for doctors when the problems presented are common conditions^{6,10}. Specialist outreach clinics improve specialist service access¹¹⁻¹⁴ but may cost more¹⁵. Practice nurses^{16,17}, still a relatively new role in Australia, though well established overseas – and non-physician clinicians¹⁸ can be as effective as doctors in relation to certain outcomes, can improve public access, are cost effective and are associated with a high degree of patient satisfaction¹⁹. While practice nursing is seen as a way to address primary-care workforce shortages²⁰ there is a lack of evidence about their role and impact in Australia²¹. A recent Australian study found that practice nurses have six key operating roles¹⁰⁸. These include that of patient carer, organiser, educator, quality controller, problem solver and agent of connectivity. This latter role is important in establishing and maintaining collaborative practice within the general practice team and between the practice and outside agencies. However, there is limited acceptance of practice nursing as a speciality in its own right or of a system of education that delivers standardised education to general practice nurses in Australia at the current time^{22,23}. Despite

these limitations nearly 60 per cent of Australia's general practices employ practice nurses²⁴. Increasing numbers of items in the Medicare Benefits Schedule now relate to nursing providing a focus for initiatives to improve access to primary care.^{20, 24,25}

Q2: Can organised primary health care improve access to after hours care through regional approaches?

Demand for after hours care is increasing with changing patient needs and expectations²⁶. Policy addressing provision of primary care after hours access is currently in flux because of concerns about equity of access and cost²⁷. Interventions to increase after hours access can address change at either a professional or organisational level²⁸. This section refers only to organisational interventions. The material considered included four systematic reviews, a policy paper and a small number of articles including grey literature. There are ethical and methodological issues with researching after hours services,^{28,29} but regional organisational interventions that improved access included the following:

- Providing financial incentives/equitable remuneration for GPs²⁸
- Home/outreach visits^{28,30}
- Attitudes of community and health care workers^{26,28,32,34}
- Bulk-billing/providing less expensive service delivery^{26,28}
- Childcare and support services²⁸
- Intersectoral collaboration (eg: between divisions and stakeholders, doctors and hospitals, etc) ^{28,30,34}
- Increasing services available^{28,30,31}
- Promotion and education of the community regarding health services²⁸
- Providing free transport to services³⁰
- Educating/up-skilling health care workers²⁸
- Centralising services^{26,28,32}
- The use of telephone consultations^{28-30,32-34,36,7}
- Facilitating voluntary/self-help groups²⁸
- Monitoring existing services²⁸
- Introducing screening/triage protocols^{28,30}
- Increasing diversity of health care workers²⁸
- Dealing with issues relating to workforce sustainability^{28,34}
- General practitioner gate-keeping in emergency rooms³⁵
- Reducing the medical workload ^{7,37}

A UK systematic review showed that telephone interventions and GPs working in Emergency Departments reduced medical workload in general practice after hours, but little advantage of one service model compared with another in relation to clinical outcomes. The study suggested that co-ordination between after hours services, other health care services and the government would increase the adoption of good practice³⁸. Several barriers were identified in the provision of effective and consistent after hours care: financial and access barriers suggest that there are inequalities in access to after hours care in Australia²⁷; concerns about the ability and acceptability of after hours provision among rural health care workers³⁹. Trials of telephone triage and advice as part of improving after hours care have concluded, in common with other countries, that the use of telephone triage and advice reduces immediate medical workload by substituting phone for face to face consultations.

While stand alone services³ are well used, access to after hours GP services did not improve⁴⁰. Patient satisfaction studies show some patients dislike telephone consultations³⁷.

Q3: Can organised primary health care improve access for particular populations?

Youth and children

The studies included three systematic reviews and four journal articles. Barriers to youth/childhood access to services include lack of transport, age^{41,42}, lack of health insurance coverage (in the USA) or other financial means⁴²⁻⁴⁵, cultural⁴⁵ and parental barriers (eg, privacy from parents⁴⁶, the need for parental involvement^{41-43,47}, and parental issues relating to access⁴¹⁻⁴³). Prevention of overweight and obesity in young children has recently become a focus of intervention in Australia although system and attitudinal barriers inhibit effective engagement between parents and primary health care providers⁴⁸. Barriers include: lack of time, resources and patient reimbursement as well as negative attitudes towards obesity by health care professionals⁴⁸.

Australia was one of the first countries to establish government-funded adolescent-specific health services but policy on youth access remains low profile^{41,49}. Most health care for young people occurs in general practice and young people are known to under-use health services⁵⁰. Young people report fears about lack of confidentiality, being judged by health professionals, cost and inconvenience of services, and inexperience in recognising needs⁵¹. They need the opportunity and choice to participate in decisions about their care and the support of trusted advocates^{41,47,52}. In working with young people, time is also a barrier for primary care practitioners as is a lack of confidence in working with this population. Health care workers and organisations need to seek and heed feedback from youth,^{41,53,54} target youth in their service planning⁴⁹ and improve integration between different providers (eg, between community health workers and hospitals).^{41,43,50}

Different cultural groups

Cultural disparities in health care occur at multiple levels of health care systems.⁵⁵ In this section we identified three systematic reviews and two journal articles. Indigenous access to primary health services has been included under the domain "Indigenous health". A number of single interventions undertaken in organisational settings are reported in the literature^{56, 57, 58}. For example, organisations try to employ culturally diverse staff, as patients express preferences for people who speak their language and who are of the same racial/ethnic group as themselves^{28, 56, 59, 60}. Other positive interventions include the use of lay health care workers (discussed under Indigenous health),⁵⁶ interpreters and the development of resources in other languages.^{28,56,60} Education and training in cultural competence for health care workers is effective,^{56,57,61} suggesting that improved cultural competence may help to increase access to quality care for all patient populations⁵⁷. Other areas identified were family and community involvement, use of traditional healers⁵⁶, tracking/reminder systems³⁶ and special 'subsidised medicine' arrangements in remote Indigenous communities⁵⁸. Multifaceted approaches, not generally employed by organisations, had beneficial results⁵⁹.

³ Stand alone services are those that are not embedded in other after-hours services. In this case, they are the State-wide call centre in metropolitan and non-metropolitan areas

One review made the comment that other cultures should not be viewed as obstacles in access to health care, but embraced as a method to increase it.⁶²

Aged

One systematic review, two reviews and one article were included. These found that workforce issues relating to aged health care need to be addressed.^{63,64} Improving and increasing communications between health professionals as well as arrangements to supplement overworked and declining staff numbers have been successful in Canada. Also crucial to success is the availability and support of home support workers^{63, 65}, with a diversity of services to allow aged people to remain at home for longer^{64,65}. Encouraging older people to participate more in their treatment decisions may improve health outcomes, but findings from this systematic review were inconclusive.⁶⁶ Aged care access is improved most if it deals with chronic disease management and prevention issues and with integration of services,^{63,67} both of which are discussed elsewhere in this monograph.

Rural

Two systematic reviews were included. Some of the barriers to access to primary health care in rural areas were physical isolation²⁸, transport^{28,68} GP workforce shortage and competency^{28,68}, financial and social factors, and lack of relevant information regarding services²⁸. Insufficient attention has been paid to the systematic development of sustainable comprehensive primary health care services appropriate to rural areas⁶⁹. Factors that increased access to services included education and up-skilling of health care workers^{28, 68, 70}, community participation, bulk-billing/alternate payment options, telemedicine^{28, 67}, and promotion of services^{28, 71}. Interdisciplinary teams and personnel substitution⁴⁷ appear to be quite successful, and there have been numerous services set up to facilitate inter-sectoral collaboration and communication^{69, 70}. Other beneficial interventions are outreach/home visits, transport services, and structural interventions including: workforce sustainability ventures, incentives/remuneration (pre- and post-licensure) to rural health care workers, and the introduction of standards and protocols²⁸. Continuous and sustainable funding was imperative to the effective use, monitoring and evaluation of these interventions^{69, 71}.

Q4: What is the evidence that fundholding or pooling by primary health care organisations can improve access to services/outcomes for patients?

Fundholding and pooling of resources in primary health care settings is a controversial issue. Different countries employ variations of fundholding arrangements in combination with other funding mechanisms to achieve objectives related to access and this leads to confusion about the terms and contributes to the controversy. In addition, there are many different mechanisms for paying practitioners. Each rewards different aspects of provision and is associated with different problems relating to access⁷². Comparing costs associated with models in different systems is difficult and can become contentious, as for example in the Feacham et al comparison of the NHS with Kaiser Permanente.^{73,74} The relationships between access, physician behaviour and funding models are complex. This section describes the different funding arrangements in Australia and comparator countries, England and New Zealand, and reviews the relevant evidence.

Financing and fundholding arrangements in Australia, New Zealand and the UK

In Australia, financial incentives that operate at the individual patient level are the principal mechanism for improving access in primary health care. Since the 1990s primary care funding mechanisms have taken two main forms in Australia: incentive payments to GPs and practices for particular activities and more recently for specific allied health provider activities, and secondly, subsidies for Divisions to facilitate access to allied health providers and to support practice nurses.⁷⁵ There has been ongoing discussion in Australia of the potential benefits of mixed payment arrangements that might include the use of pooled funds employed, for example, at a regional level through purchasing bodies and in tandem with blended payment forms (capitation, fee-for-service, salaried) and financial incentives such as pay-for-performance⁷⁶. However evidence of the benefits of fundholding in relation to access is limited^{75,77}. The closest model to capitation supported by multidisciplinary and inter-sectoral approaches is found in Aboriginal Community Controlled Health Services but evidence on access is limited⁷⁵. By way of contrast, England and New Zealand use financial incentives as part of a broader range of funding reforms in which core primary health care services are funded on a capitation basis. Primary health care organisations (Primary Health Care Trusts in England and Primary Health Organisations in NZ) act as purchasers and pay-for-performance rewards achievements of specified targets.⁷⁵ These arrangements are increasingly known as “organised primary health care”⁷⁸.

Throughout the 1990s, a number of countries experimented with forms of fundholding and fundpooling. In Australia, the largest trial of fundpooling was the Coordinated Care Trials (CCTs) which were established to test whether pooling of commonwealth and state funds, together with purchasing and care co-ordination, could improve client outcomes for patients with chronic and complex care needs. The nine trials showed mixed results whereby most did not result in improved client health and well-being outcomes, reduce hospital admissions or operate within existing resources⁷⁹. Some authors concluded that the limited impact was because of problems with the trial design, including the short time frame, difficulties with recruitment, the appropriateness of the outcome measures utilised⁷⁹, as well as their small scale, limited resources and restricted role for private sector providers⁷⁷.

Nonetheless, benefits included the upgrading of information technology systems, the opportunity to deliver programs not previously delivered (such as smoking prevention programs) and for the first time, use of a range of data sources from the MBS (Medicare Benefits Schedule) and PBS (Pharmaceutical Benefits Schedule) to measure client outcomes. The UK and New Zealand fundholding reforms were more far reaching and market oriented, involving the use of competition between purchasing agencies with purchasing of a specified range of core services for populations. The main conclusions from the review of these reforms in the UK appear to have been that while a few GP fundholders obtained quicker hospital admissions, provided more outreach services and curbed prescription costs relative to health authority purchasers, the impacts in relation to patient outcomes were minimal and less than had been anticipated^{80,81,82,83}. Little had changed in relation to quality, efficiency, choice, responsiveness or equity. In NZ, attempts to implement fundholding were equally unsuccessful and integration of funding did not lead to integration of services.^{84, 85} Increased effectiveness, efficiency, improved access to care, greater flexibility in the use of services, reduced waiting time and more integrated primary and secondary care did not result⁸⁶.

Evidence relating to access

Three systematic reviews were identified relating to physician behaviour under different payment systems, one systematic review assessing the impact of different funding initiatives on access to multidisciplinary health care and several journal articles. In the Health Maintenance Organisation (HMO) setting, HMO enrollees paid less and received more preventive care, but faced increased organisational and physician access issues, along with comparably less access to specialist health services, and reported reduced satisfaction levels^{87,88}. Decreased access to equipment and specialist services was also seen in New Zealand, but here access to overall services increased especially for minority and low socio-economic populations⁸⁹⁻⁹². This may be because, as Beilby and Petarsky⁹³ opine “the relationship between fundholding and patient health and well-being is largely dependent on the objectives and effectiveness of the overall initiative”⁹⁴. The US findings have been contradicted in Australian, British and New Zealand studies where pooling of funds has increased levels of access^{88,93,95,91,92}. However, even when models of fundholding and fundpooling are shown to improve care cost-effectively, they are not always sustainable over time, partly due to barriers created by organisational and financing arrangements⁹⁶.

These findings are reflected in other literature on financial incentives. Two reviews found that physicians under a fee-for-service system may provide higher quality of care than those working under capitated or mixed payment systems.^{97,98} Targeted payments appear to increase certain services (eg, immunisation)⁹⁸, to reduce hospital admissions⁹⁹ and to improve quality of care.¹⁰⁰ In a review of 17 primary studies¹⁰¹, pay for performance to physicians and to provider organisations led to improved quality of care and improved access. Where incentives were made at the payment system level, such as through performance based contracting, one of two studies demonstrated improved access, while the other showed negative effects for sicker patients.¹⁰¹ There is evidence that payment incentives in Australia have increased access to psychological services, improved health outcomes and consumer satisfaction¹⁰²⁻¹⁰³ and access to multidisciplinary care for patients with chronic and complex conditions.^{105,106}

Improving access to primary care was one of the driving forces for establishing Divisions, and their organised primary care counterparts in other countries¹⁰⁷. Smith and Sibthorpe⁷⁷ describe Australia as a relatively late adopter of primary care organisations, but point to the effectiveness of the Divisions as a body of engaged GPs, and their potential, among other things, for holding funds and improving the quality and accessibility of a range of primary care services in local communities.

Conclusion

There are many organisational interventions that can be used to increase access to primary health care. Deployment of doctors, practice nurses and specialist outreach teams in new ways can improve services to populations that are historically hard to reach, as can identifying and dealing with specific factors relating to specific populations. Various forms of fundholding serve as tools to increase access, but care needs to be taken when comparing between systems and more research needs to be completed to establish which patterns of funding work most effectively to assist access.

References

- 1 Goddard, M., Smith, P. Equity of access to health care services: theory and evidence from the UK. *Social Science and Medicine*, 2001; 53:1149-1162

2. Hanratty, B., Zhang, T., Whitehead, M. How close have universal health systems come to achieving equity in use of curative services? A systematic review. *International Journal of Health Services*, Volume 37, Number 1, Pages 89–109, 2007
3. Schoen, C., Doty M. Inequities in access to medical care in five countries: findings from the 2001 Commonwealth Fund International Health Policy Survey *Health Policy* 67 (2004) 309–322
4. Furler, J., Harris, E., Powell-Davies, G., Harris, M., Traynor, V., Rose, V., Nacarella, L., Young, D. Do Divisions of General Practice have a role in and the capacity to tackle health inequalities. *Australian Family Physician*, 2002; 31(7):681-683
5. Keleher, H., et al., *Review of primary and community care nursing*, Department of Health Science, Editor. 2007, Monash University.
6. Chapman, J.L, Zechel, A., Carter, Y.H, Abbott, S. Systematic review of recent innovations in service provision to improve access to primary care. *British Journal of General Practice*, 2004; 54:374-3814
7. Sibbald, B. and M.G. Laurant, Advanced nurse roles in UK primary care. *Medical Journal of Australia*, 2006. 185(1): p. 10-2.
8. Salisbury, C., Munro, J. Walk-in centres in primary care: a review of the international literature. *British Journal of General Practice*, 2002; 53:53-59
9. Reed, K. Telemedicine: benefits to advanced practice nursing and the communities they serve. *Journal of the American Academy of Nursing Practitioners*, 2005; 17(5):176-80
10. Martin-Misener, R., McNab, J., Sketris, I.S., Edwards, L. Collaborative practice in health systems change: the Nova Scotia experience with the Strengthening Primary Health Care Initiative. *Canadian Journal of Nursing Leadership*, 2004; 17(2):33-45
11. Gruen RL, Weeramanthri TS, Knight SE, Bailie RS. Specialist outreach clinics in primary care and rural hospital settings. *The Cochrane Database of Systematic Reviews* 2003, Issue 4. Art. No.: CD003798. DOI:0.1002/14651858.CD003798.pub2.
12. Gruen, R., Bailie, R. Specialist clinics in remote Australian Aboriginal communities: where rock art meets rocket science. *Journal of Health Services Research Policy*, 2004; 9(S2):56-62
13. Gruen, R.L., Weeramanthri, T.S., Bailie, R.S. Outreach and improved access to specialist services for indigenous people in remote Australia: the requirements for sustainability. *Journal of Epidemiology and Community Health*, 2002; 56:517-521.
14. Condon, J. *Aboriginal and Torres Strait Islander Primary Care Review: Consultant Report No. 5. Maternal and child health care services: Cancer, health services and Indigenous Australians*. Cooperative Research Centre for Aboriginal and Tropical Health; Commonwealth of Australia, 2004
15. Powell, J. Systematic review of outreach clinics in primary care in the UK. *Journal of Health Services Research Policy*, 2002; 7(3):117-183.
16. Horrocks, S., Anderson, E., Salisbury, C. Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *British Medical Journal*, 2002; 324:819-823.
17. Halcombe, E.J., Davidson, P.M., Daly, J.P.m Griffiths, R., Yallop, J., Tofler, G. Nursing in Australian general practice: directions and perspectives. *Australian Health Review*, 2005; 29(2):156-166
18. Cooper, R.A. Health care workforce for the twenty-first century: the impact of nonphysician clinicians. *Annual Review of Medicine*, 2001; 52:51-61.
19. Laurant M, Reeves D, Hermens R, Braspenning J, Grol R, Sibbald B. Substitution of doctors by nurses in primary care. *The Cochrane Database of Systematic Reviews* 2004, Issue 4. Art. No.: CD001271. DOI:10.1002/14651858.CD001271.pub2.

20. Keleher, H., et al., Practice nurses in Australia: Current issues and future directions. *Medical Journal of Australia*, 2007. 187(2): p. 108-110.
21. Keleher, H., et al., Review of primary and community care nursing, Department of Health Science, Editor. 2007, Monash University
22. Watts, I., et al., General practice nursing in Australia, Royal Australian College of General Practitioners Royal College of Nursing Australia, Editor. 2004.
23. Jolly, R., Practice nursing in Australia, Social Policy Section, Editor. 2007, Commonwealth of Australia.
24. Australian Divisions of General Practice, National practice nurse workforce survey. 2006, ADGP: Canberra.
25. Department of Health and Ageing, Divisions network nursing in general practice program, Commonwealth of Australia, Editor. 2006.
26. Comino, E.J., N.A. Zwar, and O. Hermiz, The Macarthur GP after-hours service: A model of after-hours care for Australia. *Australian Health Review*, 2007. 31(2): p. 223-230.
27. Kelaher, M., et al., Effects of financial disadvantage on use and non-use of after hours care in Australia. *Health Policy*, 2006. 79: p. 16-23.
28. Culvenor, C., Wilczynski, A., Wallace, A. Access to after hours primary medical care by disadvantaged and marginalised groups. Milsons Point: Department of Health and Aging, 2002.
29. Salisbury, C. The demand for out-of-hours care from GPs: a review. *Family Practice*, 2000; 17(4):340-347
30. O'Connell, D., Fryer, J., Han, P., Hancock, M., Foster, M. Maitland after hours primary care trial final report. Newcastle: University of Newcastle, NSW; Hunter Urban Division of General Practice, 2000.
31. Roberts, E., Mays, N. Can primary care and community-based models of emergency care substitute for the hospital accident and emergency (A&E) department? *Health Policy*, 1998; 44:191-214
32. Shipman, C., Payne, F., Hooper, R., Dale, J. Patient satisfaction with out-of-hours services; how do GP cooperatives compare with deputizing and practice-based arrangements? *Journal of Public Health*, 2000; 22(2):149-154.
33. Lattimer, V., George, S., Thompson, F., Thomas, E., Mullee, M., Smith, H., Moore, M., bond, H., Gasper, A. Safety and effectiveness of nurse telephone consultation in out of hours primary care: randomised controlled trial. *British Medical Journal*, 1998; 317:1054-59
34. Wood, L. Sustaining change – experiences of supporting after hours primary care services in Queensland. In: *Translating Policy into Practice QDGP Occasional Paper*, 2002
35. van Uden, C.J.T., Winkens, R.A.G., Wesseling, G.J., Crebolder, H.F.J.M., van Schayck, C.P. Use of out of hours services: a comparison between two organisations. *Emergency Medicine Journal*, 2003; 20:184-187
36. Department of Health and Ageing. GP assist: Tasmania after hours doctor. October 2, 2008 [cited; Available from: http://www.gpat.com.au/gpat_brochure.pdf].
37. Leibowitz, R., S. Day, and D. Dunt, A systematic review of the effect of different models of after-hours primary care services on clinical outcome, medical workload, and patient and GP satisfaction. *Family Practice*, 2003. 20(311-317).
38. Pooley, C.G., et al., Contacting your GP when the surgery is closed: Issues of location and access. *Health & Place*, 2003. 9: p. 23-32.

39. After Hours Primary Health Care Working Party, Towards accessible, effective and resilient after hours primary health care services: Report of the after hours primary health care working party. 2005, Ministry of health: Wellington.
40. Dunt D, et al., Impact of telephone triage on emergency after hours GP Medicare usage: a time-series analysis. *Australia and New Zealand Health Policy*, 2007. 4(21(10 October 2007)).
41. Kidder, K., Roy, C.C. Sharing the learning: the Health Transition Fund Synthesis Series: children's health. Ottawa: Health Canada, 2002
42. Committee on Child Health Financing. Guiding principles for managed care arrangements for the health care of newborns, infants, children, adolescents, and young adults. *Pediatrics*, 2000; 105:132-135
43. Eaton, N. Children's community nursing services: models of care delivery. A review of the United Kingdom literature. *Journal of Advanced Nursing*, 2000; 32(1):49-56
44. Elixhauser, A., Machlin, S.R., Zodet, M.W., Chevarley, F.M., Patel, N., McCormick, M.C., Simpson, L. Health care for children and youth in the United States: 2001 annual report on access, utilization, and expenditures. *Ambulatory Pediatrics*, 2002; 2(6):419-437
45. Kataoka-Yahiro, M.R., Munet-Vilaro, F. Barriers to preventive health care for young children. *Journal of the American Academy of Nursing Practitioners*, 2002; 14(2):66-72
46. Vukadinovich, D.M. Minor's rights to consent to treatment: navigating the complexity of the State laws. *Journal of Health Law*, 2004; 37(4):667-91
47. Fleming, P., Bamford, D.R., McCaughly, N. An exploration of the health and social wellbeing needs of looked after young people – a multi-method approach. *Journal of Interprofessional Care*, 2005; 19(1):35-49
48. Hearn, L., et al., Preventing overweight and obesity in young children: Synthesising evidence for management and policy making. 2006, Child Health Promotion Research Centre: Perth.
49. Sancu, L.A., M. Kang, and B.J. Ferguson, Improving adolescents' access to primary health care. *Medical Journal of Australia*, 2005. 183(8): p. 416-417.
50. Kang, M., et al., Access to primary health care for Australian young people: Service provider perspectives. *British Journal of General Practice*, 2003. 52: p. 947-952.
51. Booth, M.L., et al., Access to health care among Australian adolescents young people's perspectives and their sociodemographic distribution. *Journal of Adolescent Health*, 2004. 34: p. 97-103.
52. McCormick, M.C., Kass, B., Elixhauser, A., Thompson, J., Simpson, L. Annual report on access to and utilization of health care for children and youth in the United States – 1999. *Pediatrics*, 2000; 105(1):219-230
53. Cashmore, J. Promoting the participation of children and young people in care. *Child Abuse and Neglect*, 2002; 26:837-847
54. Bernard, D., et al., Access to primary health care for Australian adolescents: How congruent are the perspectives of health service providers and young people, and does it matter? *Australian and New Zealand Journal of Public Health*, 2003. 28(6): p. 487-492.
55. Smedley, B.D., Stith, A.Y., Nelson, A.R.. Unequal treatment: confronting racial and ethnic disparities in health care. *Board of Health Sciences Policy; Institute of Medicine*, 2003
56. Fortier, J.P., Bishop, D. Setting the agenda for research on cultural competence in health care. *Office of Minority Health, USA Department of Health and Human Services; Agency for Healthcare Research and Quality*, 2004
57. Betancourt, J., Green, A.R., Carrillo, J.E., Park, E.R. Cultural competence and health care disparities: key perspectives and trends. *Health Affairs*, 2005; 24(2):499-506

58. Kelaher, M., et al., Improving access to medicines among clients of remote Aboriginal and Torres Strait Islander health services. *Australian and New Zealand Journal of Public Health*, 2006. 30(2): p. 177-183.
59. Beach MC, Cooper LA, Robinson KA, Price EG, Gary TL, Jenckes MW, Gozu A, Smarth C, Palacio A, Feuerstein CJ, Bass EB, Powe NR. Strategies for Improving Minority Healthcare Quality. Evidence Report/Technology Assessment No. 90. (Prepared by the Johns Hopkins University Evidence-based Practice Center, Baltimore, MD.) AHRQ Publication No. 04-E008-02. Rockville, MD: Agency for Healthcare Research and Quality. January 2004
60. Feldman, R., Primary health care for refugees and asylum seekers: A review of the literature and a framework for services. *Public Health*, 2006. 120: p. 809-816.
61. Treving, F.M. Quality of health care for ethnic/racial minority populations. *Ethnicity and Health*, 1999;4(3):153-164
62. Airhihenbuwa, C.O., Obregon, R. A critical assessment of theories/models used in health communication for HIV/AIDS. *Journal of Health Communication*, 2000; 5(S):5-15
63. Martin-Matthews, A. Sharing the learning: the Health Transition Fund Synthesis Series: seniors' health. Ottawa:Health Canada, 2002
64. Mechanic, D. The changing elderly population and health care needs. *Journal of Urban Health*, 1999; 76(1):24-38
65. Trahan, L., Caris, P. The system of care and services for frail older persons in Canada and Quebec. *Aging Clinical and Experimental Research*, 2002; 14(4):226-32
66. Wetzels, R., et al., Interventions for improving older patients' involvement in primary care episodes. 2007, Cochrane Database of Systematic Reviews: Issue 1.
67. Boulton, C., et al., Perspective: Transforming Chronic Care for Older Persons. *Academic Medicine*, 2008. 83(7): p. 627-631.
68. Pong, R.W. Sharing the learning: the Health Transition Fund Synthesis Series: rural health/telehealth. Ottawa:Health Canada, 2002
69. Wakeman, J., et al., A systematic review of primary health care delivery models in rural and remote Australia 1993-2006. 2006, Centre for Remote Health, Flinders University & Charles Darwin University; Faculty of Medicine, Nursing and Health Science, Monash University and the University of Queensland.
70. Humphries, J., Hegney, D., Lipscombe, J., Gregory, G., Chater, B. Whither rural health? Reviewing a decade of progress in rural health. *Australian Journal of Rural Health*, 2002; 10:2-14
71. Wakeman, J., et al., Sustainable chronic disease management in remote Australia. *Medical Journal of Australia*, 2005. 183(10): p. S64-68.
72. Robinson R. Theory and Practice in the Design of Physician Payment Incentives. *The Milbank Quarterly* 2001; 79:(2)149-177.
73. Feacham, R.G.A., Sekhri, N.K., White, K.L. Getting more for their dollar: a comparison of the NHS with California's Kaiser Permanente. *British Medical Journal*, 2002; 324:135-143
74. Talbot-Smith, A., Gnani, S., Pollock, A.M., Gray, D.P. Questioning the claims from Kaiser. *British Journal of General Practice*, 2004; 54(503):415-421
75. McDonald J, Harris M, Cumming J, Powell Davies G, Burns P. The implementation and impact of different funding initiatives on access to multidisciplinary primary health care and policy implications. *MJA* 2008; 188 (8 Suppl): S69-S72.
76. Podger A. A Model Health System for Australia. Part 1: Directions for Reform of the Australian Health System. *Asia Pacific Journal of Health Management* Vol. 1(1) 2006 pp. 10-16

