Improving the health of the people of the Latrobe Valley

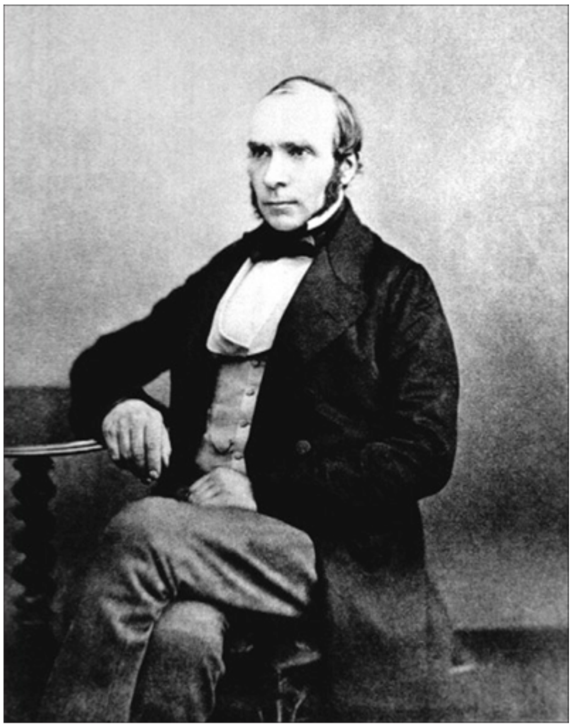
Prof Donald Campbell & Prof David Clarke

MonashHealth

Epigram

In 1855 John Snow became convinced that a local cholera epidemic in St James' Parish, London was entirely due to an infected water pump in Broad Street. No other medical professional shared this view. Yet by persevering he had the pump disabled and the epidemic was halted.

"I had an interview with the Board of Guardians of St. James's parish, on the evening of Thursday, 7th September, … In consequence of what I said, the handle of the pump was removed on the following day." John Snow 1855



Footnote:

In 1866, twelve years after the event, Dr. Edwin Lankester wrote further of the pump handle incident.

He was a member of a local group that looked into the causes of the Broad Street outbreak, and was later to become the first medical officer of health for the St. James's district (the area where the outbreak occurred.

"The Board of Guardians met to consult as to what ought to be done. Of that meeting, the late Dr. Snow demanded an audience. He was admitted and gave it as his opinion that the pump in Broad Street, and that pump alone, was the cause of all the pestilence. He was not believed -- not a member of his own profession, not an individual in the parish believed that Snow was right. But the pump was closed nevertheless and the plague was stayed.

Contents

Executive Summary

The Hazelwood Mine Fire has raised the spectre of significant adverse health impacts for the Latrobe Valley community. This occurred in a community that was already the subject of a significant health deficit. Addressing this increasing deficit will require concentrated and co-ordinated action. This report recommends a number of measures to achieve that action and deliver improved health for the people of the Latrobe Valley.

The report is based on an international review of world's best practice in health service improvement programs. Given their relevance to the Latrobe Valley, special consideration has been given to respiratory and cardiovascular disease and mental health, and programs that address screening, identification and early intervention for these conditions.

The report recommends the establishment of a platform that will enable the restoration of the health of the members of the Latrobe Valley community.

Any program dealing with health can only be successful if there is a clear understanding of what health is, and the restrictions that interfere with any improvement. Health is a state of complete physical and mental well-being, not merely the absence of disease and health and environment are interrelated. Healthcare is a complex system with a finite pool of resources. A human centred design approach offers an opportunity to shape the future of healthcare in the Latrobe Valley and address the chronic and complex care needs of the community over the coming decades. Placing the consumer's perspective relentlessly at the centre of the process of health improvement will be critical to success.

A strong primary health care system is necessary to drive improvements in health, and the continued development of Primary Health Networks focussed on increasing the efficiency and effectiveness for patients, particularly those at risk of poor outcomes, and improving co-ordination will be key. With an increasing number of persons surviving into old age, with an increased likelihood of multiple chronic diseases, and with Australia's healthcare arrangements not working very well for those with complex care needs, we are currently poorly equipped to meet anticipated increases in demand.

Innovation and change in healthcare delivery models will be required with a focus on support for the patient and their informal caregivers. This will require a fundamental shift in thinking with an opportunity to organise health services in the Latrobe Valley in a very different way. Any such change needs to engage the people and community of the Latrobe Valley in healthcare decision making via a genuine process of co-design.

Addressing preventable causes of adverse health outcomes can make significant health improvements. Steps can, and should, be taken to eliminate or reduce cause (eg. Alcohol abuse, smoking, lack of exercise etc.) and to reduce progression of existing disease through early detection and timely intervention. A particular focus on cardiovascular and respiratory disease and mental health will be required for the Latrobe Valley community. The report recommends targeted programs to address these issues (i.e. the Healthy Lungs, Strong Hearts and Clear Minds programs).

In addition to prevention, significant health improvements can also be made through better management of chronic disease, especially in the context of multiple co-morbidities. High quality and effective management of chronic disease in these circumstances should be based on locally coordinated, comprehensive, affordable and universal care with the capability to detect and respond to a variety of health and social issues. This has the potential to not only improve health outcomes but also to reduce the overall cost of healthcare provision. The current model for delivery of chronic disease management is overly complex and inappropriate for managing patients with multiple co-morbidities. Accordingly, programs in these areas can benefit from significant innovation, and greater community and patient engagement and involvement in their design. Several promising new models are emerging, including models based on illness trajectory incorporating multiple morbidities rather than single diseases.

Across the world the need for integration of care models has also been recognised, but to date no single model of integrated care has fully delivered the promised benefits. A variety of enablers at the policy, organisational, and patient experience level have been identified. The fact that the development of such models is immature should not be a reason not to proceed, but rather a driver to seek better models that build on proven enablers of success.

Healthcare resources are limited and calls on them are virtually unlimited. In these circumstances traditional funding and market models are often found wanting. It has been identified that the “Principle of the Commons” may be applicable to managing limited healthcare resources. Work done by Nobel Laureate Professor Ostrom and extended by the Atlanta Regional Collaborative for Health Improvement (ARCHI) demonstrates the value of this approach. This report recommends establishing a Latrobe Regional Collaborative Health Conservation Zone to be the key driver of improving health across the Latrobe Valley community. Such an initiative will require support and commitment from the local community, local healthcare workers and from a wide range of local, regional, state and commonwealth entities.

Another key element in improving health in the Latrobe Valley would be to consider the development of a community nursing program which has a simple, flat organisational structure through which a wide range of services, facilitated by informational technology, can be provided. The Buurtzorg Community Nursing program in The Netherlands, which adopts a system of self-governing teams of highly trained nurses which rely on coaches rather managers, provides a best practice example of such a service.

With lung cancer being the main cause of cancer related death in Australia and the Latrobe Valley being a population at particularly high risk, screening high-risk individuals for lung cancer with low dose CT scans has the potential to save lives. The report recommends establishing a lung cancer screening program which targets high risk individuals. Ideally this program would form part of a national trial with links to researchers.

Improving the mental health of the Latrobe Valley community requires a change to the manner in which services are delivered and in particular, better coordination and co-operation across a range of healthcare, housing and social services. Physical health, drug & alcohol, relationship, housing and social issues often accompany mental health issues. This emphasises the importance of easy and co-ordinated access to all services and ensuring that the services provide a complete coverage of these issues. Increasing health literacy will enable people to identify problems, locate sources of treatment and communicate with health professionals. Models utilised in chronic disease self-management have ready applicability to mental health.

The report makes a number of specific recommendations, which are set out in detail in the next section. The recommendations include:

- A formal recognition of the perception of harm to health of the community associated with the mine fire should be made
- Establishing a platform which would help enable restoration of the health of the Latrobe Valley community, involving co-ordination across a broad range of public and private services with a focus on community engagement
- That the Latrobe Valley should be declared a Health Conservation Zone and managed collaboratively by a Regional Commission utilising the principles of the commons
- That the Regional Commission have key responsibility for implementing a set of health services and health promotion activities, adopting best practice models which acknowledge the interrelated nature of all healthcare activities
- The Commission should be guided by a Steering Committee with broad stakeholder representation, supported by an external advisory body and utilise modern corporate governance systems

- The Commission should consider a range of health initiatives for early priority, focus on developing a skilled local workforce and a set of health and outcome measures for reporting
- The Commission should receive start up funding from the Victorian Government and develop a financial model for ongoing viability
- The Primary Health Network could consider taking on the responsibility for auspicing the functions of the Latrobe Regional Health Commission.

Recommendations

Practical recommendations for health service improvements in the Latrobe Valley

The people of the Latrobe Valley experience socioeconomic disadvantage and have poor health outcomes. They have seen members of their community suffer the health ill-effects of asbestos exposure over an extended period. Independent research states that they feel that the government, the former State Electricity Commission of Victoria, and more recently the coal mine operators and electricity generators, have betrayed their trust. This perception of harm and loss is real and should be acknowledged formally.

> *Recommendation 1: The Government and Mine Operators should formally acknowledge the perception of harm to health caused by the mine fire and the operation of the mines and power stations generally, which is genuinely held by the residents of the Latrobe Valley*.

Arising from this, there should be concerted efforts to make amends with the community by engaging with them to restore the health of the community and to restore trust in government.

The pathway to restoring this trust should begin by creating a discourse with the community that will shape the platform to carry responsibility for improving the health of all members of the community. This is an opportunity to innovate in a way that will provide lessons for improving the health of regions across Australia as well as taking responsibility for ensuring expenditure is managed by reducing waste due to ineffective systems, services and processes.

> *Recommendation 2: A platform should be established within the Latrobe Valley which will help enable the restoration of the health of members of that Community.*

This platform should focus on health and wellness for the community as a strategic objective, including managing the healthcare delivery system as a whole of health care enterprise at the local level.

The platform should foster engagement across the health and social sectors and into the broader community, including housing, the justice system, educational institutional partners, Council, Community Health Centre, Regional Health Service, Regional Office of the Department of Health and Human Services, the Primary Health Network, private and public insurers, local medical practitioner groups, direct representation from the indigenous community, and representatives of coal mine operators and power generator companies.

> *Recommendation 3: The platform should involve coordination across a broad range of public and private services with a focus on community engagement.*

The external economic costs of coal-fired electricity generation are almost exclusively health related, and to date most of those directly attributable costs are borne by the population in the vicinity of the generation plant and are due to particulate pollution and its contribution to chronic disease as well as historical exposure to carcinogens (principally Asbestos).

The economic benefits of health policy to mitigate the potential impact of chronic disease can be quantified and demonstrate a very good return on investment. The greatest benefit of health policy to reduce this impact can be shown to be related to the mitigation of the effects of chronic disease on employability amongst older workers (40 years plus) and reducing the effects of cigarette smoke exposure on incidence of primary lung cancer by health promotion and quit programs.

There can be no doubt that there would be positive returns from additional local investment in health improvement activities in the Latrobe Valley. There is an opportunity to consider innovative ways to take responsibility at a local level for financing and policy settings to foster effective local governance of improvement activities in the Latrobe Valley. To this end the Latrobe Valley should be declared a Health Conservation Zone in recognition of its status as an area of exceptional need.

This should be maintained for a period of at least five years, but preferably ten years and depending on results, longer.

> *Recommendation 4: The Latrobe Valley should be declared a Health Conservation Zone for a period of at least 5 years.*

Ideally, there would be bipartisan support for this initiative and a mechanism would be created to ensure that it can survive a change in government, as failure to do so would only fuel cynicism and further reinforce distrust in the Latrobe Valley.

The Health Conservation Zone should be managed collaboratively as a Health Commons by a Commission (eg Latrobe Regional Collaborative Health Commission - LARCH Commission) with a Health Commissioner as its Chair. It is conceivable that the LARCH Commission could be an exemplary manifestation of the work of the local Primary Health Network. The LARCH Commissioner could report annually to the community. The Regional Health Commissioner will be a very important appointment as that person will need to be able to engender trust broadly across the community, provide selfless leadership and ultimately take responsibility for the implementation of change which will certainly impact upon entrenched interests.

The Principles that govern the structure, function and role of the LARCH Commission should be derived from the Principle of the Commons as espoused by the Nobel Prize winner, Professor Elinor Ostrom.

> *Recommendation 5: The Health Conservation Zone should be managed collaboratively by a Latrobe Regional Collaborative Health Commission headed by a Health Commissioner, utilising the principles of the Commons as espoused by Professor Elinor Ostrom.*

The LARCH Commission will have the responsibility of engaging with the Community to co-design a health care system that will meet its needs, incorporating best practice approaches, for example utilising Human Centred Co-Design.

All services should focus on improving health outcomes for all members of the community. However, the choice of services for focused concerted action should be carefully selected for maximum impact, and the priority for implementation should be determined by the LARCH Commission.

The LARCH Commission should also be responsible for managing the scale and scope of activities that pertain to a population health strategy and operational plan for the Latrobe Valley. This will not be further considered or enlarged upon in this section of the report. It is essential that the population health activities and the health service partnerships are recognised and managed as inextricably inter-related sets of activities as part of the remit of the LARCH Commission. The key role of general practice in delivering medical care to the community should be acknowledged and supported by all services.

> *Recommendation 6: The LARCH Commission will be responsible for identifying and supporting the implementation of a set of health services and health promotion activities to have demonstrable impact on the health outcomes of the wider community.*
>
> *Recommendation 7: In undertaking its activities the LARCH Commission should adopt best practice processes (e.g. Human Centred Co-Design), acknowledge the interrelated nature of all health activities, and recognise, support and reinforce the key role of general practice.*

The LARCH Commission will benefit from access to the widest range of community representation and engagement. Organisations which could provide membership to a Steering Committee to oversee the Leadership group of the Commission, could include representatives of Councils, Community Health Centres, the Regional Health Service, the Regional Office of the Department of Health and Human Services, the Primary Health Network, private and public health insurers (Ie, Victorian Managed Insurance Authority), local medical practitioner groups, direct representation from the indigenous community, representatives of coal mine operators and power generator companies local businesses, general insurers and representatives from the social sector including housing and the justice system.

The LARCH Commission will need an external advisory body to assist and guide its development. It is recommended that an external advisory board be created to oversee the formation of the LARCH Commission, comprised of persons with a broad range of expertise in business, finance, healthcare and policy with a demonstrable record of achievement at a regional level, with a commitment to intersectoral collaboration and coordination. A particularly important element of the activities of the LARCH will be to ensure engagement with local businesses.

> *Recommendation 8: A Steering Committee should be established with broad stakeholder representation to provide oversight and guidance to the LARCH Commission.*
>
> *Recommendation 9: An external advisory body should also be established to ensure the LARCH Commission has access to appropriate expertise.*

The LARCH Commission should actively consider adopting the subcommittee structure developed by the ARCHI Collaborative as described in the ARCHI Playbook as a starting point for its structure and processes. These subcommittees could also include representatives of the various clinical networks responsible for supra regional networked clinical services within the State of Victoria, and regional social services, the Housing sector, Justice system, the Education system and potentially the not-for profit sector.

Cross sectoral governance of the LARCH Commission will create effective mechanisms to take responsibility for the financing and administration of care that meets the needs of health care system users. This should be achieved by entering into alliance contracting arrangements between partner organizations that participate in specific programs, in order to share risk and return savings from efficiencies gained to the partner organizations. Alliance contracting involves partners committing funds to a common pool for mutually reinforcing activities, and supporting each other to ensure that the objectives are achieved. In turn the partners can re-invest savings to further improve health and provide better healthcare for the community.

Recommendation 10: Subcommittee structure and alliance contracting should be considered by the LARCH Commission as the basis of its operations.

It is important that the LARCH Commission considers programs that address key areas of health need in the Latrobe Valley. Indicative types and range of services that should be actively considered for implementation and management by the LARCH Commission include:

- A Latrobe Valley Healthy Lungs Program for respiratory disease screening and case finding.
- A lung cancer screening program which targets high-risk members of the community based on cigarette smoking history and asbestos exposure. Note: Ideally this would be conducted as part of a national lung cancer screening trial with links to recognised leading national health researchers.
- A Latrobe Valley Strong Hearts Program for cardiovascular disease screening and case finding.
- A focused service model for super-users of health and social care systems with chronic and complex healthcare needs which functions across the health and social care system including the justice system.
- A community nursing service which has a flat organizational structure along the lines of the Buurtzorg model from the Netherlands.
- An integrated model of care for persons with multi-morbidity chronic disease.
- A service for intellectually and physically handicapped patients with medical treatment needs.
- A whole of health and social sector integrated service that takes responsibility for reporting on progress in achieving improved health outcomes for indigenous community members.
- A palliative care service which is strongly focused on primary care and community nursing.
- Behavioural health services which should be managed as a networked integrated service and supports primary care including: Mental health service / early intervention for psychosis / drug and alcohol / intimate partner violence.
- Screening for mental health and drug and alcohol problems (Clear Minds) within the integrated general community health services.

A strong primary health care sector is the foundation of a high performing health care system at a regional level. Strengthening primary care will reduce costs and improve the effectiveness of the health care system generally. The nursing workforce is critical to a high performing primary care sector. The centrepiece of the primary care nursing workforce should be the development of a regional community nursing model along the lines of the Buurtzorg self-managing teams model.

A strategic investment approach must be taken to attract, train and retain a cohort of excellent General Practitioners. This is a critical priority. In addition it will be very important to focus on recruitment and retention of an allied health workforce as rehabilitation and aging are key elements of the healthcare environment for the foreseeable future.

> *Recommendation 10: The Commission should consider a range of health initiatives for early priority with a focus on screening and detection of respiratory and cardiovascular disease and behavioural health. To support implementation of these and other programs the LARCH Commission should focus on General Practitioner training, recruitment and retention and the development of a strong community-nursing model based on the Buurtzorg principles.*

The Latrobe Regional Collaborative Health (LARCH) Commission should have a specific focus on health workforce recruitment, training and retention at all levels. This could incorporate different mechanisms for attraction and payment for specialists including alternatives to fee-for-service remuneration. Engagement with Universities for health workforce education and training and the TAFE sector for VET should be an active part of the responsibility of the LARCH Commission. A specific focus could include providing pathways to employment for low-waged persons in the health service.

> *Recommendation 11: The LARCH Commission should have a focus on developing a skilled local workforce at all levels in cooperation with local educational institutions.*

Evaluation should be embedded in the activities undertaken by the LARCH Commission. Ensuring that all activities and their impact are measured and reported will be critical. The Commission should consider developing local reporting and accountability measures to inform the community on a regular basis on progress against health outcome objectives.

> *Recommendation 12: The LARCH Commission should develop a set of health and financial outcome measures for regular local reporting.*

The LARCH Commission will need to negotiate the funding it requires at start up with the Victorian Government, as well as ensuring that an efficiency and reinvestment strategy is developed which is robust and resistant to political interference. The Victorian Government will need to make a firm commitment to contribute the substantial funding needed to prime the system in the form of start up costs, as well as contributing to recurrent expenditure. The Commonwealth Government will also need to be engaged at this level.

LARCH should ensure that it is firmly focused on financial stability for its partners in pursuit of its activities. The possible creation of a Social Impact Bond investment scheme (perhaps renamed as a Health Impact Bond), and exploration of the feasibility of a certificate system to link local particulate pollution production to direct investment in local healthcare and health promotion activities should be considered.

The mine operators and power generators, as well as other local businesses, should be strongly represented in the governance of the LARCH Commission. They are partners in the community and have a strong interest in the health of their workforce and the community at large. It will be a matter for the government to determine an equitable means by which these businesses can contribute fairly to the substantial start up funds that will be required to initiate the LARCH Commission and its health care and population health enhancing activities, as well as contributing to the recurrent expenditure that will be required.

> *Recommendation 13: The LARCH Commission should receive start up funding from the Victorian Government (and potentially the mine operators) and develop a financial model that enables ongoing viability.*

Recommended Priorities for action

Set out below, are the priorities for action which would be a means of measuring the success of the proposed model for the Health Conservation Zone. These priorities are linked to short, medium and long term time frames in order to provide guidance regarding sequence, timing, scope and focus of activities.

Short Term (1 to 3 years)

Partnerships

- Commit to, and Establish governance model including LARCH
- Engage with Business, Educational institutions

Processes

- Consultant for Strategy and Service Design appointed

People

- Appoint Health Commissioner
- Appoint External Advisory Board
- Build Buurtzorg-like Community Nursing model
- Community consultation and co-design

Projects

- Initiate first projects:
  - LV Healthy Lungs/ Lung cancer screening
  - Linked Quit Program
- Consider implementation of Social Impact Bond Investment scheme
- Focus on Super Users for Integrated Care model

Impact (Reporting and evaluation)

- Develop data and analytic frameworks
- Commence Annual reporting to Community

Medium Term (3 to 5 years)

Partnerships

- Latrobe Regional Collaborative Health Commission matured
- Detailed Governance model in place
- Workforce training partnerships in place with Universities and TAFE with focus on pathway to employment for disadvantaged.
- Partnership agreement with Monash, Federation and other Universities to ensure strong training scheme for Primary Care healthcare professionals in the Latrobe Valley.

Processes

- Project Contracting model for partnerships established and operational
- Social Impact Bond scheme established
- Design methodology for project selection and execution mature and trusted
- Evidence that Regional Collaborative has developed its own method for selection of cross organisational projects and contracting to ensure success
- Health IT system in place between Community and Hospital sector

People

- Workforce attraction strategy in place
- GP Training and retention scheme established
- Buurtzorg model Community Nursing model expanded

Projects

- Latrobe Valley Healthy Hearts Program initiated
- Multi-morbidity Integrated Care Program commenced
- Chronic Disease Management Program initiated
- Clear Minds Mental Health Program initiated
- Latrobe Regional Cancer, Renal and Paediatric Services enter partnership agreements with State-wide Clinical Networks Program
- Social Impact bond projects for second round selected - possible areas:

  - Pathways to advantage for unemployed (Two streams: 40 plus and youth)
  - Indigenous health program
- Health Scheme for Children With Needs transitioning to adult care
- Health Scheme for intellectual and physically handicapped

Impact

- Reporting scheme useful for managing as well as reporting
- Local medical workforce strengthened

Long term (beyond 5 years)

Partnerships

- Evidence that organisation model has survived Founder Effect: transition to second generation ownership

Processes

- Social Impact bonds investment scheme enters second selection round
- Pathways to advantage employment program enters second phase

People

- Health Industry workforce retention rates increase

Projects

- Evidence that the collaborative has selected project areas for inter-organisational activities
- Evidence that alliance contracting model for managing individual projects is working successfully

Impact

- Measureable impact on social determinants of health
- Reports generated on activities and process measures to demonstrate that projects are being undertaken and having an impact on health and chronic disease management.

Chapter 1 Introduction

Key Points

- *Health is a state of complete physical and mental well-being, not merely the absence of disease.*
- *Health and the environment are interrelated.*
- *Healthcare is a finite common pool resource which requires stewardship.*
- *Healthcare is a complex system and this has implications for the choice of means to improve it.*
- *Reconsideration of purpose and a relentless focus on care that is effective from the consumer's perspective is central to the improvement of healthcare.*
- *Chronic and complex care is likely to be of particular importance in the Latrobe Valley in the coming decades.*
- *Human centred design offers a powerful approach to help us shape the future of healthcare.*

Introduction

Pope Francis recently addressed his Encyclical (Laudato Si, Praised Be You) to all of humanity. The encyclical is written on the theme of taking an ecological approach to the management of the earth and its resources as our common home.

"The continued acceleration of changes affecting humanity and the planet is coupled today with a more intensified pace of life and work which might be called "rapidification".

Although change is part of the working of complex systems, the speed with which human activity has developed contrasts with the naturally slow pace of biological evolution.

Moreover, the goals of this rapid and constant change are not necessarily geared to the common good or to integral and sustainable human development.

…

"Since everything is closely interrelated, and today's problems call for a vision capable of taking into account every aspect of the global crisis, I suggest that we

now consider some elements of an integral ecology, one which clearly respects its human and social dimensions.

…

Given the interrelationship between living space and human behaviour, those who design buildings, neighbourhoods, public spaces and cities, ought to draw on the various disciplines which help us to understand people's thought processes, symbolic language and ways of acting.

…

It is not enough to seek the beauty of design. More precious still is the service we offer to another kind of beauty: people's quality of life, their adaptation to the environment, encounter and mutual assistance. Here too, we see how important it is that urban planning always take into consideration the views of those who will live in these areas.

…

An integral ecology is inseparable from the notion of the common good, a central and unifying principle of social ethics. The common good is "the sum of those conditions of social life which allow social groups and their individual members relatively thorough and ready access to their own fulfilment".

Following upon this encyclical, The Rockefeller Foundation–Lancet Commission on Planetary Health has released its report entitled "Safeguarding human health in the anthropocene epoch". In the report the WHO definition of health is given:

"Health is a state of complete physical and mental well-being and not merely the absence of disease and infirmity. Planetary health is the health of human civilisation and the state of the natural systems upon which it depends."

The report argues that planetary health offers an unprecedented opportunity for advocacy for global and national reform of taxes and subsidies for many sectors of the economy including energy, agriculture, water, fisheries and health. It expands on this by asserting that health professionals play an essential role in the achievement of planetary health: working across sectors to integrate policies that advance health and environmental sustainability, tackling health inequalities and increasing the resilience of health systems and populations to environmental damage.

The report also identifies three categories of challenge:

- Imagination challenge due to conceptual and empathy failures,
- Research and information challenge due to knowledge failure, and
- Governance challenges due to failure to implement responses when faced with threat or uncertainty.

We desire a healthcare system that:

- Provides good care and life enhancing experiences for people
- Advances the interests of the organisations that finance, administer and deliver healthcare
- Brings out the best in the people who provide healthcare services
- Adapts new concepts and technology to great effect
- Is economically viable and contributes to the wealth of society.

Elinor Ostrom, the Nobel Prize winning economist, has written extensively on the concept of the Commons, common pool resources and the need for stewardship. It is a natural extension of this thinking to consider health systems and healthcare as a commons and to devote some attention to how this concept has been developed and applied, before considering options for health systems improvement in the Latrobe Valley.

The diverse stakeholders involved in the provision of healthcare have differing values and world-views as do consumers. Networks of healthcare organisations and respectful adult conversations between representatives of these organisations are needed in order to foster mutual understanding, alignment of initiatives and broad coherence to ensure that healthcare functions as a well-integrated system. Engagement, interaction and development of mutually enriching and rewarding relations among people from these disparate groups is essential.

Healthcare is a complex system. An understanding of systemics is essential to help us see the relationships between parts of healthcare and, at the same time, have an appreciation of how the whole delivers what consumers need and desire. Systemics helps us understand how people derive meaning from their experiences interacting with a system which, in turn, drives their beliefs and actions.

We are mindful that demographics and economic pressure will see increasing expectation to “do more with less”. Medical technology, along with information and communication technology is advancing rapidly and offers opportunities for new methods, for efficiencies and more effective outcomes. The key to financial sustainability is a healthcare system that is evolving in a coherent way toward the objectives of building a more cost effective capacity to deliver its outcomes for the people who use it. It is likely that this will emerge from reconsideration of purpose and a relentless focus on care that is effective from the consumer’s perspective. Therefore the effective design of the user experience with systems of technology and human interaction is critical to the future of healthcare.

Human centered design offers a powerful approach to help us shape the future of healthcare in an uncertain and changing environment and in a way that complements scientific and managerial thinking. Design is inclusive of other ways of thinking and embraces purpose, differences, diversity, constraints and complexity. A particular point to emphasise is the need to give priority to the design of the health care system to meet the needs of those with chronic and complex care needs that moves away from a single disease and acute episodic care based approach. This group is likely to be of particular importance in the Latrobe Valley in the coming decades. Within this cohort can usually be found a relatively small number of people who are exceptionally high users of health care resources, the Super-users. There will be a continued need for the excellent episodic care health system but a complete rethink is required regarding how best to service those with chronic and complex care needs, including the mental health component.

This transformation may well require a different approach to contracting and employment of the health workforce and new funding models. The model of care for chronic and complex care will need to be based in the space between acute care and primary care, supported by the acute care system but facing towards and supporting primary care. How this system of care is developed using care pathways and a variety of nurses, allied health practitioners and general medical specialists is of profound national interest. The priorities for focus and investment should be determined by co-design with the health service users.

Themes that will be developed in the report as suggestions for affordable practical improvements to the health services of the Latrobe Valley include: engagement in co-design with those that the system is designed to serve; adoption of design and systems thinking; designation of the Latrobe Valley as a Health Conservation Zone and, in that context, the development of an integrated structure for collaborative management of the health care system for the region as a health commons.

Areas for focus include:

- Acknowledgement of the impact of asbestos and cigarettes on the health of the community
- Lung cancer screening/case finding as part of a national collaborative initiative
- Community nursing based on a Dutch peer-led model (Buurtzorg),
- Integrated and timely care for chronic and complex conditions
- Chronic disease management based on peer support, coaching and a multi disease approach
- Palliative care program supported and further developed
- Mental health and early intervention program
- Integration of the health and social systems and the justice system to meet the needs of the Super-users, indigenous community and the handicapped (physical and intellectual).

References

Laudato Si’ Praised Be You. Encyclical On the care of our common home. Pope Francis. 2015.

Safeguarding human health in the Anthropecene epoch: Report of te Rockefeller Foundation-Lancet Commission on planetary health. The Lancet. First published online 15 July 2015.

http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)60901-1/abstract

Managing the health effects of climate change: Lancet and University College London Institute for Global Health Commission. The Lancet 2015;373:1693-1733.

Chapter 2 Background

Key Points

- *A strong, responsive, cost-effective and consumer focused modern primary health care system care sitting along-side Medicare is necessary to improve access, better manage chronic conditions, increase focus on prevention and social determinants and improve safety, quality, performance and accountability.*
- *Primary Health Networks are being established with the key objectives of increasing the efficiency and effectiveness of medical services for patients, particularly those at risk of poor health outcomes; and improving coordination of care to ensure patients receive the right care in the right place at the right time.*
- *There are three main ways in which consumer segmentation can be applied in health systems 1) Programs for specific cohorts of high-risk individuals, 2) Systems that perform comprehensive segmentation of populations and tailor care accordingly, 3) Population-based funding systems that allocate funds based on projected needs. All are in widespread use.*
- *There is a lack of growth in numbers of general practitioners, which has implications for future primary care provision.*
- *Care coordinators are particularly beneficial for consumers with complex needs. There are likely to be a number of initiatives in care coordination undertaken in Australia in the near future to address the limitations of current models.*
- *Digital health, in particular tele-health, remote monitoring devices, integrated electronic Medical Records and team-based software are of importance to health services development and enable the use of health pathways.*
- *There is significant socio-economic disadvantage in the Latrobe Valley which is associated with poorer health literacy and outcomes.*
- *There are increasing numbers of persons surviving into old age with an increased likelihood of multiple chronic diseases. This must be managed, and this creates a new set of policy imperatives.*
- *Australia's healthcare arrangements don't work very well for Australians with complex care needs, and we are poorly equipped to meet the anticipated increase in demand. We are now arguably confronted with an outdated service delivery system and technology that is not fit for purpose in the forms*

of the traditional GP centred primary care system and the hospital-centred acute care system.

- *Innovation and change in healthcare delivery will come with the deployment of digital technology platforms that enable more effective service models.*
- *The future role of the healthcare team will focus on support for the patient and their informal caregivers. This will require a fundamental shift in thinking.*
- *In Australia at present, whilst there is an argument for change in healthcare delivery, the way forward is not immediately clear, nor the apparatus at hand, despite the good intentions of the many interested parties.*
- *In the context of meeting the health care needs of the people of the Latrobe Valley and being affordable to both the Victorian and Australian Governments, private insurers, local government and the users of health services, there is an opportunity to look at organising health services in a very different way than at present.*
- *The people of the Latrobe Valley need to be involved in healthcare decision-making via a genuine process of co-design enabled by the best methods available for the improvement of complex systems.*

Introduction

The Australian Commonwealth Government White Paper, Reform of the Federation Issues Paper Number 3: Roles and responsibilities in Health, published in November 2014, describes the evolution of responsibilities for healthcare between the various levels of government and the evolving pressures on the current arrangements for health care delivery in Australia.

In the last 8 years there have been a series of Government initiatives to promote local health networks, and an improved focus on preventive health with particular reference to obesity and diabetes, mental health, cancer networks and indigenous health. These reports include:

Building a 21st Century Primary Health Care System: A Draft of Australia’s First National Primary Health Care Strategy (2009).

Primary Health Care Reform in Australia: Report to Support Australia’s First National Primary Health Care Strategy (2009)

National Primary Health Care Strategic Framework (2013)

The Draft National Primary Health Care Strategy provides a road map to guide future policy and practice in primary health care in Australia. It states the case for change as being driven by:

- The changing nature of the health system
- Rising demand pressures
- Recognition that access to the healthcare system is variable and that some Australians do not have the health literacy skills to navigate the health system and are unsupported on their journey
- Poor integration of a system characterized by multiple and fragmented funding streams and poorly coordinated inflexible services
- Poor information about quality and performance measures and outdated IT support in the form of eHealth infrastructure
- Workforce shortages and inflexibility exacerbated by mal-distribution

The Report identifies that in order to build a strong responsive cost-effective primary care health care system additional approaches to funding and organising health care delivery to sit alongside Medicare will need to be provided.

The Report identifies 5 building blocks to achieve a modern primary health care system including:

1. Regional integration
2. Information and technology, including eHealth
3. Skilled workforce
4. Infrastructure
5. Financing and system performance

Drawing from this, the Report identifies 4 key priority directions for change:

1. Improving access and reducing inequity

2. Better management of chronic conditions
3. Increasing the focus on prevention
4. Improving quality, safety, performance and accountability

The subsequent National Primary Health Care Strategic Framework published in 2013 restates the case for change and the vision before identifying 4 strategic outcomes for Primary Health Care including:

- Build a consumer-focused integrated primary health care system
- Improve access and reduce inequality
- Take action to tackle the social determinants of health and well being
- Improve quality, safety, performance and accountability

The Framework outlines potential actions to be taken in support of each of these outcomes.

Most recently there has been a focus on national efficient hospital pricing and infrastructure funding, as well as personally controlled electronic health records.

Medicare Locals have been replaced with Primary Health Networks (PHN). PHNs are being established with the key objectives of:

- Increasing the efficiency and effectiveness of medical services for patients, particularly those at risk of poor health outcomes; and
- Improving coordination of care to ensure patients receive the right care in the right place at the right time.

The stated aim is that the PHNs will achieve these objectives by working directly with general practitioners, other primary health care providers, secondary care providers and hospitals to ensure improved outcomes for patients. In addition, the Government has agreed to six key priorities for targeted work. These are mental health, Aboriginal and Torres Strait Islander health, population health, health workforce, e-Health and aged care.

The Primary Health Care Advisory Group has been established to provide the Commonwealth Government with short, medium and long term options to reform the primary health care system. Its focus is better management of chronic and complex health conditions. The Advisory Group's initial views on opportunities for reform have been published in June 2015 as a Discussion Paper: "Better Outcomes For people with chronic and complex health conditions through primary health care'.

It is supported by a Background Paper "How can Australia improve its primary healthcare system to better deal with chronic disease?" The Background Paper has two purposes:

1. To provide an overview of Australia's primary health care system, with a particular focus on people with chronic and complex diseases; and
2. To survey potential alternatives to the current system that have been adopted internationally.

To consider the Background Paper first, the primary health care system is typically a consumer's main source of contact with health professionals. It has four main purposes:

1. To coordinate care between different providers and different parts of the health care system
2. To provide the right care at the right time, ensuring population health
3. To provide cost-effective, community-based care, and in doing so minimise hospital-based care; and
4. To act as a gateway to other services in order to ensure that they are only provided when needed.

The Background Paper examines four principle areas:

1. Primary healthcare governance and financing
2. Consumer interaction with the healthcare system
3. Primary health care professionals (ie the workforce)

4. Systems and processes

In discussing each of these areas the Background Paper accurately describes the current arrangements in Australia and the issues that potentially arise from continuing to manage as we do. International examples of ways of doing things differently are discussed for each heading, as a vehicle to promote reflection on the Australia situation and debate as to how things might be done differently in Australia.

The history of Australia's primary healthcare system is described along with the case for change to improve the care for people with chronic diseases, largely describing international comparisons and internal variations in processes of care within Australia. The dimensions of primary care and its governance and financing within Australia are described, along with international examples of how this is done differently for the care of persons with chronic and complex care needs including at the macro or policy level integrated organisational structures, and at the meso or service level integration with combined funding pools and also without combined finding pools. A description of funding sources and funding approaches as exist at present in Australia is described along with examples of alternative approaches internationally including a detailed discussion of hybrid blended payments models.

Consumer interaction with the primary health care system is described under three headings for consideration: segmentation of the market as a means of creating a focusing on patients and resource allocation, the concept of a medical home to facilitate longitudinal care, and education and self management.

There are three main ways in which consumer segmentation or the tailoring of care can be applied in health systems:

1. Programs for specific cohorts of high-risk individuals
2. Systems that perform comprehensive segmentation of populations and tailor care accordingly
3. Population-based funding systems that allocate funds based on projected needs

The simplest way to segment and tailor care is to identify a single group of high-risk individuals and enrol them in programs designed to address their needs. Such programs tend to allocate additional resources to these people, usually on the basis of achieving benefits in reduced secondary health care costs in the future. As such, these programs often focus on reducing the number and duration of hospital episodes for people enrolled in the program.

A more sophisticated approach is to segment whole populations into different groups and tailor care (and resource allocation) for each group. The advantage of this approach is that it can be expanded to include many more people than the focused disease-management programs described above. Typically, these systems target the highest risk people using similar models of care to those described above. In addition, however, they provide structured programs for people who are relatively well but at risk of future health problems (due to long-term conditions such as diabetes or heart disease), or who have risk factors such as high blood pressure or cholesterol. There are various examples of this in action around the world.

One example from Kaiser Permanente employs a structured tiered approach:

Level 1 covers people with relatively manageable chronic conditions (65 to 80 per cent of the population), who receive normal primary health care with supported self-management.

Level 2 covers people with chronic conditions who are considered unstable or at risk of deterioration (15 to 30 per cent of the population), who receive structured support through specialist care

Level 3 covers people who have highly complex needs and/or are frequent users of unplanned secondary care (5 per cent of the population). This group receives active case management.

Another example from the United States is the Care First Patient-Centred Medical Home (PCMH), which also utilises a whole-population approach to risk stratification. Introduced in 2011, the PCMH program uses a Wellness/Illness Pyramid to determine five cohorts of members likely to have high future costs. The background paper argues that while Australia already provides a great deal of support to people with chronic disease, there are three areas in which Australian efforts could be expanded:

1. Peer support programs
2. Technology-enabled education programs
3. Provider-led education and self-management programs

The final two sections of the Background Paper discuss two important aspects of Australia's primary healthcare: the professional workforce and the systems and processes. The workforce is discussed under the headings of clinical leadership, workforce composition and roles and finally the provision of care coordination. International examples of leadership education for those in training and on the job leadership training programs are described.

The expansion in Australia's healthcare workforce in the last five years is noted in the Background Paper. What is noticeable is the lack of growth in numbers of general practitioners and the expansion in number of specialists and specialists in training and the growth in number of practice nurses. Whist the document has much of interest to say about the growth in practice nurses and the phenomenon of nurse practitioners it is silent on the matter of the growth in number of specialists, the number of specialists in training and the lack of growth in number of GP's. This is a significant failing of both the document and the thinking in general.

The term 'care coordinator' is used interchangeably with several other titles. Care coordinators are particularly beneficial for consumers with complex needs, such as co-morbidities or chronic diseases, many of whom require care delivery from multiple practitioners across the health care system. In aged care, care coordination facilitates support for older people who wish to continue living at home but need support to do so.

In Australia, GPs are traditionally considered to be primary health care coordinators for consumers. Approximately 59 per cent of Australian practices employ an additional care coordinator for consumers with serious chronic diseases, but this percentage is much lower than in countries such as New Zealand (68 per cent), the Netherlands (73 per cent) and the United Kingdom (78 per cent).

The authors of the background paper make the important observation that if multiple system levels (e.g., primary health care, secondary care, community care) develop their own care coordinator roles, there may be too many coordinators without clear, distinct roles, creating additional complexity and burdens for consumers. All things being equal, this is precisely what will happen and the net result under present policy settings will be a disease and sector-based approach to care coordination that will make the situation worse for the consumer. There are several international examples of care coordination quoted along with several Australian trials of the care coordinator role in primary and secondary care.

There are likely to be a number of initiatives in care coordination undertaken by health insurers in Australia in the near future. What will be of interest will be to see if agencies arise that contract with the health insurers to provide the requisite services on their behalf. This is seen in Advanced Home Care in North Carolina. Insurers could also play a very strong role in disseminating information about what does and doesn’t work.

Under the heading of primary health care systems and processes there are sections on digital health, information transparency continuous quality improvement and care pathways. Of relevance to the discussion about health service improvement in the Latrobe Valley is the section on tele-health, remote monitoring devices, integrated electronic Medical Records and the potential role of team-based software. The later has been shown to improve process and outcome measures for patients with chronic disease in Australian trials and also to assist multi-disciplinary teams to function at the micro level (patient clinician encounter). Remote monitoring devices have been shown to reduce hospitalisation (bed days) and costs for heart failure in a US study.

Care pathways are “an integrated source of information on referrals, specialist advice, diagnostics, GP procedure subsidies and consumer handouts, all of which have been collectively agreed by health professionals from across the health system” and can be used to populate care plans for individuals. Care planning is particularly important when facilitating appropriate care for consumers with chronic diseases or complex needs. While pathways are mostly implemented at the meso and micro level, they could potentially be established for a whole segment, such as rural and remote health care

While Australia has a multitude of general clinical guidelines, localised care pathways are not universally available. The National Health and Medical Research Council (NHMRC) provides a collection of clinical guidelines via a free-to-access online portal, including currently 213 NHMRC guidelines for GPs and 49 guidelines for allied health professionals. The report was unaware of the Chronic Care Manual recently released by Queensland Health.

In New Zealand, Canterbury Care's HealthPathways is a web-based information portal, which supports primary health care professionals to plan care through primary, community and secondary health care systems.385 The system provides information on referrals, specialist advice, diagnostics, GP procedure subsidies and consumer handouts, and has been designed around a set of locally agreed best practices.

The benefits of the HealthPathways platform stem from its process of engagement with the entire health sector, including specialised community groups, allied health professionals, GPs, local hospital network representatives and specialists, which creates an opportunity for dialogue and increased communication between professionals and sectors. This is discussed further under the chapter Integrated Care.

The Discussion Paper "Better Outcomes For people with chronic and complex health conditions through primary health care' is organized around four Themes and asks in relation to each Theme, "What do we want to achieve?"

Theme 1 Effective and appropriate patient care, explores the options for achieving a primary health care system orientated towards improving patient outcomes and reducing avoidable hospitalisations through targeted and team-based approaches that engage patients with chronic and complex health conditions to achieve their health goals. It canvases support for the idea of care models built around a patient-centred medical home.

Theme 2 Increased use of technology, explores the options for an efficient and integrated health system that embraces cost-effective technology to improve patient management across the whole health system, and empowers patients with chronic and complex health conditions to participate in their care and incorporates convenient and accurate monitoring and feedback.

Theme 3 How do we know we are achieving outcomes? Explores the options for a continually improving primary health care system that provides feedback on the efficiency and quality of services and publicly reports on system performance.

Theme 4 How do we establish suitable payment mechanisms to support a better primary healthcare system? Considers a range of possible options to support a connected care system, and asks what role could Private Health Insurance have in managing people with chronic and complex health conditions in primary health care?

The most recent Australian Bureau of Statistics (ABS) Census data available (2011) indicates that for the Latrobe SLA there is significant socio-economic disadvantage, as evidenced by low median household income and level of educational achievement, a higher proportion of older persons and high rates of hospital admission for so-called ambulatory care sensitive conditions (which arguably could be managed in non-hospital settings if better care were available there). This replicates the experience of many rural settings across Australia.

The Productivity Commission Study of Aging in Australia demonstrates that life expectancy has improved remarkably across Australia over the last 40 years. Calculated life expectancy of a 65 year old is 19 years, however when an alternative method of calculation is used, taking into account the rate of change in life expectancy the projected life expectancy of a 65 year old is considerably greater. This reflects the impact of changes in annual mortality rates in the last 40 years amongst those aged over 65 years, particularly amongst the so-called super-elderly, as a result of declining death rates due to cancer and cardiovascular disease.

The benefits of improved survival are unevenly distributed by socio-economic status. According to UK data, whilst life expectancy for a 65 year old is increasing by an average of 6 hours per day, the increase is only 3 hours per day in the lowest SES area compared with 10 hours per day in the highest.

As a result of increased life expectancy an increased numbers of persons will survive into advanced old age and acquire multiple chronic diseases, often referred to as multi-morbidity, as they do so. Again, studies from the UK indicate that as the population ages the number of persons with multiple co-morbidities increases and with this there is a concomitant increase in risk of acquiring a significant psychiatric co-condition. The likelihood of multi-morbidity increases with reduced socioeconomic standing as well. As people age they are increasingly likely to develop frailty, recognized as a syndrome in its own right, along with impaired cognition.

With increased numbers of persons surviving into old age with increasing likelihood of multiple chronic diseases, there is an increased likelihood of admission to hospital with increased length of stay as a function of increased age. The likelihood of this happening increases with both rurality and low socioeconomic status. The pattern of hospital admission for multi-morbidity is related to the impact of so-called ambulatory sensitive clinical conditions. The evidence available from census data from 2011 indicates that there are higher rates of admission for these conditions in the Latrobe Valley.

The White Paper on roles and responsibilities in health recognises that health care arrangements do not work well for Australians with chronic and complex conditions including cancer, diabetes, chronic respiratory and cardiac disease and mental illness. It identifies that health workforce issues are a real challenge to maintaining the quality of health services in the face of the projected likely increase in demand for health services, and it is reasonable to assume that these problems will be as great in rural areas in the future as they have been up until the present.

In a remarkably prescient observation in 1983, Fries pointed to the impending decline of the era of chronic disease in favor of the arrival of the era of senescence, which would be characterized by survival to advanced old age with multiple chronic illnesses and the onset of senescence whether physical (frailty) or mental (cognitive impairment or dementia) or as is frequently the case, both, before the end of life itself. The compression of morbidity into advanced old age has subsequently happened, accompanied by obesity and greater prevalence of diabetes than had been anticipated. Freis, importantly, points out that in this model of disease/morbidity compression we see the fruits of a successful chronic disease management strategy. If we accept that senescence is a universal feature of human existence, then in order to die, other than from senescence, one must acquire co-morbidities as a function of aging. The increased number of older Australians with multiple co-morbidities must be managed, and this creates a new set of policy imperatives.

The White Paper elegantly describes the funding flows responsible for current health care arrangements. Not unnaturally, it also maps these responsibilities in order to identify areas of overlap across the domains of funding, policy, regulation and service delivery for preventive healthcare, primary healthcare, specialist care outside hospital, emergency care, hospital services and community care. In addition the White Paper identifies the cross-cutting areas of responsibility between governments for health workforce, therapeutic goods, indigenous health, mental health, private health insurance, e-health, and health care research and information. In this context, a further layer of responsibility and accountability will emerge in the near future with the creation of the National Disability Insurance Scheme and the creation of Primary Health Networks.

In December 2014 the Victorian Government appointed independent expert Dr Doug Travis, surgeon and former president of the Australian Medical Association Victoria, to conduct a state-wide census of bed and theatre capacity, and to provide recommendations about how to increase the capacity of Victorian public hospitals.

The Travis Review identified underutilisation of existing capacity and makes a series of recommendations to change how Victoria does innovation in healthcare, commenting specifically that there is currently no effective mechanism to align the efforts of many clinicians and experts to deliver benefits across the system. The Review made a number of recommendations under the general heading of a proposed program for increased capacity through innovation. In particular the

Review recommends the creation of a state-wide innovation program, including recommendations for the elements of the program and the governance model for it.

Travis makes the following recommendations in relation to the operating principles to guide the program:

- Focus on specific measurable outcomes and performance in the areas of:
- Patient experience
- Patient outcomes
- Access
- Adverse events
- Prevention
- Cost
- Focus across the whole health system including the interfaces between hospital services and primary healthcare, aged care and community-based care.
- Actively seek out and be receptive to innovation and ideas that would increase health system capacity in Victoria, from Victorian health services, national/international programs and other health stakeholders.
- Promote the value and role of innovation as an essential part of everyday business for health services.
- Foster a permissive culture that encourages health service attempts to innovate.
- Include all Victorian health services, with a state-wide focus on implementing innovation.
- Ensure the new approaches are feasible and sustainable over the long term. IHV needs to be very strong on the principle of sustainability and practicality if it is to successfully implement new models of care across the health system. It needs to operate on the principle that there is no new funding other than seed funding to sustain the change.
- Drive innovation through evidence and by sharing knowledge and expertise.

Travis proffers advice that the new innovation program should focus its efforts on a few areas and not try to tackle everything at once. Given that, it should focus on four areas that have large potential gains:

- Chronic complex medical patients
- Outpatients
- Care outside the walls of the hospital performed by hospital staff or by partnering with other providers
- Variance of practice in the delivery of defined areas of care.

At present Australia's healthcare arrangements don't work very well for Australians with complex care needs, and are poorly equipped to meet the anticipated increase in demand for such services for increasing numbers with increasingly complex care needs in the future, particularly those with chronic conditions. To this effect it is worth pointing out that diabetes in and of itself is not complex, what is complex is meeting the needs of those with complications of diabetes that arise over time, along with infection, cardiovascular and other end-organ damage, as well as cancer and mental illness (increased exposure to PM2.5 particles is associated with increased prevalence of diabetes also). Whilst a greater focus on prevention may ameliorate the impact of chronic disease, the burden of chronic disease will likely be delayed until later life when its impact will be felt along with the impact of senescence, bringing with it a greater emphasis on chronic and complex needs.

The health care system that currently exists to meet the needs of this category of persons is a complex web of service providers, structures and services. Some of these are not connected or coordinated in any meaningful way as services, let alone from the service-user perspective. The National Health and Hospitals Reform Commission in 2009 reported that the fragmentation of the health sector had led to a complex division of funding responsibilities and performance accountabilities between levels of government, resulting in confusion and uneven access to services and quality of care for the consumer as well as cost, blame and service shifting by providers.

The greatest risk is that different levels of government develop policies in relation to their own responsibilities without taking account of the health care needs of persons or taking account of health care arrangements in a holistic way. At present given that States fund the acute public care system, they are in effect the funder of last resort for care. This means that policy changes in one jurisdiction can have a profound effect in the other across the State/Commonwealth divide.

Coordination and cost shifting are features of many large service systems regardless of the types and funding responsibilities. The question is whether it is possible to come to a different way of organizing and delivering health care at a regional level, so that services can better meet the needs of patients on the one hand and so that an integrated care system can produce better outcomes of care and improve the state of health and well-being of the population at large, from the most to the least advantaged in our community.

Our current health service in rural Australia is still based on a post-World War 2 model, which is well described in the Federation White Paper. Behind this there is a cultural nod in passing to John Flynn’s lifework in the Australian Inland Mission, to spread a “mantle of safety” over rural Australia, manifest as the base hospital for surgery and to provide medical inpatient care, with strong links to metropolitan centres (recognizing that not all specialist services can be provided in low population density settings), and their role as a rescue service , all in the context of a strong reliance on primary care and local services built on a philosophy of resilience, self-reliance and making do, that is imagined to appeal to people who make their livelihood in rural settings. Singularly missing in this scenario is the recognition of the impact or need for services for psychiatric disorders and the impact of drug and alcohol related illness, superimposed on socio-economic disadvantage and the particular health service access needs of indigenous people.

Innovation to change the way we deliver healthcare is often driven by the exploitation of novel technology, involving the combination of available technologies in novel ways (for example from other industries, a century ago this involved harnessing the power of steam fired generators to make electricity and the widespread distribution of electrical motors in homes and industry as labour-saving devices, and the use of fossil fuels for internal combustion engines to provide transport).

The health system grew based on the evolving role of the hospital as a centre for the incarceration of the highly infectious, through the location of surgery based on exploitation of knowledge of sterile procedure and the invention of effective anaesthesia and antibiotics, finally with the advent of effective pharmacological therapy for chronic medical conditions and interventional procedures, it has evolved further. Thus hospitals have been able to modify their service organization and delivery, plant and equipment to enable them to remain relevant and fit for purpose.

The problems that confront healthcare provides an opportunity for the healthcare system to reinvent itself yet again, so that it is mindful of its purpose, has meaning and adds value to the lives of the citizens it seeks to serve. Failure to respond to the opportunity is an active choice that can be made. Change in order to be effective must address three levels of thinking and acting: macro (financing and policy settings); meso (service organization and delivery); and micro (clinician and patient interaction). This report will take the view that responses are need at all three levels in order for service delivery to be improved and for outcomes to be achieved for its citizens and for the lives of those who work in healthcare to be joyful and meaningful.

The success of our healthcare delivery system since World War II has generated a problem entirely of our own making, particularly in the 40 or so years since the implementation of universal health insurance in Australia. In brief this has largely resulted in ensuring the benefits of technical breakthroughs in medical technology and pharmaceuticals are broadly available to all citizens at an affordable personal and societal price, and that the service to deliver these benefits is deployed effectively and equitably in primary care and, for acute medical services to be universally available in Australia's public hospitals ideally without up-front payment at the point of service delivery. The result of this has been that Australians survive in unprecedented numbers into old age, and more particularly will do so into advanced old age in the very near future.

We are now arguably confronted with an outdated service delivery system and technology that is not fit for purpose in the forms of the traditional GP centered primary care system and the hospital-centred acute care system. The current evidence suggests that many jurisdictions recognize both the inadequacies of the system and the need to respond differently in order to avoid financial failure and demand management failure. It is therefore timely to make recommendations for practical and affordable approaches to Health Service improvement in the Latrobe Valley.

Innovation and change in healthcare delivery will come with the deployment of digital technology platforms that enable more effective service models. Arising from the rapidly evolving digital and mobile technology there is a growing recognition of the potential for self-monitoring and data transfer to recast the role of the patient and their relationship with their healthcare providers. There is increasing recognition that informal caregivers are responsible for a lot of the healthcare that people receive. If one focus of healthcare service delivery is to promote resilience and greater self-reliance then engagement with digital technology which enhances inclusion of the family and informal care givers will be an essential feature.

The role of the healthcare team will be to work as a team and to focus on support for the patient and their informal caregivers. This will require a fundamental shift in thinking. We will need to recast our thinking about healthcare from a process driven industrial production model to an ecological model. This may well be an uncomfortable transition, but it is possible to change what we do. First we have to change how we think. A challenge to do so has just been issued to the whole of humanity by Pope Francis. A change in thinking will be to engage with our patients and our community in the design of health services. This will need to be a co-design model of collaborative engagement. It will severely challenge the thinking of incumbent agencies. This is to be expected. Fortunately, change is not unexpected, change is the only constant.

Peter Drucker has asserted that hospitals are the most complex organisation man has yet invented. Possibly the same could be said of healthcare in general. It can be shown that the national expenditure on healthcare is a function of the size of the economy, and that differences in percentage expenditure on healthcare between countries are largely accounted for by administrative overheads, a testament to the complexity engendered by size itself. i.e. the bigger the economy gets, the more complex healthcare becomes and begets its own complexity.

How is it possible to align the forces that might promote positive change in the healthcare system to improve the outcomes of healthcare for the citizens in the society? Most funders, when faced with a task of choosing which organisations or programs to fund, choose between individual programs based on the hope that the organisations that make the greatest contribution toward solving a particularly problem will have the greatest impact. Such isolated impact approaches are based on the premise that successful programs can be scaled and replicated. Despite the dominance of this approach, there is little evidence that isolated initiatives are the most successful way of dealing with social problems in complex interdependent settings.

In the UK in 1998, in response to an Independent Inquiry into Inequalities in Health (Acheson Report) a bold initiative to create Health Action Zones was undertaken. Health Action Zones (HAZs) were the Government's first flagship policy to reduce health inequalities. HAZs were multi-agency partnerships located in 26 areas of England. The first wave of zones was launched in 1998 (15 areas) followed by a second wave (11 areas) in 1999. They varied greatly, ranging from large conurbations such as Merseyside and Tyne and Wear to largely rural areas such as Cornwall and North Cumbria. They were provided with fairly modest resources (approximately £4-£5 million per year per zone at 2004 prices), but expected to develop local programmes and activities to improve health and reduce inequalities during a seven-year lifespan.

The three broad strategic objectives of HAZs were to:

- Identify and address the public health needs of the local area;
- Increase the effectiveness, efficiency and responsiveness of services; and
- Develop partnerships for improving people's health and relevant services.

The majority of initial programmes sought to improve health by promoting healthy lifestyles, improving employment, housing, education and tackling substance abuse. Another important set of activities focused on the health of particular population groups and/or specific health problems. But there was hardly any aspect of population health improvement or community regeneration that at least one of the HAZ's was not concerned with in one way or another.

However, the HAZ programme was abandoned in 2003. Professor Ken Judge, who led the evaluation of Health Action Zones, opened his memorandum to the Committee with a stark summary:

"Health Action Zones were conceived and implemented too hastily, were too poorly resourced and were provided with insufficient support and clear direction to make a significant contribution to reducing health inequalities in the time that they were given".

Professor Judge argued that the HAZ experience clearly demonstrated that there was a need to think more carefully about the focus of such initiatives, their objectives, their timescales, the support that they need both locally and nationally and the space, trust and time that is required to make any kind of sustainable change possible. The testable but unstated thesis is that a well-conceived, well supported HAZ which was immune to political disruption and established for a longer period, could be effective.

The Hazelwood Coal Mine Board of Inquiry in its Report in 2014 concluded that it did not have sufficient time to explore all reform options in depth, or test good ideas against a cost/benefit analysis. The Board did not want to narrow policy makers' vision, nor constrain the State and GDF Suez to the Board's recommendations, nor limit improvements to those that the State and GDF Suez have committed to undertaking over the course of this Inquiry. With this in mind, the Board considered that a number of proposals referred to in the report, warranted serious consideration, including that the State:

- Create a Health Conservation Zone in the Latrobe Valley. The purpose is to improve significantly the health of the Latrobe Valley community by coordinating and integrating health services with responses which tackle the broader social and environmental determinants of health.

- Appoint a Health Advocate for the Latrobe Valley. The purpose is to provide a local health voice for the Latrobe Valley community that can win the trust of that community and be a sound source of advice, mediation and advocacy on health-related matters.

In Australia at present, whilst there is an argument for change in healthcare delivery, the way forward is not immediately clear, nor the apparatus at hand, despite the good intentions of the many interested parties. Menadue investigated health system reform in the early 2000's in Australia and commented that the healthcare system lacked the capability within it to change.

Design Thinking is a problem solving methodology especially well-suited for investigating ill-defined problems that is human-centered, possibility-focused, and hypothesis-driven. It is a mode of inquiry that combines empathy for the users and immersion in the context of a problem, creativity in the generation of insights and solutions, and a data-based experimental approach to assessing the quality of solutions.

Design thinking avoids the great temptation that so befuddles healthcare: moving from problem to solution without asking the "5 Why's", and without reflection as to whether the problem as seen is really the problem that requires solution. Why does Design Thinking matter? It starts with asking us to connect with purpose and meaning, and to consider stance and perspective in addressing a problem. We first create a thinking space, then use a structured methodology to move from understanding to ideating and then creating a desirable future state.

Systems thinking is the process of understanding how things, regarded as systems, influence one another within a whole. It explicitly involves a shift in emphasis away from a focus on parts to a focus on the relationships between parts within systems, and the purpose of the whole system that contains them. It has been defined as an approach to problem solving by viewing problems as part of an overall system, rather than reacting to a specific part, and potentially contributing to the development of unintended consequences. It uses a framework and a set of tools to explore the relationship between parts within a system, and between systems within a whole. Health care in the last forty years has focused on improvement of parts and not the relationships between parts within a systemic whole.

It is of interest that Australia has made major contributions to the practical applications of Design and Systems Thinking. The redesign of the Australian Taxation Office was undertaken in the 1990’s and prior to that the strategic organizational design work undertaken at CRA under the leadership of Sir Rod Carnegie have been seminal points along the journey to maturity for the application of this discipline to organization management. These conceptual domains of Design Thinking and Systems Thinking have even greater relevance to health care organisation and delivery in the early years of the 21st century. Which healthcare organizations will make the breakthroughs to apply this way of being to their construction of models of care?

The Victorian Healthcare Association (VHA) has recently called for a re-think of the way that healthcare system is designed in Victoria, including a request prior to the most recent state election for the creation of sub-regional bodies to undertake the organization and delivery of healthcare and funding to support this. They argue that the State should retain overall responsibility for service design, and that a system wide approach is necessary.

They further assert that a combination of stronger prevention and community-based care, along with better access to specialist services, and a people-centred strategy along with attention to the configuration of rural services and innovative service models is necessary in order to yield better health outcomes. They contend that sub-regional frameworks empower healthcare networks and contribute guidance to participants in healthcare governance, with more effective service and capital planning.

They state that training for health care board members is essential along with attention to work practices and replacing competitive grants with business case development as the basis for capital planning and infrastructure asset replacement.

There is a need to empower regional healthcare organisations to innovate with service models including extended scope of practice and changes to employment practices for medical specialists beyond the acute hospital setting. Realised productivity savings ought to be able to be re-invested in service redesign rather than being set against arbitrarily imposed centrally-set savings targets and funding reductions.

The Latrobe Valley at the beginning of the 21st century, and the health needs of its citizens, represent an opportunity to examine this in its entirety, however for the purpose of this report a more restricted view will be taken, and the topic of surgical services and more particularly elective surgery is deliberately outside the scope of this report.