77. Boxhall, Leeder, S. The health system: What should our priorities be? *Health Promot J Austr.* 2006 Dec;17(3):200-5.
78. Smith, J. and B. Sibthorpe, Divisions of general practice in Australia: how do they measure up in the international context? *Australia and New Zealand Health Policy*, 2007. 4(15).
79. Esterman AJ, Ben-Tovin DI: The Australian co-ordinated care trials : success or failure. *Medical Journal of Australia* 2002, 177:469-470).
80. Robinson, R., Le Grande, J. Evaluating the NHS Reforms. Kings Fund, London. 1994
81. Legrande, J. "Kings, Knights or Pawns Human Behaviour and Social Policy, *Journal of Social Policy* 1997: 26, 2:149-169.
82. Klein, R. Why Britain is reorganising its National Health Service - Yet Again. *Health Affairs* 1998:17,4;111-125
83. Ham, C. Population-centred and patient-focused purchasing:the UK experience. *Milbank Quarterly* 1996:74,2;194-214
84. Malcolm L. GP Budget holding in New Zealand: Lesson for Britain and elsewhere? *BMJ* 1997. 314:1890-92.
85. Ashton, T. New Zealand: Long term care in a decade of change. *Health Affairs*, 2000:19, 3;72-85
86. Hornblow, A. New Zealand's health reforms: a clash of cultures. *British Medical Journal* 1997:314, June.1892-94
87. Rechovsky, J.D., Kemper, P. Do HMOs make a difference? Summary and Implications. *Inquiry*, Winter 1999/2000; 36:419-425
88. Zuvekas, S.H., Hill, S.C. Does capitation matter? Impacts on access, use and quality. *Inquiry*, 2004; 41(3):316-335
89. Crampton, P., Davis, P., Ley-Yee, R., Raymont, A., Forrest, C., Starfield, B. Comparison of private for-profit with private community-governed not-for-profit primary care services in New Zealand. *Journal of Health Services Research Policy*, 2004; 9(S2):17-22
90. Crampton, P., Davis, P., Lay-Yee, R., Raymont, A., Forrest, C.B., Starfield, B. Does community-governed nonprofit primary care improve access to services? Cross-sectional survey of practice characteristics. *International Journal of Health Services*, 2005; 35(5):465-478
91. Cumming J, Raymont A, Gribben B, et al. Evaluation of the implementation and intermediate outcomes of the Primary Health Care Strategy. First report: Overview. Wellington, New Zealand: Health Services Research Centre, Victoria University of Wellington, 2005.
92. Hefford M, Crampton P, Foxley J. Reducing health disparities through primary care reform: the New Zealand experiment. *Health Policy* 2005;72:119-123.
93. Belby, J.J., Pekarsky, B. Fundholding: learning from the past and looking to the future. *The Medical Journal of Australia*, 2002; 176:321-325
94. Gray, G. Access to medical care under strain: new pressures in Canada and Australia. *Journal of Health Politics*,1998; 23(6):905-947
95. Hamer, L. Pooling resources across sectors: a report for local strategic partnerships. Health Development Agency, National Health Service, 2004
96. Frank, R.G., H.A. Huskamp, and H.A. Pincus, Aligning incentives in the treatment of depression in primary care with evidence-based practice. *Psychiatric Services*, 2003. 54(5): p. 682-7.
97. Gosden T, Forland F, Kristiansen IS, Sutton M, Leese B, Giuffrida A, Sergison M, Pedersen L. Capitation, salary, fee-for-service and mixed systems of payment: effects on the

behaviour of primary care physicians. The Cochrane Database of Systematic Reviews 2000, Issue 3. Art. No.: CD002215. DOI: 10.1002/14651858.CD002215

98. Gosden, T., Forland, F., Kristiansen, I.K., Sutton, M., Ieese, B., Guiffrida, A., Sergison, M., Pederson, L. Impact of payment method on behaviour of primary care physicians: a systematic review. *Journal of Health Services Research Policy*, 2001; 6(1):44-55
99. Gaynor, M.S., L.B. Rebitzer, and L.J. Taylor, Physician incentives in Health Maintenance Organisations. *Journal of Political Economy*, 2004. 112: p. 915-931.
100. Steel, N., et al., Quality of clinical primary care and targeted incentive payments: An observational study. *British Journal of General Practice*, 2007. 57(539): p. 449-54.
101. Petersen L, A., et al., Does pay-for-performance improve the quality of care? *Annals of Internal Medicine*, 2006. 145(4): p. 265-272.
102. Kohn F, Morley B, Pirkis J et al. Evaluating the Access to Allied Psychological services component of the better outcomes in Mental Health Care Program: Sixth interim evaluation report. *Progressive Achievements over time*. Melbourne: Program Evaluation Unit, University of Melbourne, 2005.
103. Morley B, Kohn F, Naccarella L, et al. Evaluating the Access to Allied Psychological services component of the better outcomes in Mental Health Care Program: Sixth interim evaluation report. *Progressive Achievements over time*. Melbourne: Program Evaluation Unit, University of Melbourne, 2005.
104. Vagholkar S, Hare L, Hasan I et al. Better Access to Psychology services in primary mental health care: an evaluation. *Australian Health Review*. 2006; 30:195-202.
105. Britt H, Miller G, Knox S et al. *General practice activity in Australia 2004-05*. Canberra: Australian Institute of Health and Welfare, 2005.
106. Zwar N, Hermiz O, Comino E, et al. Do multidisciplinary care plans result in better care for patients with type 2 diabetes? *Australian Family Physician* 2007;36:85-89.
107. Phillips, R., *The Future Role of the Divisions Network: report of the review of the role of divisions of general practice*. 2003, Commonwealth of Australia: Canberra.
108. Phillips CB, Pearce CM, Dwan KM, Hall S, Porritt J, Yates R, Kljakovic M, Sibbald B. *Charting new roles for Australian General Practice Nurses: A multicentre qualitative study*. 2009, ANU.

2. Workforce

Introduction

It is well documented that Australia has significant shortages in primary health care workforce, as well as difficulties with recruitment and retention in areas of workforce need.¹ Workforce shortages are more acute in remote, rural and outer metropolitan settings, but exist even in urban settings including the nation's capital.² Despite the recent significant increases in both medical and GP training places, the number of people entering the GP workforce will still fall well short of the Australian Medical Workforce Advisory Committee (AMWAC) estimated requirements over the next five years.³ Workload and work stress are higher in areas of lower deployment.⁴ The general practitioner and nursing workforce are also ageing, and GPs are working fewer hours raising the spectre of further reductions in workforce in the near future.⁵⁻⁷

Australia is not alone in facing challenges with health worker numbers⁴⁻⁶. In 2006 the World Health Organization (WHO) estimated a shortage of four million health workers and 2.4 million doctors, nurses and midwives worldwide.⁸ Overseas trained health professionals play an important role in Australia's health care workforce, particularly in rural and remote areas, but given the international shortage they cannot be viewed as a long-term or comprehensive solution.

This section looks at meso level interventions targeting general practitioner recruitment, retention, deployment and support. Further, in the light of recent debate, skill mix and role substitution of primary care services are considered, as is the role of generalists in increasing primary care provision.

In the 2005 Monograph, only three systematic reviews were included in the evidence on workforce. The evidence on primary care workforce has grown dramatically in the last three years, with twice as many papers being reviewed in this updated version. In particular the Australian evidence has been boosted considerably by the Australian Primary Health Care Research Institute funding nine systematic reviews focused in the broad domain of Primary Health Workforce in 2006. Those directly relevant to General Practitioner workforce are included in the following discussion.

Q1: What do we know about the role of organised PHC in GP recruitment/retention/deployment/support?

Methods available to increase general practitioner workforce include; increasing medical school intake⁹ (this included increasing uptake from specific populations),¹⁰ maximising the uptake of general practice on leaving medical school, retaining workers in general practice for longer,^{9, 11} and increasing the numbers of overseas trained doctors (OTD) working in general practice.^{12, 13}

Recruitment and Retention

Two recent systematic reviews from Australia and the US discussed factors relating to attracting health care professionals into general practice.^{14, 15} Factors that need to be considered in recruiting to general practice include individual level factors, nurturing at medical school, prevocational and vocational. Some of the factors that have a positive influence on recruitment include:

- a stated interest in primary care
- being female
- lower income expectation of health professionals,

- student rotations in general practice,
- excellent role models
- a medical school culture that encourages general practice
- exposure to general practice in the prevocational years
- flexible training.^{14, 15}

Final career choice is generally made in the early post graduate years¹⁶ and this has led to interest in increasing interns' and junior medical officers' (JMOs) exposure to general practice. Workforce and financial constraints are the major barriers to developing rural and remote general practice placements for JMOs. However, where these placements have been meticulously planned and supported, there is good evidence that they come to be viewed positively by both administration and clinicians, including the JMOs themselves.¹⁷

Much of the existing evidence on recruitment and retention has focused on rural areas where the shortages have been greatest over a longer time. Rural recruitment strategies are outlined in Table 1. The best recruitment and retention programs are multi-factorial and longitudinal, specifically targeted at individuals in pre-medical training all the way through to continued education and training for qualified primary care physicians.^{14, 18-20} Medical students from rural backgrounds are twice as likely to practice in rural areas as students from other backgrounds. However, what constitutes a "rural background" remains poorly defined but can include rural schooling or tertiary training, and having a rural partner.¹⁰ Rural physician rotations, the introduction of rural clinical training guidelines, and preparation packages to introduce potential practitioners to "rural living"²¹ are all recommended to maximise the recruitment and retention of practitioners in rural areas.

Much of the available research evidence does not distinguish well between retention of staff in rural areas and recruitment of staff to rural areas,²⁰ and these factors are rarely studied separately.^{12,20} A combination of personal (support and family), professional (workload, professional education and development opportunities, on call) and environmental factors (facilities, schooling), contribute to recruitment and retention as well as external factors such as political and economic changes.^{20, 22} Financial incentives to increase rural practitioner numbers are effective in the short term but not in the longer term.¹⁸

Table 1: Organisational Factors involved in Influencing Primary Care Workforce Recruitment in Rural and Remote Areas

	Undergraduate Training	Post-graduate training	Community/ Location factors	Continued Education/ Training	Government Initiatives
	<i>Student selection</i>		<i>Organisation factors</i>		<i>Funding initiatives</i>
<p>Attitude to 'rurality'¹⁹ Belief that past rural experience has contributed positively to training/ knowledge/ career¹⁹ Expressed desire to practice rurally^{19, 24} Expressed desire to become a GP²³ Interested in increased scope and variety of work¹⁹ Autonomy and independence¹⁹</p>	<p>Rural tertiary training (undefined)¹⁰ Publicly funded medical schools^{15, 23} Specific goals to produce rural GPs^{15, 23} Location of medical school^{19, 23} Selective student intake^{14, 19, 24} Generalists on admission committees²⁴</p>	<p>Rural tertiary training (undefined)^{10, 19} Specific rural GP/ generalist streams^{23, 24} Longer rural rotations^{23, 24} JMO advanced training programs in specialist skills²⁴ Mentorship during JMO years^{24, 25} Rural clinical rotations for physicians⁵</p>	<p>Identification of system problems by outside consultants¹⁹ Local leadership¹⁹ Community collaboration, commitment and investment^{19, 24} Comprehensive services¹⁹ Hospital access¹⁹ Teamwork amongst local health care workers¹⁹</p>	<p>Medical education initiatives (undefined)^{5, 18, 19, 24} Professional support/ socialization^{18, 24} Professional satisfaction²⁴</p>	<p>Financial incentives eg: remuneration, fee-for-services, (etc)^{18, 19, 24} Decreasing rural fees¹⁸ Funding for career counselling for students¹⁴ Funding for general practice in medical schools¹⁴ Financial incentives for medical schools emphasising general practice¹⁴</p>
<i>Individual factors</i>	<i>Training/Education</i>		<i>Physician Factors</i>	<i>Program properties</i>	<i>Organisational interventions</i>
<p>Rural background Undefined²³ Personal^{10, 24, 25} Primary schooling¹⁹ Secondary schooling^{19, 24} Family¹⁹ Partner^{10, 25} Rural background¹⁹ Satisfaction with location¹⁹ Promotion of medicine to rural high school students²⁵ Male (rural)^{15, 19, 23} Married^{15, 19, 26} Older student^{15, 23, 26} Australian origin¹⁹</p>	<p>Scholarships/ bonded places^{14, 18, 19, 24} Longitudinal PC exposure^{14, 24, 27} Mentorship^{24, 25} Curricular emphasis on PC/rural health^{14, 23, 25} Community-based teaching²⁵ Specialist GP training streams^{15, 23, 24} Selective rural PC training streams^{24, 27} Rural placements¹⁹ Latter year PC clinical rotations^{24, 26, 27} Decentralised /rural teaching centres^{19, 24, 25} Quality of rural teaching program²⁴</p>		<p>Community support and acceptance^{12, 19, 18} Satisfaction with location¹² Satisfaction with work conditions¹² Access to secondary schooling for children²⁰</p>	<p>Accessible^{12, 20, 24} Flexible¹⁴ High quality¹² Applicable²⁰ Provision of financial support^{12, 24} Time off work^{12, 24} Locum relief^{19, 24} Face-to-face/ personalised^{20, 24} Technology-assisted²⁴</p>	<p>Flexible service delivery programs¹⁴ Career structuring Medicare/ government funded practice nurses¹⁴ Research into general practice teams to attract other health care workers¹⁴ Case-management/ recruitment officers¹⁹</p>
	<i>Faculty culture</i>				
	<p>Employment of faculty GPs¹⁴ Promotion of GP¹⁴ Attitudes of teaching staff towards rural/ indigenous health²⁴ Student rural clubs²⁴</p>				

Overseas Trained Doctors

Presently Overseas Trained Doctors (OTDs) make up 25% of the Australian medical workforce²⁸, and are frequently successfully recruited to rural and remote areas.^{19, 29} OTDs in Australia are most commonly from the UK, India, Malaysia, and Singapore.²⁸ However, until the establishment of DoctorConnect, there was no single point of information available for Australian OTDs.¹³ There is significant variation in medical knowledge and skills between OTDs, but limited orientation to the Australian health care system, and limited supervision and feedback processes creates further difficulty in standardising care standards. OTDs are still often employed in areas incongruent with their own previous experience.¹³

Common problems experienced by OTDs include language barriers, communication across cultural boundaries, status change, teaching and education.^{13, 28} Other issues include relocation and associated costs, discrimination, problems with immigration and registration, isolation/remoteness, and colleague relationships. There is a lack of information in the published literature regarding OTDs' integration into rural communities, in part due to the difficulty in studying these issues.²⁹ However, a number of Divisions do provide orientation support to OTDs, but there is no systematic OTD orientation process across Australia.

Most of the countries considered in this review have developed guidelines and are currently running programs for OTDs.¹³ In the UK, there are numerous streamlined OTD services and training programs available through various medical colleges and other organisations, to simplify and expedite the OTD registration process. Colleges are also taking greater account of prior education and training. These and other initiatives have resulted in high recruitment and retention of OTDs.³⁰

Skills Mix Options

Workforce and skill shortages stimulate discussion about how else primary health care services can be provided. This requires broad thinking regarding job demarcations, team structures, and demarcations between community, hospital and social care. The idea of "skills mix" has a broad range of definitions^{5, 31-34}, but generally works at both an individual and organisational level. It encompasses:

- the mix of posts/grades/occupations required to provide a service for an organisation
- the combination of skills/competencies required for a particular job within an organisation.³¹

Possible barriers at both levels include legislation, lack of career frameworks and education/training opportunities, remuneration for new skill sets, regulation of professional standards, lack of governmental funding for changed services, and insurance issues.^{31, 33}

There is relatively little evidence available regarding substitution of personnel within a primary care organisation. The most researched role substitution is that of nurse practitioners and physician assistants, used to replace doctors over a wide range of specialties in the USA, UK, and Canada, including primary care.^{5 32, 35} Certainly they are more likely to practice in rural areas and in vulnerable populations, with education times being around half that required of a doctor, while their productivity is approximately 90 per cent of that of a primary care physician in primary care settings.³⁵ Doctor-nurse substitution in general practice results in similar quality of care, with higher levels of patient satisfaction and provision of more health advice.^{34, 36, 37} However, it is unknown whether this reduces the doctor's workloads, and it is known that nurses order more tests and other services than the doctors, which was found to negate the cost efficacy of the substitution in most cases.^{32-34, 36, 37} A similar

problem of cost efficacy has been found with substitution of less qualified nursing staff for more qualified nurses.³⁴ Lay health care workers as substitutes for certified health care professionals may improve immunisation rates, breastfeeding education, community breast cancer screening uptake, and home aide services for the elderly, although the training required and best methods for them to provide these services is not yet known.³⁸ Telemedicine/telehealth is performed effectively by most health professionals, regardless of their original roles.⁵ More research is required to understand the cost-benefit ratio of role substitution in primary care.^{31, 34}

Other effective methods of organisational skills mix include service transfer to a different location, specialist movement to a different location, and intra-professional liaison and training from specialty to specialty. For example, diabetes clinics, cardiovascular disease management, hospital-at-home services, and emergency medicine physicians and/or services have all been moved from hospital to a community location with equitable health outcomes, although again this has not been well assessed for cost efficacy.^{31, 32} Outreach clinics (specialist movement to a different location) are not so effective: they may increase patient satisfaction, but with the exception of ED physicians, they tend to be less cost effective than hospital outpatient clinics and do not improve clinical outcomes. There needs to be adequate consultation, organisational structure, role definition, and quality and safety measures (discussed under the relevant section) to enable this transition³². Again, more research is required to better understand these innovations.

Regional shortages in particular skills may be resolved in part by broadening the roles of existing health professionals, and even creating entirely new roles. Sibbald (et al)³² and Zwar (et al)³¹ describe this process as involving:

- substitution of tasks from one individual to another, which by necessity enhances the skills and or tasks required within different roles.

This can take place in the form of:

- delegation of tasks up or down health professional hierarchies, and across health professions, or
- creation of new roles within the team.^{31, 32}

This process has a prerequisite of set role definitions of various primary care team members, which may be difficult given the nature of primary care teams: there is a high variability of delineations for particular skills or tasks, and different professions and professional levels are understandably reluctant to relinquish present skills bases. Interprofessional education is seen as a possible solution to this.³¹⁻³³ Potential roles for expansion include hospitalists⁴, special interest practitioners^{5 5}, physician assistants⁵, various nursing roles^{5, 31, 33}, pharmacists^{5, 31}, paramedics, community health representatives, and traditional healers/elders.⁵ Effective role expansion for pharmacists and practice nurses have the largest evidence base, with disease management and health promotion tasks performed effectively by both, although more so with pharmacists.³¹

The Generalist

Another option for consideration is the role of generalism in primary care. It is thought that the devaluation of this specialty is contributing greatly to the loss of services in rural and other areas.^{39, 40} Unfortunately generalism by nature has a wide range of definitions;³⁹⁻⁴¹ Gunn (et al) define it in terms of:

- “ways of being” – virtuous character, reflexive, interpretive

⁴ A newly created role for medical practitioners in the NSW hospital system. Hospitalists coordinate patient care in the hospital or community setting to promote a smooth, safe and effective patient journey.

⁵ New roles for practitioners in the UK being developed and supported through training and accreditation

- “ways of knowing” – biotechnical and biographical
- “ways of doing” – accessible, approachable, longitudinal care, context-based in a wide range of subspecialties⁴⁰.

For example the role of a generalist physician in mental health involves recognition and case finding, care assessment and planning, patient education, pharmacotherapy and psychotherapy, other therapies, ongoing management, physical care and referral. Other health professions (eg, practice nurses, allied health staff) provide similar care but in a narrower range, depending on program design and funding.⁴¹ The more rural a generalist, the broader the range of knowledge and skills required.³⁹ This wide range of contexts and applications means that the amount and depth of knowledge required by generalists is expanding rapidly. Career pathway development, adequate remuneration and funding models, education and support networks, and more evidence-based medicine research into the role of generalists in different primary care settings is required.³⁹⁻⁴¹

Conclusion

There are a number of innovative initiatives being undertaken to address general practitioner workforce shortages. While the evidence base underpinning these initiatives is rapidly expanding, it often does not provide robust evaluation of necessary parameters such as cost efficacy and patient health outcomes. The initiatives should be carefully and prospectively examined to ascertain their effectiveness and cost efficacy.

References

1. *Australia's Health Workforce*. 2005, Productivity Commission: Canberra. p. 397.
2. *Report on the Audit of Health Workforce in Rural and Regional Australia, April 2008.*, Department of Health and Ageing. 2008, Commonwealth of Australia.
3. Australian Medical Workforce Advisory Committee. *The General Practice Workforce in Australia: Supply and Requirements to 2013*, . 2005.
4. Raymont, A., et al., New Zealand general practitioners' characteristics and workload: The National Primary Medical Care Survey. *The New Zealand Medical Journal*, 2005. **118**(1215).
5. North South Group Inc., *Literature review and environmental scan of preferred practices for deployment of health human resources and decision support tools*. , H.P. Branch, Editor. 2004, Health Canada.
6. Department of Health and Ageing, *General Practice in Australia: 2004*. 2005, Canberra: Department of Health and Ageing, Commonwealth of Australia.
7. Buchan, J., *The 'greying' of the United Kingdom nursing workforce: implications for employment policy and practice*. *Journal of Advanced Nursing*, 1999. **30**(4): p. 818-826.
8. WHO, *The World Health Report 2006: Working together for Health*. 2006, World Health Organization: Geneva. p. 237.
9. Young, R. and B. Leese, *Recruitment and retention of general practitioners in the UK: what are the problems and solutions?* *British Journal of General Practice*, 1999. **49**(447): p. 829-833.
10. Laven, G. and D. Wilkinson, *Rural Doctors and Rural Backgrounds: How Strong is the Evidence? A Systematic Review*. *Aust. J. Rural Health*, 2003. **2003**(11): p. 277-284.
11. Cossman, J., *Mississippi's physician labor force: current status and future challenges*. *Entrez PubMed*, 2004(Jan 2004): p. 8-31.
12. Australian Medical Workforce Advisory Committee, *Survey of Doctors Working in rural and Remote Locations under Australia's five-year Overseas Trained Doctor Recruitment Scheme*. AMWAC Report 2004, 2004. **1**(February 2004).

13. McGrath, B., *Integration of overseas-trained doctors into the Australian medical workforce*. MJA 2004, 2004. **181**(11/12): p. 640-642.
14. Thistlethwaite, J., et al., *Attracting health care professionals into primary care: strategies for recruitment*. 2007, Australian Primary Health Care Research Institute, Australian National University; Centre for Innovation, Professional Health, Education and Research; The Discipline of General Practice, University of Sydney; The Menzies Centre for Health Policy: Canberra.
15. Senf, J., D. Campos-Outcalt, and R. Kutob, *Factors related to the choice of family medicine: a reassessment and literature review*. journal of the American Board of Family Practice, 2003. **16**(6): p. 502-512.
16. *If the job fits...the complexity of medical career decision making: a review.*, in *General Practice Education & Training Report 2007a*,. 2007, Australian General Practice and Training: Canberra.
17. Postgraduate Medical Council of Australia, *Community & rural terms for junior doctors in Australia - A national review*. 2002, Department of Health and Ageing: Canberra.
18. Sempowski, I., *Effectiveness of financial incentives in exchange for rural and underserved area return-of-service commitments: systematic review of the literature*. Can J Rural Med., 2004. **9**(2): p. 82-88.
19. McDonald, J., L. Bibby, and S. Carroll, *Recruiting and retaining general practitioners in rural areas: improving outcomes through evidence-based research and community capacity building*. 2002, Centre for Health Research and Practice: Ballarat.
20. Humphreys, J., Wakerman, J, Wells, R, Kuipers, P, Jones, J, Entwistle, P, Harvey, P., *Improving primary health care workforce retention in small rural and remote communities: how important is ongoing education and training? .* 2007, Australian Primary Health Care Research Institute; School of Rural Health, Monash University; Centre for Remote health, Flinders and Charles Darwin Universities: Canberra.
21. Stearns, J. and M. Stearns, *Graduate medical education for rural physicians: curriculum and retention*. Rural Health, 2000. **16**(3): p. 273-277.
22. Humphreys, J., et al., *A critical review of rural medical workforce retention in Australia*. Australian Health Review, 2001. **24**(4).
23. Brooks, R., et al., *The roles of nature and nurture in the recruitment and retention of primary care physicians in rural areas: a review of the literature*. Academic Medicine, 2002. **77**(8): p. 792-798.
24. Curran, V., et al., *Strengthening the medical workforce in rural Canada: the roles of rural/Northern medical education*. 2004, Faculty of Medicine, Memorial University of Newfoundland: St John's.
25. Hsueh, W., T. Wilkinson, and J. Bills, *What evidence-based undergraduate interventions promote rural health?* New Zealand Medical Journal, 2004. **117**(1204): p. U1117.
26. Bland, C., L. Meurer, and G. Maldonado, *Determinants of primary care specialty choice: a non-statistical meta-analysis of the literature*. Academic Medicine, 1995. **70**(7): p. 620-41.
27. Meurer, L., *Influence of medical school curriculum on primary care specialty choice: analysis and synthesis of literature*. . Academic Medicine, 1995. **70**(5): p. 388-397.
28. Pilotto, L., G. Duncan, and J. Anderson-Wurf, *Issues for clinicians training international medical graduates: a systematic review*. Medical Journal of Australia, 2007. **187**(4): p. 225-228.
29. Arkles, R., P. Hill, and L. Pulver, *Overseas-trained doctors in Aboriginal and Torres Strait Islander health services: many unanswered questions*. Medical Journal of Australia, 2007. **186**(10): p. 528-530.
30. Sandhu, D., *Current dilemmas in overseas doctors' training*. Postgraduate Medical Journal, 2005. **81**: p. 79-82.