In the context of meeting the health care needs of the people of the Latrobe Valley and being affordable to both the Victorian and Australian Governments, private insurers, local government and the users of health services, there is an opportunity to look at organising health services in a very different way than at present. This is necessary in order to ensure sustainability and viability of the health services and to promote optimum levels of health and well-being as well as resilience for the members of the community.

Finally, the people of the Latrobe Valley have a perception of their own health needs arising from the impact of asbestos exposure upon the health of former and current power industry workers, in combination with the impact of cigarette smoking (Walker and La Montagna). They need to be involved in healthcare decision-making via a genuine process of co-design enabled by the best methods available for the improvement of complex systems.

References

Australian Commonwealth Government White Paper, Reform of the Federation. Issues Paper Number 3: Roles and responsibilities in Health, Canberra 2014.

Productivity Commission 2013, An Ageing Australia: Preparing for the Future, Commission Research Paper, Canberra.

http://www.pc.gov.au/research/completed/ageing-australia/ageing-australia.pdf

Hazelwood Mine Fire Inquiry Report. Teague B, Catford J, Petering S. Victorian Government Printer. Melbourne 2014

Health Action Zones http://www.publications.parliament.uk/pa/cm200809/cmselect/cmhealth/286/28608.htm#n92

Fries, J. F. The Compression of Morbidity. Milbank Quarterly. 2005;83:801-823.

Walker HH and LaMontagne AD. Work and Health in the Latrobe Valley: Community Perspectives on Asbestos Issues. University of Melbourne 2004.

Travis G. Travis Review- increasing the capacity of the Victorian public hospital system for better patient outcomes. June 2015. http://health.vic.gov.au/travis/downloads/Travis%20Review%20Final%20Report.pdf

Building a 21st Century Primary Health Care System: A Draft of Australia’s First National Primary Health Care Strategy. Commonwealth of Australia 2009. http://www.mmgpn.org.au/media/download_gallery/COAG%202011%20Communique%20re%20Health%20Reform.pdf

Primary Health Care Reform in Australia. Report to Support Australia’s First National Primary Health Care Strategy Commonwealth of Australia. 2009. http://apo.org.au/files/Resource/nphc-supp.pdf

National Primary Health Care Strategic Framework. Commonwealth of Australia 2013.

http://www.health.gov.au/internet/main/publishing.nsf/Content/6084A04118674329CA257BF0001A349E/$File/NPHCframe.pdf

Better Outcomes For people with chronic and complex health conditions through primary health care. Primary Health Care Advisory Group. Commonwealth of Australia. June 2015.
http://www.health.gov.au/internet/main/publishing.nsf/Content/2D8BCF439DE725CACA257E93001B462A/$File/discussion.pdf

How can Australia improve its primary healthcare system to better deal with chronic disease? McKinsey and Co. 2015.

http://www.health.gov.au/internet/main/publishing.nsf/Content/9FCABAF426AFF486CA257E93001F2ADC/$File/background.pdf

Chapter 3 Prevention and Chronic conditions

Key Points

- *Prevention must focus on those major health problem, which are known to be amenable to intervention.*
- *There are three levels of prevention:*
    - *Primary, using measures that eliminate or reduce causes or determinants e.g. smoking cessation, road safety, safe sex and reducing harmful sun exposure, eating a healthy diet.*
    - *Secondary, to reduce progression of disease through early detection e.g. cancer, genetic screening, cardiovascular and respiratory disease screening. Typically a minority of patients receive all recommended interventions despite their effectiveness, especially the socially disadvantaged.*
    - *Tertiary, to improve function and minimise the impact of established disease.*
- *A Latrobe Valley Strong Hearts Program undertaken by the Health Conservation Zone could work with General Practice to determine how to provide incentives to ensure better management of persons with cardiovascular disease.*
- *A Latrobe Valley Healthy Lungs Program undertaken by the Health Conservation Zone could work with General Practice to determine how to provide incentives to ensure better management of persons with asthma and COPD.*
- *Economic modeling could be undertaken to evaluate the health and economic impact of a series of population-based initiatives in the Latrobe Valley.*
- *Social Impact Bonds might be used to raise public and private investment for improved lung health outcomes in the Latrobe Valley as part of the activity of the Health Conservation Zone.*

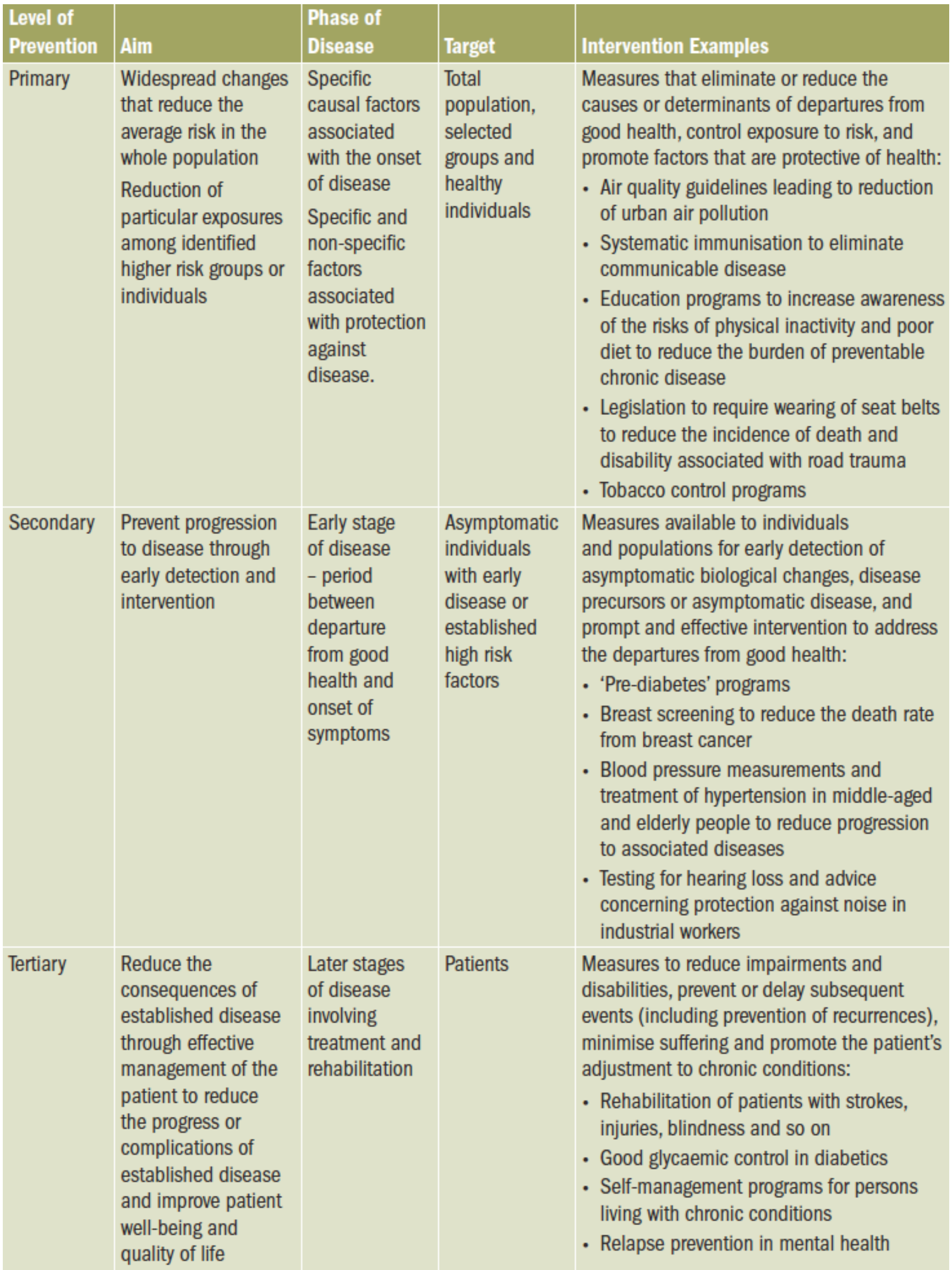
Prevention and Chronic conditions

Prevention is an important component of many aspects of public policy. In the health arena, prevention is seen as one of the core responsibilities of organised health systems alongside the curative, restorative and palliative functions, and is an increasingly important element in societal efforts to improve health. Prevention can be simply defined as ‘action to reduce or eliminate or reduce the onset, causes, complications or recurrence of disease’. In general, the concept of prevention is characterised by activities that are designed to reduce the likelihood that something harmful will occur, or to minimise that harm if it does occur.

Preventive activities focus on those major health problems which are known to be amenable to intervention. There are several ways of categorising preventive measures, according to the stage in the natural history of disease at which they are introduced; the determinants of disease which are being addressed; the target groups to which they are applied; and the setting or level of delivery of preventive measures.

In public health it has been common practice to categorise the different goals or levels of prevention across a ‘stages of disease’ continuum in terms of primary, secondary and tertiary prevention. The goal of *primary prevention* is to limit the incidence of disease and disability in the population by measures that eliminate or reduce causes or determinants of departures from good health, control exposure to risk, and promote factors that are protective of health. *Secondary prevention* aims to reduce progression of disease through early detection, usually by screening at an asymptomatic stage, and early intervention. The goal of *tertiary prevention* is to improve function and includes minimisation of the impact of established disease, and prevention or delay of complications and subsequent events through effective management and rehabilitation. A fourth, more fundamental level of prevention is sometimes described as ‘*primordial’ prevention*. This term is used to refer to preventing the emergence of predisposing social and environmental conditions that can lead to causation of disease.

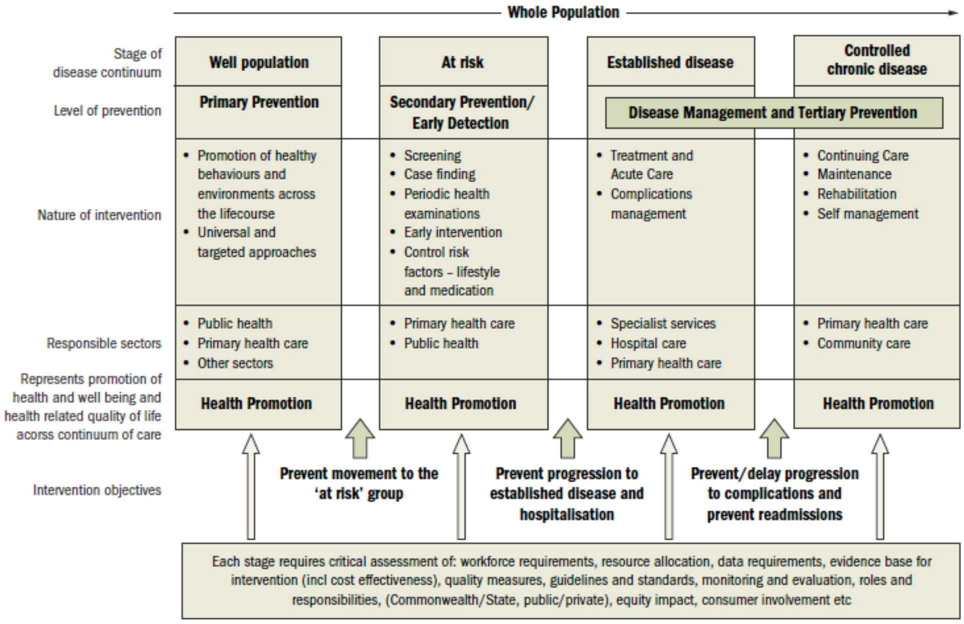
All of the levels and approaches to prevention form part of a holistic health system response to the patterns of health and disease in a particular society, and to formulate the most cost effective and feasible options for health gain accordingly.



Level of Prevention	Aim	Phase of Disease	Target	Intervention Examples
Primary	Widespread changes that reduce the average risk in the whole population Reduction of particular exposures among identified higher risk groups or individuals	Specific causal factors associated with the onset of disease Specific and non-specific factors associated with protection against disease.	Total population, selected groups and healthy individuals	Measures that eliminate or reduce the causes or determinants of departures from good health, control exposure to risk, and promote factors that are protective of health: • Air quality guidelines leading to reduction of urban air pollution • Systematic immunisation to eliminate communicable disease • Education programs to increase awareness of the risks of physical inactivity and poor diet to reduce the burden of preventable chronic disease • Legislation to require wearing of seat belts to reduce the incidence of death and disability associated with road trauma • Tobacco control programs
Secondary	Prevent progression to disease through early detection and intervention	Early stage of disease – period between departure from good health and onset of symptoms	Asymptomatic individuals with early disease or established high risk factors	Measures available to individuals and populations for early detection of asymptomatic biological changes, disease precursors or asymptomatic disease, and prompt and effective intervention to address the departures from good health: • 'Pre-diabetes' programs • Breast screening to reduce the death rate from breast cancer • Blood pressure measurements and treatment of hypertension in middle-aged and elderly people to reduce progression to associated diseases • Testing for hearing loss and advice concerning protection against noise in industrial workers
Tertiary	Reduce the consequences of established disease through effective management of the patient to reduce the progress or complications of established disease and improve patient well-being and quality of life	Later stages of disease involving treatment and rehabilitation	Patients	Measures to reduce impairments and disabilities, prevent or delay subsequent events (including prevention of recurrences), minimise suffering and promote the patient's adjustment to chronic conditions: • Rehabilitation of patients with strokes, injuries, blindness and so on • Good glycaemic control in diabetics • Self-management programs for persons living with chronic conditions • Relapse prevention in mental health

This table categorise the different goals or levels of prevention across a 'stages of disease' continuum in terms of primary, secondary and tertiary prevention and provides examples for each category of preventive activity. (adapted from R Beaglehole, Basic Epidemiology WHO 1993).

A Comprehensive model of chronic disease prevention and control is provided to illustrate the application of this framework across a continuum of disease model and how the responsibilities for the various elements of a preventive health strategy might participate.



Whole Population

Stage of disease continuum	Well population	At risk	Established disease	Controlled chronic disease
Level of prevention	Primary Prevention	Secondary Prevention/ Early Detection	Disease Management and Tertiary Prevention	
Nature of intervention	• Promotion of healthy behaviours and environments across the lifecourse • Universal and targeted approaches	• Screening • Case finding • Periodic health examinations • Early intervention • Control risk factors – lifestyle and medication	• Treatment and Acute Care • Complications management	• Continuing Care • Maintenance • Rehabilitation • Self management
Responsible sectors	• Public health • Primary health care • Other sectors	• Primary health care • Public health	• Specialist services • Hospital care • Primary health care	• Primary health care • Community care
Represents promotion of health and well being and health related quality of life acorss continuum of care	Health Promotion	Health Promotion	Health Promotion	Health Promotion
Intervention objectives	Prevent movement to the 'at risk' group	Prevent progression to established disease and hospitalisation	Prevent/delay progression to complications and prevent readmissions	

Each stage requires critical assessment of: workforce requirements, resource allocation, data requirements, evidence base for intervention (incl cost effectiveness), quality measures, guidelines and standards, monitoring and evaluation, roles and responsibilities, (Commonwealth/State, public/private), equity impact, consumer involvement etc

Source: National Public Health Partnership (2001). Preventing Chronic Disease: A Strategic Framework. Background Paper, NPHP.

Primary prevention

Primary prevention seeks to prevent the onset of specific diseases via risk reduction: by altering behaviours or exposures that can lead to disease, or by enhancing resistance to the effects of exposure to a disease agent. Examples include smoking cessation and vaccination. It is worth noting that Australian achievements based on public health approaches in the areas of smoking cessation, road safety, safe sex and reducing harmful sun exposure have been outstanding and provided world leadership.

Primary prevention reduces the incidence of disease by addressing disease risk factors or by enhancing resistance. Primary prevention generally targets specific causes and risk factors for specific diseases, but may also aim to promote healthy behaviours, improve host resistance, and foster safe environments that reduce the risk of disease. Age specific and context specific approaches are suggested based on evidence of the impact of particular diseases and the evidence for effectiveness of interventions related to those particular diseases.

Suggested areas proposed by the NPHP for focus in primary prevention include cigarette smoking, alcohol abuse, nutrition and obesity, exercise and mental health.

In the UK the Kings Fund has recently published a list of ten priorities for commissioners of health services. It argues that in the NHS UK the Clinical Commissioners must shift the current emphasis on acute and episodic care towards prevention, self-care and integrated and well co-ordinated care to cope with an aging population and increased prevalence of chronic diseases. In order to do so, they will need to direct resources to the patients with greatest need and redress the 'inverse care law' by which those who need the most care often receive the least care. Included in this list of ten priorities is an emphasis on both primary and secondary preventions.

The Kings Fund report defines Primary prevention as “Taking action to reduce the incidence of disease and health problems within the population, either through universal measures that reduce lifestyle risks and their causes or by targeting high-risk groups”.

They argue that more systematic primary prevention is critical in order to reduce the overall burden of disease in the population. While prevention in childhood provides the greatest benefits, it is valuable at any point in life. It is estimated that 80 per cent of cases of heart disease, stroke and type 2 diabetes, and 40 per cent of cases of cancer could be avoided if common lifestyle risk factors were eliminated (WHO 2005).

In particular, they observe that common lifestyle risk factors cluster in the population, which has a dramatic effect on life expectancy. Addressing this clustering, and its socio-economic determinants, is likely to reduce inequalities and improve overall population health.

Priority setting for primary interventions is important. These can be determined by the community itself, as strategies must be directed at implementation based on evidence and be stratified by age group taking local contextual factors into account, and determined by need using a priority setting approach .

The evidence suggests that Primary prevention is an excellent use of resources compared with many treatments. Of more than 250 studies on prevention published in 2008, almost half showed a cost of under £6,400 (UK) per quality-adjusted life year and almost 80 per cent cost less than the £30,000 threshold used by the National Institute for Health and Clinical Excellence for cost-effectiveness More systematic primary prevention in general practice has the potential to improve health outcomes and save costs For example, five minutes of advice in a general practice setting to middle-aged smokers to quit smoking can increase quit rates and save £30 per person for a cost of £11 per person.

Community-level campaigns to improve health behaviours, such as No Smoking Days, have been found to be very cost-effective (£82 per life year gained).

Evidence-based interventions include: supporting individuals to change behaviours, for example, through brief advice during a consultation; systematic community interventions in schools to reduce childhood obesity; and regulatory actions such as controlling the density of alcohol outlets.

In many areas, a strategic approach using a combination of interventions at the individual and societal level is likely to be most effective. These approaches often require new ways of engaging with communities to ensure they reach those in greatest need. Social marketing techniques can improve the effectiveness of interventions by tailoring interventions to the needs of specific individuals or groups.

Secondary prevention

Secondary prevention involves systematically detecting the early stages of disease and intervening before full symptoms develop. It is based on a range of interventions that are often highly cost-effective and that, if implemented at scale, would rapidly have an impact on life expectancy. However, there is substantial variation between practices in the systematic implementation of approaches towards secondary prevention – for example, use of disease registers.

Only a minority of patients receive all recommended interventions. Evidence suggests that this is an area where the 'inverse care law' applies and those in greatest need are least likely to receive beneficial services. Identifying those at risk and intervening appropriately is one of the most effective ways in which GPs can reduce the widening gaps in life expectancy and health outcomes (Marmot Review).

Secondary prevention largely involves the systematic application of standard, low-technology interventions. Successful secondary prevention would have a major impact on health outcomes, in terms of improvement in life expectancy and reduction in complications. Modeling by the UK Department of Health (2009) has shown that systematic and scaled-up secondary prevention is a cost-effective, clinically significant and fast way to tackle inequalities in health in local areas. Cost savings are likely to accrue over the medium term, as patients are prevented from experiencing a wide range of adverse events as their life expectancy lengthens.

The Kings Fund recommends the following key actions in support of successful primary and secondary prevention interventions:

1. Ensuring appropriate coverage of key secondary preventive interventions and processes including managing disease registers systematically by modeling expected versus actual prevalence and incidence, and thereby identifying practices where improvement is needed.

2. Systematic screening, where appropriate and known to be cost-effective

3. Ensuring systematic control of hypertension, cholesterol and diabetes among clinical commissioning group's populations

4. Working systematically with local authorities and other partners to ensure secondary prevention forms part of a broader strategy on public health

5. Working with community and voluntary sector groups to both develop more tailored joint strategic needs assessments and health and wellbeing strategies, and to engage with and provide services to patients who are not reached by mainstream health services.

The areas for focus at a local level and activities to be undertaken by which agency, can be determined by examining local data and the national health priority areas, then mapping the evidence for effectiveness of interventions against locally determined priorities in order to decide upon a strategy to guide the deployment of resources (tactics). This is an argument in support of a regional approach to collaborative engaged health care delivery across organizations using a networked approach to coordination. This argument will be developed further.

It is possible to access customized resources suitable for reference/access/use by rural and regional healthcare entities as guidance in the selection of appropriate areas for focus with resources to support these activities as cross agency inter-organisational networked activities.

An example of such a resource has recently been published as the Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia. This extraordinary document has been put together by the Rural and Remote Clinical Support Unit of the Torres and Cape Hospital and Health Service (Queensland Health), in partnership with the Royal Flying Doctor Service and the Apunipima Cape York Council. It is intended to promote and facilitate standardisation and consistency of practice using a multi-disciplinary approach to chronic disease management.

The contents of the Chronic Conditions Manual is broken into 4 distinct sections:

- Lifestyle modifications
- Management of diagnosed conditions
- Child health checks
- Adult health checks

The section on lifestyle modifications aims to support clinical practice with 5 concise areas containing best practice information for a healthy life comprising:

- Smoking cessation
- Alcohol reduction
- Physical activity
- Reproductive health
- Diet and nutrition

This information can be copied and disseminated to clients to support improving healthy lifestyle behaviours. The section on Management of diagnosed conditions provides 22 separate guides for the most common chronic conditions in Australia, and is intended for all clinicians who work directly with clients with a chronic condition in a community setting.

Cardiovascular disease screening/case finding

Guidelines are available for Assessment and Management of cardiovascular risk. Cardiovascular Disease (CVD) is caused by atherosclerosis, and represents a single family of diseases and conditions linked by common risk factors and the direct effect they have on CVD mortality and morbidity. These include coronary heart disease, stroke, hypertension, hypercholesterolemia, diabetes, chronic kidney disease, peripheral arterial disease and vascular dementia. Many people who have one CVD condition commonly suffer from another and yet opportunities to identify and manage these are often missed. Patients often receive care from multiple different teams in a disjointed way. A more co-ordinated and integrated approach is needed to assessment, treatment and care to improve outcomes.

More people could live longer and with a better quality of life if they were supported to adopt healthy lifestyles – particularly quitting smoking, eating more healthily and being more physically active. Evidence shows that these risks factors are clustered in the more disadvantaged groups of the population.

There is an opportunity for the Latrobe Valley to undertake a systematically developed, implemented and appropriately evaluated whole of population approach to risk assessment for cardiovascular disease, in order to identify and manage risk factors and ensure appropriate attention is devoted to those with established cardiovascular disease to ensure that they receive appropriate investigation to exclude coexistent occult cardiovascular disease.

This could involve a standardised community-based cardiovascular screening exercise for the whole population, repeated on a periodic basis, and linked to referral to appropriate lifestyle modification programs and follow up by General Practitioners. It is acknowledged that GPs are frequently already using risk calculators to identify patients at high risk, and that many people with established risk arent being identified and therefore aren't being managed as yet, thereby increasing their risk of subsequent adverse outcomes from CVD. It will be important to engage General Practitioners in the Latrobe Valley in this program from the outset. This Project/Program could be an early activity of a Health Conservation Zone: Latrobe Valley Strong Hearts perhaps.

Identifying individuals and families at very high risk of CVD, in particular those with inherited cardiac conditions such as Familial Hypercholesterolemia (FH) and some causes of sudden cardiac death could also be part of this initiative. All family members of younger people dying suddenly from a presumed cardiac death could be given the option to be tested. This could be an early and enduring activity of Latrobe Valley Strong Hearts Program.

At present, people who have been diagnosed with or at risk of a CVD are not always optimally managed in primary care. For example, people who have atrial fibrillation are not always appropriately anti-coagulated, those with diabetes aren't always diagnosed and managed appropriately, and people with hypertension often do not have this adequately managed – so this increases their risk of CVD. People with or at risk of CVD are not always adequately supported to improve their lifestyles. More needs to be done to improve their management, in order to improve mortality rates, quality of life, patient experience and patient safety.

A Latrobe Valley Strong Hearts Program undertaken by the Health Conservation Zone could work with General Practice could determine how to provide incentives to ensure better management of persons at risk of or with established CVD. This Program could be linked to a population-based registry as part of the health outcome studies currently underway in the Latrobe Valley. This would provide an opportunity for ongoing evaluation of such population based interventions to determine the impact on mortality, quality of life and employment status as potential outcome measures in an economic analysis.

There is also an opportunity to implement a training program to improve bystanders resuscitation skills so they can react quickly to the signs and symptoms of a heart attack or stroke and thereby save lives and, in some cases, reduce disability. Improving bystander resuscitation rates and improving public recognition of the symptoms of a stroke will improve outcomes for patients.

The National Vascular Disease Prevention Alliance have developed Guidelines for the management of absolute cardiovascular disease risk. The guideline contains an algorithm for assessment of risk linked to a set of resources outlining the lifestyle and pharmacotherapy interventions which should be implemented based on level of assessed risk.

Of note, there is currently no evidence that Cardiac CT scanning is useful as part of a population-based screening program for the detection of occult coronary artery disease.

Under the heading of Heart/Health Screening the American Heart Association lists the following risk factors for Coronary artery disease:

Major Risk Factors That Can't Be Changed

1. Increasing Age: About 80 percent of people who die of coronary heart disease are 65 or older.
2. Male Sex (Gender): Men have a greater risk of heart attack than women do, and they have attacks earlier in life.
3. Heredity (Including Race): Children of parents with heart disease are more likely to develop it themselves.

Major Risk Factors That Can Be Modified, Treated or Controlled

- Tobacco Smoke: Smokers' risk of developing coronary heart disease is 2-4 times that of nonsmokers.
- High Blood Cholesterol: As LDL rises, so does risk of coronary heart disease.
- High Blood Pressure: High blood pressure increases the heart's workload, causing the arteries to thicken and become stiffer.
- Physical Inactivity: An inactive lifestyle is a risk factor for coronary heart disease.
- Obesity and Overweight: People who have excess body fat — especially at the waist — are more likely to develop heart disease and stroke.
- Diabetes: Diabetes increases the risk of developing cardiovascular disease.

Respiratory disease screening/case finding

COPD is a disease of the lungs that is characterised by airflow obstruction or limitation. It is now the most widely used term by clinicians for the conditions in people with airflow obstruction who were previously diagnosed as having chronic bronchitis or emphysema or chronic unremitting asthma. The airflow obstruction is usually progressive, not fully reversible (unlike asthma) and does not change markedly over several months. It is treatable, but not curable; early diagnosis and treatment can markedly slow decline in lung function and hence lengthen the period in which someone can enjoy an active life.

Asthma is a long-term condition that affects the airways in the lungs. Classic symptoms include breathlessness, tightness in the chest, coughing and wheezing. The goal of treatment is for people to be free of symptoms and able to lead a normal, active life. The aim is to achieve freedom from symptoms in as many people as possible. The causes of asthma are not well understood, so prevention of asthma is not currently possible. People with asthma have different triggers for symptoms, and need to get to know what will provoke their asthma and cause deterioration in their control.

We need to change our approach to COPD from one that is reactive and waits until people have severe symptoms to one which is proactive, preventing disease, diagnosing earlier and treating and managing the condition from its early stages. For asthma, we can work harder to prevent people unnecessarily dying each year, and support people to reach the ultimate and achievable goal of freedom from their symptoms. These two conditions are clustered in the more disadvantaged groups of the population. The National Asthma Campaign and Australian Lung Foundation have developed Asthma and COPD Management Guidelines. In addition the NHS has published an extremely useful document: Outcomes Strategy for Asthma and COPD, which identifies a series of activities which could be undertaken as part of a linked strategy.

There is an opportunity for the Latrobe Valley to undertake a systematically developed, implemented and appropriately evaluated whole of population approach to early detection of Asthma across all ages and COPD. Screening to detect both asthma and COPD using questionnaire and spirometry is realistic in an Australian community setting. Linkage between a population screening program and a Quit Program to promote smoking cessation and referral to a General Practitioner and/or respiratory specialist where appropriate is also realistic in an Australian community setting. Evidence-based nationally endorsed guidelines are available for the management of Asthma and also for COPD. A whole of community adoption of such a program would be expected to have quantifiable benefits for individuals and also the community as a whole.

This could involve a standardised community-based screening exercise for the whole population, repeated on a periodic basis, and linked to referral to appropriate lifestyle modification programs and follow up by General Practitioners. At present People with asthma and/or COPD are not always adequately supported to improve their lifestyles including exercise nutrition and smoking cessation. It will be important to engage General Practitioners in the Latrobe Valley in this program from the outset. It is acknowledged that GPs are frequently already managing many patients with asthma and COPD of all grades of severity very well, however many people with asthma and/or COPD arent being identified and therefore aren't being managed as yet, thereby increasing their risk of subsequent adverse outcomes. This Project/Program could be an early activity of a Health Conservation Zone: Latrobe Valley Healthy Lungs perhaps.

A Latrobe Valley Healthy Lungs Program undertaken by the Health Conservation Zone could work with General Practice to determine how to provide incentives to ensure better management of persons with asthma and COPD. This could also be linked to a Lung cancer screening/ cased finding program amongst high-risk groups with a history of cigarette smoking and previous asbestos exposure (see chapter 9). This Program could also be linked to a population-based registry as part of the health outcome studies currently underway in the Latrobe Valley. This would provide an opportunity for ongoing evaluation of such population based interventions to determine the impact on mortality, quality of life and employment status as potential outcome measures in an economic analysis.

Economic modelling could be undertaken to evaluate the health and economic impact of a series of population-based initiatives including LV Strong Hearts, LV Healthy Lungs and a diabetes education program amongst the people of the Latrobe Valley as part of a Health Conservation Zone, such a model could also evaluate the impact on health and thereby the economic impact of a reduction in particulate air pollution in the Latrobe Valley.

The possibility of raising a Social Impact Bond (see Appendix 1) for public and private investment in improved lung health outcomes, and improved cardiovascular health outcomes in the Latrobe Valley should be actively explored as part of the activity of the Health Conservation Zone. The Social Impact Bond in this case may be better conceptualised as a Health Investment Bond, with a return on investment related to achievement of quantifiable improvements in health outcomes and rates of screening. Partners in this initiative could include Commonwealth, State, and Local Government, General Practice and Community Health service, the Latrobe Health Service, and possibly local businesses including Community banks. The feasibility of linking the production of particulate air pollution to investment in improved health care and health outcomes for the residents of the Latrobe Valley should be actively explored.

Note: this proposal does not address the health needs of persons with mesothelioma nor does it address the concerns related to the risk of development of mesothelioma amongst persons with a history of asbestos exposure, whether occupationally related or incidental.