31. Zwar, N., et al., *Optimising skill-mix in the primary health care workforce for the care of older Australians: a systematic review*. 2007, Australian Primary Health Care Research Institute, Australian National University: Canberra.
32. Sibbald, B., J. Shen, and A. McBride, *Changing the skill-mix of the health care workforce*. Journal of Health Services Research & Policy, 2004. **9**(S1): p. S28-S38.
33. Richards, A., et al., *Skill mix between nurses and doctors working in primary care-delegation or allocation: a review of the literature*. International Journal of Nursing Studies, 2000. **37**: p. 185-197.
34. Buchan, J. and M. Dal Poz, *Skill mix in the health care workforce: reviewing the evidence*. Bulletin of the World Health Organization, 2002. **80**: p. 575-580.
35. Hooker, R., *Physician assistants and nurse practitioners: the United States experience*. Medical Journal of Australia, 2006. **185**(1): p. 4-7.
36. Laurant, M., et al., *Substitution of doctors by nurses in primary care*. The Cochrane Database of Systematic reviews, 2004(4): p. Art. No.: CD001271. DOI: 10.1002/14651858.CD001271.pub2.
37. Horrocks, S., E. Anderson, and C. Salisbury, *Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors*. British Medical Journal, 2002(324): p. 819-823.
38. Lewin, S., et al., *Lay health workers in primary and community health care*. The Cochrane Database of Systematic Reviews 2005, 2005(1): p. Art. No.: CD004015. DOI: 10.1002/14651858.CD004015.pub2. .
39. Pashen, D., et al., *The expanding role of generalists in rural & remote health: a systematic review*. 2007, Australian Primary Health Care Research Institute; Australian College of Rural and Remote Medicine: Canberra.
40. Gunn, J., et al., *What is the place of generalism in the 2020 primary care team?* 2007, Australian Primary Health Care Research Institute: Canberra.
41. Perkins, D., et al., *What is the place of generalism in mental health care in Australia?: A systematic review of the literature*. 2007, Australian Primary Health Care Research Institute: Canberra.

3. Integration

Introduction

"To date, little progress has been made in explaining and measuring integration. If further integration in primary health care is warranted, more research is required to understand its nature, form and rationale." Simoens, S., Scott, A.¹

The word integration is used in health care literature to denote different ideas including: co-operation and collaboration across vertical and horizontal axes of the health system; defragmentation of health systems; and the creation of health care service delivery models aimed at diminishing redundancies, filling gaps, and enhancing quality patient outcomes. This is not an exhaustive list of the way the concept is used and rarely is 'integration' adequately defined. Furthermore, definitions of the specific mechanisms employed by integration strategies are often vague. Integration of service delivery is a complex intervention which includes several components and therefore evaluation of integration is also difficult.² Few documents have even attempted to compare and explain the different types of integration, and definitions of models tend to be left open for interpretation.³

Briggs et al used the following definition in their Cochrane review: *"Integration of primary health care is a variety of managerial or operational changes to health systems to bring together inputs, organisation, management and delivery of particular service functions. Integration aims to improve the service in relation to efficacy and quality."*⁴

Fundamental to integration in health service settings is the perspective of the patient journeying through the health system. Integration aims at ensuring this journey is responsive to patient preferences, coordinated, supported by timely and relevant information, and results in safe, effective, quality care. Integrated services also aim to provide single point access to health care, sufficient numbers of health professionals to provide mutual professional support, and service delivery in accordance with the principles of primary health care (aims which have not yet been fulfilled).⁵ By avoiding inefficient, duplicated and fragmented services, integration should improve efficiency and quality, thereby maximising use of resources and opportunities. The envisaged flow-on effects are better overall health, increased public access to services and more equal access for people from different communities and socio-economic backgrounds.² It is hoped that integration of effective clinical and community services eventually will lead to greater gains than either type of service used on its own.⁶

Also important is the need to develop governance arrangements that can support integrated health care arrangements, particularly when they relate to integration across sectors. A recent systematic review investigated the evidence on how principles of integrated governance may be applied at the regional level in the Australian health care context.⁷ It found, for example, that there is a clear need for separation between governance and operational management, local community vision, leadership and commitment to integration.

Information management and information technology (including electronic health records) are also fundamental to any discussion of integration.^{8,9} Information and communication technologies (ICTs) are a critical component of health care team communication, innovation and collaboration,¹⁰ and have formed an important part of government health strategies in the UK and Canada.¹¹

Q1: What do we know about the benefits of integration within primary health care and between primary health care and other parts of health care systems?

We identified twelve systematic reviews, eight reviews and a range other material.^{1,4,12} These papers point to the limited existing rigorous research base: most studies included in the reviews had problems with design and/or methodology and/or data analysis. There was often a lack of explicit statements concerning the definitions of what constituted “integration” and what outcomes were measured. Outcomes of integration varied in different contexts, and the factors that might explain this variation were usually unexplored. Research also lacks a core set of outcomes of co-ordination that are measurable and sensitive to change; studies on the complex and/or co-morbid populations that may benefit most from improved co-ordination; and studies aimed at determining which co-ordination activities might be most useful.¹³

The reviews do not provide a definitive answer to the first question. They do point to the imperative for careful evaluation of integration-orientated interventions to strengthen the evidence base. Policy is ahead of research in this area and the assumption that structural integration should yield positive outcomes for service users remains largely untested in systematic studies, with research focusing on the factors supporting or constraining joint working instead.¹⁴

Notwithstanding these limitations, integrated care is generally argued to have a number of benefits, including responding more effectively to the needs of people with long-term conditions, improving the effectiveness and safety of care, and encouraging more “seamless” care for patients. US and Canadian models of integrated care have found decreased inpatient service utilisation (eg emergency departments) coupled with increased access to and utilisation of outpatient services (eg home based and community services), a positive impact on Medicare costs, improved health outcomes, and a positive impact on carer burden. European models of integration have found increased quality of life, reduction in institutionalisation, more efficient health care and improved health outcomes. However, there has been inconsistent impact on physical outcomes and patient satisfaction.¹⁵

Integration within primary care

A recent Australian systematic review examined 65 primary studies and previously conducted systematic reviews,^{16, 17} of integration strategies both within primary health care and between primary health care and other services in Australia, USA, UK, Canada, NZ and the Netherlands. For studies within primary health care, it was found that the highest percentages of significant health outcomes were associated with strategies supporting relationships between clinicians, arrangements for coordinating clinical activities, and the use of systems to support co-ordination.

Although there were variations between settings, the most successful strategies were those providing systems and structures to support co-ordination. In relation to impact on patient satisfaction, the review found that the most successful strategies included those supporting relationships between service providers, support for clinicians, communication between service providers and patient support.

Of these, strategies involving patient support were the least successful and those involving communication and individual support were most successful.¹⁶ In contrast, a separate analysis of systematic reviews evaluating the effectiveness, definitions, and components of integrated care for chronically ill patients found that the most common components were self-management support and patient education, often combined with structured clinical follow up and case management. Such integrated care programs appeared to have positive effects on the quality of care.¹⁹

In terms of economic outcomes, the Australian review showed that less than 20% of studies found a significant positive result, and a number of studies reported negative economic outcomes.¹⁶ Studies focusing on mental health had the highest percentage of significant positive health outcomes and improved patient satisfaction. The lowest percentages were found in studies concerned with aged and palliative care, which also had the lowest percentage of significant patient outcomes. However, significantly positive economic outcomes were more common in studies concerned with aged care.¹⁶

Communication within primary health care or between primary health care and other providers resulted in a significant increase in primary health care physicians being called at admission or discharge. Co-location between primary health care and other service providers was linked to improvement in physical well being and a decrease in costs. A combination of case management, co-location and communication was associated with an improvement in SF-36 scores (ie general health status). In terms of aged care, a range of co-ordination strategies (eg communication between primary health care and other providers and coordinated primary health care consultations) resulted in reduced readmission and a trend towards lower all-cause mortality. In terms of chronic disease, communication between primary health care and other providers was linked to improved quality of life; decreased heart failure deaths, reduced patient length of stay and readmissions; and fewer overall unplanned readmissions, hospital days and emergency room visits. Case management resulted in decreased readmission, and increased treatment compliance and patient satisfaction. An integrated heart failure management program among heart failure clinics was also linked to significantly greater patient satisfaction.¹⁶

Integration between primary health care and other providers

In terms of integration between primary health care and other parts of the health care system, one systematic review found that using an integrated (collaborative) rather than vertical service delivery model decreased overall cost in low and middle-income countries without decreasing service provision.⁴ The same authors concluded there was "*no consistent pattern of benefit across the studies*" identified.⁴ A 2006 update of this review also found no clear evidence that integrating primary health care services improves the delivery of health services or people's health status in low or middle income countries, however an integrated child care program did result in some health improvements.² Another review found that the vertical integration taking place in projects across Canada occurred "*often successfully*"⁸ and another systematic review found a positive effect of collaborative care on antidepressant use and depressive outcomes.²⁰ A comprehensive review of integrated primary care organisations found the cost of maintaining integration efforts had to be balanced against the benefits to patients as these benefits had not been documented sufficiently.¹

Studies involving co-ordination between primary health care and hospitals show a high rate of significant positive outcomes. Integration between primary health care and specialists is also associated with positive outcomes, with the highest percentage

of positive outcomes shown to be associated with strategies providing support for clinicians, the use of tools, and those building relationships between service providers. The combined use of two to four types of strategies had the highest percentage of significantly positive health outcomes.¹⁶

Shared care arrangements between primary care providers and specialist services in mental health emphasise supporting primary care clinicians to deliver care to patients with milder or uncomplicated mental health problems, whilst specialist services provide care to patients with severe and complex disorders.⁵ This arrangement enhanced local availability by extending mental health interventions to a larger population of rural residents, and provided a smoother patient pathway through the health care system. Furthermore, it increased the ability of primary health care professionals to tackle the problem at the “front end” allowing increased preventive interventions to result in improved health outcomes, and also to free up additional specialist support for high-need patients. For the provider this model resulted in improved working relationships, fewer call-outs for extended hours workers, reduced consultation rates in primary care, fewer in-patient admissions and earlier discharge, and increased family and home-based care. Some evidence exists to show that the model is relatively cost effective and that increased flexibility in funding arrangements allowed providers to work outside conventional boundaries.⁵ Furthermore, greater flexibility in traditional professional roles and responsibilities could help to alleviate staff shortages particularly in rural and remote areas.¹⁸

In another systematic review¹⁹, the clearest effect of shared care was demonstrated in outcomes relating to prescribing and medication adherence, where meta-analyses indicated a significant benefit for shared care. Furthermore, the majority of studies demonstrated improvements in the following areas as a result of shared care: recovery from mental illness (except for chronic mental illness), psychosocial outcomes (eg quality of life and wellbeing), risk factors, and measures relating to participation in or defaulting from services. There were mixed results for functional impairment and disability, hospital admissions, patient satisfaction, and cost data. For service and physical outcomes, only a minority of studies indicated a benefit of shared care. Overall, consistent evidence for the effectiveness of shared care is lacking and there is a need to improve the design and quality of studies examining such interventions in order to determine which components are effective, to assess issues such as sustainability and to determine settings and patient groups in which shared care may be most effective.¹⁹ In fact, the delineation of which components are effective is something that is needed across care co-ordination in general.¹³

In terms of Integrated Care Pathways, there is evidence to show that they can improve the delivery of healthcare interventions by providing evidence-based structures for clinical and managerial decisions, clinical audit, risk management and benchmarking across organisations.²¹ One systematic review found that the referral process between primary and specialist care could be improved by disseminating referral guidelines with structured referral sheets, and involving consultants in educational activities. However, passive dissemination of local referral guidelines, discussion with an independent medical advisor and feedback on referral rates were not effective.²² The positive outcomes for clinical practice and patient outcomes tend to focus on increased continuity of care.²¹ Accordingly, integration interventions have led to more consistent positive results in health care outcomes, such as service utilisation, in comparison to studies that examine patient health outcomes, which tend to report mixed results. Although the improvement of health services aims to improve health, the immediate target of integration interventions is not a disease or patient but rather the health care system. Therefore, improvements in health

resulting from changes in the health care system are mediated through improvements in health care delivery. Thus evaluation that focuses only on patient health outcomes may not detect benefits to the health care system that are necessary but not sufficient to improve patient health outcomes.¹³

These issues are part of a wider need to establish links between organisational characteristics and service user-defined care outcomes. This is important because integrated care pathway (ICP) development is increasingly turning to more complex medical conditions and patients treated in the community, where patients are more likely to be receiving care from more than one provider.²¹ The WHO has stressed the importance of building integrated healthcare systems that can address chronic disease management,²³ due to the increased prevalence of chronic illnesses and co-morbidity.¹³

Single studies

There have been numerous single studies completed on integration in Australia. The 2006-2007 Annual Survey of Divisions of General Practice revealed that Divisions were very active in this area²⁴. Studies we found focused on divisions of general practice, integration between service providers in the health care system with general practitioners and other health care practitioners, and evaluating the co-ordination of health care.²⁵⁻³¹ For example, an Australia-wide evaluation of seven pre-existing GP-hospital programs by Lloyd, Powell Davies and Harris²⁵ found improved collaboration and communication (among other findings) at all systems' levels.

In the UK, a study on aged care examined whether joint working between social services and primary health care had detectable effects on outcomes for people aged 75 and over. The effects on care management included increased amounts of home care, arranged day care and less delay in arranging long term residential care.¹⁴ A three year retrospective analysis of integrated chronic care programs was conducted to estimate the impact of these programs on diabetes quality of care. The combined impact of the care improvement strategies was a steady improvement of quality measures from 2004 to 2006. Composite screening rates, composite intermediate outcomes and individual screening metrics (eg, HbA1c (a clinical measure of long term blood sugar control), LDL (a subgroup cholesterol/blood fat) and BP (blood pressure) all improved without increased average visit rates.³²

What model of integration works best?

It is thought that the most important criterion for choosing which model of integration to develop are the clients' needs for service co-ordination.³ For example, mutual adjustment appears best for structuring services from prevention to acute care, while integrated service networks are considered one of the main solutions to improve services for clients with complex or chronic health problems. For the success of integrated services, two main issues have been raised: the way services are organised and the implementation process. These issues will be difficult to address without further clarification of the concept of integration. The lack of a consistent definition has been the source of much criticism towards the assumed relevance of integrated systems to improving healthcare efficiency. The lack of systematic, empirical research has also raised questions. Models and levels of integration are thus of great importance to the success of this reform.³

Two publications that addressed this gap were found. They looked at care pathways, likening an ideal pathway to a modern car production line, where it is thought that supply chain concepts can inform process redesign in health care systems.^{33,34}

It proposed that the health system has poorly functioning “production lines” with high error rates, because they have never been consciously designed from a holistic perspective, but instead have been constructed bit by bit as time goes on.³⁴ This leads to the appearance of a fragmented, uncoordinated system. There is empirical evidence that pipelines currently exist, which help with some co-ordination issues (ie, patients generally get to see the right clinicians). However, the problem is that they are insensitive to individual needs and patients travel down the pipe come what may. The authors propose that the ideal system would be like modern car production: the parts would be available when required with the result of a reliable car, but it would also be flexible, so that the basic model can be modified to suit individual needs. Thus the solution favoured by policy makers at the moment is to complement pipelines with a more network-like pattern of service delivery.³³ Such a model seeks to eliminate unnecessary delays, wasteful, confused activity and implement a scenario with a minimum number of smooth and effective handovers.³⁴

Finally, it is thought that GPs and their practices are best positioned to oversee co-ordination of care. There is international agreement that primary care is the most cost-effective way to organise health care,³⁵ and GPs have the advantage of medical knowledge and training in caring for the “whole” patient and family, rather than focusing on one organ system or disease process. Most patients who require care co-ordination have several problems, requiring integration of input from multiple sources into a clear message for the patient and family. The GP is often the physician who is most accessible to the patient and who has knowledge of the patient’s community.¹³

Q2: What is known about the impact of the use of shared patient records/ information (electronic) within PHC?

Better information transfer and the wider use of IT is seen by the Organisation for Economic Co-operation and Development (OECD) as one of the ways to facilitate care co-ordination within health care systems.¹⁵ With electronic connectivity, better integration of knowledge and skills among members of a collaborative care team can be achieved. Shared electronic access to health records can facilitate collaboration with external providers/ organisations and enable easier monitoring of a client’s progress.¹⁰ The studies presented here include nine systematic reviews, one systematic review of reviews, four reviews and a number of articles.

Overall these papers suggest that while there is common consensus on the usefulness of information management/information technology (IMIT) in health care settings, as yet there appears to be little published evidence that IMIT improves patient outcomes.^{9,36-42} This is again at least partly due to the dearth of methodologically sound research in the subject.³⁶⁻³⁸ Some of the benefits found included increased health prevention activities (screening and immunisation rates) and an increase in quality of disease management^{37,43} as well as positive effects on prescription quality and patient adherence to medication regimes.^{40,43} Two reviews found that consultation time increased, but to the detriment of doctor-patient communication.^{37,38}

A number of initiatives reported that the implementation of effective information and communications technology (ICT) systems was essential to supporting and fostering collaborative care.¹⁰ Information sharing, and therefore ICT infrastructure was seen as a necessary tool to support integration, co-ordination, and multidisciplinary care.¹⁰ Electronic patient records and communication have been instrumental in improving care continuity and information sharing within primary care teams.

Electronic Medical Records (EMRs) are central to improving information transfer between sites, and have been proposed as a part of Canada's solution to their poorly integrated health data management systems.¹¹ EMRs allow patient data to be accessed instantly and simultaneously by multiple users, and can integrate information from pharmacy, medication administration, care documentation, and supplementary systems. Other anticipated improvements are in meeting patient safety goals such as improved communication between care providers, medication safety and reconciliation of treatments across the continuum of care.⁴⁴ There is considerable evidence that supports a role for information technology in enhancing certain aspects of primary care delivery, such as electronic hospital discharge summaries, if they contain the right information and are received by the physician in a timely fashion.¹¹

Information systems could help GPs with communication and access to increasing amounts of knowledge. Electronic health record systems have a lot of potential to improve information flow between clinicians and between clinicians and patients. Paper medical records could be replaced and decision support, order entry and reminders could be provided. Access by emergency physicians to outpatient electronic records can lead to less intensive testing and lower costs, and a sign-out system for residents that was based on electronic records dramatically reduced the risk for adverse events during cross-coverage.¹³

The use of information technology to create virtual networks such as the Family Practice Networks in Canada can aid patient access through sharing patient information using electronic patient records. Patients can join a network by signing an agreement that their family physician and their physician's network will look after their primary care needs. Information sharing among physicians within the network is facilitated by software, allowing them to access medical histories without the patients' primary care physician having to be present.¹¹ In the UK, information technology and management systems have formed important elements of government health strategy. National health records have been fundamental to information sharing supporting integrated patient care policies, and providing an interface between primary and secondary care.¹¹

While information systems are proposed as a key attribute that leads to the improvement of patient-centered primary care, the transition to EMRs is thought to be one of the most expensive innovations in medical practice. Precise cost estimates are not available, but each is likely to cost primary care physicians tens of thousands of dollars with current technology, although future developments may lower these costs. Also, EMRs are yet to be widely adopted.⁴⁵ There is also concern from providers and patients about electronic patient communications where patient privacy and confidentiality is at risk.^{10,36,37,43} There is a need for greater improvements in technology for standardisation and security with the increased introduction and adoption of ICT systems in PHC.⁴⁶

Conclusion

The evidence base underpinning integration within the health care systems, although growing, is still inconclusive due to inconsistent adoption of models and definitions. Various governments are focusing on enhanced integration as a means of improving the effectiveness and efficiency of health systems. There is some evidence that strategies supporting integration of services within primary health care settings, such as through providing systems to support co-ordination, can be effective in delivering improved health outcomes but the associated costs may not always offset the outcomes achieved. Integration between primary health care and hospitals and

between primary health care and specialists has also shown some positive outcomes. Collaborative care may improve antidepressant use and in rural and remote areas, shared care between primary health care and specialist providers may improve outcomes for patients with some mental health conditions. Evidence of the effectiveness of shared care is inconsistent with clearest positive effects found for prescribing and medication adherence. While information management/information technology strategies are increasingly used to support integration activities, few published studies demonstrate improvements in patient outcomes. Future integration related should be accompanied by careful prospective evaluations to both inform the evolution of the initiatives and increase the current evidence base.

References

1. Simoens, S., Scott, A. Integrated primary care organisations: to what extent is integration occurring and why? *Health Services Management Research*, 2005; 18:25-40
2. Briggs CJ, Garner P. Strategies for integrating primary health services in middle- and low-income countries at the point of delivery. *Cochrane Database of Systematic Reviews* 2006, Issue 2. Art. No.: CD003318. DOI: 10.1002/14651858.CD003318.pub2.
3. Fleury MJ. Integrated service networks: The Quebec case. *Health Services Management Research* 2006; 19: 153-165.
4. Briggs, C.J., Capdegelle, P., Garner, P. Strategies for integrating primary health services in middle- and low income countries: effects on performance, costs, and patient outcomes. *The Cochrane Database of Systematic Reviews*, 2001, Issue 4. Art No.:CD003318. DOI: 10.1002/14651858.CD003318
5. Wakerman J, Humphries J, Wells R, Kuipers P, Entwistle P, Jones J. *A systematic review of primary health care models in rural and remote Australia 1993-2006*. Canberra: Australian Primary Health Care Research Institute, 2006
6. Ockene JK, Edgerton EA, Teutsch SM, Marion LN, Miller T, Genevro JL, et al. Integrating evidence-based clinical and community strategies to improve health. *American Journal of Preventative Medicine* 2007; 32(3): 244-252.
7. Jackson CL, Nicholson C, Doust J, et al. Integration, co-ordination and multidisciplinary care in Australia: growth via optimal governance arrangements. Australian Primary Health Care Research Institute 2006.
http://anu.edu.au/aphcri/domain/MultidisciplinaryTeams/Final_25_Jackson.pdf (accessed Jun 2008).
8. Burton, L.C., Anderson, G.F., Kues, I.W. Using electronic health records to health coordinate care. *The Milbank Quarterly*, 2004; 82(3):457-81
9. Leatt, P. *Sharing the learning: the Health Transition Fund Synthesis Series: integrated service delivery*. Ottawa: Health Canada, 2002
10. Tieman J, Mitchell G, Shelby-James T, Currow D, Fazekas B, O'Doherty LJ, Hegarty M, Eriksson L, Brown R, Reid-Orr D. *Integration, co-ordination and multidisciplinary approaches in primary care: A systematic investigation of the literature*. Australian Primary Health Care Research Institute and the Flinders University Department of Palliative and Supportive Services, 2006.
11. Naccarella L, Southern D, Furler J, Scott A, Prosser L, Young D. *Siren Project: Systems innovation and reviews of evidence in primary health care, narrative review of innovative models for comprehensive primary health care delivery*. Australian Primary Health Care Research Institute, the Department of General Practice, and Melbourne Institute of Applied Economics and Social Research, 2006.
12. Schofield, R.F., Amodeo, M. Interdisciplinary teams in health care and human services settings: are they effective? *Health and Social Work*, 1999; 24(3):210-219

13. Stille CJ, Jerant A, Bell D, Meltzer D, Elmore JG. Coordinating care across diseases, settings and clinicians: A key role for the generalist in practice. *Annals of Internal Medicine* 2005; 142: 700-708.
14. Davey B, Levin E, Iliffe S, Kharicha K. Integrating health and social care: implications for joint working and community care outcomes for older people. *Journal of Interprofessional Care* 2005; 19(1): 22-34.
15. Ham C, Glasby J, Parker H, Smith J. *Altogether now? Policy options for integrating care*. Health Services Management Centre, University of Buckingham 2008.
16. Powell Davies G, Harris M, Perkins D, Roland M, Williams A, Larsen K, McDonald J. *Co-ordination of care within primary health care and with other sectors: A systematic review*. Research Centre for Primary Health Care and Equity, School of Public Health and Community Medicine, UNSW 2006
17. Powell Davies G, Williams AM, Larsen K, Perkins D, Roland M, Harris MF. Coordinating primary health care: an analysis of the outcomes of a systematic review. *MJA* 2008; 188: S65-S68.
18. Rygh EM & Hjortdahl P. Continuous and integrated health care services in rural areas. A literature study. *Rural and Remote Health* 2007; 7: 766
19. Smith SM, Allwright S, O'Dowd T. Effectiveness of shared care across the interface between primary and specialty care in chronic disease management. *Cochrane Database of Systematic Reviews* 2007, Issue 3. Art.No.:CD004910.DOI: 10.1002/14651858.CD004910.pub2.
20. Bower P, Gilbody S, Richards D, Fletcher J, Sutton A. Collaborative care for depression in primary care: Making sense of a complex intervention: systematic review and meta-regression. *British Journal of Psychiatry* 2006; 189: 484-493.
21. Smith E & Ross FM. Service user involvement and integrated care pathways. *International Journal of Health Care Quality Assurance* 2007; 20(3): 195-214.
22. Grimshaw JM, Winkens RAG, Shirran L, Cunningham C, Mayhew A, Thomas R, et al. Interventions to improve outpatient referrals from primary care to secondary care (review). *The Cochrane Database of Systematic Reviews* 2005, Issue 3. Art No.: CD005471. DOI: 10.1002/14651858.CD005471.
23. Smith SM, Soubhi H, Fortin M, Hudon C, O'Dowd T. Interventions to improve outcomes in patients with multimorbidity in primary care and community settings. (Protocol) *The Cochrane Database of Systematic Reviews* 2007, Issue 2. Art. No.: CD006560. DOI: 10.1002/14651858.CD006560.
24. Hordacre AL, Howard S, Moretti C, Kulucy E. *Moving ahead: Report of the 2006-07 Annual Survey of Divisions of General Practice*. Adelaide: Primary Health Care Research and Information Service, Flinders University, 2008.
25. Lloyd, J., Powell Davies, G., Harris, M. Integration between GPs and hospitals: lessons from a division-hospital program. *Australian Health Review*, 2000; 23(4):134-141
26. Southern, D.M., Appleby, J., Young, D. Integration from the Australian GP's perspective. *Australian Family Physician*, 2001; 30(2):182-188
27. McGuinness, C., Sibthorpe, B. Development and initial validation of a measure of co-ordination of health care. *International Journal for Quality in Health Care*, 2003; 15(4):309-318
28. Wilson, B., Rogowski, D., Popplewell, R. Integrated service pathways (ISP): a best practice model. *Australian Health Review*, 2003; 26(1):43-51
29. Preen D.B., Bailey B.E., Wright A., Kendall P., Phillips M., Hung J., Hendriks R., Mather A., Williams, E. Effects of a multidisciplinary, post-discharge continuance of care intervention on quality of life, discharge satisfaction, and hospital length of stay: a randomised controlled trial. *International Journal for Quality in Health Care*, 2005; 17(1):43-51