References

National Public Health Partnership (2006). The Language of Prevention. Melbourne: NPHP. http://www.health.vic.gov.au/archive/archive2014/nphp/publications/language_of_prevention.pdf

R Beaglehole, Basic Epidemiology. 2nd Edition. WHO. 2006 http://apps.who.int/iris/bitstream/10665/43541/1/9241547073_eng.pdf

National Public Health Partnership (2001). Preventing Chronic Disease: A Strategic Framework. Background Paper, NPHP. Melbourne. http://www.health.vic.gov.au/archive/archive2014/nphp/

Naylor C, et al. Transforming our health care system: Ten priorities for commissioners. Kings Fund. London 2015. http://www.kingsfund.org.uk/publications/articles/transforming-our-health-care-system-ten-priorities-commissioners

Marmot Review. Fair Society, Healthy Lives: Strategic review of health inequalities in England, post 2010. London: The Marmot Review. 2010. Available at: www.instituteofhealthequity.org/projects/fair-society-healthy-lives-the-marmot-review

Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia. 1st edition. The Rural and Remote Clinical Support Unit, Torres and Cape Hospital and Health Service, 2015. Cairns. https://publications.qld.gov.au/dataset/chronic-conditions-manual

Guidelines for the management of absolute cardiovascular disease risk. National Vascular Disease Prevention Alliance. National Stroke Foundation. 2012. http://www.cvdcheck.org.au/pdf/Absolute_CVD_Risk_Full_Guidelines.pdf

Cardiovascular Disease Outcomes Strategy: Improving outcomes for people with or at risk of cardiovascular disease. Department of Health, UK. March 2013.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/214895/9387-2900853-CVD-Outcomes_web1.pdf

Heart Health Screenings. American Heart Association.
http://www.heart.org/HEARTORG/Conditions/Heart-Health-Screenings_UCM_428687_Article.jsp

National Asthma Council Australia. Australian Asthma Handbook, National Asthma Council Australia, Melbourne, 2015. http://www.asthmahandbook.org.au

Australian Lung Foundation. COPD-X Guidelines. Australian Lung Foundation. 2015.

http://lungfoundation.com.au

NHS. An Outcomes Strategy for COPD and Asthma: NHS Companion Document . Department of Health.2012.
https://www.gov.uk/government/publications/an-outcomes-strategy-for-copd-and-asthma-nhs-companion-document

Asbestos Related Diseases Research Institute website

http://asbestosresearch.org.au

Chapter 4 Chronic Disease Management & Multimorbidity

Key Points

- *Evidence-based guidelines exist for the secondary prevention and management of all manner of chronic diseases including diabetes, cardiovascular disease and chronic obstructive pulmonary disease. In practice the implementation and evaluation of the impact of guidelines is difficult.*
- *Evidence based guidelines for management of chronic disease must be made fit for purpose in a local context.*
- *How the presence of co-morbidities changes management of single diseases is seldom considered and doctrinaire policy-directed approaches to single disease management in isolation are increasingly counterproductive.*
- *Well-designed disease management programs can reduce costs, principally by reducing acute health care costs associated with hospitalisation, and improving health outcomes and satisfaction for patients.*
- *The Victorian Government initiative known as HARP (Hospital Admission Risk Programme) was developed in the late 1990's to address the increased demand on acute health care services. Care coordination, self-management support and specialist medical care are core, with the primary focus of reducing the demand of clients with chronic disease and complex needs on the acute hospital system. The 2006 HARP Public Report shows that the Programme has been effective at reducing emergency department attendances and emergency admissions and hospital length of stay.*
- *In addition to the aged, people of low socio-economic status experience a greater burden from chronic disease, and this is so in rural areas as well.*
- *The costs of chronic care to the health services are high, and additional costs are borne by sufferers particularly the indirect costs associated with treatment such as transport.*
- *In the acute hospital care system the use of episodic payments does not encourage providers to fully meet the needs of persons with chronic disease.*

- *Strong primary care systems are associated with better health outcomes for persons with chronic disease.*
- *Systems appear to be more effective if they are based on locally coordinated, comprehensive, affordable and universal care which has the capability to detect early and respond in a timely manner to the enormous variety of health and social issues that emerge for patients with multi-morbid chronic disease which matter to them in the context of their life.*
- *The Australian Government provides practice incentive payments and coordination of care payments, as well as chronic disease item numbers for use by specialists and primary care doctors. Despite evidence of an increase in expenditure, the evidence for uptake and beneficial impact of these incentives on practice behaviour and outcomes for patients is limited at best.*
- *Although health services are organized regionally, there is little ability to integrate and coordinate clinical management across the acute, subacute and primary care sectors.*
- *Medicare Locals have recently been replaced with Primary Health Networks. At this stage, it is not clear how these will engage with local government, community health centres, community nursing, acute and subacute care settings such as hospitals, regional offices of the health departments and lastly general practice.*
- *What is missing is an alignment of agencies and thinking around purpose and meaning for the healthcare system as a whole.*
- *Current arrangements for secondary care (specialist care) for patients with chronic disease are based largely on referral relationships between practitioners.*
- *The referral model works well for straightforward problems and straightforward patient level encounters. However the evidence of comparative efficacy and effectiveness is lacking when care coordination for more complex cases is involved.*
- *Most healthcare interventions are focused on episodic encounters and pharmacological interventions, with little scope to develop a chronic care model incorporating self-management and patient education and peer support.*
- *International evidence points to the value of seeing the role for health services in patients lives less from a disease management perspective as from a pattern of illness and needs perspective, regardless of the*

particular disease. It suggests a role for much greater service coordination and integration for people with chronic disease.

- *The Chronic Care Model incorporates clinical care pathways, an emphasis on improved coordination of care across service providers, an evidence-based approach to the clinical management content, improved flow of both information and patients between care settings and practitioners, and supports self-management.*
- *Health care costs for chronic disease are heavily skewed. Typically such patients are older, have higher levels of risk factors, more advanced disease and more co-morbidities. Some programs seek to target the extreme users. Reforms to primary care services in order to meet the needs of this type of patient will require integration with acute and extended care services.*
- *Engaging local service providers and patients themselves in the design, implementation and development of systems of care is critical, although the means by which this might be achieved is not clear.*
- *We need to not lose sight of identifiable groups within the community such as indigenous Australians, refugees, handicapped people and young adults with specific health care needs transferring from pediatric to adult services.*
- *There is a case for innovation in the service delivery space with a focus on self-management, chronic disease management and integrated care in a regional system of health care management.*
- *A cross-sectional study from Scotland in 2012 defined multi-morbidity as "the presence of two or more from a specified list of 40 long term disorders". In this study, almost a quarter of patients had a chronic disorder, and more than half those with a chronic disorder had multi-morbidity. Persons with three or more co-morbidities had a 60% chance of having an additional mental health co-morbidity.*
- *Multi-morbidity is associated with age, and expenditure on health care rises exponentially with the number of chronic disorders that an individual has.*
- *Patients with multiple co-morbidities want convenient access, individualised care plans, support from one coordinator of care, and continuity of relationships with healthcare professionals. They also want to be treated by health care providers who demonstrated a caring attitude and listened to them, appreciating that their needs were unique and may vary over time.*

- *The Royal Australasian College of Physicians (RACP) have recently affirmed the shift from single organ disease to multi-morbidity amongst the rapidly aging population along with the shift from communicable, maternal, neonatal and nutritional disorders to non-communicable chronic diseases.*
- *The RACP position is that three principles are required to deliver appropriate effective chronic disease prevention and management: 1) A national approach and a whole of government strategy underpinned by collaborative models of funding, 2) Increased capacity and access to care, in regions with disproportionate levels of chronic disease and targeted to populations at particular risk, and 3) Clinical leadership from across the health sector, with support for multi- disciplinary teams.*
- *Categorizing the population into health states may help determine priorities for services to meet patient needs.*
- *Several promising approaches to management are emerging: 1) The concept of co-design with rather than for healthcare system users, 2) The importance of supporting and empowering frontline teams, and 3) The concept of a health commons as the basis for collaborative organisation and accountability for health service delivery within a local region of responsibility.*

Chronic Disease Management and Multimorbidity

Across the world various organisations have devoted substantial energy to the production of evidence-based guidelines for the secondary prevention and management of all manner of chronic diseases including diabetes, cardiovascular disease and chronic obstructive pulmonary disease. These are extremely important areas of scholarly activity and a very useful resource for health professionals, administrators and policy makers alike, not to forget people who have need of the prevention and management of these conditions.

The Heart Foundation of Australia has produced a call to action for the secondary prevention of cardiovascular disease which describes nine key action areas and describes the sources of resources that are available. The Heart Foundation has also produced guidelines for the prevention, detection and management of chronic heart failure in Australia. In the USA the Veterans Administration have produced a clinical practice guideline for the management of obstructive lung disease, as have the Global Initiative for Obstructive Lung Disease, whilst locally the Australian Lung

Foundation endorses the global strategy document , and in Western Australia the Health Department has produced a model of care or guideline for the management of COPD, which describes 5 standards of care across the disease continuum from prevention through to end of life care. Diabetes Australia has produced evidence-based guidelines for secondary prevention and management of diabetes, including guidelines for prevention and management of eye disease, diabetic foot complications and chronic renal disease for example. The Scottish Intercollegiate Guideline Network has produced many such guidelines, and similar national agencies produce, collate and curate the same sets of guidelines.

In short there is no shortage of guidelines on the management of specific single chronic diseases, including key results areas and areas for clinical focus. All such guidelines are meticulously researched and the evidence base documented.

There is no shortage of agency level support for the adoption and implementation of these guidelines. In practice the implementation and evaluation of the impact of guidelines as programs is difficult and the impact often disappointing in terms of outcomes that matter to patients, whether it is the achievement of target levels for relevant specific process activities. For example the percentage of persons with diabetes who have an eye check, or who have had their HbA1c level estimated in the last six months, or the number of persons who have a heart attack or die, as examples of clinical outcomes that matter.

All disease management must occur in a locale, and local factors provide context. Therefore all evidence base guidelines for management of chronic disease must be made fit for purpose in a local context. The extent to which the presence of co-morbidities changes the priority for the management of single diseases is seldom considered and doctrinaire policy-directed approaches to single disease management in isolation are increasingly counterproductive when they are implemented in isolation or strategies to promote their utilisation are developed without consideration of the whole patient and/or the local context. Funding models based on a specific disease care-path paradigm may inadvertently encourage such arrangements. This is a very important issue for all levels of government and other relevant policy bodies to understand and to take into consideration.

There has been a lot of enthusiasm over the last 20 years for chronic disease management programs (DMP's). Initial experience was often disappointing, with many producing modest benefits at best. As the approach has matured and an understanding of the determinants of successful disease management programs has emerged more recently, evidence of effectiveness has started to accumulate. From this evidence base it is argued that well-designed DMP's can reduce costs, principally by reducing acute health care costs associated with hospitalisation, and improve health outcomes and satisfaction for patients.

The term Disease Management was initially used to refer to public health style campaigns as well as to case management programs for individual patients, but DMP's are more than this. They are programmed to meet the needs of specified groups of patients (usually) with the same chronic condition. In most such DMP's patients receive a standardized, coordinated set of evidence-based interventions whose goals are to enhance health and quality of life, reduce the need for hospitalisation and other costly (unnecessary) treatments, thereby lowering the overall healthcare costs. In an ideal world the savings would exceed the program costs.

Despite the enthusiasm, initial results were less convincing, with patchy evidence of impact across a variety of settings and conditions. The range of conditions studied narrowed down to diabetes, congestive cardiac failure, chronic obstructive pulmonary disease and asthma, with the least convincing evidence of effectiveness being seen for asthma, and the most consistent evidence of effectiveness seen for diabetes. More recently the evidence has started to appear that defines the other important variables that contribute to the impact of a DMP, namely how the intervention is organized and administered and how it is evaluated.

In Germany reforms to payment for public payors for chronic disease management have yielded evidence of effectiveness of DMPs' based on minimum standards:

program clinical protocols are evidence-based, care is coordinated by a single provider (General Practitioner in many cases) and there have to be guidelines for when a referral to a specialist is warranted. The evaluation indicates that this program improves health care delivery to enrollees and that specific interventions such as diabetic foot checks are more likely to occur regularly, as a result of which the incidence of diabetic foot ulcers has fallen. There is preliminary evidence of a favourable impact on mortality, thus the evaluation covers structure, process and outcomes. Patient satisfaction has increased and overall costs of care have fallen. The small increase in outpatient and pharmaceutical costs being offset by the reduction in inpatient costs. Administrative overheads are offset by the cost savings captured by the program.

There is similar evidence from other countries to support the implementation of well run soundly designed DMP's, including evidence from the Netherlands of improved compliance and reduced hospitalisation for asthma and COPD. From Italy there is evidence of a congestive cardiac failure DMP resulting in reduced hospitalisation rates and length of stay, with reduced overall costs of care for enrolled patients, and a similar program in Sweden has had similar results.

Successful DMP's are characterized by broad coverage (size), simplicity, patient-centred approach with a focus on meeting patient needs rather than the focus being the program itself, transparency of reporting with clarity about the objectives and the measures, as well as alignment of incentives for all participants (financial and non-financial), and a systems approach as well as patience that reflects an understanding that such programs take time to implement and time to achieve the culture change needed to achieve sustainable change.

The Victorian Government initiative known as HARP deserves special mention. HARP or more correctly, the Hospital Admission Risk Programme, was developed in the late 1990's to address the increased demand on acute health care services. HARP was initially implemented as more than 80 pilot projects that were tasked with identifying those clients at risk of, or already experiencing, frequent emergency presentations or hospital admissions, in order to provide them with alternative interventions. The HARP projects were formally evaluated in 2004-05, and the results published in the HARP Public Report in 2006. The report demonstrated that in a 12 month period, HARP clients experienced:

- Thirty five per cent fewer emergency department attendances
- Fifty two per cent fewer emergency admissions
- Forty one per cent fewer days in hospital.

The reduced need for hospital services was equivalent to approximately:

- One emergency department attendance
- Two emergency admissions
- Six days spent in hospital each year for every HARP client.

On the basis of the program’s successful outcomes identified the 87 individual HARP projects were mainstreamed through amalgamation into 15 HARP services across Victoria. From 2005-2007 HARP was expanded to provide services within sub-regional areas, resulting in the provision of 22 state-wide HARP services.

The HARP service delivery model is based on the Kaiser Permanente Chronic Care framework and the Wagner Chronic Care model. Care coordination, self-management support and specialist medical care are core components of HARP, with the primary focus of reducing the demand of clients with chronic disease and complex needs on the acute hospital system.

The Australian Institute of Health and Welfare in its 2014 report identifies that cardiovascular and mental health disorders are very high in the list of chronic disease costs for Australians. Given the importance of chronic disease in peoples lives, particularly older people, it is reasonable to ask how Australia is poised to respond to the challenge? The importance of chronic disease is recognised and important Australian and State government initiatives have attempted to address this. There is also evidence of important local chronic disease management initiatives in the Gippsland region itself.

In addition to aged Australians experiencing the burden of chronic disease, poor people also experience a greater burden from chronic disease, and this is so in rural areas as well. The costs of chronic care to the health services are high, and additional costs are borne by sufferers particularly the indirect costs associated with treatment such as transport, which are likely to have even greater impact upon people in rural areas such as the Latrobe Valley.

Investment in chronic disease management for persons with diabetes has been reported to have very significant economic benefit, amounting to $4.5 billion per year for Australia, the benefits are demonstrable particularly for older persons. This is a much stronger argument than a cost containment argument.

In the acute hospital care system the use of episodic payments does not encourage providers to fully meet the needs of persons with chronic disease. So the question becomes what sort of models of care and funding should be developed to meet this need? Studies from 18 OECD countries suggest that those countries with strong primary care systems are associated with better health outcomes for persons with chronic disease. Systems appear to be more effective if they are based on locally coordinated, comprehensive, affordable and universal care which has the capability to detect early and respond in a timely manner to the enormous variety of health and social issues that emerge for these patients and which matter to them in context of their life. The latter is critical and is almost certainly linked to the mental model of the provider and payor as to what constitutes “good health, a good life and a good death” and that this for an individual is changeable over time.

The Australian Government provides practice incentive payments and coordination of care payments, as well as chronic disease item numbers for use by specialists and primary care doctors. These are all designed to facilitate chronic disease management, with a particular focus on diabetes and asthma. The payments facilitate better coordination of care for patients with chronic conditions and terminal illness and pay for planning, team coordination, health assessments and care reviews in primary care. Despite evidence of an increase in expenditure, the evidence for uptake and beneficial impact of these incentives on practice behaviour and outcomes for patients is limited at best.

Why is it likely that the impact of such well-intentioned and considered interventions has been so limited? It seems that although health services are organized regionally, there is little ability to integrate and coordinate clinical management across the acute, subacute and primary care sectors. It is particularly evident that there are limited initiatives to coordinate health policy development between state and national governments, and involve local government in these deliberations. At the local level Medicare Locals have been replaced with Primary Health Networks. At this stage, it is not clear how these will engage with local government, community health centres, community nursing, acute and subacute care settings such as hospitals, regional offices of the health departments and lastly general practice.

What is missing is an alignment of agencies and thinking around purpose and meaning for the healthcare system as a whole. In the absence of such alignment, there is little hope of developing a coherent strategy, and even less hope that tactical responses isolated by payment system and sector will achieve any lasting impact on population health and healthcare costs as a whole. The policy option of using regional primary health care organisations to develop an integrated approach to local planning, governance, regulation, incentives and service system development, whilst intrinsically appealing, has not yet been grasped at any level of government in Australia.

Current arrangements for secondary care (specialist care) for patients with chronic disease are based largely on referral relationships between practitioners. The quality of the relationship reflects its origins in a sociocultural system, with implicit responsibilities for information management, care coordination and clinical outcomes. An example of how this can work well without evidence that there is a formal network, is the way that care is coordinated for patients with chronic renal failure and/transplantation or dialysis. Notwithstanding this observation, the referral model works well for straightforward problems and straightforward patient level encounters. However the evidence of comparative efficacy and effectiveness is lacking when care coordination for more complex cases is involved. In some instances the clinical management issues alone are sufficiently complex involving multiple specialists, episodes of acute and subacute hospitalisation and a range of support services, let alone when the added complexity of the potential involvement of social services and the justice system is considered. In this setting the scope for an integrated approach to care involving health and social sectors begins to look appealing.

At present most healthcare interventions are focused on episodic encounters and pharmacological interventions, with little scope to develop a chronic care model incorporating self-management and patient education and peer support. Similarly, there is little evidence of broad scale active care coordination across a range of specialist doctors, allied health services, community nurses and general practitioner(s). There is little recognition at a policy level that specialist physicians could or should play an active role in ongoing care of patients with chronic and complex health care needs, particularly in the context of the emerging recognition of the impact of frailty as a condition which has a profound impact on care needs in its own right, alongside impoverished social networks.

International evidence points to the value of seeing the role for health services in patients lives less from a disease management perspective as from a pattern of illness and needs perspective, regardless of the particular disease.
The evidence suggests a role for much greater service coordination and integration for people with chronic disease.

A well-publicised representation of this model of care is known as the Chronic Care Model. The concept of a clinical care pathway has emerged as a strong feature of such models, with an emphasis on improved coordination of care across service providers and an evidence-based approach to the clinical management content and the flow of both information and patients between care settings and practitioners.

International versions of these pathways have been adopted within Medical Locals in Australia, including the Canterbury Health Pathways from Christchurch in New Zealand, and the Map of Medicine from the UK. Some Medical Locals even using both simultaneously. A feature of the Chronic Care Model is the emphasis on supported self-management. This is likely to receive greater emphasis in future.

What determines the success of Chronic Care models? Is it the particular clinical practice guidelines or the information system? Vendors are enamored of such thinking, however it seems likely that system design and team roles and relationships and modern vertical organisational structures are likely to be critical determinants, reflecting the local contextual importance of implementation and support strategies, which focus on communication and relationship management across sectors from primary through acute to subacute/extended care settings. In this context the role of specialist physicians and nurses and allied health practitioners with extended scope of practice credentials is unclear.

How are such care models best managed and what should be their focus?
In the USA there are examples of patient-enrolment models, whilst in Europe there are examples of successful population-catchment models based on geographical zones. In the Australian context there is clearly a catchment model despite divided and overlapping responsibilities for funding and governance arrangements between State and Commonwealth governments. The potential for a population enrolment model based on insurance coverage is theoretically possible. Both models are based on achieving the objectives of high-quality lowest-possible cost service with best possible outcomes, achieved through the coordinated activities of a number of agencies. The overall management of the organization and performance of the participating agencies which provide services and interact with each other, is achieved through governance, regulatory and financial functions and structures which take the form of a management system although few would recognize it as such.

Some have argued that the use of targets for cost, quality and outcomes is important in the justification for chronic disease management approaches, including measuring and reporting on the phenomenon of avoidable hospital admissions for so-called ambulatory sensitive conditions including chronic diseases such as diabetes, asthma, COPD, and chronic heart failure. This has been refined to focus more particularly on the conditions which are deemed to have a proportion of admissions which are potentially reduceable based on more effective secondary prevention and alternative care arrangements.

Again, targets for the various indicators associated with secondary prevention of hospital admission are recommended and monitored in various settings, including the Quality Outcomes Framework in the United Kingdom. This seems reasonable for the reduction in incidence, or at least delay in onset of diabetic complications for example. It is recognized that the health care costs for chronic disease are heavily skewed and figures are quoted that a very small percentage of users (perhaps 2%) are responsible for 20% of direct healthcare costs. Typically such patients are older, have higher levels of risk factors, more advanced disease and more co-morbidities. Arguably, incentives to provide better care should target those who are in most need, although whether this translates into better outcomes or lower total cost is an important matter to consider in making an investment decision.

The typical model for Chronic Disease Management includes self-management and GP-based care, leading to disease management by a primary care team with some specialist support, and finally to case management for a select few. All invariably, in the context of a single disease model. Questions really arise as to whether the mixed results seen to date from such CDM programs have occurred because the strategy is wrong, or the system and its management is either immature, underdeveloped, ill-considered or not appropriate to meet the needs of patients and their families.

There is a growing recognition that change is required and need to be managed. Health care is complex and all health care is delivered locally. Engaging local service providers and patients themselves in the design, implementation and development of systems of care is critical, although the means by which this might be achieved is not clear. All the systems studied to date have in common a focus on quality improvement (hence an underpinning of measurement and reporting), effective local leadership, engagement of users and clinicians, alignment of incentives and clarity around roles and responsibilities for service delivery (i.e., effective governance). Reforms to primary care services in order to meet the needs of this type of patient will require integration with acute and extended care services. Local government, community health services, social services and the justice system, community nursing models and specialist physician models and networks, through to specialist supra-regional networks of services for specified conditions need to be considered as part of the landscape. Equally importantly, we need to not lose sight of identifiable groups within the community such as indigenous Australians, refugees, handicapped people and young adults with specific health care needs transferring from pediatric to adult services.

Would a regionally organised system of health care deliver better outcomes? Is there a role for enhanced primary care within a performance framework for the management of chronic disease, with alignment of financial incentives and patient level incentives, plus a sustained commitment to support capability to develop innovative integrated services? Conventional responses to this set of dilemmas include a largely tactical set of responses with a strong regulatory and top-down flavour. This begs the question as to whether a regional approach to accountability and responsibility for outcomes of health care is preferable. In that context management of chronic disease and secondary preventive strategies to reduce the impact of chronic disease and hospitalisation could be an ideal focus for the coordination activities of Primary Health Networks.

Many economists have focused on the use of the economic imperative to drive reforms in the system of care as a largely tactical response, whilst others have looked at emerging opportunities to apply strategies from other industries and other economic frameworks. It is clear that current payment incentives based on a bewildering variety of uncoordinated assessment and incentive payments don’t work particularly well, and actually have the potential to create rent seeking behaviors in response to the existence of moral hazards on the part of providers.

What is clear, though, is the emerging agreement around the need for service system development, including service substitution in the space between the acute care hospital and primary care, and integration of services across and within a number of levels of services. Putting this together, there is a case for innovation in the service delivery space with a focus on self-management, chronic disease management and integrated care in a regional system of health care management.

A cross-sectional study from Scotland in 2012 defined multi-morbidity as “the presence of two or more from a specified list of 40 long term disorders”. The study explored the distribution of those multi-morbidities in relation to age, gender and socio-economic deprivation. Almost a quarter of patients had a chronic disorder, and more than half those with a chronic disorder had multi-morbidity. The prevalence of multi-morbidity was strongly related to age, and also with social deprivation. People from deprived areas had the same prevalence of multi-morbidity as more affluent patients who were 10-15 years older. They also experienced worse health outcomes and reduced quality of life. Patients with multi-morbidity were heavier users of healthcare.

“Patients with multi-morbidity are now the norm rather than the exception. Management of patients with several chronic diseases is now the most important task facing health services in developed countries, which represents a fundamental challenge to the single disease focus that pervades medicine.”

Salisbury C Lancet 2012;380:7-8.

Based on the observation that the population is aging and that multi-morbidity is associated with age, the study authors advance the argument that expenditure on health care rises exponentially with the number of chronic disorders that an individual has. For the clinician managing patients the recognition of the increased numbers of patients with multi-morbidity, is associated with increased complexity consequent upon the industrialisation of medical care and the change in practice required to manage patients with multiple comorbidities. In the UK chronic disease management is frequently conducted by nurses working with checklists and supported by national guidelines. Guidelines are written by committees of experts and specialists, mainly drawing on evidence generated from studies conducted in selected patients without co-morbidities.

Although treating patients according to standardized care protocols can reduce unacceptable variation, treating individual diseases in isolation can have its own unintended consequences. From a health service perspective and a payer perspective this approach is inefficient and it is well recognized that clinicians struggle to apply disease specific guidelines to the management of patients with multi-morbidity. Alongside this industrial standardised approach to medical care lies the parallel universe of shared decision-making and patient-centred care. Can these two approaches co-exist?

One approach suggested is for primary care consultations for such patients to be longer, for the patients to be cohorted in a multi-comorbidity clinic and be seen by one clinician, arguably a generalist specialist who has responsibility for care coordination, as well as for limiting fragmentation of care. Again, when admitted to an acute hospital such patients could be managed by a general physician, rather than take pot luck with a single organ specialist.

What do patients want? Patients with multiple co-morbidities want convenient access, individualised care plans, support from one coordinator of care, and continuity of relationships with healthcare professionals. They also want to be treated by health care providers who demonstrated a caring attitude and listened to them, appreciating that their needs were unique and may vary over time .

The recent Royal Australasian College of Physicians submission to the Australian Senate Select Committee Inquiry into Chronic Disease Prevention and Management in Primary Care affirms the shift from single organ disease to multi-morbidity amongst the (rapidly aging) population along with the shift from communicable, maternal, neonatal and nutritional disorders to non-communicable chronic diseases, with a rapidly increasing prevalence of multi-morbidity worldwide. Estimates of the cost of health care from Europe and North America indicate that 70-80% of healthcare costs are spent on chronic disease treatment and that more than half of the so-called preventable hospitalizations for ambulatory sensitive conditions are associated with selected chronic diseases.

Whilst it is true that primary care has an important role to play in managing multi-morbid chronic illness, a focus on individual diseases and health services operating in silos is not the answer. Arguably care coordination between primary and secondary (or specialty medical) care is a critical strategy to address the growing burden of chronic disease. The RACP position is that three principles are required to deliver appropriate effective chronic disease prevention and management:

- A national approach and a whole of government strategy underpinned by collaborative models of funding
- Increased capacity and access to care, in regions with disproportionate levels of chronic disease and targeted to populations at particular risk.
- Clinical leadership from across the health sector, with support for multi-disciplinary teams.

At present there are a number of Commonwealth Government programs that provide the primary care sector with tools for better chronic disease management. It can reasonably be said that there is considerable overlap and complexity within and between such programs, and linkages between medical funded initiatives and other programs such as state-based programs and community care programs are fragmented and require considerable time and effort for each user to navigate. It can hardly be called an integrated care system. National frameworks exist for cancer, heart disease, stroke and vascular disease and diabetes care as well as other chronic diseases and a national strategic framework is currently being developed for chronic disease prevention and management in Australia. For chronic conditions, at state level there are a plethora of clinical networks.

Primary Health Networks are another piece yet to find a place in this jigsaw puzzle of piecemeal health reform. The remit for PHNs is to work with the full spectrum of General Practice, allied health, local hospitals, community health centres and community nursing organisations to improve integration of and access to care, particularly for patients with chronic diseases. At some point the policy and practical considerations must consider how primary and secondary care levels interact.

In stepped care pathway models that have been developed for mental health in the UK, there are explicit statements concerning when it is appropriate for responsibility for care of patients to move between primary and secondary care. Close working relationships between the two sectors are required for this to work, and collaboration is required to set up the pathway and to provide effective governance.

In NZ the Alliance model of contracting draws from the construction industry to ensure that individual contractors on big projects work collaboratively and that resources are shared. This Alliance contracting model for the payment for integrated care is a reality for all 20 NZ healthcare districts. This points to the utility of shared contracting arrangements at a regional level to improve healthcare outcomes for a defined population.

In a seminal paper in 2007, Lyn et al from Centres for Medicare and Medicaid services, US Department of Health and Human Services asked whether population segmentation could provide better health care. They developed a model based on illness trajectories that divided the population into 8 groups or segments:

1. Those in good health
2. Maternal/infant healthcare
3. Acute illness
4. Stable chronic condition
5. Serious but stable disability;
6. Failing health near death
7. Advanced organ system failure
8. Long term frailty.

The authors posit that it should be possible for each person to fit into one of the segments at every stage of their life, and that the health care needs of each person in each segment must be sufficiently similar to justify separate consideration, and that for each group there can be a process to determine optimal health and the priorities for services to meet patient needs.

The authors argue that use of this segmentation approach when coupled with the six goals for quality care from the Quality Chasm Report from the Institute of Medicine (care that is safe, effective, efficient, patient centred, timely and equitable) can yield a framework for planning for resource allocation, care arrangements and service delivery thus ensuring each persons healthcare needs can be met rationally, effectively and efficiently.

This approach contrasts with current arrangements for health care organisation and delivery as a system which focus primarily on fee for service remuneration, complex service networks, arrays of service providers and the need for system navigation plus a paucity of connections that would otherwise enable information flows to support individual patient care and service integration.

At times citizens might move from one segment to another, and for members of the 4th and 5th segments there is the need for intermittent access to acute care settings when needed. Most people ultimately arrive in the last three segments, end of life segments, where access to palliative care is an important feature. Care arrangements should anticipate and plan for the most common transitions.

The authors argue that population segmentation in this manner is a high priority, with the recognition that to improve the health status of some of the population segments would probably require fundamental change in service delivery arrangements and availability of important options, potentially with substantial re-engineering to ensure continuity of clinician and involvement of patients and families in advanced care planning across multiple settings. They acknowledge the requirement to develop the model further, particularly in considering the impact of mental health (and by implication drug and alcohol related health issues) and disability as co-variables.

If single-organ disease models of care and disjointed services across primary and secondary care settings are seen to be inadequate to meet the needs of persons with multiple co-morbidities and, rather than build models of care based on a combination of historical models with accretions of incremental change related to professional behaviours or emerging technologies, how can care be better organized to deliver the triple aim of improving the patient experience of care (including quality and satisfaction), improving the health of populations, and reducing the per capita cost of health care as per the Institute for Healthcare Improvement model for a high performing healthcare system that meets patient needs.