30. Murray, C., Jolley, G. Initiatives in primary health care: evaluation of a South Australia program. *Australian Health review*, 1999; 22(3):155-161
31. Robinson, A., Street, A. Improving networks between acute care nurses and an aged care assessment team. *Journal of Clinical Nursing*, 2004; 13:486-496
32. Kimura J, DaSilva K, Marshall R. Population management, systems-based practice, and planned chronic illness care: Integrating disease management competencies into primary care to improve composite diabetes quality measures. *Disease Management* 2008; 11(1): 13-22.
33. Keen J, Moore J, West R. Pathways, networks and choice in health care. *International Journal of Health Care Quality Assurance* 2006; 19(4): 316-327.
34. Parnaby J & Towill DR. Seamless healthcare delivery systems. *International Journal of Health Care Quality Assurance* 2008; 21(3): 249-273.
35. Thomas P & While A. Should nurses be leaders of integrated health care? *Journal of Nursing Management* 2007; 15: 643-648.
36. Bolton, P. A review of the role of information technology in discharge communications in Australia. *Australian Health Review*, 1999; 22(3):56-64
37. Mitchell, E., Sullivan, F. A descriptive feast but an evaluative famine: systematic review of published articles on primary care computing during 1980-97. *British Medical Journal*, 2001; 322:279-282
38. Tomasi, E., Facchini, L.A., de Fatima Santos Maia, M. Health information technology in primary health care in developing countries: a literature review. *Bulletin of the World Health Organization*, Nov 2004; 82(11):867-874
39. Balas, E.A., Jaffrey, F., Kuperman, G.J., Boren, S.A., Brown, G.D., Pinciroli, F., Mitchell, J.A. Electronic communication with patients: an evaluation of distance medicine technology. *Journal of the American Medical Association*, 1997; 278(2):152-159
40. Currell R, Urquhart C, Wainwright P, Lewis R. Telemedicine versus face to face patient care: effects on professional practice and health care outcomes. *The Cochrane Database of Systematic Reviews* 2000, Issue 2. Art. No.: CD002098. DOI: 10.1002/14651858.CD002098.
41. Hersh W.R., Wallace J.A., Patterson P.K., Kraemer, D.F., Eilers, G.M., Chan, B.K.S., Greenlick, M.R., Hefland, M. *Telemedicine for the medicare population. Evidence Report/Technology Assessment No. 24 (prepared by the Oregon Health Sciences University Evidence-based Practice Center under Contract No. 290-97-0018)*. AHRQ Publication No. 01-E012. Rockville, MD: Agency for Healthcare Research and Quality; 2001
42. Wallace, J.A., Patterson, P.K., Kraemer, D.F., Nichol, W.P., Greenick, M.R., Krages, K.P., Hefland, M. *Supplement. Telemedicine for the Medicare Population: Pediatric, Obstetric, and Clinician-Indirect Home Interventions in Telemedicine. Evidence Report/Technology Assessment No. 24 Supplement (prepared by the Oregon Health Sciences University Evidence-based Practice Center under Contract No. 290-97-0018)*. AHRQ Publication No. 01-E060. Rockville, MD: Agency for Healthcare Research and Quality; 2001
43. Grol, R., Grimshaw, J. From best evidence to best practice: effective implementation of change in patients' care. *The Lancet*, Oct 2001; 362:1225-1230
44. Doyle M. Home study program: Promoting standardised nursing language using an electronic medical record system. *AORN Journal* 2006; 83(6): 1336-1348.
45. Davis K, Schoenbaum SC, Audet AM. A 2020 vision of patient-centered primary care. *J Gen Intern Med* 2005; 20: 953-957.
46. Curran V. *Primary Health Care Transition Fund: Collaborative care*. Health Canada, 2007

4. Chronic disease management and prevention

Introduction

Recognition of the role of primary care in the management and prevention of chronic disease has increased over the past few years, with primary care now often seen as the focus for the ongoing relationship with, and co-ordinating service for, people with chronic illness.

The World Health Organization estimates that 338 million people worldwide will die of chronic diseases by 2015. The global response to this has been widely neglected compared to other more acute illnesses.^{1,2,3} It is logical that management and prevention of chronic illness is very different to management and prevention of acute illness. Acute care stresses triage and patient flow-through, an emphasis on symptomatology, laboratory results and prescriptions. Patient education is brief and follow-up (if required) is often initiated by the patient. Chronic care is more relational, patient education more central, with ongoing follow-up essential. The main focus is on maintenance of function and prevention of complications.⁴ There has been much literature published in this area, with the common consensus being that chronic diseases are better managed when health systems are structured to take account of the differences in managing chronic versus acute illness.

Q1: What is known about systematic approaches to chronic disease management and prevention (CDMP) within organised PHC?

In November 2005 the Australian Health Ministers' Conference (AHMC) endorsed a national strategic policy approach to manage and improve chronic disease prevention and care in Australia³⁰. The Australian approach emphasises collaborative care, and funds incentives for GPs to develop structured management plans and team care arrangements (including up to five Medicare funded allied health visits) for patients with chronic diseases.²⁸⁻³⁰ However Australia still lags behind the UK and New Zealand in having a comprehensive approach to improving chronic disease management and prevention (CDMP) in general practice³¹. It is clear that there are many vested interests in any consideration of CDMP. Publications by different health care organisations tend to emphasise their own managed care programs over that of others, and to cite literature which supports their claims.⁵

The main ingredients for success in organisational delivery of chronic care appear to include:

- central registry of patients of particular disease types^{10, 16,21}
- clinical guidelines and physician education (varied results from the different papers)^{7,8,10,11,14,16,32-34}
- collaboration,^{8,11,13-15 34-36} better communication^{8,11,16} and delegation of tasks to other team members (particularly to nurses and pharmacists, although there are varied results between diseases)^{7,10,11,14,17-19}
- decision support for primary care workers^{8, 11,16 ,32-34}

- patient self-management education and support^{6-11, 34, 37}
- patient-centred organisation¹⁰⁻¹²
- regular assessments/follow-up^{7, 11, 20, 35, 38}
- system delivery design^{9, 11, 12} and stakeholder involvement in this.¹³
- in general, multifaceted approaches are more successful.^{7, 14}

A recent systematic review of chronic disease management across 11 developed countries mapped to the Chronic Care Model developed by Wagner, found that self-management support, the use of multidisciplinary teams, and a combination of guidelines and education improved outcomes.³⁴ The best and strongest evidence is available for managing diabetes, hypertension and lipid disorders.³⁴

Within self-management support the most effective interventions were educational sessions for patients and patient motivational counselling. Research suggests that self-management can increase patient knowledge and confidence, improve process of care and reduce hospital admissions although there is little evidence for improvement in clinical outcomes or improved quality of life.^{32, 37, 39, 42}

Some of the other CDMP delivery models include: distribution of educational materials, case management, decision support for health professionals, clinical information systems, specialised clinics or mini-clinics and provider incentives. Distribution of educational materials to patients in association with patient education and motivation has been found to produce positive outcomes for patient service use and patient risk behaviour³⁴. There are varying results relating to case management:^{19, 22-24} it was found to be particularly effective in psychiatry in one review,²⁵ but a *"poor alternative to standard care"* in another²². Decision support for health professionals was found to be effective in improving practitioner skills when they included implementation of evidence-based guidelines and educational meetings with health professionals however evidence for the benefits of education of health professionals, on its own, is equivocal³²⁻³⁴. Clinical information systems most commonly include audit feedback to health professionals which can be effective in assisting health care professionals adhere to guidelines especially when they are computerised.³⁸ However, GPs have identified patient failure to attend follow-up as a major barrier to using these systems.⁴⁶

Disease management programs often also include a "shared care" arrangement between GPs and specialists which can increase clinician adherence to guidelines and positive outcomes for patients' service use, but have no demonstrated effect on quality of care, morbidity and mortality, or cost-effectiveness.^{19, 26, 34-36} One review of shared care found evidence of benefit from improving prescribing' but no evidence of benefit in other outcomes.⁴²

The role of practice nurses in collaborative care is well developed elsewhere³², and one review found that multidisciplinary chronic heart failure disease management programs including practice nurses were promising.²³ However other reports suggest that the collaboration envisaged by policy rarely occurs in Australian practice as GPs do not always believe that collaboration will improve the care of the patient⁴³. More research is needed to understand the purpose and role of integration in primary care⁴⁴ where, for example, evidence suggests that organisational development can improve chronic disease management collaborative efforts⁴⁵.

Specialised clinics or mini-clinics (where a group delegates a GP to deal with only chronic diseases for that day) were found to be beneficial sometimes.¹⁹ Nurse led clinics were similarly found to be beneficial sometimes in terms of improved patient

outcomes⁴⁷ and specialised clinics were hard to incorporate into some health care systems.

The chronic disease management MBS item numbers available to Australian GPs provide some incentive for organised care for people with chronic conditions but several barriers have prevented a wide up-take including: diagnosis difficulty; underdeveloped practice systems; lack of education at the division of general practice and health service level; difficulty of use; and increased paperwork.^{28,48, 49}

There is conflicting evidence available regarding the cost effectiveness of managed care^{8, 11, 13, 22, 25-27} ranging from managed care being similar to standard care to being less cost effective than standard care.^{22, 25-27} One review stated that examining the process of developing managed care strategies was a better outcome measure than patient outcomes.⁷

Conclusion

A substantial and rapidly growing literature informs chronic disease management and prevention. It is likely that the role of primary health care in CDMP will continue to increase in the future. Multifaceted strategies that draw on the main ingredients listed above and that are supported by well designed systems are more likely to lead to enhanced outcomes.

References

1. World Health Organization. *Preventing chronic diseases a vital investment*. World Health Organization; Public Health Agency of Canada, 2005
2. Streng, K, Mathers, C., Leader, S., Beaglehole, R. Preventing chronic diseases: how many lives can we save? *The Lancet*, 2005; DOI: 10.1016/S0140-6736(05)67341-2. Obtained online: http://www.thelancet.com/collections/series/chronic_diseases
3. Epping-Jordan, J.E., Galea, G., Tukuitonga, C., Beaglehole, R. Preventing chronic diseases: taking stepwise action. *The Lancet*, 2005; DOI: 10.1016/S0140-6736(05)67342-4. Obtained online: http://www.thelancet.com/collections/series/chronic_diseases
4. Wagner, E.H. Chronic disease management: what will it take to improve care for chronic illness? *Effective Clinical Practice*, 1998; 1(1):2-4
5. Bodenheimer, T. Disease management in the American market. *British Medical Journal*, 2000; 320:563-566
6. Fox, J. The role of the expert patient in the management of chronic illness. *British Journal of Nursing*, 2005; 14(1):25-28
7. Renders, C.M., Vale, G.D., Griffin, S.J., Wagner, E.H., ThM Eijk Van, J., Assendelft, W.J.J. Interventions to improve the management of diabetes in the primary care, outpatient and community settings. *Diabetes Care*, 2001; 24(10):1821-1833
8. Eagar, K., Pirkis, J.E., Owen, A., Burgess, P.M., Posner, N., Perkins, D.A. Lessons from the National Mental Health Integration Program. *Australian Health Review*, 2005; 20(1):189-200
9. Bodenheimer, T.B., Wagner, E.H., Grumbach, K. Improving primary care for patients with chronic illness. *Journal of the American Medical Association*, 2002; 288(14):1175-1179
10. Rothman, A.A., Wagner, E.H. Chronic illness management: what is the role of primary care? *Annals of Internal Medicine*, 2003; 138:256-261
11. Wagner, E.H., Austin, B.T., von Korff, M. Organising care for patients with chronic illness. *The Milbank Quarterly*, 1996; 74(4):511-534

12. Spenceley, S.M. Access to health services by Canadians who are chronically ill. *Western Journal of Nursing Research*, 2005; 27(4):465-486
13. Coleman, M., Schnapp, W., Hurwitz, D., Hedberg, S., Cabral, L., Laszo, A., Himmelstein, J. Overview of publicly funded managed behavioural health care. *Administration and Policy in Mental Health*, 2005; 32(4):321-338
14. Gilbody, S., Whitty, P., Grimshaw, J., Thoman, R. Education and organizational interventions to improve the management of depression in primary care: a systematic review. *Journal of the American Medical Association*, 2003; 289(23):3145-51
15. Mechanic, D. Approaches for coordinating primary and specialty care for persons with mental illness. *General Hospital Psychiatry*, 1997; 19:395-402
16. Carter, S., Powell Davies, PG. *National divisions diabetes program evaluation 1997 to 2000*. Sydney: Centre for GP Integration Studies, School of Community Medicine, UNSW, 2000
17. Taylor, S.J.C., Candy, B., Bryar, R.M., Vrijhoef, H.J.M., Esmond, G., Wedzicha, J.A., Griffiths, C.J. Effectiveness of innovations in nurse led chronic disease management for patients with chronic obstructive pulmonary disease: a systematic review. *British Medical Journal*, 2005;331:485-91
18. Loveman E, Royle P, Waugh N. Specialist nurses in diabetes mellitus. *The Cochrane Database of Systematic Reviews* 2003, Issue 2. Art. No.: CD003286. DOI: 10.1002/14651858.CD003286.
19. Taylor S, Bestall J, Cotter S, Falshaw M, Hood S, Parsons S, Wood L, Underwood M. Clinical service organisation for heart failure. *The Cochrane Database of Systematic Reviews* 2005, Issue 2. Art. No.: CD002752. DOI:10.1002/14651858.CD002752.pub2.
20. Perrin, J.M., Kuhlthau, K., Klein Walker, D., Stein, R.E.K., Newacheck, P.W., Gortmaker, S.L. Monitoring health care for children with chronic conditions in a managed care environment. *Maternal and Child Health Journal*, 1997;1(1):15-23
21. Harris, M.F., Priddin, D., Ruscoe, W., Infante, F.A., O'Toole, B.I. Quality of care provided by general practitioners using or not using division-based diabetes registers. *Medical Journal of Australia*, 2002; 177(5):250-252
22. Marshall M, Gray A, Lockwood A, Green R. Case management for people with severe mental disorders. *The Cochrane Database of Systematic Reviews* 1998, Issue 2. Art. No.: CD000050. DOI:10.1002/14651858.CD000050.
23. Ara, S. A literature review of cardiovascular disease management programs in managed care populations. *Journal of Managed Care Pharmacy*, 2004; 19(4):326-44
24. Warhaft, N. The Victorian Doctors Health Program: the first 3 years. *Medical Journal of Australia*, 2004;181(7):376-379
25. Rosen, A., Teesson, M. Does case management work? The evidence and the abuse of evidence-based medicine. *Australian and New Zealand Journal of Psychiatry*, 2001; 35:731-746
26. World Health Organization. *Are disease management programmes (DMPs) effective in improving quality of care for people with chronic conditions?* WHO Regional Office for Europe's Health Evidence Network (HEN), Aug 2003
27. Crooks, P. International care models for chronic kidney disease: methods and economics – United States. *Blood Purification*, 2004; 22:13-20
28. Newland, J. and N. Zwar, *General practice and the management of chronic conditions: Where to now?* Australian Family Physician, 2006. 35(1/2): p. 16-19.
29. Government of South Australia and South Australian Department of Human Services, *Chronic disease: Prevention and management opportunities for South Australia*. 2004.

30. National Health Priority Action Council, *National chronic disease strategy*. 2006, Australian Government Department of Health and Ageing: Canberra.
[http://www.health.gov.au/internet/main/publishing.nsf/Content/7E7E9140A3D3A3BCCA257140007AB32B/\\$File/stratal3.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/7E7E9140A3D3A3BCCA257140007AB32B/$File/stratal3.pdf)
31. Zwar, N. and M. Harris, *Care of patients with chronic disease: The challenge for general practice*. Medical Journal of Australia, 2007. **187**(2): p. 104-107.
32. Dennis, S., et al., *Chronic disease management in primary care: From evidence to policy*. Medical Journal of Australia, 2008. **188**(8): p. S53-S56.
33. Singh, D., *Transforming chronic care: A systematic review of the evidence*. Evidence-based Cardiovascular Medicine, 2005. **9**(2): p. 91-94.
34. Zwar, N., et al., *A systematic review of chronic disease management*. 2006, Australian Primary Health Care Research Institute and the University of NSW School of Public Health and Community Medicine: Canberra.
35. Baillie, R., et al., *Katherine West chronic disease self-management project clinical audit report*. 2004, Menzies School of Health Research for the Co-operative Research Centre for Aboriginal Health: Darwin.
36. Howell, C., C. Marshall, and M. Opolski, *Management of recurrent depression*. Australian Family Physician, 2008. **37**(9): p. 704-708.
37. Taylor, F.G., E.S.E. Ramsay, and J. Griffiths, *Self-management education programmes by lay leaders for people with chronic conditions*. 2007, Cochrane Database of Systematic Reviews: Issue 4.
38. Garg, A.X., et al., *Effects of computerized clinical decision support systems on practitioner performance and patient outcomes: a systematic review*. Journal of the American Medical Association, 2005. **293**(10): p. 1223-1238.
39. Deakin, T., et al., *Group based training for self-management strategies in people with type 2 diabetes mellitus*. 2005, Cochrane Database of Systematic Reviews: Issue 2.
40. Turnock, A.C., et al., *Action plans for chronic obstructive pulmonary disease*. 2005, The Cochrane Database of Systematic Reviews: Issue 4.
41. Effing, T.W., et al., *Self-management education for patients with chronic obstructive pulmonary disease*, in Issue 3. 2007, Cochrane Database of Systematic Reviews.
42. Smith, S.M., S. Allwright, and T. O'Dowd, *Effectiveness of shared care across the interface between primary and specialty care in chronic disease management*. 2007, Cochrane Database of Systematic Reviews: Issue 3.
43. Shortus, T.D., et al., *Multidisciplinary care plans for diabetes: how are they used?* Medical Journal of Australia, 2007. **187**(2): p. 78-81.
44. Simoons, S. and A. Scott, *Integrated primary care organizations: To what extent is integration occurring and why?* Health Services Management Research, 2005. **18**(1): p. 25-40.
45. Dunbar, J., et al., *The contribution of approaches to organisational change in optimising the primary health care workforce*. 2007, Australian Primary Health Care Research Institute; Greater Green Triangle University Department of Rural Health, Flinders and Deakin Universities; Waitemata District Health Board, New Zealand; School of Health and Social Development, Deakin University; Dept of General Practice, University of Edinburgh.
http://www.anu.edu.au/aphcri/Domain/Workforce/Dunbar_25_final.pdf
46. Zwar, N., et al., *General practitioner views on barriers and facilitators to implementation of the Asthma 3+ Visit Plan*. Medical Journal of Australia, 2005. **183**: p. 64-67.
47. Cranston, J.M., et al., *Models of chronic disease management in primary care for patients with mild-to-moderate asthma or COPD: A narrative review*. Medical Journal of Australia, 2008. **188**(8): p. S50-S52.

48. Saunders, M., P. Schattner, and M. Mathews, *Diabetes 'cycles of care' in general practice: Do government incentives help?* Australian Family Physician, 2008. **37**(9): p. 781-784.
49. Beilby, J. and C. Holton, *Chronic disease management in Australia: Evidence and policy mismatch, with asthma as an example.* Chronic Illness, 2005. **1**: p. 73-80.

5. Multidisciplinary teams/networks of health care providers

Introduction

Health professionals are increasingly expected to function as part of one or more teams in a multidisciplinary environment¹. The term “multidisciplinary” is used interchangeably with other terms,² and there is a substantial overlap between this domain and that of Integration. The overall concept embedded in the term “multidisciplinary team” appears to be that of an interprofessional, collaborative approach to health service provision.³ In addition to general practice, comprehensive primary health care includes other disciplines such as nursing, allied health, midwifery and social work. Because it is now recognised that no single profession can meet all of the aims of primary health care, there has been an increasing emphasis on reforming primary care through expanding the skill-mix via the use of multidisciplinary teams. The issue of skill-mix is addressed in more detail in the Workforce section, but the point is that the delivery of primary care by general practitioners requires interaction, collaboration, or teamwork with these other members of the primary health care sector. As such there is a notable growth in models of multidisciplinary team-based primary care, substitution practices and declining solo practice.²¹ This section refers specifically to two kinds of multidisciplinary activities: education and training, and delivering more effective health care.

Q1: What is known about the effectiveness of multidisciplinary training of health professionals?

Interprofessional Education (IPE) involves members (or students) of two or more professions associated with health or social care engaged in learning with, from and about each other^{4,5}. It is based on the notion that shared learning leads to more comprehensive care and treatment for clients with improved patient outcomes and satisfaction.⁴⁻⁷ We found six systematic reviews, eight reviews and other material considering the effects of interprofessional education (IPE) in the health care workforce.

Studies, reviews and commentaries have suggested that IPE can lead to collaborative interprofessional practice (IPP) amongst clinicians and clinical groups. This, in turn, is believed to contribute to safer and higher quality services to patients, and improved morale for staff and students.⁸ Accordingly, accrediting bodies from the fields of medicine, nursing, and social work have called for curricular change to train professionals in how to function as interprofessional teams⁷ and the WHO has included teamwork and collaboration with professionals and patients as one of its basic competencies in caring for patients with chronic diseases⁶. Health services-related policy documents in Canada focus on the need for an interprofessional approach, where a recent study suggested that providing decision support in a collaborative and coordinated manner to patients was not natural for family physicians and nurses. Hence there is a need to create learning opportunities for practitioners at all stages of their careers to develop their ability to work in multi-professional teams and enhance collaboration.⁶

Impact of interprofessional learning

The earliest review (published in 1999) simply states that there had – at that time – been no methodologically sound empirical research into the area.³ An update of this review published in 2008⁹ systematically reviewed six studies that evaluated the effects of IPE. Four of these studies found that IPE improved how professionals worked together and the care they provided, with improved patient satisfaction, decreased errors in the emergency department, increased collaborative team behaviour, improved management of care delivered to domestic violence victims, and improved knowledge and skills when providing care to mental health patients. Three of the studies also reported that these improvements were sustained over time (eight-21 months). However, two studies reported that the IPE interventions did not have an impact on both health care processes and patient outcomes, and two other studies reported a mixed set of outcomes.⁹ Within the Canadian health system, following the implementation of both pre- and post-licence IPE strategies, patients reported increased access to health services and providers; greater willingness to visit and accept services from different providers; increased satisfaction with services received; and better co-ordination in health services delivered.⁴

In terms of benefits to learners, results of another review indicated that interprofessional education is likely to improve learners' short-term knowledge and attitudes, but there is little direct evidence for persistent improvement or behavioural change among learners.¹⁰ However, although few studies of methodologically high quality were found, positive results were seen across almost all of the studies, especially with respect to knowledge and attitudes. No learner outcome measures were negatively affected by the interventions studied. The consistency of the results provides some basis for continued implementation of education directed at developing skills and behaviours for interprofessional care.¹⁰

Impact of location of learning

Other reviews found that the most effective education takes place in the work environment, post-licensure, and that almost all educational interventions (but particularly multifaceted approaches) produced positive results.^{2,11,12} In a systematic evaluation of the effect of a professional development intervention (the Building a Better Tomorrow Initiative) positive impacts were found at all evaluation levels.⁵ There was high participant satisfaction, increased confidence in competencies related to collaboration, and significant changes in participants' competencies upon return to their primary health care practice sites. The modification of attitudes, knowledge and skills were perceived as making a significant contribution to the enhancement of collaboration among primary health care providers, influencing patient care.⁵ In a graduate survey, students reported that interprofessional study specifically encouraged them to stay in a sector that they would otherwise leave, noted improvements in their own professional practice and increased collaborative practice in their workplace.¹³

Impact of timing of learning

Previously, due to a lack of methodologically sound data, no effect of IPE had been found in a pre-licensure environment.^{2,14,15} This is despite the fact that one of the earliest studies on multidisciplinary teamwork found that for medical practitioners in particular, the earlier the intervention in their professional formation, the more effective the interprofessional learning program appears to be. The rationale for early introduction of interprofessional learning is that it may prevent or delay the development of stereotypes about other professional groups, which hinder collaborative practice.¹⁶

Some more recent studies have found that pre-licensure team learners gave high ratings to the interprofessional training sessions, became more aware of the limits of their own professions, and the perception of value of care delivered by interprofessional teams improved significantly. They rated themselves as significantly improved in the recognition and application of interprofessional team skills, the ability to resolve conflict, follow through on agreements, and engage in effective interaction with team members.^{7,17} Furthermore, the changes demonstrated in one study persisted 12 months later.¹⁷ In a third study, multidisciplinary student teams were able to significantly to decrease the incidence of complications in patients from immobility.¹⁶ However, few other studies provide concrete evidence as to the effectiveness of interprofessional education.¹⁶ In one UK study, for example, medical students were taught in the last years of their courses either with nursing students or with social work students. While the medical students' ratings of social workers improved, their rating of nurses remained the same. An interdisciplinary course on health care ethics also found that only half of the medical students felt it had helped them understand ethics. Another study of an interprofessional postgraduate course for health professionals in the UK found that participants' attitudes changed little throughout the course.¹⁶

Finally, one review looked at meso-level factors involved in multidisciplinary training, emphasising the need for planning processes and clear goals in the implementation of IPE, and the effect of leadership and group ownership of IPE on continuity of practice.¹⁸

The benefits of IPE have been well documented: enhanced communication and trust amongst clinical groups, collaborative skills, reductions in between-professional rivalries, and better professional relationships leading to more creative, integrated services and better patient outcomes.^{8,4,5,19} Establishing common educational curricula across health professional groups will logically help to create common philosophies, languages, perspectives and values and enable skills transfers across the professional silos that currently prevail.^{8,19}

Barriers to uptake

Despite the widespread international agreement about the imperative for systems-wide IPL and IPP,^{8,19} there have been criticisms to balance these optimistic assessments. Progress to date has been slow and uneven. Some tertiary education providers have expressed concerns in regards to IPE, and existing professionally-based educational structures and practices facilitate specialisation at the expense of teamwork.⁸ For example, Universities UK argued that respect for the specialist intellectual and practice base of each profession needed to be maintained.¹⁹ Others have argued that IPE is laden with unclear philosophies, confused thinking and multiple objectives, with more theoretical potential than actual importance.⁸ There are also those who feel that multi-professional education is simply an underhand way of reducing educational costs and edging towards the idea of a low cost, interchangeable, "generic" health worker.¹⁹

The strongest criticism is the argument that IPE and IPP advocates have failed to provide systematic evidence for their claims.^{8,19} The lack of longitudinal studies makes it difficult to clearly demonstrate changes in practice resulting from IPE.^{6,17} There is limited research which demonstrates how IPE and IPP could work across whole health systems. While there is now some evidence of sustained changes following IPE, it largely comprises non-transferable case study, survey and other limited data. Although the studies reported here had a range of positive outcomes, the heterogeneity of IPE interventions means it is not possible to draw generalisable

inferences about the effects of IPE.^{9,10} More rigorous evaluation efforts and action research demonstrations of IPE and IPP are therefore required to demonstrate evidence of the impact of this type of intervention on professional practice and healthcare outcomes.^{8,9}

There remains a need for research into the benefits of various models and approaches to interprofessional education at undergraduate, postgraduate and continuing education levels; and the impact of these programs in the short, medium and long term on patient care and outcomes in different practice settings.^{10,19,20} A focus on understanding the use of IPE in relation to resources is also needed.⁹ This absence of evidence does not, however, mean that interprofessional education is ineffective; it may simply mean that it is difficult to evaluate in a rigorous fashion.²⁰

Q2: What is known about the effectiveness of health alliances/partnerships?

The research in this area reflects two themes: evidence relating to the effectiveness of partnerships and alliances in facilitating multidisciplinary work and evidence relating to the effectiveness of multidisciplinary teams themselves. As a result we have included evidence in this section relating to both aspects. There have been many text-books published on the effectiveness of alliances and partnerships in health care, and multiple articles written in the 1980s and early 1990s. However, these are beyond the scope of our current search. We identified six systematic reviews and three reviews published after 1995 on partnerships and alliances. We identified five systematic reviews and six reviews published on multidisciplinary teams.

Effectiveness of partnerships and alliances

There were many comments on the difficulty of analysing alliances and partnerships using empirical studies²²⁻²⁴ (two reviews suggested other methods of analysis^{22,23}), and given the close linkage of this subject with integration, there was an issue with terminology.²³ Furthermore, multidisciplinary teams often operate as one element of a program or strategy which makes it difficult to isolate multidisciplinary teams as the significant intervention factor.²⁵ Thus it is important to clearly identify the aims of the studies and the outcomes measured. Most reviews found that studies examined the process of creating alliances and partnerships, rather than examining the impact of alliances and partnerships on patient outcomes.^{22-24,26}

In terms of process, one review found that a quarter of the studies they reviewed managed to get health and community sectors to collaborate further, and that the more interventions implemented the greater the improvement in collaboration.²² Another review found that of the 14 studies on interprofessional collaboration interventions, nine showed positive results, and five reported indeterminate (no change) outcomes related to their intervention.²⁰ Other procedural benefits included the use of lateral thinking in program initiatives, greater understanding of one's own role and that of other disciplines,²² and an improved mindset towards multidisciplinary alliances and partnerships.²⁴ The notion of "professionalism" is important. One sense in which the word is used relates to the activities of a particular health professional group – for example a general practitioner or a practice nurse. When used in this way it can form the basis for demarcation disputes between these professional groupings. On the other hand, there is a sense of the word that describes behaviours common across these professional groupings, and this could be the basis for discussions which bring the groups together.^{24,26,27} Barriers to collaboration included levels of personal commitment to collaboration²⁴, and cultural

differences.²⁷ Positive behavioural change was reported in three to twenty per cent of studies.²²

Effectiveness of multidisciplinary teams in providing care

The Institute of Medicine has recommended the adoption of interdisciplinary primary care teams wherever feasible in order to enhance the quality, efficiency and responsiveness of primary care.²⁸ By institutionalising horizontal and vertical communication lines and by regulating team members' overlapping roles, this collaboration avoided the fragmentation of services along disciplinary lines as well as duplication of services.²⁸ An interdisciplinary team structure can also facilitate communication, support and peer review. It can enhance workforce recruitment and retention, resulting in health service delivery more closely aligned with primary health care principles.²⁹ Interprofessional relations can also improve professionals' ability to deal with complexity, coordination, care delivery and creativity; and can be particularly useful in critical acute, geriatric, rehabilitative, mental health and palliative care settings.³⁰ Through the improved communication, efficiency, cost-effectiveness, and patient-centred care, interprofessional teamwork is emerging as an important contributor to positive health outcomes.¹⁷

In addition to process outcomes, multidisciplinary care can lead to improved patient outcomes.¹⁵ A number of factors, such as an ageing population and the shift of the burden of illness from acute to chronic care, require a number of different health and social care professions to be involved in the delivery of care. As a result, the need for good interprofessional communication and collaboration to help coordinate patient care in an effective manner is critical.^{9,31} Since the late 1990s, Australian Government efforts to improve access to comprehensive, multidisciplinary primary health care have taken two main forms: 1) financial incentives for GPs and practices, and allied health provider activities; and 2) subsidies for divisions of general practice (DGPs) to facilitate GP access to allied health providers and to support practice nurses.³²

Between 2003 and 2005 there was an increase of 17% in the number of general practices employing one or more practice nurses, taking the total to 57%.⁴⁰ There has also been a steady increase in the number of patients with depression and anxiety disorders being seen by allied health providers (Access To Allied Psychology Services initiative). There is some evidence of improved health outcomes and consumer satisfaction as a result of these services.³² Since the introduction of the enhanced primary care (EPC) items, which provide incentives for GPs to provide comprehensive health assessments, multidisciplinary care plans and multidisciplinary case conferencing, there has been a substantial increase in referrals for care planning encounters which suggests that more multidisciplinary care is occurring for people with complex and chronic conditions.³²

In people with chronic diseases, multidisciplinary teams that involve primary health care have been found to significantly reduce disability, functional deterioration, hospital readmissions and risk of mortality and morbidity.³³ For Chronic Obstructive Pulmonary Disease (COPD), while lung capacity did not improve, there was improved functional capacity and quality of life. Costs and health service utilisation also increased, possibly due to improved patient understanding of the importance of treating exacerbations early.³¹ One systematic review showed that delivering multidisciplinary interventions to patients with heart failure reduced hospital admissions as well as mortality. The risk of all cause admission was reduced by about 13%, mortality by as much as 20%, and heart failure admission by 30%.³⁴

A multidisciplinary team combined with other strategies (eg, case management, patient education, etc) in diabetes patients resulted in significantly lower HbA1c (a clinical measure of blood glucose) levels, lower rates of hospital admissions and improved glycaemic control in the intervention group.³³ The combination of a multidisciplinary team and a shared care plan improved quality of life, and discharge planning with a multidisciplinary team resulted in fewer unplanned readmissions and fewer unplanned days in hospital.³³ While those who are poorly controlled at baseline tend to exhibit more improvement than those with better control, ICM (integration, co-ordination and multidisciplinary care) approaches to the delivery of care to Type 2 diabetes patients in the primary care setting led to favourable outcomes overall.²⁵ In another study, the effect of care planning on diabetes control showed mixed results for physical outcomes, but improvements in the process of care.³¹ When other primary care practices were restructured to incorporate team care, hyperlipidaemia and diabetes were found to be better controlled in those teams with more collaborative culture. Higher scores for collaborative culture were associated with better scores for both access to and continuity of care and patient satisfaction.²⁸ Thus when applied to the primary care setting, effective multidisciplinary teams can improve quality of care, innovation, patient satisfaction, staff job satisfaction, and cost effectiveness.²⁸

Within aged care, case management plus multidisciplinary teams resulted in significant reductions in acute hospital admissions,³³ reduced mortality, more home discharges, greater patient and carer satisfaction, less time in nursing homes, improved morale, improved functional status,³⁵ better mental health, and decreased dependence.³⁶ One systematic review alone found reduced readmission to emergency departments, improved medication appropriateness, significant reduction in health costs (due to reduced hospital days and home help hours), more positive short- and long-term health outcomes, and increased cost effectiveness.²⁵

In other patient categories, substance abuse patients in integrated care with a combination of co-location and multidisciplinary teams were more likely to be abstinent than those in usual care.³³ The use of a multidisciplinary team and collaborative care model in primary care has led to improvements in signs and symptoms of depression, but these came at an added cost resulting from higher patient enrollment in cognitive and behavioral therapy and increased prescribing of antidepressants.³⁶ Other studies have shown that when caring for a patient with a life-limiting illness, multi-professional teams can provide better care than a sole general practitioner.²⁵ For palliative care, communication between GPs and specialist palliative care services was particularly important: case conferencing assisted with care planning and delivery, and this benefited participants.³¹

"Best practice" included the notion of valuing all team members (whether at organisational or health care worker level),^{22-24,26,27} community involvement (this was an area in which Australia was found to be lacking),²² communication and cooperation,^{27,37,38} incentives and practical support (structural and administrative) from organisations at all levels,^{24,26,27} and collaboration between private and public sectors.²² The critical elements of integrated, coordinated and multidisciplinary (ICM) approaches that improved patient outcomes were active co-ordination (ie, a positive interaction between participants as members of a team), an increased number of disciplines involved in the ICM approach (bringing together different methods of inquiry, expertise and responsibility).^{6,25,31} Other factors with a positive effect on how well a primary/community care team works together were structure, team principles and stability.³⁹ Despite all of this, the evidence that IPP reduces costs is less clear cut. Indeed, several studies indicated that ICM approaches led to the use of more

services, and multidisciplinary assessment and guideline based assessment often identified additional needs. However, it is possible that ICM approaches could lead to longer term benefits by reducing more significant health issues in the future.²⁵ Importantly, this has not been accurately measured over a long enough period to properly assess the potential savings, yet the survival of health care teams in practice will depend on the cost benefits and cost-effectiveness of such efforts.³⁵

Conclusion

Interprofessional Education (IPE) is an important although under-researched tool for the implementation of alliances and partnerships. Best IPE appears to take place in the work sector, post training. It is most effective when the need is well assessed, and many sectors are involved in the planning, implementation and evaluation of interventions. The effectiveness of partnerships and alliances in facilitating multidisciplinary team work is mixed but multidisciplinary teams themselves can confer benefits for different patient groups, and in conjunction with other strategies can lead to improvements in satisfaction, service delivery, functional capacity and intermediate patient outcomes in some instances.

References

1. Pruitt, S.D., Epping-Jordan, J.E. Preparing the 21st century global healthcare workforce. *British Medical Journal*, 2005; 330:637-639
2. Oadasan, I., Reeves, S. Key elements for interprofessional education. Part 1: the learner, the educator and the learning context. *Journal of Interprofessional Care*, May 2005; S1:21-38
3. Zwarenstein, M., Atkins, J., Barr, H., Hammick, M., Koppel, I., Reeves, S. A systematic review of interprofessional education. *Journal of Interprofessional Care*, 1999; 13(4):417-424
4. Curran V. *Collaborative care*. Primary Health Care Transition Fund, Health Canada, 2007
5. Curran V, Sargeant J, Hollett A. Evaluation of an interprofessional continuing professional development initiative in primary health care. *Journal of Continuing Education in the Health Professions* 2007; 27(4): 241-252.
6. Humphris D Multiprofessional working, interprofessional learning and primary care: A way forward? *Contemporary Nurse* 2007; 26:48-55
7. Coleman MT, Roberts K, Wulff D, van Zyl R & Newton K. Interprofessional ambulatory primary care practice-based educational program. *Journal of Interprofessional Care* 2008; 22(1): 69-84.
8. Braithwaite J, Westbrook JI, Foxwell AR, Boyce R, Devinney T, Budge M, et al. An action research protocol to strengthen system-wide interprofessional learning and practice [LP0775514]. *BMC Health Services Research* 2007;7:144
9. Reeves S, Zwarenstein M, Goldman J, Barr H, Freeth D, Hammick M, Koppel I. Interprofessional education: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* 2008, Issue 1. Art. No.: CD002213. DOI: 10.1002/14651858.CD002213.pub2.
10. Remington TL, Foulk MA & Williams BC. Evaluation of evidence for interprofessional education. *American Journal of Pharmaceutical Education* 2006; 70(3): 66
11. Freeth, D., Hammick, M., Koppel, I., Reeves, S., Barr, H. *A critical review of evaluations of interprofessional education*. London: Learning and Support network, UK Centre for the Advancement of Interprofessional Education, 2002
12. Oadasan, I., D'Amour, I., Zwarenstein, M., Barker, K., Purden, M., Beaulieu, M.D., Reeves, S., Nasmith, L., Bosco, C., Ginsburg, L, Tregunno, D. *Interprofessional education*

for collaborative patient-centred practice: an evolving framework. Ottawa: Health Canada, 2004.

13. McKinlay E & Pullon S. Interprofessional learning – the solution to collaborative practice in primary care. *Kai Tiaki Nursing New Zealand* 2007; 13(10): 16-18.
14. Zwarenstein M, Reeves S, Barr H, Hammick M, Koppel I, Atkins J. Interprofessional education: effects on professional practice and health care outcomes. *The Cochrane Database of Systematic Reviews* 2000, Issue 3. Art. No.: CD002213. DOI: 10.1002/14651858.CD002213.
15. Legare F, Stacey D, Graham ID, Elwyn G, Pluye P, Gagnon MP, et al. Advancing theories, models and measurement for an interprofessional approach to shared decision making in primary care: a study protocol. *BMC Health Services Research* 2008; 8: 2
16. Braithwaite J, Travaglia JF. *The ACT Health interprofessional learning and clinical education project: background discussion paper #4. Clinical education and placements*. Canberra: Braithwaite and Associates and the ACT Health Department, 2005.
17. McNair R, Stone N, Sims J & Curtis C. Australian evidence for interprofessional education contributing to effective teamwork preparation and interest in rural practice. *Journal of Interprofessional Care* 2005; 19(6): 579-594
18. Oandasan, I., Reeves, S. Key elements for interprofessional education. Part 2: factors, processes and outcomes. *Journal of Interprofessional Care*, May 2005; S1:39-48
19. Braithwaite J, Travaglia JF. *Interprofessional learning and clinical education: an overview of the literature*. Canberra: Braithwaite and Associates and the ACT Health Department, 2005.
20. Zwarenstein M & Reeves S. Knowledge translation and interprofessional education: where the rubber of evidence-based care hits the road of teamwork. *The Journal of Continuing Education in the Health Professions* 2006; 26: 46-54.
21. Naccarella L, Southern D, Furler J, Scott A, Prosser L, Young D. *Siren Project: Systems innovation and reviews of evidence in primary health care, narrative review of innovative models for comprehensive primary health care delivery*. Australian Primary Health Care Research Institute, the Department of General Practice, and Melbourne Institute of Applied Economics and Social Research, 2006.
22. Gillies, P. Effectiveness of alliances and partnerships for health promotion. *Health Promotion International*, 1998; 13(2):99-118
23. El Ansari, W., Phillips, C.J., Hammick, M. Collaboration and partnerships: developing the evidence base. *Health and social care in the community*, 2001; 9(4):215-227
24. Schofield, R.F., Amodeo, M. Interdisciplinary teams in health care and human service settings: are they effective? *Health and Social Work*, 1999; 24(3):210-219
25. Tieman J, Mitchell G, Shelby-James T, Currow D, Fazekas B, O'Doherty LJ, Hegarty M, Eriksson L, Brown R, Reid-Orr D. *Integration, co-ordination and multidisciplinary approaches in primary care: A systematic investigation of the literature*. Australian Primary Health Care Research Institute and the Flinders University Department of Palliative and Supportive Services, 2006.
26. Rogers, T. Managing in the interprofessional environment: a theory of action perspective. *Journal of interprofessional care*, 2004; 18(3):239-249
27. San Martin-Rodriguez, L., Beaulieu, M.D., D'Armour, D., Ferrada-Videla, M. The determinants of successful collaboration: a review of theoretical and empirical studies. *Journal of Interprofessional Care*, May 2005; S1:132-147
28. Ruddy G and Rhee K. Transdisciplinary teams in primary care for the underserved: A literature review. *Journal of Health Care for the Poor and Underserved* 2005; 16: 248-256.

29. Wakerman J, Humphries J, Wells R, Kuipers P, Entwistle P, Jones J. *A systematic review of primary health care models in rural and remote Australia 1993-2006*. Australian Primary Health Care Research Institute, 2006.
30. Braithwaite J, Travaglia JF. *The ACT Health interprofessional learning and clinical education project: background discussion paper #3. Interprofessional relations*. Canberra: Braithwaite and Associates and the ACT Health Department, 2005.
31. Mitchell GK, Tieman JJ, Shelby-James TM. Multidisciplinary care planning and teamwork in primary care. *MJA* 2008; 188: S61-64
32. McDonald J, Harris MF, Cumming J, Powell Davies G & Burns P. The implementation and impact of different funding initiatives on access to multidisciplinary primary health care and policy implications. *MJA* 2008; 188: S69-S72.
33. Powell Davies G, Harris M, Perkins D, Roland M, Williams A, Larsen K, McDonald J. *Co-ordination of care within primary health care and with other sectors: A systematic review*. Research Centre for Primary Health Care and Equity, School of Public Health and Community Medicine, UNSW 2006
34. Holland R, Battersby J, Harvey I, Lenaghan E, Smith J, Hay L. Systematic review of multidisciplinary interventions in heart failure. *Heart* 2005; 91: 899-906.
35. Baldwin Jr, DeWitt C. Some historical notes on interdisciplinary and interprofessional education and practice in health care in the USA. *Journal of Interprofessional Care* 2007;21(1): 23-37.
36. Lemieux-Charles L & McGuire WL. What do we know about health care team effectiveness? A review of the literature. *Medical Care Research and Review* 2006; 63(3): 263-300.
37. Starfield, B., Shi, L.S. The medical home, access to care, and insurance: a review of the evidence. *Pediatrics*, 2004; 113(5):1493-1498
38. Mitchell, G., Del Mar, C., Francis, D. Does primary medical practitioner involvement with a specialist team improve patient outcomes: a systematic review. *British Journal of General Practice*, 2002; 52(484):934-939
39. Xyrichris A and Lowton K. What fosters or prevents interprofessional teamworking in primary and community care? A literature review. *International Journal of Nursing Studies* 2008; 45: 140-153.
40. National Practice Nurse Workforce Survey Report. ADGP. April 2006.
http://www.generalpracticenursing.com.au/site/content.cfm?page_id=27854¤t_category_core=4059

6. Population health and health promotion

Introduction

Health promotion and prevention can have beneficial impacts on population health. This section looks at the effectiveness of organised primary health care's contributions to prevention (under the subheadings: methods of intervention, smoking, physical activity, alcohol, nutrition and mental health); screening and early childhood. Immunisation is not addressed in this domain as its place in organised approaches to primary health care is well established.

Q1: What do we know about organised PHC's role in health promotion and prevention?

Methods of intervention

Methods of intervention used by different health organisations (be they government bodies, community services or managed care delivery systems) can be listed as the following:

- provision of educational materials, including web-sites, to patients^{1,5,15,17,19,28,29}
- education for health professionals^{1, 6,13,21,22}
- group/targeted education/support programs^{1, 4,8,10,12-14,17, 30,31,32}
- outreach and home visits^{1,33}
- reminder systems for patients^{1, 8,12,15,16,19}
- reminder systems for health professionals¹
- population-based interventions^{7, 8,34-40}
- collaboration with the community and other providers^{6, 9,13, 14,16-18,20,23,36,41,42,43}
- specific organisational interventions^{1, 13,44}
- brief interventions by health professionals^{8, 10,12,19,45,46}
- mass/targeted media programs^{1-3, 6,8,11,15,17, 18,47,48,49,50}
- clinical guidelines for doctors^{8,13,22}
- financial incentives (for both doctors and patients).^{1,5,7,13,22}

However, these interventions are not equally effective across all areas and this is discussed below with respect to smoking, physical activity, alcohol consumption, nutrition and mental health.

Smoking

Seven systematic reviews, two reviews and two articles were included. In isolation, community-based smoking cessation programs have had a zero⁶ to 1 per cent⁷ effect on population outcomes. On the other hand, smoking cessation advice from health professionals is recommended and successful^{8,10} especially when combined with a group/targeted program (eg, QUIT in Australia).^{8,10} Brief interventions from health

professionals have modest effects,^{8,51} although this is not substantiated with regards to interventions in adolescents.⁵² Reminder systems prompting providers to interact with patients about smoking also show some effectiveness.⁵³ Follow-up interventions such as patient reminders and group/targeted programs are effective in preventing relapse,^{8,10} as are telephone counselling^{8,10} and pharmacological aids such as nicotine replacement therapies⁸. The last of these also increases patient satisfaction,³⁶ especially when patient out-of-pocket costs are reduced.⁵³ Three reviews looked at financial incentives and population-based programs e.g, mass media programmes,^{8,11} and found that these are equally effective in terms of reach and impact.^{7,8,53} Little is known about whether staff working with Indigenous Australians advise smokers about quitting⁵⁴ and the importance of establishing relationships with local communities, and even employing staff from the area, cannot be overlooked when developing a smoking cessation program.^{6,9} Program flexibility – regarding adaptability to different populations – is also important,⁹ as are partnerships across health care providers.⁵³

Physical activity

Three systematic reviews, five reviews and an article were included. Professional direction and support¹²⁻¹⁴ and the development of clinical guidelines¹³ regarding the promotion of physical activity were found to be effective in engaging professionals in health promotion. For patients, support/targeted groups^{13,17} and health professional collaboration and integration^{14,16} and cooperation with community^{13,17,18} and private sector facilities and services (eg, leisure centres) were beneficial^{13,17}. Mass media interventions were found to have high recall but little effect on activity^{13,17,18}. Other approaches of limited success in the short term were the use of written or web-based educational materials^{13,17,28} and patient reminders.¹⁵ Interventions focused on children are difficult to compare although those delivered in the school setting and which included some focus on physical education, including activity breaks or family strategies, appear to be the most effective.⁵⁵ In regard to adolescents, interventions in primary care settings and tailored advice or counselling appear to be the most effective^{55,16}. Multifaceted interventions were found to work best^{15,17}, especially those that highlight environmental barriers and social support⁴¹, however, more research needs to be undertaken in this area.¹⁴

Alcohol

Two systematic reviews and other literature were included. Brief interventions from health care professionals produced beneficial results in reducing alcohol consumption, especially when used in conjunction with reminder systems and educational material.¹⁹ Interventions likely to increase physician preventative behaviour included physician reminders and education/support. Family, community and college interventions (for example, the Strengthening Families Program in the USA) had positive effects in young people^{20,56,21}. Unfortunately, however, many drinkers in the general population may not receive a preventative intervention in general practice settings.⁵⁷ Internet-based interventions have the potential to engage drinkers at a population level⁵⁸ although there is concern that problem drinkers will not actively seek out interventions.

Nutrition

One systematic review and a number of articles on nutritional promotion and intervention were included. Strategies concerned with overweight and obesity included improved quality of nutrition information provided to patients,⁵⁹ workplace nutrition and physical activity promotion,³² referral to group/targeted educational programs, improved clinical guidelines, educational support for health

professionals,^{13,22} and collaboration and integration with related health professionals, community and private sectors (eg, leisure centres, commercial weight loss support groups).^{13,22} With the increased attention on overweight and obesity in childhood (discussed in the early childhood section below) breastfeeding has also been targeted within antenatal programs. However, the range of diseases where nutritional intervention plays a key role in management is broad. There is evidence for the effect of diet on health although there is still little guidance for primary care providers on how to promote nutrition for specific diseases common within primary health care⁶⁰.

Mental Health

Three systematic reviews, two reviews and several journal articles were included. As the majority of people who seek professional help for mental illness present to GPs in the first instance, general practice is often seen as the central arena for management of mental health problems⁴³. Yet, little is known about the best models and mechanisms for delivering mental health services in primary care⁶¹. There are a range of general interventions targeting people with mental health disorders in Australia. Education campaigns providing pamphlets, posters and advertisements show some success³¹ while web-based interventions can reduce depression and anxiety^{62, 63}, especially when follow-up emails or telephone calls are incorporated³¹. Many successful interventions focus on the importance of the consumer playing an active role in intervention and treatment by using self-help and guided self-management multi-media programs^{43, 61}. These can be cost-effective when supported by a GP or specialist²⁹ and were especially successful in general practice when supervised by a nurse⁶⁴ and when computerised⁶⁵. The provision of information and training to GPs was not successful in improving patient outcomes and linkage to specialists such as pharmacists were not successful in improving depression care outcomes⁶⁶. However, collaborative care, such as the use of case managers and other professionals with expertise in primary care settings have been found to impact on depressive symptoms^{67, 68} suggesting that access to specialists by GPs³¹ and linkage between providers²⁹ is important. Community-based care interventions in schools and the wider community have shown more promise.^{69, 70}

Q2: What do we know about organised PHC's role in screening?

There is currently a strong trend in Australia to increase primary health care's role in population health activities⁷¹. They are key elements of the training programs of the Royal Australian College of General Practitioners (RACGP) and the Australian College Rural and Remote Medicine. The RACGP's Guidelines for Preventative Activities in General Practice outline a number of population-level screening protocols for GPs including: hypertension; skin cancer; cervical cancer; and for patients aged over-40: cholesterol; diabetes; breast cancer; bowel cancer; and osteoporosis.⁷² Eight systematic reviews, three reviews and several articles were identified. Yet again, not enough research has been completed in this area to provide definitive conclusions about what is effective in primary care.²⁵ Community-based screening interventions for diseases such as cancer are regularly found to be effective however no intervention works for all individuals, for all tests or in all settings.³⁹ Reducing or eliminating financial barriers to screening is the most effective method to increase use of and access to primary health screening³⁹. Other interventions that have been found to be successful include organisational interventions such as invitation letters/reminders⁷³ and educational material and are beneficial for both patients and providers.^{24,25,95} Personalised risk communication increases patient screening rates significantly,⁷⁴ but it is unknown whether these rates are based on informed decisions by patients.⁹⁴ Socio-economic and ethnic disparities in the uptake of

screening can be challenging however several screening programs in Australia have made considerable effort to recruit harder-to-reach groups.³⁶ Acceptability and impact of a population-based screening program on physicians can be stressful as they must deal with screening results and patient concerns.⁷⁵ Positive health professional related approaches include the introduction of clinical guidelines^{90,91,24,72}, collaboration between health providers,⁹⁰ and the use of performance incentives.⁹⁰ The gender and ethnicity of health providers can decrease minority population screening rates.^{25,89} This has led to the effective use of health promotion nurses²⁵ and lay health care workers.⁹² At a system organisational level, the number and availability of services and resources²⁴ can have large effects, as can the organisation of these facilities.^{24,38,74} This is especially related to patient privacy^{24,89} and acceptability of these services by the health care workers and staff.^{26,27,91} Other system level issues include administration²⁴ (including patient record systems^{24,90}), time restraints,^{90,91,74} and competing priorities³⁰ within the system. However, when these factors are addressed at the organisational level, especially if they are able to evolve as screening diffuses throughout the community,³⁹ population-based interventions can have regional effects.^{88,40}

Q3: What do we know about organised PHC's role in early childhood?