Several promising approaches are emerging in a variety of settings with varying degrees of evidence to support them including the emergence of integrated care, the concept of co-design “with rather than for “healthcare system users, the importance of supporting and empowering frontline teams, and the concept of a health commons as the basis for collaborative organisation and accountability for health service delivery within a local region of responsibility.

References

Improving care. Hospital Admission Risk Program Public Report. Victorian Government Department of Human Services. Melbourne 2006. http://www.health.vic.gov.au/harp/downloads/improvingcare.pdf

Salisbury C. Multimorbidity: redesigning healthcare for people who use it. Lancet 2012;380:7-8.

Rimmer M. Balancing the health budget: chronic disease investment pays big dividends. The Conversation. 26 August 2015. https://theconversation.com/balancing-the-health-budget-chronic-disease-investment-pays-big-dividends-46598

Barnett, K, Mercer, SW, Norbury, M, Watt, G, Wyke, S, and Guthrie, B. Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study. Lancet. 2012; 380: 37–43.

RACP Submission. Senate Select Inquiry Into Health: inquiry into chronic disease prevention and management in primary health care. 2015.

J. Lynn, B.M. Straube, K.M. Bell, S.F. Jencks, and R.T. Kambic
Using Population Segmentation to Provide Better Health Care for All: The “Bridges to Health” Model. The Milbank Quarterly. 2007;85:185-208.

Bayliss EA, Edwards AE, Steiner JF, Main DS. Processes of care desired by elderly patients with multimorbidities. Fam Pract 2008; 25: 287–93.

Crossing the Quality Chasm: A New Health System for the 21st Century
Committee on Quality of Health Care in America, Institute of Medicine
Washington, DC, USA: National Academies Press; 2001.

Timmins, N., and Ham, C. The quest for integrated health and social care: a case study in Canterbury, New Zealand. The Kings Fund. 2013. http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/quest-integrated-care-new-zealand-timmins-ham-sept13.pdf

Chapter 5 Integrated Care

Key Points

- *Across the world, across every type of society, the recognition that the healthcare system needs to be better organized to meet the demands of the larger proportion of persons surviving to advanced old age is driving the re-conceptualisation of the goals of health care systems.*
- *There is a move worldwide to a more integrated, better coordinated approach to care.*
- *The Royal College of Physicians London and Royal College of General Practitioners (UK) outline a vision of integrated care arguing that service design must focus on meeting peoples physical, psychological and spiritual needs and support health and care professionals to deliver coordinated care in a range of settings.*
- *Integrated care is an organising set of principles for care delivery that aim to achieve improved patient care outcomes through better co-ordination of services provided.*
- *There are a number of levels at which integration may occur: 1) Integration across the spectrum of health, 2) Integration between service providers, and 3) Integration between acute care and primary / community services.*
- *Integrated care systems can reduce demands on clinical services, waiting times, duplication of tests, long term operating costs (overheads), referral without clear questions, resource use and waste (time and manpower).*
- *The quality of the evidence in support of integrated care is poor.*
- *No single model of integrated care exists.*
- *Enablers of integration exist at various levels: 1) macro or policy level: a commitment to change, financial incentives, data collection to inform policy settings, 2) Meso or organizational level: a focus on networks which engage across settings, use of incentives to drive service integration and the provision of infrastructure to support service coordination, and 3) Micro or patient experience level: a focus on communication, infrastructure and support, access, targeted funding and appropriate program design and planning.*
- *There are four internationally renowned models of integrated care: 1) The patient-centered medical home model of care (United States), 2) Kaiser Permanente - A ‘closed’ group-model of care (United States), 3) The Alliance*

Model (New Zealand), and 4) The King's Fund and Nuffield Trust health system (United Kingdom) Better Care Fund.

- *The Institute for Healthcare Improvement's Triple Aim framework describes an approach to optimizing health system performance: 1) Improving the patient experience of care including quality and satisfaction, 2) Improving the health of populations, and 3) Reducing the per capita cost of health care. In most health care settings today, no one is accountable for all three dimensions of the Triple Aim across the primary, secondary and tertiary care systems. This complicates integration.*
- *The widely used WHO health system framework proposes that a high quality health system is comprised of six fundamental building blocks for health care delivery: 1) Leadership and governance, 2) A good health financing system, 3) A well-performing health workforce, 4) A well-functioning health system, 5) A well-functioning health information system, and 6) Good health services.*
- *The UK Nuffield Trust evaluated over 30 community-based interventions aimed at reducing avoidable ill health and demand for care, particularly for people with long-term chronic conditions.: 1) No evidence to support the use of predictive models to identify patients at high risk of emergency admission and to provide care using a pre-emptive model using a multidisciplinary care team. 2) No evidence in reduction in hospital admissions. 3) Did not reduce emergency hospital admissions and in some cases emergency hospital admissions went up. 4) Showed a strong positive impact of a nursing service at the end of life.*
- *Overall, the evidence in support of attempts at integration both from an outcome and economic perspective is highly variable and inconclusive. This is not surprising as evaluations of system changes of this nature are both difficult to undertake and interpret given the wide range of programs and contexts. Formative evaluation methods may offer benefits to sites implementing such service innovations.*
- *The Kings Fund have identified a useful sets priorities, design principles and enabling factors to guide transformational and integrative change in health service configuration in order to meet the needs of the people at a regional or sub regional level.*
- *In the Australian context, Matthew Cullen from Medibank Private has argued that hospital expenditure is the key to the growth in health care expenditure over the last 10 years, with the likely prospect of more people coming to hospital more often. Cullen describes initiatives to support integrated care as a catalyst to achieve systemic reform, arguing that a service aimed at*

complex, recurrent hospital users is an ideal catalyst for broader system reform.

- *In conclusion it is clear is that the concept of integration remains important but it is at an immature stage of development and deployment. As a concept it does not form the basis for a complete strategy. Also, integration of existing service models and their cultures needs to be weighed against introducing new models that are inherently simpler and therefore easier to integrate.*

Integrated Care

Across the world, across every type of society, the recognition that the healthcare system needs to be better organized to meet the demands of the larger proportion of persons surviving to advanced old age is driving the re-conceptualisation of the goals of health care systems. Whatever the setting, healthcare has developed in ways that tends to fragment care whether within or between sectors. Irrespective of the details of individual systems and settings, there are major difficulties bringing together health and social care systems around the needs of individual persons.

Fragmented care systems which fail to coordinate services along the care continuum may result in sub optimal outcomes for individual patients. The barriers to better coordinated care include structural divisions, legal and financial frameworks, organizational and professional cultures, not to mention differences in governance and accountability arrangements. In response, there is a move worldwide to improve health service delivery through a more integrated, better coordinated approach to care.

Increased demand for services to manage the needs of those with chronic disease along with increased service utilisation per person with advancing age and the increased opportunity to apply new technology and use new medicines, adds to cost. Costs are needlessly added to health care when resources are wasted, in the form of administrative overheads, unnecessary treatment and unnecessary or duplicated tests.

From a user perspective the system of care is bewilderingly fragmented and complex: services along the care continuum aren't coordinated. The need for a different type of palliative care for dying patients just adds to the complexity.

The Royal College of Physicians London and Royal College of General Practitioners (UK) outline a vision of integrated care arguing that service design must focus on meeting peoples physical, psychological and spiritual needs and support health and care professionals to deliver coordinated care in a range of settings. Similar sentiments and ambitions are being articulated for the health and social care sector in the USA as well. It is this movement that finds its voice as the call for integrated care.

At the broadest and most general level, integrated care is an organising set of principles for care delivery that aim to achieve improved patient care outcomes through better co-ordination of services provided. Integration is a set of processes or methods that brings about co-operation between the various parts of a system, with the intention of improving collaboration to achieve common goals and optimal results. In contrast, integrated care refers to the delivery of services to patients in a way which minimises duplication, and which both relies on, and promotes, collaboration between service providers.

There are a number of levels at which integration may occur in the delivery of integrated care.

1. **Integration across the spectrum of health**
   A main goal of integrated care is to better acknowledge the relationship between physical and mental health, and to ensure that treatment plans incorporate considerations of both aspects of health.

2. **Integration between service providers**
   Integrated care aims to provide "seamless, effective and efficient care", with connected service provision across healthcare providers.

3. Integration between acute care and primary / community services

Integrated care places emphasis on the ways in which primary health and community-based services can sustainably support people with long term health conditions and complex needs.

Integrated care systems can reduce demands on clinical services, waiting times, duplication of tests, long term operating costs (overheads), referral without clear questions, resource use and waste (time and manpower). The literature is replete with site-specific examples across a range of clinical conditions and settings including trauma services, services for children with special needs, renal service, primary care with mental health care, HIV services, family medicine and Emergency care.

On the negative side, there is evidence that access to integrated care may not be equitable and may not benefit all equally. The quality of the evidence in support of Integrated Care is poor. Unless implemented carefully Integrated Care may result in increased system-wide costs and cost savings therefore may be minimal. There may be widespread opposition to change and inevitably IT systems problems may be difficult to overcome.

In taking a broad overview a number of conundrums arise: could integrated care be a means of improving care delivery to the most vulnerable groups in society, could integrated care be a means of establishing a new paradigm for primary care, particularly for mental illness based on standards of care and its organization rather than a one-size-fits-all formula-driven approach to service delivery and organization?

No single model of integrated care exists. All models lead to various degrees of integration along a spectrum from user-centred to service provider-centred. Service providers may be integrated into healthcare networks. Whilst this may represent a highly integrated system from the provider perspective, if there is a poor cultural fit with the clientele and poor communication between providers, then the level of service integration will be low from the user perspective. Thus a “one size fits all” approach is unlikely to be fit for purpose for the entire population across the continuum of care, and integration at the organisational level is no guarantee of integrated service delivery.

Enablers of integration exist at various levels however, including

1. At the macro or policy level: a commitment to change, financial incentives, data collection (structures, processes and outcomes) to inform policy settings,
2. At the meso or organizational level: a focus on networks which engage across settings, use of incentives to drive service integration and the provision of infrastructure to support service coordination (eg IT platforms), and
3. At the micro or patient experience level: a focus on communication, infrastructure and support, access, targeted funding and appropriate program design and planning.

A closer examination of four internationally renowned models of integrated care seems warranted.

The patient-centered medical home model of care (PCMH) (United States)

This approach is distinguished by a broad spectrum of co-ordinated patient care providing accessible, continuous, and integrated care. Fee-for-service payments, and the primary care physician playing a “gate keeping” role in directing and monitoring care, are other important features.

Kaiser Permanente - A ‘closed’ group-model of care (United States)

The KP integrated model of care closely coordinates primary, secondary and hospital care, whilst placing a strong emphasis on prevention. In addition, KP extensively uses care pathways and electronic medical records to ensure better exchange of information amongst the different care providers.

The Alliance Model (New Zealand)

The New Zealand (NZ) alliance model for integration stems from practices found in the construction industry where contractors on large projects work collaboratively and share resources to get the job done. Decisions are made on the basis of what course of action will benefit the health provider alliance as a whole, not just individual members.

The King’s Fund and Nuffield Trust health system (United Kingdom)

The Better Care Fund (BCF) is one of the key initiatives taken towards the promotion of integrated care in the UK. The Fund creates a local single pooled budget to incentivise the NHS and local government to work more closely together. It is about moving away from a ‘sickness service’, and towards one that enables people to live independent and healthy lives in the community.

The patient-centered medical home model of care (PCMH) (United States)

The patient-centred medical home has grown out of the American Academy of Physicians model for care of adolescents and has been refined over years. Key features include; broad spectrum of acuity of patient needs; commitment to provision of accessible continuous integrated care; fee for service payments; care coordination and patient centred care based on physician-patient relationship. Where specalist care is needed the family doctor remains as a key member of the care team.

Whilst conceptually inviting, the evidence in support of the model seems unconvincing and the relationship between PCMH and patient outcomes complex.

An example of the PCMH model which does show some promise is the Geisinger Health System. This is an integrated Health service organisation which serves 2.6 million people living in rural Pennsylvania. It includes services provided by over 3000 primary care doctors, 26,000 specialist doctors and 104 hospitals.

Geisinger offers a number of integrated care service programs to its members both at set locations and in the patient's home. For example:

- The LIFE program is designed for older adults, with each LIFE clinic staffed by a primary care physician specialising in geriatrics, as well as Registered and Licensed Practical Nurses (the US equivalent of Enrolled Nurses). Clients are able to access the clinic for consultations, as well as wound care, IV therapy, medication and more.
- The Geisinger Health Plan (GHP) offers a "medical home" model, providing clients with a case manager, who works in conjunction with the member's health-care providers, the member, and their family, and coordinates care with the hospital (if necessary), specialists, pharmacists, and nursing facilities. Clients have access to a case manager for support 24 hours a day, 7 days a week.

According to Geisinger, medical home programs have "significantly reduced the number of hospital admissions and readmissions by providing members an additional resource at the first signs of a complication."

Kaiser Permanente - A 'closed' group-model of care (United States)

Kaiser Permanente (KP) is the largest not-for-profit health plan and integrated health care delivery system in the United States, with 8.7 million members. The KP integrated model of care closely coordinates primary, secondary and hospital care, whilst placing a strong emphasis on prevention. In addition, KP extensively uses care pathways and electronic medical records to ensure better exchange of information amongst the different care providers.

KP delivers an integrated approach to care by carefully coordinating the work of primary care physicians, specialists, hospitals, pharmacies, laboratories and others. KP is considered to be a 'closed' group-model of care because its members obtain most of their care from KP physicians who sign mutually exclusive contracts built around common vision, joint decision making and aligned incentives.

KP attempts to provide its members with a “one stop”, end-to-end care experience. The organisation owns a large number of clinics, where a client can receive primary and secondary care. The primary care services include a variety of different options, from health checkups to disease management programs. Although specialists may be consulted if necessary, the primary care physicians remain in charge of clients’ overall care (taking on a case management role).

In their delivery of integrated care services, KP makes extensive use of computerised health technology, with a particular focus on their electronic medical record database. This enables care providers to share information in real time.

The Alliance Model (New Zealand)

New Zealand has 20 district health boards (DHBs) planning and funding regional hospitals and other health services, and around 30 primary health organisations (PHOs) that plan and fund elements of general practice and primary care for enrolled patients. In 2013 NZ moved to implement a governance model across the entire country aimed at integration through alliances between each DBH and PHO.

The New Zealand (NZ) alliance model for integration stems from practices found in the construction industry where contractors on large projects work collaboratively and share resources to get the job done. Under this model, ‘everyone wins or everyone loses’ and it is acknowledged that if one member is struggling then it is in the best interests of others to help solve the problem. Alliances have been formed in all 20 NZ healthcare districts with members coming from different service areas (i.e. GPs, aged care, ambulance and hospital specialties) and district health boards to ensure that decisions about service integration remain clinically driven.

The alliance model focuses on the “whole of system” benefits of integration and on what is best for patients and the healthcare system, rather than on individual interests. For example, collective contracts are signed with pre-agreed gains and losses dependent on the overall performance of the group. Open book accounting is also practiced to support the idea that money goes back into the system.

Important factors that underpin the alliances include members which:

- Are clinical leaders from across the health system
- Have capacity to bring resources to the alliance table so decisions can be implemented
- Cast aside sectoral interests to work with one another through a whole-of-system approach to planning and decision making on what is best for the patient and health system.

All alliances have leadership teams determined by the DHB and PHO. There is flexibility as to how the alliance goes about its activities and alliance goals vary (i.e. shifting services from hospitals to primary care or creating new arrangements for specific issues such as improving chronic condition management). The key is to work on what makes sense for the context of integration to the local health system.

The alliance model offers a new approach to addressing the growing need for more integrated systems of care. This collective approach can also mean that not all organisations will benefit from alliance agreements (i.e. an agreement to bolster GP services may result in funding cuts to specialist services in hospitals).

NZ’s Canterbury District Health Board has supported integrated care activities and processes for five years and now demonstrates lower rates for acute medical admissions compared to other health board areas, increased elective procedures, reduced waiting times and a shift from hospital procedures to uptake of general practice procedures.

Success points to a system which includes the following features:

- A general practice system that keeps patients out of hospital if they do not need to be there
- Patients who are admitted to hospital are treated efficiently
- Patients are discharged safely to good community support

Key enablers of integrated care that have been identified include:

- Creating a vision where the constituent parts of the whole health system need to work together
- Sustained investment in innovation and skills training at the managerial/ board level (not just for employees)
- Reshaping contracts from fee-for-service models to more capacity-based contracts designed to create joint incentives for referrers and providers.

The King's Fund and Nuffield Trust health system (United Kingdom)

The UK King's Fund and Nuffield Trust presented a national strategy for the promotion of integrated care to the Department of Health in 2012. Which outlined three main priorities for enabling integrated care:

1. Government policy needs to be founded on a clear and measurable goal to improve the patient experience
2. Guarantees need to be offered to patients with complex needs - guarantees include agreed care plans, nominated care coordinators and access to telehealth services
3. Change needs to be implemented at scale and pace. There should be flexibility to apply different approaches to different areas and financial incentives are needed to support organisations to work together. A programme for organisational development should also exist to support organisations and local authorities.

The national strategy highlights the fact that the most fundamental prerequisite to the development of integrated care at scale is the crafting of a powerful narrative at both a national and local level.

An important initiative arising from the national strategy was the Better Care Fund (BCF), designed to support transformation in integrated health and social care. It creates a local single pooled budget (£5.3bn since 2013) to incentivise the NHS and local government to work more closely together. The national Better Care Fund Support programme was created to provide support materials, tools and coaching to overcome barriers and support implementation of BCF by April 2015.

Key support products include:

- National ‘How-to Guides’ to provide practical steps to progress implementation
- Interactive support workshops to encourage peer to peer learning
- Coaching and support for ‘Better Care Learning Partners’ to enable good practice and insight gathering
- Development of an interactive space for knowledge sharing and collaboration.

The national strategy identified a number of systemic barriers to integrated care:

1. Management culture that talks about innovation but demonstrates risk averse approaches
2. Lack of time and sustained project management support for demonstration sites
3. Payment by results (throughput) approach to hospital funding
4. Regulation that focuses too much on organizational performance and not performance across organisations
5. Lack of a single outcome framework that promotes joint accountability for delivering services
6. The absence of robust shared electronic patient records

The National Audit Office recently reviewed the progress of the BCF and concluded that there is limited evidence that integrated care has cost-effectively reduced unplanned hospital admissions, and that the BCF has been based on optimism and not evidence. A lack of strong management and limited cross-Government working have been blamed for the poor outcomes to date and new proposals to save money need to be developed. The review did however, agree with the principles of the plan, calling the fund an ‘innovative programme providing better, more joined up care’.

Evaluation of Integrated Care in New Zealand

A number of researchers have attempted to evaluate the introduction of integrated care initiatives in New Zealand. Two of these evaluations are briefly summarised below:

Cumming notes that for New Zealand, achieving integrated care has long been a key policy challenge, yet whilst Integrated Care has long been a policy goal in New Zealand, very little information is available regarding the efficacy of such initiatives. In particular, there is a dearth of research regarding the:

- Extent of information sharing between health practitioners;
- Extent of co-location of services;
- Extent of going beyond the above to agreed pathways, co-ordination/navigation roles, team decision-making;
- Service users' views on whether there is better integration from their perspectives;
- Overall impact of changes

This lack of research is concerning, because without rigorous evaluation, it is difficult to say whether integrated care does in fact offer better care in comparison to other models of care. Timmins and Ham have undertaken a case study of a whole of health service quest for integrated health and social care in Canterbury. This was an attempt by a large health service to integrate healthcare and social care systems across the acute and chronic care time frames and jurisdictions.

The starting point was a crisis, however the health service recognized that they had some strengths:

- General Practice was well organized
- Savings from budget were re-invested in innovative programs
- An education program for GP's was introduced to reduce variation in practice

Analysis indicated that the current business model was no longer fit for purpose (financially or clinically), so senior staff went on a learning journey and were given permission to change the system. An awareness-raising event was held to generate enthusiasm for change:

- Staff were walked through scenarios and asked how they would respond if it was them, and what they would change
- The ideas were captured by a graphic artist
- A key message from this “one budget: one system”
- Language was used to create the argument for change: rhetoric
- Goals and principles of care were drawn up and a picture of the ideal state was developed.

The goals adopted for the health service plan were that:

- Services should enable people to take more responsibility for their own health and well-being
- People should stay well in their own homes and communities as far as possible
- When people need complex care it should be timely and appropriate.
- To achieve these goals a new way of working, a new set of principles was essential.

The key requirements were:

- Those in the health system had to recognize that there was ‘one system, one budget’ – from primary to community to hospital to social care, and whether working as public employees, independent practitioners, or private and not-for-profit contractors
- The system had to deliver the best possible outcomes within the resources available, rather than individual organisations and practitioners simply arguing for more money.

The goal was to deliver ‘the right care, right place, right time by the right person’ – and that a key measure of success was to reduce the time patients spent waiting. Ie focus on excellent experience: outstanding outcome.

The board signed off on the principles, not the plan, the redesign strategy not the next service change that the plan set out.

Key lessons learned

1. The stimulus for what happened was the perception of a health system that was under pressure and beginning to look unsustainable.
2. It takes time. The time taken reflects the inherent complexity of health and social care.
3. It takes stamina, persistence and resilience in the face of adversity to achieve measurable success.
4. Leadership rapidly became collective, shared and distributed, not focused on just a few heroic individuals in formal leadership roles.
5. Collective leadership encompassed\s clinicians as well as managers, and engages people who had often worked together in different roles over several years.
6. Continuity underpinned the relationships that helped to make the notion of ‘one budget, one system’ the reality and not simply the rhetoric.

Timmins and Ham echo the comments made by Cumming regarding the paucity of data evaluating the performance of integrated care initiatives. They argue that much of the problem in collecting data centres around a lack of clarity regarding what “good quality” performance would look like. Bearing this in mind, however, they note that for the Canterbury DHB:

- There is plenty of process data to show more activity outside hospital, suggesting that a larger proportion of care is being undertaken in the community (such as radiology services)
- One measure Canterbury has devised for itself is to measure waiting time saved for a selection of its most effective pathways, for example skin lesion removal and heavy menstrual bleeding. Over three years, Canterbury can claim to have saved patients 1.5 million days of waiting
- When acute medical length of stay and readmission rates are plotted against each other, Canterbury comes out third lowest among the 20 health boards in

New Zealand and the lowest of all major district health boards. Canterbury is not the best performer among these on either acute medical length of stay or acute readmission rate. But it is the best when the two measures are combined.

- The level of hospital resource devoted to acute medical conditions has declined in Canterbury relative to the rest of the country, while access to arranged surgery has increased in proportion to the rest of New Zealand.

A Rand Europe evaluation of the 16 integrated care pilot initiatives in England found that whilst staff were enthusiastic about the pilots, patients were less positive about the experience, and there was a mixed effect on hospital use and cost.

The reviewers summarise by saying that efforts to integrate care were helped by clear leadership, shared values, clinician involvement, personal relationships between leaders of the various organisations and support for staff in new roles and the stability of the organisations. The barriers commonly identified included underestimating the scope and difficulty, threats to staff roles and professional identity, national policies and processes, local bureaucracy and poor IT connectivity between systems.

Local decision makers should not underestimate the challenges involved in care coordination across boundaries, nor lose sight of the needs and preferences of service users. In short, the challenges of integrated care should not be underestimated.

In a review of the evidence of the economic impact of integrated conducted by the WHO European Observatory, the key messages were :

- The rising burden of chronic disease and of the number of people with complex care needs require the development of delivery systems that bring together a range of professionals and skills from both the cure (healthcare) and care (long-term and social-care) sectors.

- Evidence that is available points to a positive impact of integrated care programmes on the quality of patient care and improved health or patient satisfaction outcomes but uncertainty remains about the relative effectiveness of different approaches and their impacts on costs.
- This review of published reviews confirms earlier reports of a shortage of robust evidence on economic impacts of integrated care.
- The term ‘integrated care’ is often not specifically examined; the most common concepts or terms were case management, care coordination, collaborative care or a combination of these.
- Utilization and cost were the most common economic outcomes assessed by reviews but reporting of measures was inconsistent and the quality of the evidence was often low.
- There is evidence of cost–effectiveness of selected integrated care approaches but the evidence base remains weak.
- There may be a need to revisit our understanding of what integrated care is and what it seeks to achieve, and the extent to which the strategy lends itself to evaluation in a way that would allow for the generation of clear-cut evidence.
- It is important to come to an understanding as to whether integrated care is to be considered an intervention or whether it is to be interpreted, and evaluated, as a complex strategy to innovate and implement long-lasting change in the way services in the health and social-care sectors are being delivered and that involve multiple changes at multiple levels.

Goodwin et al investigated Coordinated Care for people with chronic and complex conditions (2013) and summarized their findings as 8 key lessons:.

- Understanding local context is key. Successful approaches to coordinated care for people chronic and complex conditions have highly context specific case histories.
- Models of care can’t be transported ‘en bloc’.
- Care coordination programs flourish at the neighbourhood level.

- There is the potential to scale up operations through building a number of locality-based approaches under the direction of an umbrella organization.
- Care coordination needs to be focused on quality improvement rather than cost reduction.
- Disengagement of GP’s is cause for concern.
- Weak links with secondary care need to be addressed.
- Models of care coordination are likely to be more effective when they operate as fully integrated provider teams with a degree of autonomy.

A brief comment on the evaluation of quality of care provision is warranted before moving on to consider priorities for health system commissioners and a model for the co-design of a local health care system for the future. Quality of care is defined by the Institute of Medicine (IOM) as “the degree to which the health services for individuals and populations increase the likelihood of desired health outcomes, which are consistent with current professional knowledge”. This definition includes both prevention and treatment. Desired health outcomes are those sought by the users of the service and current professional knowledge is an ever-changing standard of care.

There are a variety of methods for determining quality of health care, perhaps the most appropriate to consider are two that have had the most consideration: the IHI Triple Aim and the WHO Building Blocks models.

The IHI Triple Aim is a framework developed by the United States-based Institute for Healthcare Improvement, which describes an approach to optimizing health system performance. The Triple Aim approach was developed in response to rising healthcare costs, inefficient use of resources, the ageing population, and an increase in the prevalence of chronic disease, issues which are also facing the Australian healthcare system.

It is IHI’s belief that in order to deliver quality care, new designs must be developed to simultaneously pursue three dimensions, which they call the “Triple Aim”:

- Improving the patient experience of care (including quality and satisfaction);
- Improving the health of populations; and
- Reducing the per capita cost of health care

As the IHI notes, in most health care settings today, no one is accountable for all three dimensions of the Triple Aim. They argue that this is problematic, because in order to improve the functioning of the health care system, we need to address all three of these dimensions at the same time. Following research, IHI's innovation team developed a concept design and described an initial set of components of a system that would fulfill the IHI Triple Aim.
The five components are:

- Focus on individuals and families
- Redesign of primary care services and structures
- Population health management
- Cost control platform
- System integration and execution

According to the IHI, organizations and communities that attain the Triple Aim will have healthier populations, in part because of new designs that better identify problems and solutions further upstream and outside of acute health care. In this way, the focus is towards the prevention of health care problems before they reach the stage in which acute care is required. In addition, using the Triple Aim approach, it is hoped that patients can expect less complex and much more coordinated care, and the burden of illness will decrease.

The IHI also suggests that stabilizing or reducing the per capita cost of care for populations will give businesses the opportunity to be more competitive, lessen the pressure on publicly-funded health care budgets, and provide communities with more flexibility to invest in activities, such as schools and the lived environment, that increase the vitality and economic wellbeing of their inhabitants

Because the IHI Triple Aim entails ambitious improvement at all levels of the system, a systematic and comprehensive approach to change is required in order to be successful. Arguably, without payment reform, delivery system reform will fall short of achieving the end goal of system-wide improvement. As such, strong government commitments to new models of care which will facilitate Triple Aim approaches are required.

The WHO health system framework or “building blocks” model is another widely used model of health care delivery. The model suggests that a health system consists of all organizations, people and actions whose primary interest is to promote, restore or maintain health. The model proposes that a high quality health system is composed of six fundamental building blocks, namely:

- Leadership and governance, which involves ensuring strategic policy frameworks exist and are combined with effective oversight, coalition-building, regulation, attention to system-design and accountability.
- A good health financing system, which raises adequate funds for health, in ways that ensure people can use needed services, and are protected from financial catastrophe or impoverishment associated with having to pay for them. It provides incentives for providers and users to be efficient.
- A well-performing health workforce, which works in ways that are responsive, fair and efficient to achieve the best health outcomes possible, given available resources and circumstances (i.e. there are sufficient staff, fairly distributed; they are competent responsive and productive).
- A well-functioning health system that ensures equitable access to essential medical products, vaccines and technologies of assured quality, safety, efficacy and cost-effectiveness, and their scientifically sound and cost-effective use.
- A well-functioning health information system which ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health system performance and health status.

- Good health services which deliver effective, safe, quality personal and non-personal health interventions to those that need them, when and where needed, with minimum waste of resources.

The WHO systems framework proposes that the system building blocks are the foundation for the achievement of the goals or outcomes of:

- Improved health (both in terms of level and equity of provision)
- Responsiveness
- Financial risk protection, and
- Improved efficiency

It is suggested that by improving the functions and capacity of these six building blocks, organisations can work through the intermediate outcomes of access, coverage, quality and safety to achieve the ultimate goals and objectives of improved health, responsiveness, social and financial risk protection, and improved efficiency.

In the UK, the Nuffield Trust evaluated over 30 community based interventions aimed at reducing avoidable ill health and demand for care, particularly for people with long term chronic conditions. Many of these interventions are based in the community and aim to reduce demand for emergency hospital admissions. The report found that there was little if any evidence to support the use of predictive models to identify patients at high risk of emergency admission and to provide care using a pre-emptive model using a multidisciplinary care team (virtual ward model).

Evaluations of integrated care models found that service providers enjoyed the experience but service users did not, reporting discontinuities in health care provider, being listened to less and being less involved in decisions about their care, with no evidence in reduction in hospital admissions.

A series of community based interventions to provide community based care for older persons in the community, in order to shift the culture of care and resource away from institutional and hospital-based crisis care for older persons towards earlier targeted interventions, did not reduce emergency hospital admissions and in some cases emergency hospital admissions went up.

On the more positive side there was strong evidence of a positive impact of a nursing service at the end of life to demonstrate that patients were more likely to die in their own home with significantly fewer hospital admissions and reduced cost of care.

This report provides important learnings for those contemplating undertaking and evaluating similar interventions:

- Recognise that planning and implementing large-scale service changes takes time.
- Define the service intervention, clearly including what it is meant to achieve and how, and manage implementation well.
- Be explicit about how the desired outcomes are supposed to arise and use interim markers of success.
- Consider generalisability and context: they are very important.
- If you want to demonstrate statistically significant change, size and time matter.
- Hospital use and costs are not the only important impact measures.
- Pay attention to the process of implementation as well as outcomes.
- Carefully consider the best models for evaluation: for example, a light-touch evaluation for an initial phase, proceeding to a more comprehensive evaluation if enough progress has been made.
- Work with what you have: organisation and structural change alone may not achieve the desired outcomes.

In future, formative evaluation methods may offer benefits to sites implementing service innovation, in particular including methods that:

- Exploit the potential of linked data sets, including greater use of GP data to develop cohort-based techniques for tracking the care of individuals with long-

term conditions that include analysis of the quality of care, as well as estimated cost and service use
- Enable the provision of technical and organisational development advice to sites as part of the evaluation approach
- Include regular and intensive tracking of the work of clinicians and managers leading local change and include qualitative techniques that enable close integration with quantitative tracking
- Develop robust methods to provide interim reporting of service changes and feedback on observations about process in a way that informs decision-making, enables learning, informs the next stage of service change, and can itself be tracked within the evaluation
- Link evaluative methods with organisational development to provide a 'rapid development cycle' offer to innovative organisations in the NHS
- Enable learning to be shared between sites within a series of action learning sets or similar activities designed to tackle specific issues, informed by consistent data on performance.

In the UK there has been a radical change in the way health services are commissioned from April 2013. Clinical commissioning groups have been created to take responsibility for the majority of the NHS England budget, with responsibility for commissioning primary and specialty services, largely through four regional teams and sub-regional services beneath them. From April 2015 these sub-regional teams will work with Clinical Commissioning Groups and be advised by Health and Wellbeing boards. The Clinical Commissioning Groups will be chaired by Clinical Commissioners, whose task it is to deliver sustainable change to the healthcare system .

In order to achieve the transformation of the health care system to deliver a well coordinated and integrated care system, with a move away from episodic fragmented care to an integrated coordinated care system, the Kings Fund have identified a set of ten priorities for the commissioners. These serve as a guide to the building blocks towards achieving transformational change in the way the health service is configured to meet the needs of the people at a regional or subregional level.

The ten principles are as follows:

1. Active support for self management: techniques and tools, but also a collaborative relationship
2. Primary prevention including both broad population-based strategies and targeted interventions for high-risk groups
3. Secondary prevention: systematically detect early stage disease and intervene before full blown disease develops
4. Managing ambulatory-care sensitive conditions: eg diabetes, asthma , COPD, cardiac failure, epilepsy and hypertension
5. Improved management of the needs of patients with physical and mental health care needs
6. Care coordination through integrated health and social care teams, particularly for those with long term chronic and complex medical conditions who may have considerable difficulty navigating fragmented care systems
7. Improving the primary care management of end-of-life care
8. Medicines management
9. Managing elective activity and the quality of referrals
10. Managing urgent and emergency activity

Four themes emerge from these principles:

- A more systematic proactive approach to management of chronic disease
- Empowerment of patients
- A population-based approach to commissioning, to ensure resources are directed to those with greatest need and
- The development of more integrated models of care.

The authors recognize that there are potentially large gains to be made in terms of health outcomes, patient experience and cost savings, yet they recognize that implementation will not be straightforward. Arguably this is because of a lack of evidence about the scale of the change-management task, and a lack of the requisite organizational capability and know-how.

The authors argue that three sets of related areas require attention:

Organisational development

- Create a shared vision
- Strong leadership, governance and public accountability

Transactional skills

- Technical competence to undertake the tasks of risk-sharing and outcomes-based contracting, backed by
- Information technological skills and
- Understand variation in outcomes, resource utilization and performance.

Transformational skills

- Relational skills to make collaboration and partnerships work across organizations to deliver change

A further report from Kings Fund and Nuffield Trust in relation to integrated care for patients and populations describes the priorities for working together at the operational and organizational level as

- Setting a clear, ambitious and measurable goal to improve the experience of patients and service users
- Offering guarantees to patients with complex needs
- Implementing change at scale and pace

The paper describes the case for integrated care, gives examples of successful case studies in the UK, and then goes on to identify barriers to integrated care at the policy and organisational level, before describing the enabling framework to be put in place in order for this vision to be able to become reality.

The elements of the enabling framework include:

- The need to provide a compelling narrative to support integrated care
- Allow innovations to embed in organizations
- Align financial incentives by allowing commissioners flexibility in the use of tariffs and other contract currencies
- Support commissioners in the development of new types of contracts
- Allow providers to take on financial risks and to innovate
- Develop system governance and accountability arrangements that support integrated care, based on a single outcomes framework
- Ensure clarity on interpretation of integration rules
- Set out a more nuanced interpretation of patient choice
- Support programs for leadership and organizational development
- Evaluate the impact of integrated care

The authors conclude that the benefits of integrated care to the individual will not be realized until significant efforts are made to develop capacity in primary and community care, to prioritise investment in capacity to support rehabilitation and to reduce the level of activity in acute hospitals.

In order to improve health outcomes for every person with complex health and social needs a population-based approach is required that reaches out to local people and provides active support and care to meet those needs.

In the Australian context Matthew Cullen from Medibank Private argues that hospital expenditure is the key to the growth in health care expenditure over the last 10 years, and that this is due to more people coming to hospital more often, and that if the current trends in health care expenditure continue unabated, health expenditure will account for 43.8% of government tax revenue in 20 years’ time. He describes the factors driving increased demand and the features of the fragmented health care system that contribute to the increased growth in healthcare costs.

He describes a system with unwarranted levels of variation in care processes that is fundamentally unsuited to dealing with chronic illness. He describes the small number of chronic and complex high user patients who are responsible for the bulk of healthcare expenditure. Medibank Private data demonstrates that 2.3% of members use 1/3 of hospital benefits ($1 billion per annum), using 40% of hospital beds and 49% of all hospital medical outlays. These patients have had an average of 13 hospital admissions in 4 years and have 3 co-morbidities responsible for the admission over a 4-year period. The patients are 69 years of age on average.

Cullen describes initiatives to support integrated care as a catalyst to achieve systemic reform, arguing that a service aimed at complex, recurrent hospital users is an ideal catalyst for broader system reform.

In support of the argument, he states that this is a high impact cohort where the merits of funds pooling could be demonstrated, and a solution put in place to specifically address system fragmentation. This could focus on strengthening the role of primary care and use data integration and multi-modal service delivery, with a built-in evaluation which will yield information to inform future risk-based funding models. He argues that this would achieve the triple aim of lower cost service with better health outcomes and a better patient experience.

The reforms would address system fragmentation by providing a single service jointly funded by public and private with a concierge model commensurate with utilisation and cost, led by general practice, focused on integration within and between healthcare and social services. It would create an enabling platform to support workflow and integration, and would have as a key feature proactive provider engagement. A change management strategy would be intrinsic to the development and implementation of the service model. Evaluation design, data linkage and data capture would inform project design.

Having started with the super user population further focused models of care could be developed which include GP-led care management programs, discrete funds pooling models and a movement from fee-for-service to outcomes-based provider remuneration models.

Conclusion

Overall, the evidence for attempts at integration both from an outcome and economic perspectives is highly variable and inconclusive. This is not surprising as evaluations of system changes of this nature are both difficult to undertake and interpret, given the wide range of programs and contexts. Formative evaluation methods may offer benefits to sites implementing such service innovation.

It is clear is that the concept of integration remains important but it is at an immature stage of development and deployment. As a concept it does not form the basis for a complete strategy. Also, integration of existing service models and their cultures needs to be weighed against introducing new models that are inherently simpler and therefore easier to integrate.

References

Shaw, S., Rosen, R., & Rumbold, B. What is integrated care? Nuffield Trust. 2011. http://www.nuffieldtrust.org.uk/sites/files/nuffield/publication/what_is_integrated_care_research_report_june11_0.pdf

Joint Statement on Integrated Care. Royal College of Physicians (London) and Royal College of general Practitioners (UK). London 2014. https://www.rcplondon.ac.uk/sites/default/files/integratedcare.pdf

Discern Health Patient-centered medical home (PCMH). 2015. http://discernhealth.com/services/delivery-of-care/pcmh

Geisinger Health Plan Key Facts. 2014. https://www.thehealthplan.com/news/keyfacts.cfm#Network

McKinsey and Company. What health systems can learn from Kaiser Permanente: An interview with Hal Wolf. 2009. http://www.mckinsey.com/insights/health_systems_and_services/what_health_systems_can_learn_from_kaiser_permanente_an_interview_with_hal_wolf

McCarthy, D., Mueller, K., and Wrenn, J. Kaiser Permanente: Bridging the quality divide with integrated practice, group accountability, and health information technology. The Commonwealth Fund. 2009. http://www.commonwealthfund.org/~/media/Files/Publications/Case%20Study/2009/Jun/1278_McCarthy_Kaiser_case_study_624_update.pdf

Gauld, R. NHS: Lessons from New Zealand on how to integrate care. The conversation. 2014. http://theconversation.com/nhs-lessons-from-new-zealand-on-how-to-integrate-care-32527

Timmins, N., and Ham, C. The quest for integrated health and social care: a case study in Canterbury, New Zealand. The Kings Fund. 2013. http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/quest-integrated-care-new-zealand-timmins-ham-sept13.pdf

The Kings Fund. Making integrated care a reality. 2015. http://www.kingsfund.org.uk/projects/making-integrated-care-reality Accessed 13/2/2015

Cumming, J. Integrated care in New Zealand. International Journal of Integrated Care. 2011;11: p. e138

Rand Europe. National Evaluation of the Department of Health's Integrated Care Pilots Department of Health (UK). 2012. http://www.rand.org/content/dam/rand/pubs/technical_reports/2012/RAND_TR1164.pdf

Nolte E, Pitchforth E. What is the evidence on the economic impacts of integrated care? WHO European Observatory on Health Systems and Policies. 2014. http://www.euro.who.int/__data/assets/pdf_file/0019/251434/What-is-the-evidence-on-the-economic-impacts-of-integrated-care.pdf?ua=1

Goodwin N et al. Coordinated Care for people with chronic and complex conditions: key lessons. Kings Fund. 2013. http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/co-ordinated-care-for-people-with-complex-chronic-conditions-kingsfund-oct13.pdf

Institute for Healthcare Improvement. The IHI Triple Aim. 2015. http://www.ihi.org/Engage/Initiatives/TripleAim/Pages/default.aspx

World Health Organization. Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies. Geneva: World Health

Organization. 2010.
http://www.who.int/healthinfo/systems/WHO_MBHSS_2010_full_web.pdf

Imison C, Naylor C, Goodwin N, Buck D, Curry N, Addicott R, Zollinger-Read P. Transforming our Health Care System: Ten priorities for commissioners. London: The King's Fund. 2011.
http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/10PrioritiesFinal2.pdf

Goodwin N, et al. Integrated care for patients and populations: Improving outcomes by working together. London: The King's Fund. 2012.
http://www.kingsfund.org.uk/sites/files/kf/integrated-care-patients-populations-paper-nuffield-trust-kings-fund-january-2012.pdf

Matthew Cullen, Group Executive, Medibank Health Solutions. 15th Annual Health Congress 2014. http://www.informa.com.au/annualhealthcongress14

Chapter 6 The Principle of the Commons & Inter-organisational Networks Applied to Healthcare

Key points

- *The principles for managing common pool resources as elaborated by Ostrom, holds promise for healthcare providers and others seeking to form a healthcare inter-organisational network around the notion of a healthcare commons.*
- *Ostrom describes the use of long-lived voluntary social arrangements to manage natural resources to optimise use over time and prevent degradation through individual exploitation. This stance, with its different perspective provides a counterpoint to the prevailing view that only strong government or private ownership can successfully manage a shared common resource pool.*
- *Ostrom identified 8 design principles that are satisfied, in varying forms, in cases of sustainable resource management. McGinnis posits that a similar set of design principles and supportive processes will prove to be critical for effective stewardship of the resources most relevant to health and healthcare.*
- *The Atlanta Regional Collaborative for Healthcare Improvement (ARCHI) provides a detailed example of the application of the principle of the healthcare commons.*
- *This framework for the application of the healthcare commons is recommended as the basis of the inter-organisational network which could become a Latrobe Regional Collaborative Health (LARCH) Conservation Zone.*
- *Inter-organisational networks (ION's) are emerging as a strategy for public and private sector management to address complex problems, share scarce resources and achieve collective goals and adds to the health care commons concept.*
- *The Latrobe Regional Collaborative Health Conservation Zone will need the enthusiastic support of and commitment from local businesses, community members, Latrobe Council, the regional office of the Department of Health and Human Services, the Latrobe Health Service, medical practitioners and other health care workers.*

The Principle of the Commons and Local Governance of Healthcare

According to McGinnis much of the endless political infighting at the national and state levels is fundamentally misguided, since the delivery of healthcare is an intrinsically local affair (or regional).

In the USA, the Fannie Rippel Foundation has focused on initiatives to foster innovation in regional health as a path to the redesign of health care. The Foundation sought to create a shaping strategy to support the development of initiatives at a local level with initial input from far sighted and original thinkers including Peter Senge (Fifth Discipline author), Don Berwick (Institute for Healthcare Improvement), Amory Lovins (Rocky Mountains Institute), Elinor Ostrom (Nobel Prize winner for economics), and Marshall Ganz (Harvard lecturer credited with organising the grassroots campaign for the Obama 2008 Presidential Campaign.

Ostrom's work describes the use of long-lived voluntary social arrangements to manage natural resources to optimise use over time and prevent degradation through individual exploitation. This stance, with its different perspective provides a counterpoint to the prevailing view that only strong government or private ownership can successfully manage a shared common resource pool. Ostrom's common pool resource is usually a natural resource but the concept has been applied to health care by the foundation in the basis that there are finite resources available for healthcare which need to be managed for the common good of the population.

In research on the management of biophysical commons (fisheries, forests, and irrigation systems), Ostrom identified 8 design principles that are satisfied, in varying forms, in cases of sustainable resource management. Briefly, they require that:

a) An identifiable stewardship group routinely collaborates in making and enforcing rules,

b) Local stakeholders actively participate in monitoring, sanctioning, and resolving disputes, and

c) Higher authorities recognize local autonomy or refrain from undermining local efforts.

From this Ostrom developed a number of design principles:

Design Principles for Sustainable Governance of Common-Pool Resources

1. Clearly defined boundaries:
    a. Individuals or households who have rights to withdraw resource units from the common-pool resource must be clearly defined
    b. The boundaries of the common-pool resource must be well defined.
2. Congruence between appropriation and provision rules and local conditions:
    a. Appropriation rules restricting time, place, technology, and/or quantity of resource units are related to local conditions.
    b. The benefits obtained by users from a common-pool resource, as determined by appropriation rules, are proportional to the amount of inputs required in the form of labor, material, or money, as determined by provision rules.
3. Collective-choice arrangements: Most individuals affected by the operational rules can participate in modifying the operational rules.
4. Monitoring
    a. Monitors are present and actively audit common-pool resource conditions and appropriator behavior
    b. Monitors are accountable to or are the appropriators.
5. Graduated sanctions: Appropriators who violate operational rules are likely to be assessed graduated sanctions (depending on the seriousness and context of the offense) by other appropriators, officials accountable to these appropriators, or both.
6. Conflict-resolution mechanisms: Appropriators and their officials have rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials.

7. Minimal recognition of rights to organize: The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.
8. Nested enterprises: Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.

ReThink Health, an initiative of the Fannie Rippel Foundation, has explored the utility of the Commons and the concept of Common Pool Resources to guide collaborative reform of healthcare delivery at a regional level. This is timely and appropriate: the aggregate of health care services is constrained because the resource that society is prepared to put into healthcare has or is nearing its limit or growing at such an alarming rate that society is unwilling to expand the pool of resources devoted to health care.

In his paper Local governance of healthcare: a missing ingredient for healthcare reform (2013), Michael McGinnis argues that the complex system of health and healthcare services constitutes a commons, in the sense that individuals in a community benefit from the continued availability of these shared resources:

- Physical facilities (emergency rooms, hospitals, clinics, testing facilities)
- Financial resources (publicly funded programs, private employers, insurance companies)
- Human capital (health professionals and health-conscious citizens)
- Social capital (trust among health professionals, community leaders, and citizens)

Since none of these common resources are limitless or automatically replenished, profound dilemmas of collective action will arise from the reality of resource scarcity:

- In the systems archetype know as “tragedy of the commons,” common resources are depleted when individuals or organisations exploit them for self gain and no one takes responsibility for managing the resource base as a whole.

- In collaborative stewardship of a commons, those stakeholders most directly concerned with the long-term sustainability of these resources take ownership of the problem, and work out ways to coordinate their resource usage and replenishment activities.
- Effective stewardship of a commons requires that someone can see the system as a whole, and make decisions based on a long-term perspective.

Initial analyses of communities which have managed to combine high quality of health care with below-average costs suggest that they have developed informal mechanisms of collaborative stewardship. Each does so in different ways.

McGinnis posits that a similar set of design principles and supportive processes will prove to be critical for effective stewardship of the resources most relevant to health and healthcare. Specifically, he argues that communities where the full array of relevant stakeholder groups manage to coordinate on a regular basis will tend to experience better health outcomes and a higher quality of care delivered at a lower-cost to a wider segment of their community.

He argues that collaborative stewardship of the health commons works best if:

1. A formal or informal leadership team involving all (or most) stakeholder groups which are critical in shaping healthcare practices and health outcomes within a clearly defined region
2. Has been given the authority (or has taken upon itself the responsibility)
3. To manage that community's resources in a responsible and sustainable manner by collectively crafting rules and procedures regarding local healthcare practices and health promotion activities;
4. These rules and procedures fit local circumstances and participants consider the resulting distribution of the costs and benefits of their collective action to be fair and equitable;
5. Participants have routine access to information generated through monitoring of actions and health outcomes, with monitors held accountable for their work;

6. Participants who violate agreements are subjected to a graduated series of increasingly severe sanctions, but rule violators are also given opportunities to regain the trust of others;
7. Participants can resolve disputes among themselves or with the help of others, and these procedures do not take an unreasonable amount of time and are not excessively costly;
8. When the group is working on a complex problem or an inter-related set of goals, the team can break itself down into sub-teams to focus on achieving specific goals;
9. Regular channels of communication facilitate identification of shared goals and help team members develop a common understanding of the system within which they are operating,
10. As well as nurturing a sense of trust in each other and reinforcing shared norms;
11. Team and sub-team leaders keep discussions going in productive directions; and
12. Actively pursue opportunities to reach out to stakeholders not yet included on the team.

ReThink Health have provided a pathway for transforming regional health to help leaders better assess and drive progress toward a healthy health system, where collaborative endeavours help people and communities to thrive and multi-sector approaches assure that high quality affordable care is available when and where needed.

The pathway begins when individual leaders step outside their own organisational boundaries and work more collaboratively with others. This approach constitutes a mechanism for ensuring local governance for the reform of healthcare. The pathway offers insights into five stages of development and identifies the conditions that help to build momentum and the forces that can disrupt progress. These tend to cluster around three areas:

- Level of demand for change from those involved

- Capacity - human, financial and organizational - for continued action, and
- Alignment amongst individual interests and the success of the effort

A practical demonstration of how this is described in the ARCHI Playbook from the Atlanta Regional Collaborative for Health Improvement. ARCHI is a public-private partnership formed in response to the opportunity provided by the Affordable Care Act in the USA to take a collaborative approach to community needs assessment and action.

ARCHI participants embraced the five conditions favoring collective impact described by Kania and Kramer (Stanford Social Innovation Review, 2011):

1. Common Agenda: All participants have a shared vision for change including a common understanding of the problem and a joint approach to solving it through agreed upon actions.
2. Shared Measurement: Collecting data and measuring results consistently across all participants ensures efforts remain aligned and participants hold each other accountable.
3. Mutually Reinforcing Activities: Participant activities must be differentiated while still being coordinated through a mutually reinforcing plan of action.
4. Continuous Communication: Consistent and open communication is needed across the many players to build trust, assure mutual objectives, and appreciate common motivation.
5. Backbone Organization: Creating and managing collective impact requires a separate organization(s) with staff and a specific set of skills to serve as the backbone for the entire initiative and coordinate participating organizations and agencies.

Michael McGinnis advocates for a regional path to reforming (U.S.) health care, suggesting that a focus on regionalism is necessary, possible, and normatively desirable, but far from easy to realize. Necessary, because moving to the level of metropolitan or rural regions offers a means of bypassing bitter partisan debates that threaten to paralyze reform at the national and state levels. Possible, because existing regional variation in the costs and quality of health care demonstrates that some communities are more effective in managing local resources relevant to health and health care, and that other regions can learn from their success. Normatively desirable, if these changes can improve health, save money for providers and patients, and improve the experience of care for patients and providers alike. The author suggests that the last point is where so many difficulties reside, and why it's so difficult to even imagine any solutions that do not fit easily into the limiting schema of the prevailing discourse.

In her Nobel speech Elinor Ostrom, co-recipient of the 2009 Nobel Prize in Economics, makes the point that complex economic systems require multiple layers of institutional responses if that system is to be governed effectively. Gaps in governance at any level can undermine the operation of the system as a whole (arguably there is a void in healthcare at the regional level).

Governance is defined as the effort to "establish a set of rules and norms that defines practices, assigns roles and responsibilities, and guides interactions between organizations, in order to tackle collective problems." Governance is a process, involving not just government agencies but also private, professional, and voluntary organizations whose behavior also significantly affects societal outcomes.

Collaboration among public agencies, private firms, and voluntary organizations has become a critically important form of governance in modern democracies, and much has been learned about when such collaborations are most likely to be successful.

Regional governance for health care could be useful because the system of health care delivery has important aspects of a commons. Of course, health care involves a far more complex array of resources than was the case for the simple fisheries or irrigation systems upon which Ostrom's analysis was primarily based.

McGinnis makes a detailed argument for the adoption of the Principle of the Commons and the application of a regional collaborative form of governance for the Health Commons. He utilizes case studies to support the advancement of the concept of shared stewardship of the commons, establishing by examples from case study the application of each of the eight design principles for the commons as developed by Ostrom.

He concludes with a set of declarative statements organized by themes around these principles. His argument is organized as a description of the concept of the commons and of shared stewardship, then provides examples of the features of healthcare that support its recognition as at least a semi-commons and the challenges that arise when the concept of the health commons is applied at a regional level. He then provides a ten step approach to building effective regional healthcare governance.

McGinnis defines stewardship of a health commons as “making allocations of that region’s physical, financial, human, and social resources in ways that can simultaneously work towards improved health for the population as a whole, higher quality health care, at an affordable level of cost, with equitable access for all segments of that community, and in ways that improve the region’s economic productivity”.

He also states that:

“… there are at least two other critical factors needed for success in natural resource commons that Ostrom did not explicitly identify as such. Since these two factors tend to be especially difficult to accomplish in healthcare settings, their importance became easier to fully appreciate in this new setting. These two implicit design principles require that: (1) key members of the group have long-time horizons and care about the long-term sustainability of the common property, and (2) the group includes leaders who have a sufficient moral authority to serve as conveners of their process of collective deliberation. Both of these conditions are nearly automatic in communities dependent on continued access to natural resources, but neither is easily satisfied in (U.S.) health care."

"… many obstacles lie in the way of successful achievement of a sustainable system of shared stewardship of a regional health care commons: boundaries are ambiguous, goals may be both amorphous and overly ambitious, and stakeholders are diverse and lacking in mutual understanding, driven by competitive pressures towards aggressive expansion rather than open deliberations, hounded by a lack of shared data frameworks, show little concern for how other stakeholders interpret their own actions, and fear the suspicion of regulators and the public as a whole whenever they do start to work together."

McGinnis outlines a series of strategies taken by various communities to achieve shared stewardship of a health commons, including formal organisational integration in some settings, whilst in another (Atlanta Regional Collaborative for Health Improvement or ARCHI) a ground-up approach has prepared a "how to do it" manual, or playbook for effective shared stewardship of the commons.

McGinnis briefly surveys some instruments for capturing the savings generated by innovative programs in health care or health promotion. In addition to Accountable Care Organisations and Accountable Care Communities (referred to below), these include health impact bonds (a market-based instrument), wellness trusts (funded by required taxes on local stakeholders), and new regulatory requirements that tax-exempt health care facilities direct much of their community benefit expenditures towards prevention and other health promotion activities.

McGinnis suggests that:

- For any system of shared stewardship to work, the interests of the participating organizations need to be aligned, to at least some extent, with the good of the region as a whole. There will remain plenty of scope for competing and even conflicting interests over specific issues, but there has to be at least a minimal level of willingness to seriously consider the collective consequences of decisions taken by any organization acting alone, and, as a consequence, a willingness to discuss important problems and decisions with other members of the consortium.
- Success requires finding sponsors and a neutral convener with locally-recognized moral authority. These may be part of the current health care system, or outside of it. Nonprofit community service organizations may be obvious conveners, but it is especially important to look to business leaders outside the health care sector. Major local employers are a promising source of regional leadership.
- Significant disputes will arise, and it is critical that resolutions are accomplished in a way that avoids leaving one or more parties feeling badly wronged or left out of the group. They should fully expect to experience conflicts and setbacks, and need to build a resilient process of collaboration that can weather these kinds of interruptions and reversals.
- There is no need to require all members of a stewardship team to adopt exactly the same set of visionary goals or economic interests; all that is required is that they can understand each other's points of view, and find a way to work together to more effectively manage the region's resources in ways that serve the broader values and interests of the community as a whole.
- The way forward is a multi-faceted task, requiring that inter-related criteria be pursued simultaneously or along parallel tracks. The scope of these relevant dimensions is well-demarcated by the design principles themselves. As Ostrom (2009b) concludes, the design principles can serve as a guide to the types of questions that members of a group should ask themselves once they recognize that their future paths are inextricably intertwined.

As a guide to those seeking to realize the benefits of shared stewardship of their own regional health commons, McGinnis offers a list of ten declarative statements organized around themes broadly inspired by (but not limited to) the factors highlighted in Ostrom's design principles:

1. Find a Trusted Convener. Identify a widely respected individual, group, or organization to convene and sponsor general meetings on public health and health care.
2. Think Systemically. Identify leaders who share a deep understanding of the overall dynamics of their regional system, and who respect the defining values of the local community.
3. Build Momentum. Establish a forum for regular meetings of officials from key stakeholder groups to discuss plans and concerns, and focus discussions on meaningful and interdependent tasks.
4. Establish Shared Priorities. Collectively assign the highest priority to those locally-based programs that can best contribute towards effective improvements in health or health care for the community as a whole, and arrange secure funding for these high-priority programs.
5. Align Programs to Community Values. Encourage local stakeholders to consider community-wide effects when setting their own corporate missions and policies.
6. Gather and Share Information. Systematically collect data for high-priority programs and comparative performance measures, and share this information widely.
7. Hold Each Other Accountable. Establish common expectations about how violations of agreements will be sanctioned, and adjust the levels of sanctions so that stakeholders who act protectively are warned but not excluded from subsequent discussions.
8. Recognize Inequities. Pay careful attention to any concerns that the benefits and costs of these high priority programs are distributed in an unbalanced or unfair way.

9. Remain Practical. Resolve disputes locally, if possible, and do so in ways that respect the vital interests of all stakeholders, avoid partisan entanglements, and leave minimal recriminations.
10. Nurture Innovation. Endeavor to make sure that all individual and joint actions contribute to the sustainability of a multi-level ecosystem of effective innovations and continuous learning.

Finally, he concludes on an interesting note:

"Changing a complex and well-entrenched system is never easy, but local stakeholders in health and health care do have the capacity to make many kinds of decisions that significantly impact the future development of their regional system of health care delivery.

Effective stewardship can become institutionalized through widespread adoption of the simple but powerful habit of routine consultation across stakeholder groups, as is evident in all of the many joint ventures or micro-commons related to health, health care, insurance, and public health.

All this is within the control of local leaders and citizens, as they develop a common game plan for moving forward.

Ultimately, sustainability of successful programs must become the responsibility of local implementers, who cannot remain dependent on continued access to external support."

Ostrom's research offers an inspiring lesson for aspiring stewards of health commons. Ostrom argues that climate change is such a complex policy problem, involving as it does so many forms of negative and positive externalities operating at scales from individual households to the global level and all levels in between, that only a program of policies directed at all of these levels can, in the end, be an effective response.

By analogy, any truly effective transformation of a health care system requires that programs be designed and operated at multiple levels of aggregation, so as to internalize the effects of negative externalities within more encompassing interests while also capturing positive economies of scale. "

The ARCHI Playbook

The Atlanta Regional Collaborative for Health Improvement (ARCHI) is a multisectoral, public-private partnership. ARCHI members comprise a range of organizations and individuals who are committed to working together toward the Collaborative's vision, mission, and priorities. They include hospitals, FQHCs, behavioral health providers, public health, physicians, insurers, academics, business leaders, local government, philanthropy, and faith communities

The Playbook is produced by ARCHI for use by anyone who would like to align with ARCHI's vision and contribute to collective impact. It presents the elements of ARCHI members' shared agenda and the roles these elements play in the health, health care, and economy of Atlanta. It provides guidance on using evidence in choosing and prioritizing interventions and lists specific, evidence-informed interventions for consideration.

A leadership team representing the Atlanta Regional Commission, Georgia Health Policy Center, and United Way of Greater Atlanta facilitates ARCHI's Steering Committee, which is made up of diverse organizations and perspectives. The leadership team underwent leadership training together, then the stakeholders participated in a set of activities to establish current state and build consensus on the challenges and potential solutions (in essence they went through a design exercise) to establish a collaborative regional health assessment, and utilised a series of strategies including scenario planning to develop short and long term improvement plans. The focus was to use a distributed approach to advancing the agenda and an alignment strategy for organisations. The playbook offers a menu of strategies used in each priority area for intervention, and importantly in each financing area.

The unifying concept for the collaborative is to define the elements of the Atlanta Transformation Scenario. This sets up a cycle of achievement across seven domains of core values over time: global payments and insurance, finance (covered by an innovation policy area, and a capture and reinvest scheme), and three priority areas for intervention: healthy behaviours, a pathway to advantage and care coordination. Each of these seven areas has a committee responsible to the leadership group which is overseen by a governance committee (a board if you will, representing the participating stakeholders, ie those with skin in the game, and responsible for governance).

There is quite a strong emphasis on payment reform that incorporates use of information from various sources including: electronic health records; integrated management systems; integrated billing systems, and the use of risk adjustment strategies to ensure that medically complex patients aren’t excluded. Examples are provided to demonstrate the application of this approach. Innovation funding commenced with a sizable innovation fund of $100 million per annum over the first five years. This was developed in a dynamic simulation modeling system to facilitate budgeting over time and to identify where savings would come from, and how this would feed into the re-investment strategy.

The sub committee that met to develop strategies to identify and distribute financial resources reframed its role as managing a balanced risk portfolio, so they renamed themselves as the Innovation Portfolio. The Innovation portfolio is used to support the initiatives in care coordination, healthy behaviours and pathways to advantage for disadvantaged families and students. Each of these is seen as providing time frames for return on investment in the short, medium and longer term respectively.