The delivery of primary prevention strategies that aim to promote optimal child development and health is an increasing area of concern for organised primary health care. A recent systematic review of the role of primary health care in promoting early child development found that the main strategies employed include child health surveillance and screening programs, and home visiting programs.⁷⁶ In this section we present the evidence relating to child health surveillance and screening as this role is currently delivered in Australia by general practice. While we recognise that home visiting is an essential component of organised primary health care, it is currently provided by community health and evidence relating to collaborations and linkages between general practice and home visiting remains unexplored.

Child health surveillance includes programs that aim to detect specific developmental disorders such as phenylketonuria, as well as repeated examinations of healthy children through well child checks to assess biomedical health, development, behaviour and family functioning. Well child checks also seek to provide parent education through age appropriate counselling known as anticipatory guidance and link children to appropriate services. Six systematic reviews and several articles relating to early childhood health screening and surveillance were included. The authors noted the lack of empirical research in this area.⁹⁵ The reviews found issues with program quality, clinical guideline adherence by health professionals, availability of services in the community and monitoring of compliance with referrals.^{96,76}

With respect to screening for speech and language delay,^{77,78} growth,⁷⁹ vision,⁸⁰ hearing,⁸⁰ nutrition,^{79,80} developmental delay,⁸⁰ obesity⁸¹ and hypertension,^{79,80} there is insufficient evidence to support universal screening. Screening for signs of physical and sexual abuse has not been rigorously evaluated.⁷⁹ In child health checks, checklists or questionnaires can help improve communication between practitioners and parents, and appear to be reliable in the detection of developmental problems.⁸⁴ The effectiveness of universal screening for identifying children with developmental delays is limited.⁸⁴ Preventive counselling and the provision of written materials is effective in promoting better infant sleep patterns, and temperament information influences parents' approach to parenting. Advice aimed at the prevention of

childhood injury showed modest benefits in relation to car seat use, bicycle helmet use, road safety, smoke alarm use and safe tap water temperature. The evidence is inconsistent for seat belt use and no effect was found for brief counselling in relation to child proofing and poison prevention.⁷⁹ Literacy promotion has positive impacts on reading activity in the home and literacy acquisition.^{98, 99, 100}

Developmental interventions for infant sleep and crying problems can be effective.⁸⁴ A recent systematic review of primary health care interventions to prevent obesity in two to six year olds identified 11 promising interventions but none of these programs met a full range of best practice criteria or were subject to evaluation by clinical trials.³⁵ Evidence highlights the value of shifting away from short-term, individually focused, single strategy programs addressing either diet or exercise towards more population based interventions involving the individual, family, community, and broader environment that can be developed and sustained over longer periods of time.^{55,82} This requires encouraging primary health care providers to work with parents and families, and other child care providers. Other research has found that education in combination with environmental support can reduce childhood illness^{30,83} and checklists or questionnaires can help improve the detection of developmental problems.⁸⁴

In regards to barriers to uptake of well child checks, parents and practitioners have been found to agree on the topics discussed in childhood primary health care interventions⁸⁵ but time constraints limit the number of topics discussed.⁸⁶ It has been suggested that agreed schedules need to be established for the delivery of well child checks and that these schedules should be adapted to coincide with periods of developmental transition.⁸⁷ Finally, while the effectiveness of some interventions is inconclusive, parents like the information provided to them and research suggests that the information may impact positively on their parenting practices though little is known about the links to child health outcomes.^{79, 84}

In summary, the findings demonstrate substantial gaps in supporting evidence for many early childhood health screening and surveillance activities. Surveillance systems may not be as effective in promoting children's health outcomes as they are in promoting changes in parenting practices. Evidence of their impact on cognitive, social, emotional and language development in children is weak. However this does not necessarily imply lack of effectiveness but points to a need for ongoing critical examination of child health checks for child development.⁷⁶

Conclusion

There is some, albeit limited, evidence that organised primary health care can be effective in health promotion and prevention. Effectiveness is variable across populations and health issues – for example, just because a strategy works for alcohol risk reduction does not mean it will necessarily work for smoking. Little is known about the best models and mechanisms for delivering mental health services in primary care settings. There is an increasing role for organised primary health in promoting optimal child development through the delivery of primary prevention strategies, including child health surveillance and screening programs. Further research is needed to establish supporting evidence for these.

References

Hulscher MEJL, Wensing M, van der Weijden T, Grol R. Interventions to implement prevention in primary care. The Cochrane Database of Systematic Reviews 1997, Issue 1. Art. No.: CD000362. DOI:10.1002/14651858.CD000362.

2. Myhre, S.L., Flora, J.A. HIV/AIDS communication campaigns: progress and prospects. *Journal of Health Communication*, 2000; 5(S):29-45
3. Grilli R, Ramsay C, Minozzi S. Mass media interventions: effects on health services utilisation. *The Cochrane Database of Systematic Reviews* 2002, Issue 1. Art. No.: CD000389. DOI: 10.1002/14651858.CD000389.
4. Kalucy, E., Hann, K., Whaites, L. Divisions: a matter of balance. Results of the 2002-2003 Annual Survey of Divisions of General Practice. Adelaide: Primary Health Care Research and Information Service, Flinders University, 2003
5. James, E.L., Talbot, L., Fishley, C. Does external support from divisions increase preventative activities in rural Australian general practice. *Australian Family Physician*, 31(12):1044-1046
6. Secker-Walker RH, Gnich W, Platt S, Lancaster T. Community interventions for reducing smoking among adults. *The Cochrane Database of Systematic Reviews* 2002, Issue 2. Art. No.: CD001745. DOI:10.1002/14651858.CD001745.
7. Bains N, Pickett W, Hoey J. The use and impact of incentives in population-based smoking cessation programs: a review. *American Journal of Health Promotion* 1998;12(5):307-320
8. Miller, M., Wood, L. National Tobacco Strategy 1999 to 2002-03 Occasional Paper: Smoking cessation interventions: review of evidence and implications for best practice in health care settings final report. Canberra: Department of Health and Aging, Commonwealth of Australia, 2001
9. Sowden A, Arblaster L, Stead L. Community interventions for preventing smoking in young people. *The Cochrane Database of Systematic Reviews* 2003, Issue 1. Art. No.: CD001291. DOI: 10.1002/14651858.CD001291.
10. Litt, J. Smoking and GPs: time to cough up successful interventions in general practice. *Australian Family Physician*, 2005; 34(6):425-429
11. Sowden AJ, Arblaster L. Mass media interventions for preventing smoking in young people. *The Cochrane Database of Systematic Reviews* 1998, Issue 4. Art. No.: CD001006. DOI: 10.1002/14651858.CD001006.
12. Hillsdon M, Foster C, Thorogood M. Interventions for promoting physical activity. *The Cochrane Database of Systematic Reviews* 2005, Issue 1. Art. No.: CD003180. DOI: 10.1002/14651858.CD003180.pub2.
13. Maryon-Davis, A. Weight management in primary care: how can it be made more effective? *Proceedings of the Nutritional Society*, 2005; 64(1):97-103
14. Harvey EL, Glenny A-M, Kirk SFL, Summerbell CD. Improving health professionals' management and the organisation of care for overweight and obese people. *The Cochrane Database of Systematic Reviews* 2001, Issue 2. Art. No.: CD000984. DOI: 10.1002/14651858.CD000984.
15. Marcu, B.H., Owen, N., Forsyth, L.H., Cavill, N.A., Fridinger, F. Physical activity interventions using mass media, print media, and information technology. *American Journal of Preventive Medicine*, 1998; 15(4):362-378
16. Huang, N. Motivating patients to move. *Australian Family Physician*, 2003; 34(6):413-417
17. King, A.C. How to promote physical activity in a community: research experiences for the US highlighting different community approaches. *Patient Education and Counseling*, 1998; 33:S3-S12
18. Sparling, P.B., Owen, N., Lambert, E.V., Naskell, W.L. Promoting physical activity: the new operative for public health. *Health Education Research*, 2000; 15(3):367-376
19. Dorfman, S.L., Smith, S.A. Preventative mental health and substance abuse programs and services in managed care. *Journal of Behavioural Health and Research*, 2002; 29(3):233-259

20. Foxcroft DR, Ireland D, Lowe G, Breen R. Primary prevention for alcohol misuse in young people. *The Cochrane Database of Systematic Reviews* 2002, Issue 3. Art. No.: CD003024. DOI: 10.1002/14651858.CD003024.
21. Funk, M., Wutzke, S., Kaner, E., Anderson, P., Pas, L., McCormick, R., Gual, A., Barford, S., Saunders, J. A multicountry controlled trial of strategies to promote dissemination and implementation of brief alcohol intervention in primary health care: findings of a World Health Organization collaborative study. *Journal of Studies on Alcohol*, 2005; 66(3):379-389
22. Moore, H., Adamson, A.J., Gill, T., Waine, C. Nutrition and the health care agenda: a primary care perspective. *Family Practice*, 2000; 17(2):197-202
23. Kearney. M., Bradbury, C., Ellahi, B., Hodgson, M., Thurston, M. Mainstreaming prevention: prescribing fruit and vegetables as a brief intervention in primary care. *Public Health*, 2005; 119:981-986
24. Zapka, J.G. Interventions for patients, providers, and health care organisations. *Cancer Supplement*, 2004; 101(5):1165-1181
25. Forbes C, Jepson R, Martin-Hirsch P. Interventions targeted at women to encourage the uptake of cervical screening. *The Cochrane Database of Systematic Reviews* 1999, Issue 3. Art. No.: CD002834. DOI:10.1002/14651858.CD002834.
26. Towler BP, Irwig L, Glasziou P, Weller D, Kewenter J. Screening for colorectal cancer using the faecal occult blood test, Hemoccult. *The Cochrane Database of Systematic Reviews* 1998, Issue 2. Art. No.: CD001216. DOI:10.1002/14651858.CD001216.
27. Tong, S., Hughes, K., Oldenburg, B., Del Mar, C. Would general practitioners support a population-based colorectal cancer screening programme of faecal-occult blood testing? *Internal Medicine Journal*, 2004; 34:532-538
28. Vandelanotte, C., et al., Website-delivered physical activity interventions a review of the literature. *American Journal of Preventative Medicine*, 2007. 33(1): p. 54-64.
29. Mihalopoulos, C., et al., Exploratory economic analyses of two primary care mental health projects: Implications for sustainability. *Medical Journal of Australia*, 2005. 183(10): p. S10-S76.
30. McDonald, E., et al., Are hygiene and public health interventions likely to improve outcomes for Australian Aboriginal children living in remote communities? A systematic review of the literature. *BMC Public Health*, 2008. 8(8): p. 153-167.
31. Christensen, H., et al., Models of mental health delivery: Efficacy, support and policy. 2006, Australian Primary Health Care Research Institute: Canberra.
32. Plotnikoff, R.C., et al., Efficacy of an e-mail intervention for the promotion of physical activity and nutrition in the workplace context. *American Journal of Health Promotion*, 2005. 19(6): p. 422-429.
33. Sweet, M.A. and M.I. Appelbaum, Is home visiting an effective strategy? A meta-analytic review of home visiting programs for families with young children. *Child Development*, 2004. 75(5): p. 1435-1456.
34. Thomson, G., N. Wilson, and P. Howden-Chapman, Population level policy options for increasing the prevalence of smokefree homes. *Journal of Epidemiology and Community Health*, 2006. 60(4): p. 298-304.
35. Hearn, L., et al., Preventing Overweight and Obesity in Young Children: Synthesising Evidence for Management and Policy Making. 2006, Child Health Promotion Research Centre: Perth.
36. Miles, A., et al., A perspective from countries using organizer screening programs. *Cancer*, 2004. 101(5): p. S1201-S1213.

37. Thompson, M.R., R.J.C. Steele, and W.S. Atkin, Effective screening for bowel cancer: A United Kingdom perspective. *Diseases of the Colon & Rectum*, 2006. 49: p. 895-908.
38. Medical Services Advisory Committee, Faecal occult blood testing for population health screening. 2004, Commonwealth of Australia: Canberra.
39. Pasick, R.J., R.A. Hiatt, and E.D. Paskett, Lessons learned from community-based cancer screening intervention research. *Cancer*, 2004. 101(5): p. S1146-S1164.
40. Bishop, J., et al., Health Economics Review of Bowel Cancer Screening in Australia. 2008, Cancer Institute: NSW.
41. Elley, C.R., S. Dean, and N. Kerse, Physical activity promotion in general practice: Patient attitudes. *Australian Family Physician*, 2007. 36(12): p. 1061-1064.
42. Fuller, J.D., et al., Sustaining an Aboriginal mental health service partnership. *Medical Journal of Australia*, 2005. 183(10): p. S69-S72.
43. Moulding, R., et al., Optimising the primary mental health care workforce: How can effective psychological treatments for common mental disorders best be delivered in primary health care? 2007, Australian Primary Health Care Research Institute; Department of General Practice, School of Population Health, School of Social Work, University of Melbourne; School of Health and Social Development, Deakin University.
44. Notarianni, M.A., P.T. Clements, and H.J. Tillman, Caring for the future: strategies for promoting violence prevention in pediatric primary care. *Journal of American Academy of Nurse Practitioners*, 2007. 19(6): p. 306-314.
45. Lancaster, T. and L. Stead, Physician advice for smoking cessation. *Cochrane Database of Systematic Reviews*, 2004(2).
46. Cunningham, J.A., et al., Ultra-brief intervention for problem drinkers: research protocol. *BMC Public Health*, 2008. 8(298-310).
47. Bala, M., L. Strzeszynski, and K. Cahill, Mass media interventions for smoking cessation in adults. 2008, *Cochrane Database of Systematic Reviews*.
48. Cavill, N. and A. Bauman, Changing the way people think about health-enhancing physical activity: do mass media campaigns have a role? *Journal of Sports Sciences*, 2004. 22(8): p. 771-90.
49. Elder, R.W., et al., Effectiveness of mass media campaigns for reducing drinking and driving and alcohol-involved crashes: a systematic review. *American Journal of Preventative Medicine*, 2004. 27(1): p. 57-65.
50. Randolph, W. and K. Viswanath, Lessons learned from public health mass media campaigns: marketing health in a crowded media world. *Annual Review of Public Health*, 2004. 25: p. 419-37.
51. Stead, L.F., G. Bergson, and T. Lancaster, Physician advice for smoking cessation. 2008, *Cochrane Database of Systematic Reviews: Issue 1*.
52. Christakis, D.A., et al., Pediatric smoking prevention interventions delivered by care providers: A systematic review. *American Journal of Preventative Medicine*, 2003. 25(4): p. 358-362.
53. Wilson, N., Review of the evidence for major tobacco control interventions. 2003, Ministry of Health: Wellington, New Zealand.
54. Ivers, D., Indigenous Australians and tobacco: A literature review. 2001, Menzies School of Health Research and the Cooperative Research Centre for Aboriginal and Tropical Health: Darwin.
55. Salmon, J., et al., Promoting physical activity participation among children and adolescents. *Epidemiologic Reviews*, 2007. 29: p. 144-159.

56. Walters, S.T. and C. Neighbors, Feedback interventions for college alcohol misuse: what, why and for whom? *Addictive Behaviors*, 2005. 30(6): p. 1168-1182.
57. Denny, C.H., et al., Physician advice about smoking and drinking: are U.S. adults being informed? . *American Journal of Preventative Medicine* 2003. 24(1): p. 71-74.
58. Cunningham, J.A., et al., Access to the Internet among drinkers, smokers and illicit drug users: Is it a barrier to the provision of interventions on the World Wide Web? . *Medical Informatics and Internet in Medicine*, 2006. 31(1): p. 53-58.
59. Kolasa, K.M., Strategies to enhance effectiveness of individual based nutrition communications. *European Journal of Clinical Nutrition*, 2005. 59(1): p. S24-29.
60. van Binsbergen, J.J., B.C. Delaney, and C. van Weel, Nutrition in primary care: scope and relevance of output from the Cochrane Collaboration. *American Journal of Clinical Nutrition*, 2003. 77: p. S1083-S1088.
61. Griffiths, K. and H. Christensen, Depression in primary health care: From evidence to policy. *Medical Journal of Australia*, 2008. 188(8): p. S81-83.
62. Griffiths, K.M. and H. Christensen, A review of randomised controlled trials of internet interventions for mental disorders and related conditions. *Clinical Psychologist*, 2006. 10(1): p. 16-29.
63. Griffiths, K. and H. Christensen, Internet-based mental health programs: A powerful tool in the rural medical kit. *Australian Journal of Rural Health*, 2007. 15(81-87).
64. Richards, A., et al., PHASE: a randomised, controlled trial of supervised self-help cognitive behavioural therapy in primary care. *British Journal of General Practice*, 2003. 53(495): p. 764-770.
65. Proudfoot, J., et al., Clinical efficacy of computerised cognitive-behavioural therapy for anxiety and depression in primary care: Randomised controlled trial. *British Journal of Psychiatry*, 2004. 185(1): p. 46-54.
66. Finley, P.R., et al., Impact of a collaborative care model on depression in a primary care setting: a randomised controlled trial. *Pharmacotherapy*, 2003. 23(9): p. 1175-1185.
67. Bower, P., et al., Collaborative care for depression in primary care. *The British Journal of Psychiatry* 2006. 189: p. 484-493.
68. Christensen, H., et al., Models in the delivery of depression care: A systematic review of randomised and controlled intervention trials. *BMC Family Practice*, 2008. 9: p. 25-35.
69. Mufson, L., et al., A randomized effectiveness trial of interpersonal psychotherapy for depressed adolescents. *Archives of General Psychiatry*, 2004. 61(6): p. 577-584.
70. Brown, J.S.L., et al., Meeting the unmet need for depression services with psycho-educational self-confidence workshops: Preliminary report. *British Journal of Psychiatry*, 2004. 185(6): p. 511-515.
71. Morgan, S. and P. Kelly, Enhancing the population health capacity of the general practice: An innovative training model for general practice registrars. *Australian Family Physician*, 2004. 33(6): p. 473-474.
72. Harris, M., et al., Guidelines for preventive activities in general practice. 2005, The Royal Australian College of General Practitioners: Melbourne.
73. Corbett, M., et al., Colonoscopy screening for colorectal cancer: The outcomes of two recruitment methods. *Medical Journal of Australia*, 2004. 181(8): p. 423-427.
74. Zapka, J.G. and S.C. Lemon, Interventions for patients, providers and health care organizations. *Cancer*, 2004. 101(5): p. S1165-S1187.
75. Comeau, A.M., et al., Challenges in implementing a successful newborn cystic fibrosis screening program. *The Journal of Pediatrics*, 2005. 199(2): p. 495-518

76. Gardner, K., et al., Primary health care and readiness for school: A systematic review of the role of primary health care in promoting children's readiness for school. 2007, Australian Primary Health Care Research Institute: Canberra.
77. Law, J., Z. Garrett, and C. Nye, Speech and language interventions for children with primary speech and language delay or disorder. 2006, The Cochrane Library.
78. Nelson, H., et al., Screening for speech and language delay in preschool children: Systematic evidence review for the US Preventive Services Task Force. *Pediatrics*, 2006. 117(2): p. 298-319
79. Moyer, V. and M. Butler, Gaps in evidence for well-child care: A challenge to our profession. *Pediatrics*, 2007. 114: p. 1511-1521.
80. Oberklaid, F., et al., Child Health Screening and Surveillance: A critical review of the evidence, NHMRC, Editor. 2002, Centre for Community Child Health, Royal Children's Hospital Melbourne.
81. Westwood, M., et al., Childhood obesity: should primary school children be routinely screened? A systematic review and discussion of the evidence. *Archives of Disease in Childhood*, 2007. 92(5): p. 416-422.
82. Flynn, M.A., et al., Reducing obesity and related chronic disease risk in children and youth: a synthesis of evidence with 'best practice' recommendations. *Obesity Reviews*, 2006. 1((Supp 1)): p. 7-66.
83. McDonald, E., et al., Preventing growth faltering among Australian Indigenous children: Implications for policy and practice. *Medical Journal of Australia*, 2008. 188(8): p. S84-S86.
84. Regalado M and Halfon N, A.P.A., Primary Care Services Promoting Optimal Child Development From Birth to Age 3 Years. *Archives of Pediatrics & Adolescent Medicine*, 2001 155: p. 1311-1322.
85. Barkin, S.L., et al., Anticipatory guidance topics: are more better? *Ambulatory Pediatrics*, 2005. 5(6): p. 372.
86. Schuster, M., et al., Anticipatory Guidance: what information do parents receive? What information do they want? . *Archives of Pediatrics & Adolescent Medicine*, 2000. 154: p. 1191-1198.
87. Schor, E., Rethinking Well-Child Care. *Pediatrics* 2004. 114: p. 210-216.
88. Baker, L.C, Phillips, K.A., Haas, J.S., Liang, S-Y., Sonneborn, D. The effect of area HMO market share on cancer screening. *Health Services Research*, 2004; 39(6):1751-1771
89. Cargill, V.A, Stone, V.E. HIV/AIDS: a minority health issue. *The Medical Clinics of North America*, 2005; 89(4):895-912
90. Chorba, T., Scholes, D., BlueSpruce, J., Operskalski, B.H, Irwin, K. Sexually transmitted diseases and managed care: an inquiry and review of issues affecting service delivery. *American Journal of Medical Quality*, 2004; 19(4):145-156
91. Chou, R., Hoyt Huffman, L., Fu, R., Smits, A., Korhuis, T. Screening for HIV: a review of the evidence for the U.S. Preventive Task Force. *Annals of Internal Medicine*, 2005; 143(1):55-73
92. Lewin SA, Dick J, Pond P, Zwarenstein M, Aja G, van Wyk B, Bosch-Capblanch X, Patrick M. Lay health workers in primary and community health care. *The Cochrane Database of Systematic Reviews* 2005, Issue 1. Art. No.:CD004015. DOI: 10.1002/14651858.CD004015.pub2.
93. Edwards A, Unigwe S, Elwyn G, Hood K. Personalised risk communication for informed decision making about entering screening programs. *The Cochrane Database of Systematic Reviews* 2003, Issue 1. Art. No.: CD001865. DOI: 10.1002/14651858.CD001865.

94. O'Connor AM, Stacey D, Entwistle V, Llewellyn-Thomas H, Rovner D, Holmes-Rovner M, Tait V, Tetroe J, Fiset V, Barry M, Jones J. Decision aids for people facing health treatment or screening decisions. *The Cochrane Database of Systematic Reviews* 2003, Issue 1. Art. No.: CD001431. DOI: 10.1002/14651858.CD001431.
95. Anderson, L.M., Shinn, C., Fullilove, M.T., Scrimshaw, S.C., Fielding, J.E., Normand, J., Cerende-Kulis, V.G., the Taskforce on Community Preventive Services. The effectiveness of early childhood programs: a systematic review. *American Journal of Preventive Medicine*, 2003; 24(S3):32-46
96. Wake, M., Harris, C., Hesketh, K., Wright, M. Child health screening and surveillance: a critical review of the literature. Melbourne: Community Child Health, Royal Children's Hospital Melbourne, National Health and Medical Research Council, 2002
97. Keller, P.A., Fiore, M.C., Curry, S.J., Orleans, T. Systems change to improve health and health care: lessons from Addressing Tobacco in Managed Care. *Nicotine & Tobacco Research*, 2005; 7(S1):5-8
98. Mendelsohn A. L, Mogilner L. N, Dreyer B. P, Forman J. A, Weinstein S. C, Broderick M, Cheng K. J, Magloire T, Moore T, Napier, C The impact of a clinic-based literacy intervention on language development in inner-city preschool children. *Pediatrics* 2001;107(1):130-134
99. Sharif I, Reiber S, Ozuah PO, Exposure to Read Out and Read and vocabulary outcomes in inner-city preschoolers. *Journal of the National Medical Association* 2002;94:171-177.
100. Atkinson P.M, Parks D.K, Cooley, S.M, Sarkis, S.L Reach Out and Read: A pediatric clinic-based approach to early literacy promotion. *Journal of Pediatric Care*. 2002;16(1) 10-15.

7. Community/consumer participation

Introduction

Consumer and community participation is an important element in aligning health system organisations and delivery with need. Their contributions can greatly influence the way in which research and resources are distributed, provided consumers are given the opportunity to be involved. This section reviews the contribution of consumers into primary health care organisational structure, and that of patients to organisational service delivery.

Q1: What is known about the impact of consumer input into organised PHC (i.e. consumer representation)?

Three systematic reviews and three reviews were identified. These and a number of other papers contribute to the following discussion.

Consumer involvement in organisational policy and planning

Leadership and organisational commitment has been found to be important in the decision to seek and include public input¹⁻³. Failure to involve consumers can result in a "top-down" approach, which is incompatible with a community development and ownership approach in primary health care. Developing a model of service delivery and only then consulting with, or promoting it to the community as a final step, works against successful implementation and sustainability.⁴

Public involvement was found to influence policies, and on occasions where this was conveyed the public felt more involved, better understood and more confident to participate¹. Lack of feedback by organisations was discouraging,¹ as was limiting consumer participation to certain issues² which contributed to consumer cynicism about the motives of organisations and the worth of consumer input.³ There has been little research into women's preferences in health care.⁵

Factors relating to consumer participation which lead to successful changes in health service delivery models include: community commitment to the change; the identification of local health needs and ways to address them; a community champion for the proposed model; building community capacity in the governance of the service; and an auspicing body with infrastructure capable of receiving and accepting responsibility for funds. For community controlled models, a significant investment of time and resources in training and capacity building for boards and health committees will most likely be required.⁴

Community action has resulted in sustained changes in the social and organisational environment and improvements in health (eg, targeting alcohol abuse to lead to prevention of injury)⁶, but health practitioners must be prepared to listen to what the members of the community want. Education and training programs can result in improved health outcomes, but they need to address the problems that have been identified by community members as being relevant and important to them⁶.

Collaboration and partnership between health services and the local community sector has been beneficial in building relationships within the community,^{1, 2} as this enables the sharing of resources and expertise.¹ The creation of partnerships is an important step towards empowerment and can lead to an improvement in health outcomes by pooling limited resources and by taking collective action⁶. Furthermore, strong community involvement has been found to enhance the sustainability of primary health care innovation⁷. All communities (especially those distanced from

current health care systems) need to have input into discussion,^{1,2} and good communication lines between the public and health system are essential.^{1,3}

The positive influence of community involvement is illustrated by the “Easy Entry, Gracious Exit” model that was developed in 2000 to address the chronic undersupply of doctors in north-western New South Wales. This model relies on strong community links, and community ownership is enabled through the Rural Medical Infrastructure Fund, local government, the Practice Incentives Program, and Area Health Services⁴. Adoption of the model resulted in more doctors (4 in 2001 to 8 in 2003) and an increased range of medical services available in the region, with increases in both public health and Health Insurance Commission (HIC) activity. Community confidence in the availability and continuity of services increased, as well as opportunities for local employment, particularly for practice nurses.⁴

Community involvement in the governance of health organisations is a feature of Aboriginal Community Controlled Health Services (ACCHS) which have utilised Comprehensive Primary Health Care (CPHC) as their model of health care delivery over the past 30 years. The governance structure of ACCHS is community controlled, with governance training allocated both priority and funding, and management is accountable to an elected health board⁴. During the Katherine West Health Board Trial, cultural mediation practiced by the consultancy firm (Pangea Pty Ltd) and the Board resulted in a three phase strategy for operations, including the employment of GPs, nurses and aboriginal health workers and increased public health services. While still inadequate given the level of need, the service was able to make headway into implementing community based programs to address these issues.⁴

Health organisations seeking community involvement need to ensure that training and education are provided for staff especially in relation to change of practice.¹ The size of the division or primary health organisation (PHO) is important: the larger the PHO, the less patients are convinced of their input into decision-making.² Administrative support to enable participation is needed,² as is the need to plan specific initiatives and take into account the wider picture of research and change.^{1,3}

Additionally the public needs to be made aware of opportunities for involvement in health policy making,¹ and supported in their learning about effective involvement in each type of activity.² However, it is important to remember that community involvement also has potential for negative impact.³ To maximise the contribution consumers and the community can make, effective community engagement and consumer education processes need to be put into place.⁸ In the Australian context, it is important that unrealistic expectations are not placed on disadvantaged or remote communities to run their own services in a context of relative poverty and lack of access to the social and community service infrastructure available in other communities⁴.

Q2: What is known about the involvement of clients/carers in the delivery of organised PHC?

Nine systematic reviews, five reviews and other literature have been included in this discussion.

Partnerships in care

Patient involvement in decisions about care was associated with better patient satisfaction, confidence and understanding of their needs¹. Evidence from empirical studies indicates that patients who participate more actively in treatment decisions have more favourable physiological and functional health outcomes than those who do not⁹. European data has shown that as many as 85% of patients aged 20 to 40 years want to be actively involved in their treatment; this percentage dropped to 65% in patients 40 to 60 years old and to 45% in patients over 60¹⁰. However, in

patients 65 years and over, there have been positive effects from methods to improve the involvement of older people in primary care consultations⁹.

Shared decision-making (SDM) is defined as a decision-making process shared by patients and their healthcare providers and aims at encouraging patients to play an active role in decisions concerning their health.¹⁶ However, SDM has not been widely adopted by healthcare professionals. Often reported barriers include time constraints, lack of applicability due to patient characteristics, and lack of applicability due to the clinical situation. Facilitators include provider motivation, positive impact on the clinical process and positive impact on patient outcomes¹⁷. Further research is needed into physician opinions and patient outcomes related to this.^{14, 18}

Patient participation in health care is influenced by health care professionals' communication skills,¹: patients prefer caring, attentive, expressive professionals.¹¹ The identification of shared goals, negotiation of treatment decisions and agreement about relative responsibilities for disease management are key elements of successful patient participation and patient-centred care¹². Clinic and consultation organisational arrangements are also central, as time available, time management and privacy during consultations are instrumental in enabling or hindering patient participation.¹ Patient targeted coaching and educational materials, and provider targeted communication skills training result in significant communication improvements. Patient-reported outcome measures can also be used to improve diagnosis and management of patient conditions. Similarly, the effect of communication interventions on patient-provider concordance is largely positive. However, these interventions have had little effect on satisfaction and health status, patient self-efficacy, attitudes, adherence, behaviours, and resource use¹².

Increased patient knowledge and involvement in health care will affect the way the patient-physician relationship works. Patient involvement improved relationships with, and faith in, health care providers and decreased patient anxiety¹. It is anticipated that as these relationships develop into partnerships, better agreement between patients and physicians will occur in regards to their treatment. This could have added benefits of increased openness and honesty from patients and may result in quicker and more accurate diagnoses, and increased patient compliance with physician recommendations¹⁰. The need for patient guidance is likely to grow as clinical options increase and health-related decisions become more complicated¹⁶.

Patient skills for participation in decision making about care

A systematic review of patient decision aids found that compared to usual care or simple information leaflets, these programs:

- improved knowledge
- produced more realistic expectations
- lowered decisional conflict
- increased the proportion of people active in decision making
- reduced the proportion of people who remained undecided
- produced greater agreement between values and choice.¹⁶

The concept of "health literacy" – the ability of a patient to understand and make decisions about their health and care is an important factor in whether consumers are actively participating in their care. Levels of health literacy are related to education and age.¹³ This influences the amount of information the patient wants and can understand.¹⁴

For example, communication with some older patients is made more difficult by age-related physiological changes as well as disturbances in the social and physical environment⁹. In order to make informed decisions patients must be given sufficient information about their illness (eg, aetiology, symptoms and treatments); if this information is not adapted to their perception of their illness, it is unlikely to be used. Furthermore, a patient should not be left alone to make decisions without appropriate advice from their medical team. Thus treatment decisions should be informed by both physician and patient preferences.¹⁵

Another aspect of client participation is self-management and education for self-management which have also been found to improve patient outcomes in relation to asthma and diabetes^{19 20 21} although current research has not demonstrated the efficacy of self-management in Chronic Obstructive Pulmonary Disease, possibly due to the variability of presentation in this disease.²² In the UK, patient participation in both individual care decisions and in health services planning has been developed through the Expert Patients Programme. Expert patients are educated in self-care and have increased confidence in and ability to care for themselves and to participate in organisation level decision making. The success of expert patients tends to depend on the commitment of division-level boards (and individual health care workers).²³ In addition to the UK Expert Patients Programme, other lay-led expert patient programs include the Arthritis Foundation of Australia's Arthritis Self Management Program (ASMP) and Canada's Chronic Disease Self-Management Program (CDSMP). One systematic review investigating the efficacy of such education programs (including for chronic conditions such as arthritis, diabetes, hypertension and chronic pain) found that lay-led self-management education programmes may lead to modest, short-term improvements in patients' confidence to manage their condition and perceptions of their own health. They also increased how often people took aerobic exercise. Whilst there were small improvements in pain, disability, fatigue and depression, these were not clinically significant. The programmes did not improve health-related quality of life, alter the number of times patients visited their doctor, or reduce the amount of time spent in hospital²⁴.

Conclusion

There are clear benefits that result from including consumer participation in health policy formulation at governmental and regional levels, and that flow from ensuring patients are involved in their own health care decisions. More research regarding patient outcomes, particularly in relation to the growing focus on patient self management programs is needed in these areas.

References

1. Farrell, C. *Patient and public involvement in health: the evidence for policy implementation, a summary of the results of the Health in Partnership Programme*. London: Department of Health, 2004
2. Neuwelt, P., Crampton, P., Crengle, S., Dew, K., Dowell, A., Kearns, R., Thomas, D. Assessing and developing community participation in primary health care in Aotearoa New Zealand: a national study. *The New Zealand Medical Journal*, 2005; 118(1218):1-10, obtained online: <http://www.nzma.org.nz/journal/118-1218/1562>
3. Abelson, J., Forest, P-G., Eyles, J., Casebeer, A., Mackean, G. Will it make a difference if I show up and share? A citizen's perspective on improving public involvement processes for health system decision-making. *Journal of Health Services Research and Policy*, 2004; 9(4):205-212

4. Wakerman J, Humphries J, Wells R, Kuipers P, Entwistle P, Jones J. *A systematic review of primary health care models in rural and remote Australia 1993-2006*. Canberra: Australian Primary Health Care Research Institute, 2006
5. Sampietre-Colom, L., Phillips, V.L., Hutchinson, A.B. Eliciting women's preferences in health care: a review of the literature. *International Journal of Technology Assessment in Health Care*, 2004; 29(2):145-155
6. Laverack G. Improving health outcomes through community empowerment: A review of the literature. *Journal of Health, Population & Nutrition* (2006). 24(1):113-120
7. Sibthorpe BM, Glasgow NJ, Wells RW. Emergent themes in the sustainability of primary health care innovation. *MJA*, 2005; 183:S77-S80
8. Murphey, N.J. Citizen deliberation in setting health care priorities. *Health Expectations*, 2005; 8:172-181
9. Wetzels R, Harmsen M, Van Weel C, Grol R, Wensing M. Interventions for improving older patients' involvement in primary care episodes. *Cochrane Database of Systematic Reviews* 2007, Issue 1. Art. No.: CD004273. DOI: 10.1002/14651858.CD004273.pub2.
10. Elgie R. A patient and primary care perspective: A patient's perspective on the treatment of depression. *Journal of Clinical Psychiatry* (2006). 67(suppl 6): 38-40
11. O'Hair, D. Research traditions in provider-consumer interaction: implications for cancer care. *Patient Education and Counselling*, 2003; 50:5-8
12. Haywood K, Marshall S, Fitzpatrick R. Patient participation in the consultation process: A structured review of intervention strategies. *Patient Education and Counseling* (2006). 63:12-23.
13. Speros, C. Health literacy: concept analysis. *Journal of Advanced Nursing*, 2005; 50(6):633-640
14. Frosch, D.L., Robert, B.A., Kaplan, M. Shared decision making in clinical medicine: past research and future directions. *American journal of preventive medicine*, 1999; 17(4):285-294
15. McGregor S. Roles, power and subjective choice. *Patient Education and Counseling* (2006). 60(1):5-9
16. Légaré F, Ratté S, Stacey D, Kryworuchko J, Gravel K, Turcot L, Graham ID. Interventions for improving the adoption of shared decision making by healthcare professionals. (Protocol) *Cochrane Database of Systematic Reviews* 2007, Issue 3. Art. No.: CD006732. DOI: 10.1002/14651858.CD006732.
17. Gravel K, Legare F, Graham ID. Barriers and facilitators to implementing shared decision-making in clinical practice: a systematic review of health professionals' perceptions. *Implementation Science* (2006). 1:16
18. Coulter, A. Partnerships with patients: the pros and cons of shared clinical decision-making. *Journal of Health Services Research and Policy*, 1997; 2(2):112-121
19. Deakin T, McShane CE, Cade JE, Williams RDRR. Group based training for self-management strategies in people with type 2 diabetes mellitus. *The Cochrane Database of Systematic Reviews* 2005, Issue 2. Art. No.: CD003417. DOI: 10.1002/14651858.CD003417.pub2.
20. Gibson PG, Powell H, Coughlan J, Wilson AJ, Abramson M, Haywood P, Bauman A, Hensley MJ, Walters EH. Self-management education and regular practitioner

- review for adults with asthma. *The Cochrane Database of Systematic Reviews* 2002, Issue 3. Art. No.: CD001117. DOI: 10.1002/14651858.CD001117
21. Monninkhof EM, van der Valk PDLPM, van der Palen J, van Herwaarden CLA, Partidge MR, Walters EH, Zielhuis GA. Self-management education for chronic obstructive pulmonary disease. *The Cochrane Database of Systematic Reviews* 2002, Issue 4. Art. No.: CD002990. DOI: 10.1002/14651858.CD002990.
22. Kennedy, A. Improving self-management skills: a whole systems approach. *British Journal of Nursing*, 2001; 10(11):734-737
- 23 Kennedy, A., Rogers, A., Gately, C. Assessing the introduction of the expert patients programme into the NHS: a realistic evaluation of recruitment to a national lay-led self-care initiative. *Primary Health Care Research and Development*, 2005; 6:137-148.
24. Foster G, Taylor SJC, Eldridge SE, Ramsay J, Griffiths CJ. Self-management education programmes by lay leaders for people with chronic conditions. *Cochrane Database of Systematic Reviews* 2007, Issue 4. Art. No.: CD005108. DOI: 10.1002/14651858.CD005108.pub2.

8. Quality and safety

Introduction

Data from the USA suggests that increased numbers of primary care physicians is loosely associated with decreased morbidity¹. However, the study of quality and safety in primary health care is relatively new. A number of countries have established government bodies related to quality and safety. For example, Australian organisations began in 1989, in the form of the Australian Patient Safety Foundation, then the Australian Council for Safety and Quality in Health Care in 2000, and since 2006 The Australian Commission for Safety and Quality in Health Care^{2,3}. The UK founded its first agency, the National Patient Safety Agency, in 2001^{2,3}. Other national agencies include the Agency for Healthcare Research and Quality in the USA, the Canadian Institute for Health Information, and New Zealand's Quality Improvement in the Health and Disabilities Sector. Each country – and each agency – uses different methods, but their main goal is to achieve better patient outcomes and/or more efficient quality and safety health system processes.^{2,3,5}

This being the case, quality and safety literature in health care covers a broad range of subjects from a wide range of organisations, and uses variable terminology. Much of the research appears to have been either completed in secondary or tertiary health care settings, or it is unclear as to where the research was completed. There is a relative paucity of data relating directly to primary health care quality and safety. As such, we have included relevant literature regarding organisational quality and safety in secondary and tertiary sectors in this section.

Q1: What is known about the role of organised PHC in improving/maintaining quality and safety?

Error definition

Similar errors were found to occur across most primary health care systems, however, all reviews commented on the difficulty of finding a common typology for medical errors (whether in primary care, or in other specialisations). A systematic review completed in 2006 found that the disparity between definitions of error in primary care made it impossible at that time to create a consistent reporting framework for medical error, making further research necessary⁶. One common theme of the reviews was that studies used a wide range of data collection and analysis methodologies, with very few randomised controlled trials⁷⁻¹¹.

Of the data found relevant to medical error, common error types identified included diagnosis, treatment, prescription, system level problems¹²; communication between patient, doctor and health care workers^{11,13}; technological errors¹⁴; and referral between health care workers.^{4,7-11,13-22} Areas of error relating to delays in diagnosis, referral or treatment could be physician related^{12,13,23} or patient related⁷⁻⁹. Multiple errors were found to be common, and errors were found to be preventable in 60-83% of cases.⁷ These areas were similar to those found by the Linnaeus Collaboration's Primary Care International Study of Medical Errors.²⁴⁻²⁷

Quality improvement strategies

The broad categories of quality improvement (QI) strategies reviewed included audit and feedback, organisational and local leadership, dissemination of information to providers within the organisation, professional education, governance, guidelines, and various practical and theoretical types of performance indicators^{20,24-33}. Barriers to change were identified at patient, professional, team, organisational and wider

environmental levels,²⁸ and combinations of the above strategies had varying positive effects.^{28 31}

Audit and feedback

A recent Cochrane systematic review has found that audit and feedback can have a small to moderate positive effect on improving professional practice.²⁴ The general consensus at present is that combining audit and feedback with continuing education produces the most effect.^{28 34} Multi-practice audits have a moderate positive effect; these are usually combined with numerous other quality improvement strategies, but there is wide variation in methodology.³⁵ Using mortality or patient care performance data to monitor and improve patient safety is complex.³⁶ Better quality data from mortality audits is required in primary care settings.¹

Organisational and practice-level leadership

Leadership within practices is necessary to create momentum towards quality improvement within an organisation.^{34 37 38} In secondary and tertiary institutions, the role of a leader includes many tasks:

- Ensuring provision of staff and technical infrastructure resources^{34 38};
- Being visibly active regarding patient safety in their own work, and at times of organisational change³⁴;
- Ensuring accountability of staff through non-punitive, team-oriented responsibility³⁴ ;
- Establishment of teamwork and collaboration regarding patient safety³⁴;
- Promotion of staff with demonstrated commitment to patient safety³⁴.

A general review of organisational leadership found that leadership helps to standardise care so that practice deviations are made obvious (ie, creation of guidelines etc), allow individuals to speak up regarding quality and safety issues, facilitate regular education and training, and facilitate effective methods of communication.³⁷ In primary care settings, the concept is the same: leadership is required at a national, organisational, and community level to enable cultural change. This includes realistic goal setting (whether it be at an organisation level regarding service provision, or local level regarding application of government policy or regulations within a practice), resource planning, and finding local leaders to represent communities.³⁹

Knowledge dissemination

Knowledge dissemination factors often overlapped with audit and education; effective information dissemination factors included the establishment of health information systems²⁹ and prompts and reminders (computer generated and hardcopy) at the time of consultation.^{28 40} However, general dissemination of printed materials and other more passive methods are generally ineffective.^{31 40} Many information dissemination studies within health care organisations had not analysed cost/benefit ratios.³⁰

Continuing medical education

Longitudinal, multifaceted education of individuals to reduce errors is necessary, from medical school through to ongoing medical education for practitioners.^{34 40 41} Having said this, there is some disagreement regarding the effects of multifaceted education.^{31 42} Interactive educational sessions work best.⁴³ Single interventions had mixed effects: outreach clinics,^{25 28 31 40 44 45} role substitution,^{23 28 31} and various technological advances (eg, telemedicine)²³ were generally effective, but one review suggested these were limited by workforce and resource availability.²³ Didactic

teaching sessions are ineffective at changing provider behavior^{31 45} however, combining didactic teaching with workshops is more effective.⁴³ Prompts, local opinion leaders,^{25-28 31 34} and small group active participation groups and conferences showed mixed effects.^{28 45} Printed materials are cheap to produce and easy to distribute, and may slightly improve process outcomes but have no effect on patient outcomes.⁴⁶

Performance indicators

One review was found on the theory and use of performance indicators (PIs), which discussed the two main types of PIs, namely formative (for internal systems' regulation of quality) and summative (for external verification and accountability of organisations to governmental bodies). This review simply states that particularly the former has great potential, but that both are still being developed.³²

Governance

Most organisations agree that governance is important.⁴⁷ Clinical governance can be defined as "the interaction of processes, institutions, and traditions that determine how decisions are made on issues of public concern."¹⁴ However, the scope and application of clinical governance remains unclear,⁴⁸ and opinions towards governance in individual practices remains mixed. It is generally agreed that governance addresses behavioral change at an individual level, multidisciplinary care, and both system and local level support for implementation of health services / programs.⁴⁷ There is considerable variation as to how governance should be done. Clinical governance plans need to be able to provide reliable and comparable data on the process and progress of implementation of quality improvement strategies, and improving poor performance.⁴⁹

At a local level, governance requires leadership and commitment to integration of health services, and at an organisational level, a clear distinction between governance and operational management.⁵⁰ As examples of how this is implemented in different countries:

- In New Zealand, Independent Practice Associations work under a fundpooling arrangement, with a well established infrastructure including staff, information systems, clinical guidelines, peer discussion groups, and personalised feedback on clinical performance.⁴⁸
- The Royal College of General Practitioners is at present developing a quality framework for Australian general practice to provide a structure for present and future quality initiative evaluation, to enable this information to inform a "gap and resource" analysis for Australian general practice.⁵¹

Guidelines

"Guidelines serve as a roadmap for the healthcare professional to follow and are based upon the latest evidence and expert opinion about the standard of care."⁵² In most studies, standards of care in clinical general practice do not live up to national standards of care, although the reasons for this are unclear.^{44 52} Certainly studies in secondary and tertiary institutions have shown that the longer a clinician has been in practice, the more at risk they are to have less clinical knowledge, poorer adherence to clinical guidelines, and potentially have poorer patient outcomes.⁵³ There are multiple barriers to evidence-based practice, including both organisational and individual factors,⁵⁴ including guideline quality, incentives, and regulation; and health professional, patient and practice characteristics.⁵⁵ Guideline dissemination and integration into practice requires more than just distribution and feedback.^{22 55} For example, audit and feedback can greatly improve guideline adherence,²⁴ while the strongest evidence is related to reminder systems, academic detailing, and multifaceted interventions.⁵⁵

Implementing quality improvement strategies in common error environments

Organisational culture

Organisational safety culture is a relatively new concept. Previously, health organisations have “named and shamed” individuals rather than trying to identify root causes of error within the organisational framework.^{14 24 26 38 51 56} This concept, however unhelpful, persists into the 21st century: one review we found suggested that altruism is the only real motivator for publishing medical errors in journals.¹² Cultural barriers to reporting error have included fear of litigation and blame/loss of peer respect, viewing errors as personality flaws rather than technical errors, and an inability to distinguish between chance events and error.¹² Much of this culture comes from difficulty in recognising what constitutes an error. For example, primary care physicians are more likely to identify something as an error if they know the outcome of an event is harmful, if the event is common, and if the responsibility lay with the individual.⁶ In secondary and tertiary institutions, physicians consistently under-report incidents in practice. Medico-legal identification of errors is more likely to include major patient harm – or be unrelated to medical error – and excludes “near miss” incidents where potential harm was averted.⁷ Interestingly, there is only limited information available regarding the individual consequences of disclosure of error, or how to go about disclosing an error.⁵⁷

Movement away from individual blame culture may help to reduce errors. Education of students regarding fallibility, uncertainty of practice, professional socialisation and teamwork may help to create an organisational environment where individuals feel able report and learn from mistakes.^{34 41} Some suggestions for enabling this in secondary or tertiary organisations include incentive programs and proactive error surveillance (eg, internal and external audits and event reporting).³⁴ In primary care settings, the main focus of culture change is towards team-based care in the community, with emphasis on each individual’s responsibility towards patient health.³⁹

Technology

Error from medical devices and software can be inherent in the device itself; due to user error; related to external factors influencing use of the device; failure of support systems; and tampering and sabotage. It is difficult in many circumstances to identify the true source of the error, and often individuals are blamed for something which is, in fact, a system-level problem.¹⁴ Technology such as electronic communication was seen as a possible solution to many of the errors identified.^{9-11 14 34} For example, at an individual level computerised provider order entry is used successfully to reduce error in many secondary and tertiary institutions.⁵⁸ Numerous organisational level technological innovations in primary care such as telemedicine or telehealth are effectively used to address not only quality and safety, but also access to services, collaboration, and workforce shortages.^{39 59} Organised primary health care may have a role in feeding back information to software development companies for example, to improve technology function.¹²

Medication

Medication errors are a large source of error in primary health care. Evidence suggests the main areas for medication error included lack of physician knowledge and lack of patient knowledge⁶⁰⁻⁶⁴, workload⁶³, fatigue^{13 23} and stress^{13 60} of health care staff, transfer between primary and secondary care,²² and dispensing and administration errors.^{13 64} One review found that almost any educational intervention was able to reduce error rates,⁹ but a more recent review found that systematic interventions such as implementation of clinical guidelines and multifaceted educational approaches were more effective.⁴²

Referrals

Referral between primary and secondary care is a major source of error, particularly regarding medications.^{13 22 65} Inappropriate or missed referral from primary to secondary care can be addressed at an organisational level by establishment and standardisation of referral guidelines^{13 22} (although this requires more educational input than just distribution and providing feedback on the appropriateness of referrals).²² The Australian Council for Safety and Quality in Health Care discusses the need for effective communication channels providing complete, clear information between team members, and across professions and sectors within hospitals.⁵⁶ There is little evidence available regarding methods to provide second opinions (or enhancing other service provision) and financial incentives to improve referral practice in primary care.^{22 51} At an individual level, knowledge and skill level are a major contributor to quality and safety in this context, with multi-professional handovers and care planning being most effective in secondary and tertiary care.⁵⁶ However, all four of these reviews found that there were few high quality studies in this area,^{13 22 65} with reduction in prescription errors the only consistent improvement.⁶⁵

Fatigue

Hospital-based research shows that fatigue leads to errors.^{13 23} Practice-level organisational interventions that might reduce fatigue include regulation of shifts and staffing alternatives (specialist nurses, telemedicine, etc).²³

Conclusion

It can be seen that the main areas for patient error include diagnosis, treatment, communication/co-ordination between patient, doctor and other health professionals, and medication errors. Intervention results are varied, but it appears that multifaceted and systematic approaches are the most effective, involving quality improvement mechanisms such as audit and feedback, improving education and knowledge dissemination, and implementation of clinical guidelines and incident monitoring systems. Much of the research has been conducted in secondary and tertiary settings with comparatively little in primary health care. This leads to a level of uncertainty about the extent to which these findings can be applied in primary care, however, it seems likely that the importance of leadership, governance and continuing medical education for quality and safety will be important in all settings. While this is a growing field of research, current disparities in definitions of error impede research and efforts to create consistent reporting frameworks in primary care. Further work is needed to address these.

References

1. Baker R, Sullivan E, Camosso-Stefinovic J, Rashid A, Azhar F, Blackledge H, et al. Making use of mortality data to improve quality and safety in general practice: a review of current approaches. *Quality & Safety in Health Care* 2007;16:84-89.
2. Arah O, Klazinga N. How safe is the safety paradigm? *Quality & Safety in Health Care* 2004;2004(13):226-232.
3. Arah O, Klazinga N, Delnoij D, Ten Asbroek A, Custers T. Conceptual frameworks for health systems performance: a quest for effectiveness, quality, and improvement. *International Journal for Quality in Health Care* 2003;15(5):377-398.
4. Department of Health. An organisation with a memory: report of an expert group on learning from adverse events in the NHS. London: Department of Health, 2000.

5. Meyer G, Battles J, Hart J, Tang N. The US Agency for Healthcare Research and Quality's activities in patient safety research. *International Journal for Quality in Health Care* 2003;15(Supplement 1):25-30.
6. Elder N, Pallerla H, Regan S. What do family physicians consider an error? A comparison of definitions and physician perception. . *BMC Family Practice* 2006;7:73 DOI:10.1186/1471-2296-7-73.
7. Sandars J, Esmail A. The frequency and nature of medical error in primary care: understanding the diversity across studies. *Family Practice* 2003;20(3):231-6.
8. Elder N, Dovey S. Classification of medical errors and preventable adverse events in primary care: A synthesis of the literature. *The Journal of Family Practice* 2002;51(11).
9. Ioannidis J, Lau J. Evidence on Interventions to Reduce Medical Errors. An Overview and Recommendations for Future Research. *JGIM* 2001;16(May 2001).
10. Wilson T, Sheikh A. Enhancing public safety in primary care. *bmj.com* 2002;324:584-7.
11. Jacobson L, Elwyn G, Robling M, Jones R. Error and safety in primary care: no clear boundaries. *Family Practice* 2003;20(3):237-41.
12. Murphy J, Stee L, McEvoy M, Oshiro J. Journal reporting of medical errors: the wisdom of Solomon, the bravery of Achilles, and the foolishness of Pan. *Chest* 2007;131(3):311-318.
13. Streitenberger K, Breen-Reid K, Harris C. Handoffs in care: can we make them safer? *Pediatric Clinics of North America* 2006;53(2006):1185-1195.
14. Balka E, Doyle-Waters M, Lecznarowicz D, Fitzgerald J. Technology, governance and patient safety: systems issues in technology and patient safety. *International Journal of Medical Informatics* 2007;76S(2007):S35-S47.
15. Kohn L, Corrigan J, Donaldson M. To Err is Human. Building a Safer Health System. *National Academy Press* 1999;1999.
16. Tilyard M, Dovey S, Hall K. Avoiding and fixing medical errors in general practice: prevention strategies reported in the Linnaeus Collaboration's Primary Care International Study of Medical Errors. *The New Zealand Medical Journal* 2005;118(1208).
17. Makeham M, Dovey S, County M, Kidd M. An international taxonomy for errors in general practice: a pilot study. *Medical Journal of Australia* 2002;177(2):68-72.
18. Rosser W, SM D, Bordman R, White D, Crighton E, Drummond N. Medical errors in primary care, Results of an international study of family practice. *Canadian Family Physician* 2005;51(March 2005).
19. Woolf S, Kuzel A, SM D, Phillips R. A String of Mistakes: The Importance of Cascade Analysis in Describing, Counting, and Preventing Medical Errors. *Annals of Family Medicine* 2004;2(4):317-26.
20. Weiss K, Wagner R. Performance Measurement Through Audit, Feedback, and Profiling as Tools for Improving Clinical Care. *CHEST* 2000;118(2000):53-58.
21. Bhasale A, Miller G, Reid S, Britt H. Analysing potential harm in Australian general practice: an incident-monitoring study. *MJA* 1998;169:73-76.
22. Akbari A, Mayhew A, Al-Alawi M, Grimshaw J, Winkens R, Glidewell E, et al. Interventions to improve outpatient referrals from primary care to secondary care (Review). *Cochrane Database of Systematic Reviews* 2005(3):Art. No.: CD005471. DOI: 10.1002/14651858.CD005471. .