Capture and Reinvest savings is an important part of the activities, as this involves a mechanism for the participating agencies to contribute to financing of new initiatives and to return a share of the savings to the participating entities. ARCHI anticipates that the short term opportunities for ROI are in the care coordination domain.

The Healthy Behaviours Portfolio covers health promotion and prevention of risky behaviour to reduce the likelihood of developing chronic illness, and the likelihood of urgent events, and the onset of mental illness related to drug use.

The Healthy Behaviours subcommittee initially focused on five healthy behaviour areas related to cigarette use, diet, exercise, alcohol and drug use and unprotected sex and sexually transmitted infection, and then adopted a sixth area increased regular preventive care for physical and mental health.

Advantage is defined as having an annual income at least twice that of the poverty level. The Pathway to Advantage Portfolio is important because of the evidence that links advantage to health. It includes two intervention approaches: family and student pathways.

The Care Coordination Portfolio includes coordinating patient care and providing patient and physician coaching to reduce duplicative or unnecessary care and costs. Using integrated information systems, coaching arrangements, protocols for shared decision-making, and increased use of generic drugs when appropriate, care coordination can result in fewer referrals to specialists, less ambulatory testing and procedures, and fewer hospital admissions, without adversely affecting outcomes.

ReThink Health estimates that it takes about a year for an office-based physician to implement components of care coordination, with an initial investment of US$30,000 per physician. Subsequent maintenance of the integrated information system and on-going physician coaching are estimated to cost US$3,000 per year, per office-based physician.

Evidence is emerging on care coordination strategies, but gaps still exist. Because these practices are in their infancy and only one met the highest standard for evidence of effectiveness, the subcommittee agreed to include promising and emerging programs in its recommendations for consideration. Further, while no extensive data has become available thus far to confirm the outcomes of some models, many have begun sharing narratives of their experiences. Important lessons learned from these are provided in the Playbook.

Although it is not a care coordination strategy itself, health information technology is recognized as an important tool to facilitate various models of coordinated care.

The specific initiatives that have been commenced as part of the Care Coordination Portfolios are:

- **Patient-centered medical homes**
  The patient-centered medical home is a model of care that aims to transform the delivery of comprehensive primary care. Built on the chronic care model, the goal of the patient-centered medical home is to improve the care of patients across the continuum of prevention and treatment of chronic and acute illness. The model addresses comorbid behavioral health issues such as depression, problem drinking and drug use, medication adherence, and lifestyle choices. It may improve both patient and provider experiences, and result in efficiencies that help contain costs. A variety of enhanced payment models are being used to motivate and compensate practices for providing patient-centered care.

- **Accountable care organizations**
  Accountable Care Organizations are collaborations of hospitals, doctors and other health care providers that have committed to taking responsibility for the cost, quality of care and health outcomes of a particular patient group. Accountable Care Organizations work to improve care transitions, ensure patient safety, enhance the patient and caregiver experience, improve health outcomes and help patients achieve wellness goals, particularly the chronically ill. They strive to provide more efficient and higher quality care, for example, by eliminating unnecessary duplication of services and medical errors. Because they share the savings created by better efficiency, quality of care, and health outcomes, it is critical that Accountable Care Organizations

operate in conjunction with the main health care payers, either private or public, for the patient group that they are serving.

- **Accountable care communities**
  Accountable Care Communities take the concepts of medical homes and accountable care organizations one step further by fostering collaboration and shared responsibility among clinical and community sector participants to reform health systems in particular localities. Accountable Care Communities build on the increasing prominence of Accountable Care Organizations to develop healthier communities.

- **Care transition programs**
  Care transition programs, which support the transition of patients from hospitals to other care settings in order to reduce readmissions and improve quality of care, have been identified as an important method of reducing hospital readmissions. Care transition programs provide a benefit to patients, providers, hospitals, and payers, by increasing the health of patients and reducing hospital readmissions and associated costs. Communities with operating CTPs have been found to have lower all-cause hospital admissions and 30-day readmissions compared to communities without CTPs.

- **Emergency department care coordination**
  Almost one-third of ED visits can be classified as semi-urgent or non-urgent. Because of the high costs of ED visits to hospitals and the large amount of frequent ED visitors who are non-urgent, there is a great need for care coordination between hospitals and community health centers in order to guide non-urgent patients to seek care at the most appropriate venue.

- **Integration of primary care and behavioral health**
  Frequent utilizers of healthcare, such as frequent ED visitors, often suffer from substance use. Furthermore, the higher a frequent visitor’s use of the ED, the more likely they are to have a substance use problem. Other studies point to

behavioral health issues such as depression or substance use as being tied to other psychosocial or medical problems, as well as high healthcare utilization. Thus, the need for behavioral health interventions during primary care or non-emergency ED visits can be justly inferred.

- **Patient safety and clinical pharmacy collaborative**

  Patient Safety and Clinical Pharmacy Services Collaborative (PSPC) Teams coordinate health care by integrating medication management into the care of patients suffering from multiple chronic health conditions in more than 350 communities across the country. According to the Institute of Medicine (IOM), patients who lack coordinated medication management account for one-third of health care costs. Teams documented the following achievements after six to 12 months:

    - In diabetes patients who had out of control A1c levels, 35% achieved desired levels;
    - In patients with hypertension, 43% achieved desired blood pressure levels;
    - In patients with dyslipidemia and persistently high cholesterol levels, 37% achieved desired levels; and
    - In patients taking anticoagulation medications who had International Normalized Ratio (INR) levels consistently out of control, 51% achieved INR levels in the safe range.

- **Integrated information systems**

  The ReThink Health model explicitly identifies the need for integrated information systems to facilitate care coordination. Integrated information systems supported through the practice of health information exchange (HIE) can help physicians and other health care providers access inter-health system data. HIEs are developing at local, regional, and national levels.

The Deloitte Center for Health Solutions identifies four types of HIE models that are being used by health care providers and payors:

1. Not-for-profit models are usually local and facilitated by a community nonprofit health care entity. An emerging practice among not-for profit HIEs is the use of philanthropy to drive sustainability.
2. Public utility models are created, maintained, and governed by state and/or federal laws and regulations and funded with state and/or federal dollars.
3. Physician and payor collaborative models are usually locally formed to benefit the physicians and payors in a region.
4. For-profit models are created through private funding (i.e. supported through transaction fees) and are established to have a clear return-on-investment.

In conclusion, the ARCHI Playbook offers a set of strategies informed by the best available evidence in each priority intervention and financing area. Because the quality and quantity of evidence varies across these areas, no single standard for evidence of effectiveness applies.

The authors suggest that Playbook users give first priority and/or devote the largest share of an intervention portfolio to strategies with the strongest evidence of effectiveness and lesser priority or portfolio share to ones with weaker evidence – always considering options in light of financial feasibility, political acceptability, time needed to produce results, and other contextual factors.

Finally, evidence of effectiveness also can and should be considered in evaluation planning.

Inter-organisational Networks

Inter-organisational Networks (ION’s) are emerging as a strategy for public and private sector management to address complex problems, share scarce resources and achieve collective goals. The IBM Centre for the Business of Government has recently published a review of the literature on Inter-organisational Networks. Networks consist of the structure of relationships between actors (individuals and organizations), the nature of the links between actors, and the meaning of those relationships. Trust is described as the lubricant that makes cooperation possible between these actors. Higher levels of trust are believed to lead to increasing network effectiveness. Some argue that inter-organizational networks exist because of a moral imperative.

Many of the benefits described, such as shared risk, advocacy, positive deviance, innovation, flexibility and responsiveness, suggest that the creation of inter-organizational networks can be a strategy for developing a structure that is more nimble and able to create change, and/or be more responsive to change, than bureaucratic organizations. Networks should only be used if the task is unsuitable for a hierarchical organization.

There are known challenges to working in inter-organizational networks that practitioners need to seriously consider and work diligently to mitigate (e.g., achieving consensus on the network purpose and goals, culture clashes, loss of autonomy, coordination fatigue, the time and effort it takes to develop trusting relationships, power imbalances).

Two important questions for consideration are:

1. Do the added benefits of networks outweigh their challenges or limitations, and in what circumstances?
2. When is an inter-organizational network the right organizational form for a particular task?

A formally mandated network can provide a powerful incentive for organizations to work together. An emergent network, on the other hand, may start with higher levels of trust due to its voluntary nature. Allowing sufficient time for trust and genuine commitment to be built is critical to the longer-term effectiveness of all networks.

Three key interlocking themes, related to effective network development and growth, are: 1) Network governance, 2) Management and leadership of and in Networks, and 3) Network structures. Three distinct types of governance structures within networks identified include: 1) Shared governance, 2) Lead organization, or 3) Network administration organization.

The management and leadership of and in networks are widely described as being challenging, and yet are essential to maintaining the flexibility and resiliency needed to accomplish network level tasks, and ultimately to address the network's vision. Leadership in a network is not viewed as the purview of a single leader in a formal leadership position, but rather seen as something more organic in nature that is supported and grown across the network. This way of conceptualizing leadership aligns with both a relational view of leadership that focuses on process, context and relationship building; and with the literature on complexity leadership, where leadership processes can be shared, distributed, collective, relational, dynamic, emergent and adaptive.

The role of a network manager as leader is to nurture this kind of leadership. Some essential network management, and potentially leadership, tasks and behaviours identified in the literature are described, and include management of design, commitment, conflict, accountability and legitimacy.

There are a number of tensions and paradoxes inherent in networks that need to be managed, one of which is the balancing of the needs of the organization with the needs of the network. Understanding the relationships and processes occurring through the network structure is as important as understanding the structure itself. If a network is to thrive and achieve its goals, the type of work and the way in which it is conducted must support the ongoing development of relationships and collaborative processes.

Four stages of network evolution are identified.

1. Formation. Multiple early decisions, activities and processes are required when establishing a network. Consideration must be given to context, balancing development of network structures and processes, and setting the tone for ongoing collaboration and consensus building, sustainability and resilience.
2. Development and growth. The development and growth of a network requires conscious facilitation, paying attention to what is going on with respect to network structure, carrying out essential management tasks, and encouraging distributed leadership. Four themes of relevance if the network is to continue to develop and grow are: trust; power; positive deviance; and outcome attribution and accountability.
3. Maturity, sustainability and resilience. As a network matures, engaging in and supporting the following activities would seem to be important for network leaders:
    a. Scanning of the context within which the network exists;
    b. Revisiting of the network's vision in order to respond to changes in the context;
    c. Ongoing development of internal and external legitimacy; and
    d. Monitoring and evaluation of the network's processes and outcomes.
4. Death and transformation. There is a dearth of research on the natural life cycle of inter-organizational networks, their death and/or transformation.

In order to determine when a network might be the right organizational form, the authors identify the following important questions to ask:

- Is the identified problem beyond the capacity of any one organization?
- Is this a problem or issue where the stakes are high?
- Is the issue complex?
- Have other traditional methods already been tried?
- Is it likely that a common aim could be identified and agreed to?
- Do the organizations involved have similar cultures and values?

- Is there enough diversity among potential participants to provide multiple perspectives on the problem?
- Is there a history of trusting relationships among the organizations that would comprise the network? If not, is there enough time to develop them before tangible outcomes are expected?
- Will you have the necessary resources to develop and implement a network?
- Is the issue one that will require long-term collaboration?

The authors describe the importance of governance, leadership and management and structure of the inter-organisational networks as well as the evolution and evaluation of networks they also further elaborate on the importance of trust, the concept of social capital and the value of connections as thee basis of social capital and its value in engendering trust.

Increasing attention is being paid to the development of clinical networks with a goal of strengthening care pathways and improving the quality and coordination of care provided for patients. The literature is of value to inform how agencies might work together on the development of care models for heavy users and for those with multi-morbidity whose care needs do not fit the prevailing paradigm but which nonetheless constitute the emerging reality. Increasingly networks are being seen as enabling structures creating greater opportunities for advanced innovative, improved service delivery, distributed risks, and shared accountability. In addition, an inherent aspect of these shifts is a broadening of the context towards a whole systems perspective where all key stakeholders are engaged in understanding the whole and in co-creating a sustainable solution.

While networks are viewed as a better way to address complex issues and address sustainable development, they can be challenging to establish, tenuous to sustain functionality, and are dependent on whether the actors involved can effectively join forces with clear intentions to collaborate. To build capacity, organizations will need to support learning and development of their workforce to effectively engage in relationship building, cross-cultural communications, information sharing, and coordination of tasks. Specifically, infrastructures and competencies will need to support initiatives such as developing a shared vision, building trusting relationships, balancing power and authority, creating participatory leadership, identifying collaborative action plans, clearly defining roles within the network, and measuring joint success.

These factors represent a fundamental shift in structure relative to traditional organizations, which have been challenged to create cultures of collaboration. They challenge our basic assumptions about command and control leadership, authority and power, competition, and privilege. What is needed is a greater understanding of the interrelated nature of our organizational systems and a deep commitment to doing what is needed to support sustainable communities locally and globally. More and more we will see cross sector collaborations, especially across public and private organizations where partnering in networks yields sustainable results.

References

McGinnis M. Local Governance of Healthcare: a missing ingredient for reform. ReThink Health. 2013. New Jersey USA.

McGinnis MD. Health as a Commons: Talking Points. ReThink Health and The Workshop in Political Theory and Policy Analysis at Indiana University . 2011. http://php.indiana.edu/~mcginnis/healthcommons/talkingpoints.pdf

ReThink Health (http://www.rethinkhealth.org/), a collaborative research and action initiative funded by The Fannie E. Rippel Foundation. (http://www.rippelfoundation.org/).

Michael Cox, Gwen Arnold, and Sergio Villamayor Tomás. “A Review of Design Principles for Community-Based Natural Resource Management.” Ecology and Society. 2010;15:38. http://www.ecologyandsociety.org/vol15/iss4/art38/ES-2010-3704.pdf;

Elinor Ostrom. Governing the Commons: The Evolution of Institutions for Collective Action. New York. 1990. Cambridge University Press.

Pathway for transforming regional health. ReThink Health. http://www.rethinkhealth.org/wp-content/uploads/2015/02/rth_pathway_05.pdf

ARCHI Playbook. Atlanta Regional Collaborative for Health Improvement. Atlanta, USA 2013. http://www.archicollaborative.org/archi_playbook.pdf

Kania J and Kramer M. Collective Impact. Stanford Social Innovation Review, 2011;9:36-41.

Popp JK, et al. Inter-Organizational Networks: A Review of the Literature to Inform Practice. IBM Center for The Business of Government. 2014.

http://www.businessofgovernment.org/report/inter-organizational-networks-review-literature-inform-practice

Chapter 7 Buurtzorg Community Nursing

Key Points

- *The Dutch home-care provider Buurtzorg Nederland has attracted widespread interest for its innovative use of self-governing nurse teams.*
- *Buurtzorg has created a new management approach—"integrating simplification," characterized by a simple, flat organizational structure through which a wide range of services, facilitated by information technology, can be provided.*
- *Buurtzorg patients are highly satisfied. Buurtzorg has the most satisfied workforce of any Dutch company with more than 1,000 employees.*
- *The Buurtzorg model also appears to achieve savings.*
- *The goals of the model are to:*
    - *Bring a holistic, neighborhood-based approach to the provision of services*
    - *Maximize patients' independence through training in self-care and creation of networks of neighborhood resources, and*
    - *Rely on the professionalism of nurses.*
- *The care model that grew out of these ideas gives self-governing teams of 10 to 12 highly trained nurses responsibility for the home care of 50 to 60 patients in a given neighborhood.*
    - *Buurtzorg nurses are responsible for the entire range of home-care services and generating the documentation needed to facilitate continuous care and billing.*
    - *Coaches—not managers—are available to solve problems.*
- *Buurtzorg's model of care is popular among nurses with home-care experience, enabling recruitment of talented staff, and high patient and family satisfaction ratings and good health outcomes*
- *Buurtzorg's patients required care for less time, regained autonomy quicker, had fewer emergency hospital admissions, and shorter lengths-of-stay after admission than those cared for by other home-care providers. In addition, the company had lower overhead costs and less than half the average incidence of sick leave and employee turnover.*
- *The importance of Buurtzorg may lie in the recognition of the value of its key components:*

- *Colocation of health professionals in a neighborhood setting*
- *Provision of comprehensive and coordinated care.*
- *Use of self-managed teams (of highly competent well-paid nurses).*

Buurtzorg Community Nursing

The Dutch home-care provider Buurtzorg Nederland has attracted widespread interest for its innovative use of self-governing nurse teams. Rather than relying on different types of personnel to provide individual services, the approach taken by most home health providers, Buurtzorg expects its nurses to deliver the full range of medical and support services to clients and to pull in specialty services as needed. Buurtzorg has earned high patient and employee ratings and appears to provide high-quality home care at lower cost than other comparable organizations.

Starting with one team in 2007, Buurtzorg (Dutch for "neighborhood care") has grown into a national organization that by 2015 employed 8,000 nurses in 700 teams. Buurtzorg has created a new management approach—"integrating simplification," characterized by a simple, flat organizational structure through which a wide range of services, facilitated by information technology, can be provided

Government surveys have repeatedly shown that Buurtzorg's patients are highly satisfied. Moreover, surveys of employees over several years indicate the organization has the most satisfied workforce of any Dutch company with more than 1,000 employees. The model also appears to achieve savings. In the Netherlands, insurers pay for home care on an hourly basis, and Buurtzorg's teams of nurses have used fewer hours to meet patients' needs than have other organizations.

KPMG conducted a study comparing Buurtzorg to other homecare providers in the Netherlands, controlling for differences in patient characteristics. The results, published in January 2015, show that Buurtzorg is indeed a low-cost provider of home-care services, and that this effectiveness is not attributable to its patient mix.

The goals of the model are to bring a holistic, neighborhood-based approach to the provision of services; maximize patients' independence through training in self-care and creation of networks of neighborhood resources; and rely on the professionalism of nurses. One of the founder CEO Jos de Blok's mottos is "humanity over bureaucracy."

Buurtzorg Care Model: Goals and Structure

Goals	Structure
Create self-governing teams of nurses to provide both medical and supportive home services	Independent teams (with a maximum of 12 nurses) to take responsibility for all aspects of care for 50-60 patients
Become a sustainable, holistic model of community care	Relies on IT for online scheduling, documentation of nursing assessments and services, and billing
Maintain or regain patients' independence	Coaches are available to problem-solve for each team
Train patients and families in self-care	Small back-office handles administration
Create networks of neighbourhood resources	
Rely on the professionalism of nurses (Q: how do you mange professionals? A: you don't)	

From: B. H. Gray, D. O. Sarnak, and J. S. Burgers, Home Care by Self-Governing Nursing Teams: The Netherlands' Buurtzorg Model, The Commonwealth Fund, May 2015

The care model that grew out of these ideas gives self-governing teams of 10 to 12 highly trained nurses responsibility for the home care of 50 to 60 patients in a given neighborhood. The teams work with the patients and their families, primary care providers, and community resources to meet patients' needs and help them maintain or regain their independence.

Buurtzorg nurses are responsible for the entire range of home-care services: assessing patients' needs, developing and implementing care plans, providing services or scheduling medical visits as needed, and generating the documentation needed to facilitate continuous care and billing.

Buurtzorg collects information about patients' satisfaction at the completion of the course of care (in addition to the patient surveys carried out by the health ministry). A modern information technology (IT) system and intranet enable online scheduling, documentation of nursing assessments and services, and billing as well as the sharing of information within and across teams.

Buurtzorg uses the Omaha System, an electronic standardized taxonomy, for planning, documenting, and analyzing client care. It includes a problem classification system (42 environmental, psychosocial, physiological, and health-related behavioral problems), an intervention scheme that covers different services, and an outcome-rating scale for knowledge, behavior, and health status. It is used by Buurtzorg not only for planning and documenting care but also for billing and analyses of patterns of services.

Coaches—not managers—are available to solve problems. There were 15 coaches for the 700 teams in early 2015. Nurses do not report to managers, though their work hours are tracked. The small back office (with fewer than 50 people in early 2015) carries out functions such as salary administration, contracting for teams' offices, and financial administration. Under a union agreement, the nurses are paid according to their education level, with a standard annual increase and bonuses based on years working for Buurtzorg. Surplus revenues are used for continuing education of nurses, team projects to improve community health, and organizational innovations. The use of self-regulating teams provides flexibility in work arrangements to meet both nurses' and patients' needs.

Buurtzorg's model of care is popular among nurses with home-care experience, enabling recruitment of talented staff, and high patient and family satisfaction ratings and good health outcomes have helped teams obtain referrals from physicians and hospitals as well as word-of-mouth recommendations.

A 2009 Ernst and Young study found that Buurtzorg was able to meet patients' needs while using 40 percent of the authorized patient care hours, compared with the average among other home-care organizations of about 70 percent. The study also found that Buurtzorg's patients required care for less time, regained autonomy quicker, had fewer emergency hospital admissions, and shorter lengths-of-stay after admission. In addition, the company had lower overhead costs than other home-care providers (8% of total costs, compared with 25%) and less than half the average incidence of sick leave and employee turnover.

The KPMG study concludes that Buurtzorg's highly satisfied, self-managing teams of nurses provide low-cost home care that is both efficient (fewer hours per patient) and of high quality (as measured by patient satisfaction), but at a total cost—including nursing home, physician, and hospital costs—that is about average for Dutch home-care providers.

Beyond its growth in home care in the Netherlands and abroad, the Buurtzorg self-management model is being tried in different kinds of organizations, particularly those in which staff morale is a chronic issue, such as long-term care facilities.

Ultimately, the importance of Buurtzorg may lie not just in the wholesale spread of this model but in the recognition of the value of its key components. These include the colocation of health professionals in neighborhood settings and the provision of comprehensive and coordinated care. Perhaps most important, however, is the use of self-managed teams. With their potential to bring joy to work, autonomous work teams may offer an antidote to the growing problem of burnout among health professionals.

References

B. H. Gray, D. O. Sarnak, and J. S. Burgers, Home Care by Self-Governing Nursing Teams: The Netherlands' Buurtzorg Model, The Commonwealth Fund. 2015.

KPMG, The Added Value of Buurtzorg Relative to Other Providers of Home Care: A Quantitative Analysis of Home Care in the Netherlands in 2013 [in Dutch], Jan. 2015. Quoted extensively in Gray BH, et al.

S. S. Nandram, Organizational Innovation by Integrating Simplification: Learning from Buurtzorg Nederland. Switzerland. Springer. 2014.

Chapter 8 Lung Cancer Screening

Key Points

- *Lung cancer kills more Australians than any other cancer.*
- *Screening high risk individuals for lung cancer with low dose CT scans (LDCT) can save lives.*
- *The first two Australian prospective observational studies of LDCT screening in high-risk populations demonstrate that lung cancer screening in Australia is feasible.*
- *The efficiency of any screening program relies on the risk of the participants developing the disease and the approach to managing positive results.*
- *There are notable harms associated with lung cancer screening including a high false positive rate, an estimated over-diagnosis rate of up to 10% and increased exposure to radiation.*
- *There are high risk sub groups of the population, for example those exposed to asbestos, Aboriginal people and lung cancer survivors, who are likely to benefit from screening but fall outside of the current evidence based screening eligibility criteria. This is of direct relevance to the community of the Latrobe Valley.*
- *It is likely that a screening program in high-risk individuals actually constitutes case-finding program.*
- *The criteria for entry into a screening program would need to be modified to recognize the characteristics of the at-risk population.*
- *The risks of this at-risk population are greater than have been identified for the population at large: cigarette smoking increases risk up to 5 fold, and asbestos exposure increases risk up to 3 fold. The combination of a history of current or former cigarette smoking plus a history of asbestos exposure increases the risk up to 15 fold. This has been validated and confirmed for former power industry workers in the Latrobe Valley.*
- *A significant gap in the worldwide knowledge of lung cancer screening relates to the optimal frequency and duration of screening.*
- *Cost is a critical issue for any screening program and the economics of lung cancer screening in Australia remain to be understood.*
- *Australian modeling performed over 10 years ago and more recent Canadian analysis suggests lung cancer screening is borderline cost effective.*

- *Improved participant selection and management of positive results, combined with smoking cessation, should improve the overall cost effectiveness of a screening program in Australia.*
- *Screening for lung cancer is much more than just requesting a scan.*
- *Screening requires multidisciplinary specialist expertise, coordinated follow up and a well organised program that incorporates strong quality assurance.*
- *Opportunistic case finding or "Ad hoc" screening is strongly discouraged by the International Association for the Study of Lung Cancer (IASLC) as the benefits of LDCT screening may be lost by screening low risk participants leading to unnecessary scans and potential harm.*
- *If ad-hoc lung cancer screening becomes more widespread, it will be difficult to adapt clinical practice as developments occur in this rapidly changing field.*
- *LDCT screening can be a complementary, not competitive, component of a national approach to lung cancer that includes ongoing tobacco control, early investigation of symptoms and access to new treatment options.*
- *A case can be made for the conduct of a trial of lung cancer screening in the Latrobe Valley as part of a peer-reviewed national pilot study to determine the acceptability, feasibility, capacity for and cost-effectiveness of lung cancer screening in Australia using low dose CT scanning.*
- *This should be linked to a smoking cessation program and a general primary health check.*

Lung Cancer Screening

Lung cancer kills more Australians than any other cancer, is the leading cause of cancer related burden and the dismal prognosis has not meaningfully changed over the last 30 years. Almost four years have passed since the publication of the United States (US) based National Lung Screening Trial (NLST) that demonstrated for the first time that screening high risk individuals for lung cancer with low dose CT scans (LDCT) can save lives. The observed 20% reduction in lung cancer mortality is similar to the benefit of screening for bowel cancer with Faecal Occult Blood Testing. LDCT screening is currently not recommended in Australia, but is recommended clinical practice in the US.

The first two Australian prospective observational studies of LDCT screening in high-risk populations demonstrate that lung cancer screening in Australia is feasible. The

Queensland Lung Cancer Screening Study (QLCSS) used very similar eligibility criteria and protocol to NLST and demonstrated similar adherence, positive scan rates, lung cancer incidence and distribution of lung cancer staging to NLST. The Asbestos Review Program in WA also demonstrated a lung cancer prevalence of 0.8% in an asbestos exposed population, comparable to the NLST baseline findings. While encouraging, these preliminary reports have significant limitations. Neither study reported mortality, quality of life or cost data. Broader feasibility issues include accessibility of LDCT in rural areas and capacity for advanced minimally invasive lung biopsy and surgery.

The efficiency of any screening program relies on the risk of the participants developing the disease and the approach to managing positive results. The NLST determined lung cancer risk, and therefore eligibility for screening, based only on an individual’s age and smoking status. Accurate but more complex lung cancer risk models are being utilised internationally to select patients most likely to benefit from screening. The most promising is the PLCOm2012 model, which is estimated to detect 12% more cancers from 9% fewer participants than NLST criteria.

There are notable harms associated with lung cancer screening including a high false positive rate, an estimated over diagnosis rate of up to 10% and increased exposure to radiation. Nearly 40% of NLST and QLCSS participants had nodules larger than 4mm, but the vast majority were benign. It is now possible to determine more accurately the risk of a lung nodule being cancer and this approach can be used to simplify nodule management algorithms and to minimise unnecessary further investigations. Applying these improvements based on risk calculation to the Australian setting will pose unique challenges. The risk models described have not been validated in the Australian population. The distribution of lung cancer risk, determined by either NLST criteria or the PCLOm2012 model, within the broader community is unknown. Therefore, determining participation rates, a key indicator of the acceptability of LDCT screening, will be challenging.

There are high risk sub groups of the population, for example those exposed to asbestos, Aboriginal people and lung cancer survivors, who are likely to benefit from screening but fall outside of the evidence based screening eligibility criteria. This is of direct relevance to the community of the Latrobe Valley. Communicating to individuals and the community the rationale behind targeted selection of participants based on complex individualised risk assessments, rather than age alone is almost unprecedented in population based cancer screening. Will current and former smokers who are ineligible for LDCT screening accept this or will they access a CT of their chest via alternative methods?

It is likely that a screening program in high-risk individuals actually constitutes a case-finding program, and that the criteria for entry into such a program would need to be modified to recognize the characteristics of the at-risk population and that the risks of this at-risk population are greater than have been identified for the population at large. The reasons for this include that whilst cigarette smoking contributes to risk of up to 5 fold, and asbestos exposure increases risk up to 3 fold, the combination of a history of current or former cigarette smoking plus a history of asbestos exposure contributes a multiplicative effect on lung cancer risk, such that the risk is increased up to 15 fold (1500%). This has been validated and confirmed for former power industry workers in the Latrobe Valley.

A significant gap in the worldwide knowledge of lung cancer screening relates to the optimal frequency and duration of screening. The mortality benefit of NLST was obtained with just three annual scans. Annual screening is more efficient than biennial, but costs more. The benefits and risks of scanning longer than three years are unknown but current recommendations in the US allow for up to 25 years of screening.

Cost is a critical issue for any screening program and the economics of lung cancer screening in Australia remain to be understood. The incremental cost for one Quality Adjusted Life Year in the NLST trial was US$81,000. Australian modelling performed over 10 years ago and more recent Canadian analysis suggests lung cancer screening is borderline cost effective. Overall costs are most dependent on the lung cancer risk of participants and the cost and number of subsequent CT scan performed. Improved participant selection and management of positive results, combined with smoking cessation, should improve the overall cost effectiveness of a screening program in Australia.

Screening for lung cancer is much more than just requesting a scan. It requires multidisciplinary specialist expertise, coordinated follow up and a well organised program that incorporates strong quality assurance. Opportunistic case finding or “Ad hoc” screening is strongly discouraged by the International Association for the Study of Lung Cancer (IASLC) as the benefits of LDCT screening may be lost by screening low risk participants leading to unnecessary scans and potential harm. The Australian community will bear the cost of harm and lost efficiency. If population based lung cancer screening is not assessed locally, opportunistic or “ad hoc” screening for lung cancer is likely to become more common as it is currently being promoted to both the public and general practitioners. The similar path that screening for prostate cancer with Prostate Specific Antigen (PSA) has followed is a cautionary tale. Opportunistic PSA screening by general practitioners significantly increased despite conflicting evidence that the benefits outweigh the harms leading to the recent NHMRC recommendation against screening. If ad-hoc lung cancer screening becomes more widespread, it will be difficult to adapt clinical practice as developments occur in this rapidly changing field.

In recent years, Australian policy makers have consistently supported population-based cancer screening. BreastScreen Australia was recently expanded to include women aged between 70 and 74. Five years after bowel cancer screening was shown to be effective, the Commonwealth Government funded a bowel cancer screening pilot to assess the acceptability, feasibility and cost-effectiveness in Australia. This successful pilot expanded into the current BowelScreen program. IASLC recommends each country performs “an assessment of lung cancer screening benefit, implementation costs and potential harms defined in a cultural context”. LDCT screening can be a complementary, not competitive, component of a national approach to lung cancer that includes ongoing tobacco control, early investigation of symptoms and access to new treatment options.

In summary, a case can be made for the conduct of a trial of lung cancer screening in the Latrobe Valley as part of a peer-reviewed national pilot study to determine the acceptability, feasibility, capacity for and cost-effectiveness of lung cancer screening in Australia using low dose CT scanning. This should be linked to a smoking cessation program and general primary health screening.