23. Parshuram C. The impact of fatigue on patient safety. *Pediatric Clinics of North America* 2006;53(2006):1135-1153.
24. Jamtvedt G, Young J, Kristoffersen D, O'Brien M, Oxman A. Audit and feedback: effects on professional practice and health care outcomes. *The Cochrane Database of Systematic Reviews* 2006;April 2006(2):Art No.: CD000259. DOI: 10.1002/14651858.CD000259.pub.2.
25. O'Brien M, Rogers S, Jamtvedt G, Oxman A, Odgaard-Jensen J, Kristoffersen D, et al. Educational outreach visits: effects on professional practice and health care outcomes (review). *Cochrane Database of Systematic Reviews* 2007;October 2007(4):No.: CD000409. DOI: 10.1002/14651858.CD000409.pub.2.
26. Smith F, Singleton A, Hilton S. General practitioners' continuing education: a review of policies, strategies and effectiveness, and their implications for the future. *Br J Gen Pract.* 1998;Dec 1998(48):437.
27. Davis D. Does CME work? An Analysis of the Effect of Educational Activities on Physician Performance or Health Care Outcomes. *International Psychiatry in Medicine* 1998;28(1):21-39.
28. Grol R, Grimshaw J. From best evidence to best practice: effective implementation of change in patients' care. *The Lancet* 2003;362:1225-1230.
29. Stefanelli M. Knowledge Management to Support Performance-based Medicine. *Methods Inf Med* 2002;1/2002(41):36-43.
30. Grimshaw J, Thomas R, MacLennan G, Fraser C, Ramsay C, Vale L, et al. Effectiveness and efficiency of guideline dissemination and implementation strategies. *Health Technology Assessment 2004* 2004;8(6).
31. Grimshaw J, Eccles M, Tetroe J. Implementing Clinical Guidelines: Current Evidence and Future Implications. *The Journal of Continuing Education in the Health Professions.* 2004;24:S31-S37.
32. Freeman T. Using performance indicators to improve health care quality in the public sector: a review of the literature. *Health Services Management Research* 2002;15:126-137.
33. Spigelman A, Swan J. Review of the Australian Incident Monitoring System. *ANZ J. Surg.* 2005 2004(75):657-661.
34. Ralston J, Larson E. Crossing to safety: transforming healthcare organizations for patient safety. *Journal of Postgraduate Medicine* 2005;51(1):61-67.
35. Holden J. Systematic review of published multi-practice audits from British general practice. *Journal of Evaluation in Clinical Practice* 2004;10(2):247-272.
36. Fung C, Yee-Wei Lim Y-W, Mattke S, Damberg C, Shekelle P. Systematic review: The evidence that publishing patient care performance data improves quality of care. *Annals of Internal Medicine* 2008;148::111-23.
37. Clarke J, Lerner J, Marella W. The role for leaders of health care organizations in patient safety. *American Journal of Medical Quality* 2007;22:311-318.
38. Sirota R. Error and error reduction in pathology. *Archives of Pathology and Laboratory Medicine* 2005;129:1228-1233.
39. Fund PHCT. Laying the groundwork for cultural change: the legacy of the primary health care transitional fund. Ottawa: Publications Health Canada, March 2007.
40. Grimshaw J, Shirran L, Thomas R, Mowatt G, Fraser C, Bero L, et al. Changing provider behaviour: an overview of systematic reviews of interventions to

promote implementation of research findings by healthcare professionals. *Medical Care* 2002.

41. Lester H, Tritter J. Medical error: a discussion of the medical construction of error and suggestions for reforms of medical education to decrease error. *Medical Education* 2001;35:855-861.
42. Pearson S, Ross-Degnan D, Payson A, Soumerai S. Changing Medication Use in Managed Care: A Critical Review of the Available Evidence. *The American Journal of Managed Care* 2003;9(11).
43. Satterlee W, Eggers R, Grimes D. Effective medical education: insights from the Cochrane Library. *Obstetrical and Gynaecological Survey* 2008;63(5):329-33.
44. Seddon M, Marshall M, Campbell S, Roland M. Systematic review of studies of quality of clinical care in general practice in the UK, Australia and New Zealand *Quality & Safety in Health Care* 2001;10:152-158.
45. Summer;64(3):164-72. JPHD, Sohn W IA, Tellez M. Efficacy of educational interventions targeting primary care providers' practice behaviors: an overview of published systematic reviews. *Journal of Public Health Dentistry* 2004;64(3):164-72.
46. Farmer A, Légaré F, Turcot L, Grimshaw J, Harvey E, McGowan J, et al. Printed educational materials: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* 2008;2008(3):Art. No.: CD004398. DOI: 10.1002/14651858.CD004398.pub2.
47. Tait A. Clinical governance in primary care: a literature review. *Journal of Clinical Nursing* 2004;13:723-730.
48. Malcolm L, Mays N. New Zealand's independent practitioner associations: a working model of clinical governance in primary care? *British Medical Journal* 1999;319:1340-42.
49. Godden S, Majeed A, Pollock A, Bindman A. How are primary care groups approaching clinical governance? A review of clinical governance plans from primary care groups in London. *Journal of Public Health Medicine* 2002;24(3):165-169.
50. Jackson C, Nicholson C, Doust J, Cheung L, O'Donnell J. Seriously working together: integrated governance models to achieve sustainable partnerships between health care organisations. *Medical Journal of Australia* 2008;188(8):S57-61.
51. Booth B, Snowdon T, Lees C. A quality framework for Australian general practice: Background paper. Melbourne: The Royal Australian College of General Practitioners, 2005.
52. Shaw J. Practice Improvement: child healthcare quality and Bright Futures. *Pediatric Annals* 2008;37(3):159-64.
53. Choudhry N, Fletcher R, Soumerai S. Systematic review: the relationship between clinical experience and quality of health care. *Annals of Internal Medicine* 2005;142:260-273.
54. Grimshaw J. Implementing clinical guidelines: current evidence and future implications. *The Journal of Continuing Education in the Health Professions*. 2004;24:S31-S37.
55. Davis D. Translating guidelines into practice: a systematic review of theoretical concepts, practical experience and research evidence in the adoption of clinical

- practice guidelines. *Canadian Medical Association Journal* Taylor-Vaisey, A;157(4):408-416.
56. Australian Council on Safety and Quality in Health Care. Clinical Handover and Patient Safety. Literature Review Report. Canberra: Australian Council on Safety and Quality in Health Care, 2005.
 57. Calvert J, Hollander-Rodriguez J, Atlas M. What are the repercussions of disclosing a medical error? *The Journal of Family Practice* 2008;57(2):124-5.
 58. Jacobs B. Electronic record, error detection, and error reduction: a pediatric critical care perspective. *Pediatric Critical Care Medicine* 2007;8:S17-S20.
 59. North South Group Inc. Literature review and environmental scan of preferred practices for deployment of health human resources and decision support tools. . In: Branch HP, editor: Health Canada, 2004.
 60. Lexchin J. Improving the Appropriateness of Physician Prescribing. *International Journal of Health Services* 1998;28(2):253-267.
 61. Tipton D, Giannetti V, Kristiofik J. Managing the Aftermath of Medication Errors: Managed Care's Role. *Journal of the American Pharmacists Association* 2003;43(5).
 62. Clancy T. Medication Error Prevention. Progress of Initiatives. *Jona's Healthcare Law, Ethics, and Regulation* 2004;6(1).
 63. Armitage G, Knapman H. Adverse events in drug administration: a literature review. *Journal of Nursing Management* 2003;2003(11):130-140.
 64. Runciman W, Roughead E, Semple S, Adams R. Adverse drug events and medication errors in Australia. *International Journal for Quality in Health Care* 2003;15(Supp 1):49-59.
 65. Smith S, Allwight S, O'Dowd T. Effectiveness of shared care across the interface between primary and specialty care in chronic disease management (Review). *Cochrane Database of Systematic Reviews* 2007;3:CD004910.

9. Indigenous health

Introduction

It is well recognised that there are discrepancies between the health of Aboriginal and Torres Strait Islanders and non-indigenous people.¹ Access is a major issue. Major barriers encountered by indigenous patients seeking health care include:

- lack of services
- discrimination
- lack of cultural awareness of non indigenous medical staff
- gender issues; mistrust of services and providers
- lack of ownership and control
- concerns with privacy and shame when presenting to clinic settings;
- poverty
- the predominant focus of primary health care on acute clinical care at the expense of preventive and more holistic approaches to indigenous peoples' wellbeing.²⁻⁵

In the Australian setting, the primary response to indigenous health disadvantage has been investment in the community controlled sector. However, mainstream services also need to improve their acceptability and appropriateness to indigenous people and to assist patients and families to negotiate pathways through the health system.⁵

There has been increasing policy interest in the development of partnerships to address the health needs of indigenous communities. For example, Aboriginal mental health policy focuses on providing services through Aboriginal and mainstream health service partnerships and the need to increase the availability of Aboriginal health workers to mental health.⁶ Partnership approaches are explicitly identified in the 2004 Aboriginal and Torres Strait Islander Primary Health Care Review and in the 2005 NSW Aboriginal Chronic Conditions Area Health Service Standards. However, little work has been done to critically assess such partnerships and determine how to strengthen them. The formation of effective genuine partnerships between mainstream and Aboriginal and Torres Strait Islander organisations may help in sharing the responsibility for the delivery of vital health services.⁷

This section reviews the limited evidence available on the role of "mainstream" organised primary health care in Aboriginal health.

Q1: What do we know about organised PHC working with and in indigenous communities?

There is little published evidence relating specifically to the involvement of divisions of general practice in Indigenous health. There are however a small number of relevant papers from Australian sources and a number of international reviews and articles on the subject. There are also papers in the grey literature on the development of partnerships between indigenous and mainstream health organisations in Australia, which reflect the current policy focus and have been included.

Provision and delegation of funding has been identified as an issue that affects provision of services.^{9, 11-14} While rural health has received policy attention in recent years, most of the additional funding has been directed towards workforce issues. Consequently there has been little policy attention to the systematic development of sustainable comprehensive primary health care service models in rural and remote Australia.⁸ Remoteness is an issue that impacts on the type and range of health services provided and therefore, differences in the availability and range of health care between regions is evident in Australia. At each level of remoteness however, there are a number of essential requirements that allow sustainable and effective primary health care: workforce, funding and financing, governance, management and leadership, and linkages.⁸ Thus there is a need to consider different models of care that exist in providing services to Indigenous communities, from mainstream to community controlled.⁸

Evidence from New Zealand suggests that the mandatory inclusion of indigenous people on health organisation governance boards has achieved positive outcomes.^{15,16} The provision of liaison officers in tribal organisations^{9,10} and primary care teams has also been met with success,¹² and the USA has had similar results with the involvement of local tribal leaders in designing and implementing health service delivery.⁹ Similarly, in Australia, divisions of general practice report that the involvement of Indigenous communities and community controlled health services is important to the success of a program.¹¹ Such groups should include paid community representatives and representatives from Aboriginal organisations. One of the challenges divisions can face is ensuring adequate consultation with all the Aboriginal groups in the region, particularly in areas where communities include several language groups. Divisions report that the employment of Aboriginal staff members has been vital to the success of programs, as it increases cultural awareness and keeps Aboriginal health issues on the agenda for the divisions.¹⁷

Linkages between sectors

Linkages between the Community Controlled sector and mainstream general practice organisations are being forged in Australia to provide support for practitioners working in Indigenous health. Examples include initiatives such as the National Aboriginal Community Controlled Health Organisation (NACCHO) GP Network which is an on-line service providing focussed information for GPs working in the Aboriginal community controlled health sector (ACCHS). It is intended to reduce isolation and address the support needs of GPs as well as enhance the interaction of the ACC sector with general practice organisations.¹⁸

The development of a partnership between the Aboriginal Health & Medical Research Council (the NSW NACCHO affiliate) and the Alliance of NSW Divisions, has sought to increase the number of ACCHSs achieving GP accreditation¹⁷ and to support interaction between ACCHSs and divisions on implementation of Chronic Disease Management Medicare Item Numbers, including the Adult Health Check (Item 710). Action plans were designed to overcome local barriers and implement systems within the ACCHS to sustain regular use of the Item. While the uptake of this item has been shown to be lower for indigenous people than for others¹⁹, an examination of this project suggested that there was a substantial increase in the numbers of items claimed in NSW during this period¹⁷, suggesting that divisions involvement in addressing the systems barriers to access for adult health checks may be successful and sustainable.

The Royal Australian College of General Practitioners (RACGP) has established initiatives in education and training to support GPs working in Aboriginal and Torres Strait Islander communities. This includes initiatives such as the provision of cultural safety training for GPs and the joint collaboration between the RACGP, NACCHO, the Australian Indigenous Doctors' Association (AIDA) and the Australian College of Rural and Remote Medicine to develop a proposal for revision of the Aboriginal health curriculum for general practice registrar training.²⁰ Such efforts are underpinned by evidence that specialist service provision is lacking in a majority of rural and remote communities.²¹ Consequently, GPs with procedural and/or advanced cognitive skills take on a substantial amount of the rural and remote workload that would usually be undertaken by specialists in metropolitan and regional areas. Clearly, this has implications for education and training, continuing professional development and locum support.

Divisions have also been involved in the provision of outreach clinics to indigenous communities. Examples include the NSW Outback Division of General Practice (ODGP) which has been providing an outreach GP clinic and a health-related transport service for more than six years as part of its Regional Health Services program. Working closely with the community is creating program linkages and developments that aim to enhance the efficacy of GP activity.¹⁷ Another example is the partnership between a Victorian Division, local health services and government to involve many of the region's doctors in providing health care to the local Aboriginal population from a mobile bus known as the "Peelies Bus". This has facilitated local engagement, resulting in the reported involvement of 650 out of an identified regional populace of over 900 Aboriginal people now on the service database.¹⁷

One paper examined Indigenous communities' access to medicines. In rural and remote communities, the use of S100, which allows Aboriginal Medical Services (AMSs) to bulk buy and dispense medicines in remote areas, has improved uptake of medicine use. It was proposed that extending the S100 policy to indigenous communities that are not rural and remote would improve medication uptake and health outcomes, as it has done in rural and remote settings.²² Despite its usefulness in making medicines available, this model does not provide Indigenous people with access to the pharmacy advice available to other users of medicines. So, while medicine use can be increased when they are dispensed through community controlled health services, this does not necessarily address the shortage of pharmacist or other physician support.²²

Q2: What do we know about organised PHC and indigenous clients/patients?

Five systematic reviews, one review and other literature were included. The main comments of two of the systematic reviews were on the paucity of empirical data³² and its lack of relevance to Indigenous health needs (Canadian material).²³ Programs worked best if they addressed documented needs within the defined population.¹² Supervision and leadership in community projects was needed,^{9,12} as were knowledge dissemination and communication strategies (eg, information technology),^{9,12,23} the provision of resources/personnel,^{9,12,13,24} and the provision of specialist¹⁰ and other outreach visits.^{13,24} Maternal and child welfare is an area in which community organisations have worked effectively with mainstream providers to increase services to individuals,^{25,26} although Australian provision of these programs is not as developed as in other countries.²⁵

Training and provision of community or Indigenous health workers is well established as effective in increasing access to services by Indigenous peoples,^{9,10,13,27-29} and the employment of Indigenous personnel has been identified as important to the success of Indigenous primary health care programs.^{9,13} It has been argued that Aboriginal health workers are a cultural reference for both doctors and patients. They can interpret problems from both sides so there is better understanding and concordance. Ensuring that health services are culturally secure should ensure that the cultural rights, views, values and expectations of Aboriginal people are protected.³⁰ However, the Medicare system does not involve Aboriginal Health Workers (AHWs) sufficiently in the provision of primary care.³¹ In addition the training content for Aboriginal health workers in Australia is often varied from main stream training²⁷ so that the staff employed in cross-cultural programs for their knowledge and skills in working with Indigenous communities often have a different set of skills and level of training compared with discipline-based health workers. This can lead to an uncertainty about each person's role and a lack of confidence in each person's skills.³² Thus there needs to be more professional recognition of their particular role and the difficulty in retaining workers needs to be addressed.²⁷

It is important to spend more time with Indigenous clients^{9,12} and to use cultural knowledge.^{9,27-29} An Australian survey of consultations with Indigenous patients compared those in general practice with those in an ACCHS. Results showed a greater number of problems managed per consultation in ACCHS than in mainstream general practice.³¹ Up-skilling and cultural education for health professionals have also been identified as important factors in involving Indigenous clients in primary health care.^{12,13} In addition to training in cultural awareness, liaison with Aboriginal health workers can assist doctors in dealing with their own ethnocentrism and challenging the socialised and cultural view of "normal" in consultations. Patients are more likely to return for appointments if they feel that their cultural experiences are respected.³⁰ One useful way of communicating in a consultation involves the patient and family members taking on the role of experts, while the doctor becomes a student of their culture. Rather than the oft used "blunt line of questioning",³⁰ this emphasises respect and curiosity for the patient's alternative view of their illness. This style is similar to that of narrative therapy which was identified by Aboriginal health workers as more appropriate than conventional western mental health approaches.³⁰ Treatment "concordance" rather than "compliance" has also been suggested as a better concept when dealing with Indigenous clients, where concordance implies a less hierarchical agreement between the patient and doctor, and provides the opportunity to try to attain a more cooperative and successful set of goals during the consultation.³⁰

In mainstream general practice, only a minority of practices have effective processes in place to offer all patients an opportunity to identify as Aboriginal or Torres Strait Islander¹⁷. Determination of Aboriginal or Torres Strait Islander status is a necessary first step for offering Indigenous specific health interventions. Less than 10 per cent of eligible people currently participate in health assessments¹⁹ and poor identification has been identified as a key barrier to uptake. Raising awareness amongst mainstream GPs about the importance of identifying Aboriginality, and supporting practice staff to go about this process is a role that some divisions are addressing.¹⁷

Conclusion

Given the level of health disadvantage among Aboriginal and Torres Strait Islander people, effective engagement with communities and with patients has the potential to make a significant contribution to access and health outcomes. There is a growing evidence base regarding the range of strategies being used to improve the appropriateness of service delivery and increase access. Further research is needed to assess the effectiveness of the current policy focus on building partnerships between mainstream and Aboriginal and Torres Strait Islander organisations.

References

1. Bramley, P., Herbert, P., Chassin, M. Indigenous disparities in disease-specific mortality, as cross-country comparison: New Zealand, Australia, Canada, and the United States. *The New Zealand Medical Journal*, 2004; 117(1207): obtained online: <http://www.nzmj.org.nz/journal/117-1207/1215/>
2. Culvenor, C., Wilczynski, A., Wallace, A. *Access to after hours primary medical care by disadvantaged and marginalised groups*. Canberra: Department of Health and Aging, Commonwealth of Australia, 2002
3. Commonwealth of Australia. *Better Health Care*. Canberra: Indigenous and Public Health Media Unit, Commonwealth Department of Aged Care, 2001
4. Spry F, Lowe H. Living male. *Indigenous male health discussion paper*. Darwin: Territory Health Services, 2002.
5. Brown A. Indigenous male health disadvantage: Linking the heart and mind. *Australian Family Physician* 2005; 34(10): 813-819.
6. Office for Aboriginal and Torres Strait Islander Health. *Social and emotional well being framework: a national strategic framework for Aboriginal and Torres Strait Islander mental health and social and emotional well being (2004-2009)*. Canberra: Australian Government Department of Health and Ageing, 2004 (draft).
7. Fuller, personal communication, October 1 2008
8. Wakerman J, Humphreys J, Wells R, Kuipers P, Entwistle P, Jones J. *A Systematic Review of Primary Health Care Delivery Models in Rural and Remote Australia 1993-2006*. Australian Primary Health Care Research Institute, Canberra, 2006
9. User Liaison Program. *Workshop brief: addressing critical concerns of healthcare systems serving American Indians/Alaska Natives*. Agency for Healthcare Research and Quality, 2001, obtained online:<http://www.ahrq.gov/news/ulp/tribal/ulptribal.htm>
10. Condon, J. *Aboriginal and Torres Strait Islander Primary Care Review: Consultant Report No. 5. Maternal and child health care services: Cancer, health services and Indigenous Australians*. Cooperative Research Centre for Aboriginal and Tropical Health; Commonwealth of Australia, 2004
11. Sibthorpe, B., Meihubers, S., Griew, R., Lyttle, C., Gardener, K. *NCEPH Discussion Paper Number 17: Aboriginal health initiatives in Divisions of General Practice during the move to (outcomes based) block grant funding 1998-1999*. Canberra: National Centre for Epidemiology and Population Health, The Australian National University, 1999

12. Stout, M.D., Kipling, G.D. *Sharing the learning: The Health Transition Fund Synthesis Series: Aboriginal health*. Ottawa: Health Canada, 2002
13. Andrews, B., Simmons, P., Long, I, Wilson, R. Identifying and overcoming the barriers to Aboriginal access to general practitioner services in rural New South Wales. *Australian Journal of Rural Health*, 2002; 10:196-201
14. Shannon,C., Longbottom, H. *Aboriginal and Torres Strait Islander Primary Care Review: Consultant Report No. 4. Capacity development in Aboriginal and Torres Strait Islander health service delivery*. School of Public Health, University of Queensland; Commonwealth of Australia, 2004.
15. Boulton, A., Simonsen, K., Walker, T., Cumming, J., Cunningham, C. Indigenous participation in the new New Zealand health structure. *Journal of Health Services Research Policy*, 2004; 9(S2):35-40
16. Cumming, J., Raymont, A., Gribben, B., Horsburgh, M., Kent, B., McDonald, J., Mays, N., Smith, J. *Evaluation of the implementation and intermediate outcomes of the Primary Health Care Strategy First Report*. Wellington: Health Services Research Centre, Victoria University of Wellington, 2005
17. Australian General Practitioners Network. Indigenous Issue. *Dynamic Divisions* 2007;10
18. Starling RN, O'Connell C, Couzos S. NACCHO GP Network: Enhancing GP Communication in Aboriginal Health. *Australian Family Physician* 2005; 34(10): 849-850.
19. Kelaher M, Dunt D, Thomas D, Anderson I. Comparison of the uptake of health assessment items for Aboriginal and Torres Strait Islander people and other Australians: Implications for policy *Australia and New Zealand Health Policy* 2005, 2:21
20. Reath J. The RACGP- Supporting GPs to work better in Aboriginal and Torres Strait Islander Health. *Australian Family Physician* 2005; 34(10): 845-848.
21. Pashen D, Murray R, Chater B, Sheedy V, White C, Eriksson L, De La Rue S, Du Rietz M. *The Expanding Role of the Rural Generalist in Australia – A Systematic Review*. Australian College of Rural and Remote Medicine, Brisbane 2007
22. Stoneman J, Taylor SJ. Improving access to medicines in urban, regional and rural Aboriginal communities – is expansion of Section 100 the answer? *Rural and Remote Health* 2007; 7: 738.
23. Young, T.K. Review of research on aboriginal populations in Canada: relevance to their health needs. *British Medical Journal*, 2003; 327:419-422
24. Taylor, V., Ewald, D., Liddle, H., Warchiver, I. *Review of the implementation of the National Aboriginal and Torres Strait Islander Eye Health Program*. Centre for Remote Health; Commonwealth of Australia, 2003
25. Eades, S. *Aboriginal and Torres Strait Islander Primary Care Review: Consultant Report No. 6. Maternal and child health care services: Actions in the primary health care setting to improve the health of Aboriginal and Torres Strait Islander women of childbearing age, infants and young children*. Menzies School of Health Research; Commonwealth of Australia, 2004
26. Panaretto, K.S., Lee, H.M., Mitchell, M.R., Larkins, S.L., Manassis, V., Buettner, P.G., Watson, D. Impact of a collaborative shared antenatal care program for

- urban Indigenous women: a prospective cohort study. *Medical Journal of Australia*, 2005; 182(10):514-519
27. Curtin Indigenous Research Centre, Centre for Educational Research and Evaluation Consortium, Jojara & Associates. *Training re-visions: a national review of the Aboriginal and Torres Strait Islander health care worker training*. Office for Aboriginal and Torres Strait Islander Health, Commonwealth of Australia
 28. Nemeck, M.A, Sabatier, R. State of evaluation: community health workers. *Public Health Nursing*, 2003; 20(4):260-270
 29. Lewin SA, Dick J, Pond P, Zwarenstein M, Aja G, van Wyk B, Bosch-Capblanch X, Patrick M. Lay health workers in primary and community health care. *The Cochrane Database of Systematic Reviews* 2005, Issue 1. Art. No.: CD004015. DOI: 10.1002/14651858.CD004015.pub2.
 30. Benson J. Concordance: an alternative term to 'compliance' in the Aboriginal population. *Australian Family Physician* 2005; 34(10): 831-834.
 31. Larkins SL, Geia LK & Panaretto KS. Consultations in general practice and at an Aboriginal community controlled health service: do they differ? *Rural and Remote Health* 2006; 6:560.
 32. Fuller JD, Martinez L, Muyambi K, Verran K, Ryan B, Klee R. Sustaining an Aboriginal mental health service partnership. *MJA* 2005; 183: S69-S72.
 33. Morris, P.S. Randomised controlled trials addressing Australian Aboriginal health needs: a systematic review of the literature. *Journal of Paediatrics and Child Health*, 1999; 35:130-135