The eligibility criteria for entry to such a pilot in the Latrobe Valley should be determined as part of the basis for entry into that study, as should the screening algorithms and follow up procedures. The issue of direct relevance to residents of the Latrobe Valley is to determine the desired frequency, time of commencement and duration of a lung cancer screening/case finding program in current and former smokers amongst the population of former power industry workers who have a history of asbestos exposure. The end points of most concern are to demonstrate an impact on all cause mortality and disease specific mortality, and to generate evidence to determine the cost effectiveness and criteria of entry into such a screening/case-finding program were it to proceed to a more generalized program, and to seek to avoid the controversies and short comings of the current ad-hoc approach to PSA screening for prostate cancer in this country.

It is important to say that unfortunately there is no evidence that CT screening has any role in the prevention or management of risk of development of mesothelioma in asbestos exposed individuals at this time.

The assistance of Dr David Manners, Respiratory Research Fellow, LungScreen WA Project (funded by the WA Cancer and Palliative Care Network), Department of Respiratory Medicine, Sir Charles Gairdner Hospital, Nedlands, WA, in the writing of this Chapter is gratefully acknowledged.

References

Australian Institute of Health and Welfare, Australasian Association of Cancer Registries. Cancer in Australia: an overview 2012. Canberra: Australian Institute of Health and Welfare, 2012.

The National Lung Screening Trial Research Team. Reduced lung-cancer mortality with low-dose computed tomographic screening. New England Journal of Medicine. 2011;365(5):395-409.

Department of Health and Ageing. The Australian bowel cancer screening pilot program and beyond: final evaluation report. In: Department of health and Ageing, editor. Canberra. 2005.

Moyer VA. Screening for lung cancer: U.S. Preventive Services Task Force recommendation statement. Annals of Internal Medicine. 2014;160:330-8.

Marshall HM, Bowman RV, Ayres J, Crossin J, Lau M, Slaughter RE, et al. Lung cancer screening feasibility in Australia. European Respiratory Journal. 2015 April 2, 2015.

Brims FJ, Murray CP, de Klerk N, Alfonso H, Reid A, Manners D, et al. Ultra-low-dose chest computer tomography screening of an asbestos-exposed population in Western Australia. American journal of respiratory and critical care medicine. 2015;191:113-6.

Tammemagi MC, Church TR, Hocking WG, Silvestri GA, Kvale PA, Riley TL, et al. Evaluation of the lung cancer risks at which to screen ever- and never-smokers: screening rules applied to the PLCO and NLST cohorts. PLoS medicine. 2014 Dec;11(12):e1001764.

Tammemagi MC, Lam S. Screening for lung cancer using low dose computed tomography. British Medical Journal. 2014;348:2253.

McWilliams A, Tammemagi MC, Mayo JR, Roberts H, Liu G, Soghrati K, et al. Probability of cancers in pulmonary nodules detected on first screening CT. New England Journal of Medicine. 2013;369(10):910-9.

de Koning HJ, Meza R, Plevritis SK, ten Haff K, Munshi VN, Jeon J, et al. Benefits and harms of computed tomography lung cancer screening strategies: A comparative modeling study for the U.S. Preventive Services Task Force. Annals of Internal Medicine. 2014;160:311-20.

The National Lung Screening Trial Research Team. Cost-effectiveness of CT screening in the National Lung Screening Trial. New England Journal of Medicine. 2014;371:1793-802.

Cressman S, Lam S, Tammemagi MC, Evans WK, Leighl NB, Regier DA, et al. Resource ultilization and costs during the initial years of lung cancer screening with computed tomography in Canada. Journal of Thoracic Oncology. 2014;9(10):1449-58.

Manser R, Dalton A, Carter R, Byrnes G, Elwood M, Campbell DA. Cost-effectiveness analysis of screening for lung cancer with low dose spiral CT (computed tomography) in the Australian setting. Lung Cancer. 2004;48:171-85.

Campbell DA, et al. Review of Health Status of Power Industry Workers who Participated in the State Electricity Commission, Victoria (SECV) Lung Function Program. Report to Victorian Government Department of Human Services. August 2003.

Field JK, Boffetta P, Dresler C, Gralla R, Herbst R, van Klaveren RJ, et al. Statement of CT screening for Lung Cancer. International Association for the Study of Lung Cancer, 2011.

Perth Radiological Clinic. Perth Radiological Clinic supports annual low dose CT screening for lung cancer 2014 [cited 2015 15 April]. Available from: http://perthradclinic.com.au/2014/02/10/perth-radiological-clinic-supports-annual-low-dose-ct-screening-for-lung-cancer/.

Bayram C, Britt H, Miller G, Valenti L. Evidence-practice gap in GP pathology test ordering: a comparison of BEACH pathology data and recommended testing. 2009. http://www.health.gov.au/internet/publications/publishing.nsf/Content/QUPP-integrated-analysis-of-quality-use-of-pathology-program-final-reports-toc~Promoting-Evidence-Based-Practice~Evidence-Practice-Gap-in-GP-Pathology-Test-Ordering-A-Comparison-of-BEACH-Pathology-Data-and-Recommended-Testing-2009

National Health and Medical Research Council. Prostate-Specific Antigen (PSA) testing in asymptomatic men: Evidence Evaluation Report. Canberra: National Health and Medical Research Council; 2013. https://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/men4a_psa_evidence_report_140519.pdf

Australian Institute of Health and Welfare. BreastScreen Australia monitoring report 2011-2012. Canberra: AIHW; 2014. http://www.aihw.gov.au/publication-detail/?id=60129548886

Chapter 9 Mental Health Care

Key Points

- *Mental health problems are a continuum from short duration episodes in the context of life stress to long term, persisting and disabling conditions.*
- *The latter are complex, often being complicated by social (work, family, relationships) difficulties, drug use and physical health problems. A chronic and complex disease model is useful here.*
- *Socioeconomic hardship, and low work readiness are strong correlates of chronic mental illness.*
- *To enable people to live meaningful and contented lives, we need to go beyond symptom improvement, and aim for social and personal recovery – with full engagement in life and society.*
- *Because of the complexity and multi-morbidity, coordination and integration of services are essential. This is similar to that required for other chronic illnesses, but is made more complicated by a twin difficulty:*
- *People with mental illness intrinsically find negotiating and engaging with services difficult. The system of services is complex, with many different and overlapping services and funding streams.*
- *Despite this, involvement of people with mental illness in their treatment decisions is vitally important, both for better health outcomes and for personal dignity.*
- *Improving accessibility of care will require greater health literacy and a much simplified system. The latter will require the voluntary cooperation and sharing of resources of multiple agencies, together with an overarching structure, such as is described in previous chapters.*
- *The emphasis of mental health care must be on community care, not hospitals. Serious thought and effort must be given to developing an integrated community mental health service, probably held together by community nursing (e.g. Buurtzorg), which provides a wrap-around service without gaps (Latrobe Valley Clear Minds). This integrated system will include attention to physical health, drug problems, opportunities for education and job training, housing and social and financial support.*

Mental Health Care

Up until the 18th century, the care of people with mental illness was chiefly a family and community responsibility. However, the industrial revolution, and with it the development of workhouses, led to the setting up of ‘madhouses’, which were, in the first place, mostly privately run. The workhouses found it difficult to manage mentally ill people, and the madhouses became scandalised. As a result, governments set up publicly owned asylums – the beginning of institutional care.

The second half of the 20th century saw a reversal of this, with a profound shift from institutional care to community care. This was associated with, and helped by the availability of effective pharmaceutical treatments.

At the same time, perhaps under the influence of Sigmund Freud (see his book, The Psychopathology of Everyday Life), the emphasis has shifted from thinking about mental illness as being an affliction of the few, to it being a common occurrence. Anxiety, depression and substance abuse are now included, and are numerically common problems, with 20% of Australians experiencing at least one or more of these in any year.

The most recent 2007 National Survey of Mental Health and Wellbeing measured the prevalence of the ‘common’ mental disorders (depression, anxiety and substance use disorder) in the Australian population. The key findings were:

- Almost half of the Australian population (45.5%) experience a mental disorder at some point in their lives.
- One in five (20.0%) Australians aged between 16 and 85 years have experienced mental disorders in the previous 12 months.
- One in 16 (6.2%) have had a mood disorder (depression); one in seven (14.4%) an anxiety disorder; and one in 20 (5.1%) a substance use disorder.
- The prevalence of these disorders declines with age – prevalence of 26% in the age range 16-25; 6% in the over 75 years of age.

- Strong correlates of mental disorders include low level of education, not being in a continuing relationship, and not being in the workforce.
- Of the 20% experiencing a mental disorder, 25% have more than one disorder; and impairment increases considerably with level of co-morbidity.
- One third of people with a mental disorder also have a physical health condition; importantly mental disorder is more common in people with a physical health condition (28%) than in those without (18%).

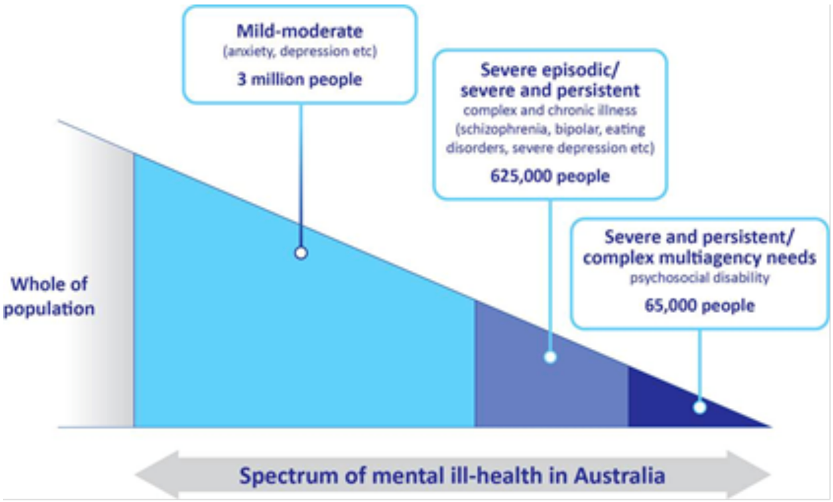
The national survey did not measure the prevalence of schizophrenia or related psychotic illness, which occur in about 1-2% of the population. Although some people recover well from a single psychotic episode, commonly schizophrenia is a chronic relapsing condition associated, with significant psychosocial impairments, occurring in about 1% of the population. Much of our public mental health services are taken up with the care of people with this problem and this is considered more in the discussion that follows.

The determinants of mental health and wellbeing in the short term – evidenced in the Australian national survey and described above – coincide with the findings of longitudinal studies of what it takes to age well. In the landmark Harvard Study of Adult Development, the researchers describe seven factors that at the age of 50 predict healthy ageing. These are:

1. Not being a smoker
2. Adaptive coping style (the 'capacity to turn lemons into lemonade' rather than molehills into mountains)
3. Absence of alcohol abuse
4. Health weight
5. A stable marriage or relationship
6. Exercise
7. Years of education

In other words, there are a number of social determinants and lifestyle issues related to wellbeing whether we consider that in young people with mental health issues, or older people living well. These include socioeconomic status, education, quality of relationships, alcohol intake, nutrition, smoking, exercise and some aspect of personality described as ‘coping’.

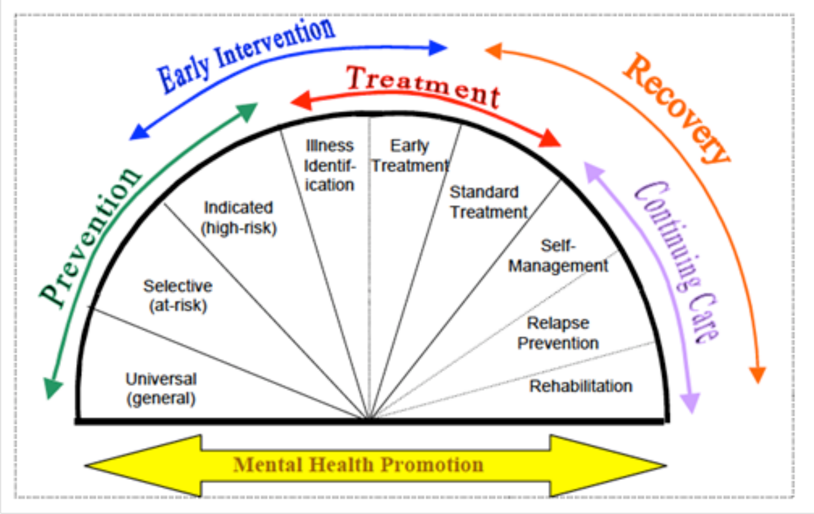
In thinking, therefore, about mental illness now we need to consider those with a chronic and disabling disorder, such as schizophrenia; those with a common mental disorder such as depression and anxiety which also, if inadequately treated, can be significantly disabling; young people with family turmoil, depression, self-harm and perhaps drug use. Combine this with dropping out of school, insecure family, housing and work, it is easy to see how problems become entrenched, morale drops and social disintegration occurs – particularly in a community that has suffered significant socioeconomic hardship.



Source: “The National Review of mental health Programmes and Services.” Sydney: NMHC.

A Public Health approach to mental health

To reduce the burden of mental illness we need a spectrum of interventions, from prevention and early intervention, through to effective evidence-based treatments and psychosocial recovery and rehabilitation.



Source: “Pathways of Recovery: 4As Framework for Preventing Further Episodes of Mental Illness.”

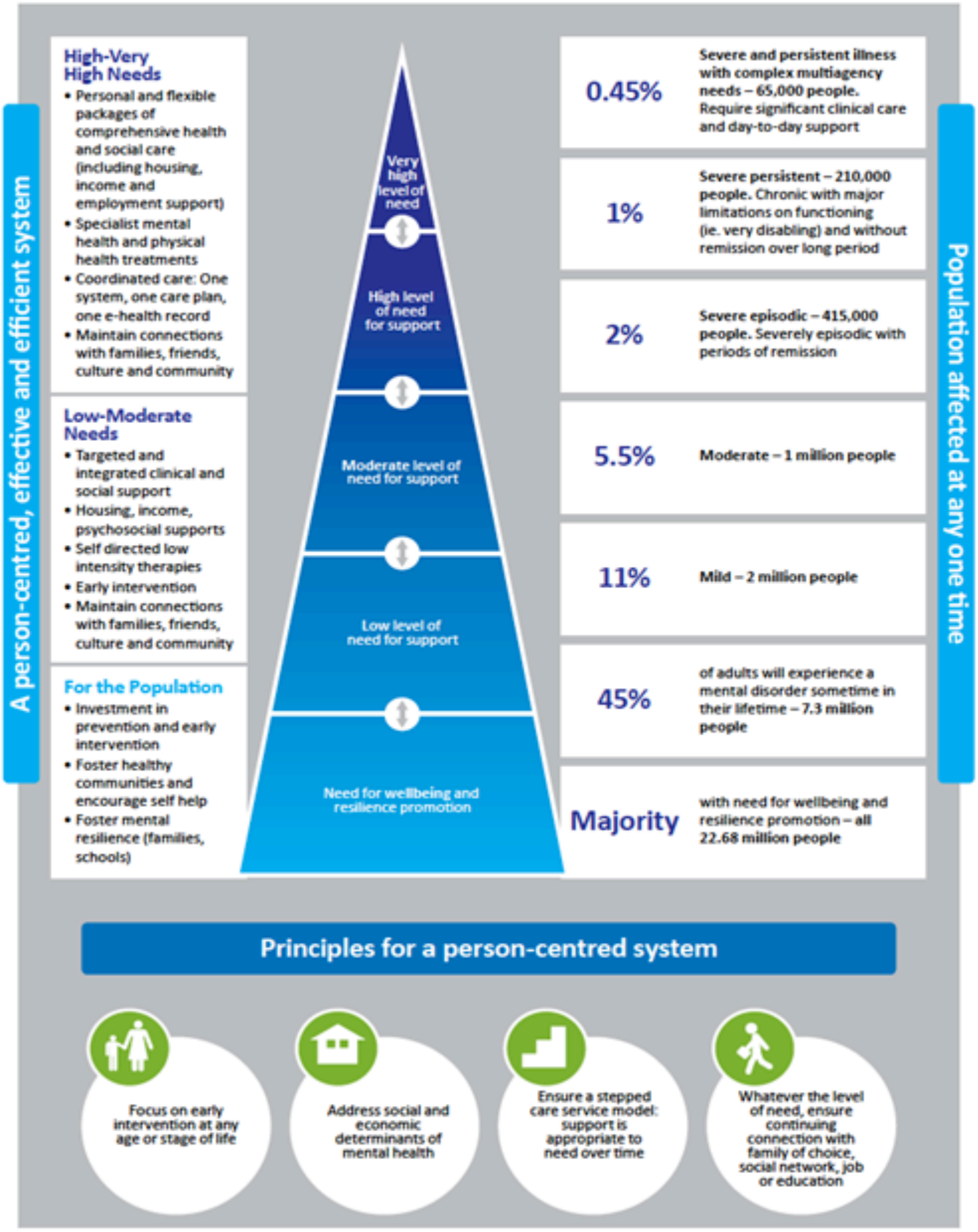
Prevention means building a strong social fabric of family life, work, recreation, sport, religion – the whole canopy of life that gives people connection and purpose. Practical political interventions to reduce the effects of addictions to smoking, alcohol and gambling are necessary. Social supports around young families, or mothers with post-natal depression will ensure that children get a good start to life; as will measures to eradicate violence in the family.

Early Intervention requires early recognition, which in turn requires good health literacy and low levels of stigma. People need to know what depression looks like, and how to get help. Because mental health and physical health problems frequently occur together (expanded below), screening for mental health and drug and alcohol problems (Clear Minds) can be easily introduced in the general health services to aid identification. Similarly, schools and youth services could be targeted with information (to increase literacy and reduce stigma) and targeted screening (case-finding) in youth services.

Early intervention also requires good accessibility. Services have to be easily available and welcoming. The system of services must not be complicated and confusing.

Treatment requires access to pathways and a competent workforce. A mental health workforce exists, though it will need strengthening and maintenance. What is also required is organisation, so that treatments are effective and cost efficient, integrated and available. Good communication between multiple health professionals – e.g. GPs and counsellors – is vitally important.

The concept of **Recovery** is underpinned by the principle that an episode of treatment – be it medication or counselling – is often not sufficient to get a person back to where they once were. Time being unwell can lead to loss of work, impairments in social skills, withdrawal, etc. Medication might suppress symptoms of hallucinations or depression. But what is needed is a turning back of the spiral or vortex of the decline in social connection and participation. This involves assisting people to change their behaviours, make decisions, take control of their ‘illness’, perhaps to recognise the early signs of relapse, and to manage a complex health care system. This is Chronic Disease Self-Management, and is discussed further below.



A framework of care for the cross-section of population, is presented above, in a Figure presented by the National Mental Health Commission. Source: “The National Review of Mental Health Programmes and Services”.

Principles contained in the above, and emphasised in mental health legislation are:

- Treatment in the least restrictive way,
- Maximising choice for consumers with supported decision-making if necessary,
- Respect for the role of families and their involvement in treatment planning where possible.

Unfortunately mental health services are often experienced by users as being difficult to access. There are ‘gatekeepers’ everywhere, and the system is very siloed with many funding streams supporting it. It is often experienced as being unhelpful – that is, trying to keep people out rather than trying to offer help. This is a major challenge that must be addressed.

Holistic care and its relevance for mental health

The concept of holistic care has been around for many years – one might say, since Hippocrates, even if perhaps lost with Descartes. Yet it has been difficult to operationalize. George Engel advocated for doctors to take a whole view of the person, integrating the biological, psychological and social aspects. Built on a systems model of thinking, he argued that each component affected the other.

A huge amount of research now supports the notion that these three aspects work together. Medical-psychiatric-social co-morbidity is the norm, not the exception. Physical illness impacts on the psychosocial side of life, and psychosocial wellbeing impacts on physical health.

This holistic view of the person has been widely taught in medical schools, but has not strongly impacted the delivery of care. On the contrary, with increasing technology and specialisation, together with diverse funding models, health care has become even more fragmented in recent decades.

Nevertheless, the idea of integrated care has not gone away and, arguably, has become more insistent and necessary. In contrast to the Engel model, which was applied clinically at the individual patient level and supported chiefly by patient stories, the current discussion about integrated care focuses, perhaps rather mechanistically, on the wider system, at the population level, including healthcare as part of the ‘system’. It is about connecting services, and tends to be more administrative than clinical. It is hoped, if not assumed, that an administrative solution can be found to the fragmented service and patient experience.

‘Collaborative care’ and ‘care management’ are the current solutions to a fragmented and highly specialised system. What is chiefly required, however, is a strong secondary care system. Primary care, arguably, caters well for episodic care of non-chronic illness. Tertiary specialised care caters well for the episodic care of serious life-threatening illness – illnesses such as coronary heart disease that used to kill people but now respond to highly technological solutions. But, neither primary nor tertiary care cater well for chronic and/or persistent illness, or where there is multi-organ disease or combined mental and physical illness. For this are needed good ‘generalists’ – general physicians with competence in physical and mental illness or very strong collaborative links.

The problem of physical-mental co-morbidity

One of the big negatives about ultra-specialisation has been the neglect of the role of psychological factors in physical illness and vice versa.

Once enshrined in psychosomatics, popular in the 1930s, research continues to strengthen the evidence for a causal link between the two. For instance, depression confers an increased risk (between 2 and 4 times) for cardiovascular disease and for type 2 diabetes. This is now starting to get some notice.

However, not yet getting a lot of attention is the atrocious physical health of people with chronic mental illness. People with mental illness have a 2.5 times higher mortality rate than those without, and die, on average, 20 years younger. Disease occurs earlier and go unrecognised for longer. Furthermore, there is a bias in the system such that people with mental illness are less likely to get a procedure compared to others with the same condition but without mental illness. One of the important outcomes expected to be achieved with the mainstreaming of psychiatric services into general hospitals – that of improved physical health – has been remarkably absent. Building psychiatric wards next to medical wards has made no difference. The solution will not be found in the hospital. It will be found in the community, with strong, non-stigmatising, holistic secondary care practices.

The principles of recovery

The language and concept of recovery is sometimes a little ambiguous, but is very important in contemporary mental health practice. ‘Clinical recovery’ is defined by health professionals as a reduction of symptoms and restoration of functioning; in contrast, ‘personal recovery’ is defined by the individual and refers to ongoing holistic process of personal growth, healing and determination.

Recovery must always be the aim. However, as with stroke, cardiac disease or diabetes, full symptomatic and functional recovery may not be possible after an episode of illness. And yet it must not be assumed that a meaningful life cannot be lived with a chronic illness. A recovery focus is optimistic rather than pessimistic – but realistic.

Recovery-oriented practice is healthcare that:

- Encourages self-determination and self-management
- Involves tailored, personalised and strength-based care that is responsive to people’s unique strengths, circumstances, needs and preferences
- Supports people to define their goals, wishes and aspirations
- Involves a wholistic approach that addresses a range of factors that impact on people’s wellbeing, such as housing, education and employment, and family and social relationships
- Supports people’s social inclusion, community participation and citizenship

A recovery focus is intrinsically and profoundly person-centred. It recognises that the experience of mental illness is a part of a person; having social roles is important and valuable, as is work, love and play; recovery goals are the person’s; people in general will make good decisions if they have the opportunity, support and encouragement; autonomy and freedom are profoundly important to a person.

Chronic Disease Self-Management

Recovery principles, now being applied in the mental health setting, resonate deeply with principles of self-management. In the words of Kate Lorig, one of the pioneers of the area, self-management is about enabling “participants to make informed choices, to adapt new perspectives and generic skills that can be applied to new problems as they arise, to practice new health behaviours, and to maintain or regain emotional control’. It requires people to take responsibility for their general health and wellbeing as well as for their illness – monitoring the disease, seeking treatment when necessary. It requires patient activation.

Chronic disease self-management programs require participants to learn about their illness, to develop a plan of care, to engage in health promoting activities, to monitor symptoms, to negotiate relationships within health care, and to manage the impact of their illness.

The ‘House of Care’ model developed in the UK, assumes an active role for patients, with collaborative personalised care planning at its heart. With personalised care planning, clinicians and patients work together to agree on goals, identify support needs, develop and implement action plans, and monitor progress.

Substance Use Problems

Victoria has a plan to reduce the alcohol and drug toll. “New directions for alcohol and drug treatment services: a roadmap” describes a service orientation which emphasises person and family centredness, accessibility, integration with other health and human services, and a skilled and competent workforce. These principles align with the framework for mental health services and the integrated care management model described here. Access to specialist drug and alcohol services, including withdrawal services, is important, as is education. These services should be integrated with the holistic system of health care that we are recommending, and adequately resourced.

Changing behaviour and culture, of course, is difficult, but needs to be tackled. Drug and alcohol use is a symptom of something else, and the community needs to consider how messages around alcohol and other drugs are communicated. Drug use is strongly socially determined.

The healthcare ‘system’ in the Latrobe Valley needs a specialist drug and alcohol service that is integrated with the system in the same way as describe in this report for other areas of health. The generic Adult and Alcohol and Drug (AOD) Screening and Assessment Tool, which includes a self-assessment, should be used routinely as part of a general health screen, and specialist AOD services ‘pulled’ in as required.

Forensic clients will be a significant proportion and are frequently assessed as complex. Just like people with other mental health or behavioural problems, it is important that assessments are holistic, covering the full range of social and health problems, and management integrated in a manner described in this report.

Suicide Prevention

One aspect of suicide prevention is the earliest identification of mental illness and substance use problem. Effective and timely treatment will substantially reduce the risk of suicide. However, it is not that simple. Although mental illness (psychosis, depression) and substance use are strongly associated with suicide, they do not fully explain it. Community attitudes, including morale (or demoralisation), are important. Reducing access to means of suicide, and creating stronger and more supportive families, schools and communities are important, as are selective interventions working in schools or community groups to build resilience and promote self-help and support. Some people, particular teenagers will need ongoing periods of support through periods of personal or family instability. (See livingisforeveryone.com.au).

Conclusion

The evidence presented here on the problems in mental health support the following:

- Greater emphasis on community care rather than hospital care. This community care will connect with hospital care from time to time, and draw in GPs into shared management.
- The attributes of the community care will be:
  - Holistic care
  - Care management – with nurses supervising care and pulling in specialists in psychology or psychiatry as required.
  - Integrated physical health checks and monitoring.
  - Specialist drug and alcohol care as required.
  - Active links with adult education, job preparation, and housing support.
  - A model of chronic disease management for people with chronic mental illness. This model maximised patient autonomy with supported decision-making, combined with assertive outreach when required.
- Using a ‘recovery’ focus in all cases, and considering the present very fragmented and silo-ed system of care, it would be helpful to design services around simply two patient pathways:
  - An acute fast stream recovery – assuming the person will recover within 6 months and will quickly return to work and other meaningful chosen activities.
  - A longer term slow-stream recovery.

  This is akin to the fast-stream and slow-stream rehabilitation model used in stroke recovery.

- Mental health care should be integrated in a non-stigmatising way with general health care
- Because of co-morbidities, and because of the social determinants, any intervention in the Latrobe Valley must be holistic. Therefore, as well as health care, consideration needs to be given to housing, work, opportunities for exercise, and family and social life.

References

Smith GC, Clarke DM. Assessing the effectiveness of integrated interventions. Medical Clinics of North America 2006; 90: 533-548.

Smith GC, Strain JJ. George Engel's contribution to clinical psychiatry. Australian and New Zealand Journal of Psychiatry 2002; 36: 458-466.

Clarke DM, Currie KC. Depression, anxiety and their relationship with chronic diseases: a review of the epidemiology, risk and treatment evidence. Medical Journal of Australia 2009; 190: S54-S60.

Slade T, Johnston A, Teeson M, Whitford H, Burgess P, Pirkis J, Saw S. The mental health of Australians 2: report of the 2007 National Survey of Mental Health and Wellbeing. Department of Health and Ageing, Canberra. 2009.

Department of Health. Framework for recovery-oriented practice. State of Victoria Department of Health, Melbourne, 2011.

Slade M. 100 ways to support recovery: a guide for mental health professionals, Rethink Recovery Series, Vol 1, 2009.

Hibbard J, Gilburt H. Supporting people to manage their health: an introduction to patient activation. King's Fund, London, 2014.

Coulter, Roberts & Dixon. Delivering better services for people with long-term conditions: building the house of care. King's Fund, London, 2013.

Vaillant GE. Aging Well: surprising guideposts to a happier life from the landmark Harvard Study of Adult Development. Boston: Little, Brown & Co, 2002.

Department of Health. Reducing the alcohol and drug toll. Victoria's plan 2013-2017. Department of Health, Victoria, 2012.

Lawrence D, Holman CDJ, Jablensky AV. Preventable Physical Illness in People with Mental Illness. Perth: The University of WA, 2001.

National Mental health Commission. The National Review of Mental Health Programmes and Services. Sydney: NMHC, 2014.

Rickwood, D. Pathways of Recovery: 4As Framework for Preventing Further Episodes of Mental Illness. Commonwealth of Australia, Canberra, 2006.

Appendix 1 - Social Impact Bonds

Social Impact Bonds are a financial mechanism in which investors pay for a set of interventions to improve a social outcome that is of social and/or financial interest to a government commissioner. Social Impact Bonds provide investment to address social problems and look to fund preventative interventions.

The Centre for Social Impact Bonds in the Cabinet Office in the UK supports the development of social impact bonds.

With a Social Impact Bond private investors invest capital and manage public projects, usually aimed at improving social outcomes for at-risk individuals, with the goal of reducing government spending in the long-term. If the social outcome improves, the government commissioner repays the investors for their initial investment plus a return for the financial risks they took. If the social outcomes are not achieved, the investors stand to lose their investment.

A Social Impact Bond (SIB) is a way of financing a Payment by Results (PBR) contract. Under a Pay-by-Results (PBR) contract, government pays a service provider if it achieves certain agreed results. This means that the provider must cover the initial costs of delivering services. Many potential providers find this difficult, particularly social enterprises and charities, as they often do not have the capital available to provide services in advance of being paid. A SIB is a way to bridge this gap, enabling socially-minded investors to fund the provision of a service delivered by a social enterprises or charity on the basis that they will receive a return on their investment from government – if the service delivers the results specified in the PBR agreement.

SIBs are arguably beneficial for the public, private and community not-for-profit sectors as they enable:

- Commissioners to capture the expertise of the community not-for-profit sector to address issues and only pay if intervention is successful
- Community not-for-profit providers to obtain upfront working capital that is required to deliver a payment by results contract and

- Investors to make a social as well as a financial return often helping those most in need.

The potential for SIB's has been evaluated by Mckinsey& Co, particularly for the US context. SIBs offer three major benefits:

1. SIBs are a tool to scale proven social interventions.
2. SIBs support government's goal of performance transformation.
    a. SIBs can help government move toward paying for results rather than paying for activities.
    b. SIBs can also facilitate another critical shift, moving resources from remediation to prevention.
    c. If SIBs work as intended, they could enhance alignment and collaboration across government agencies.
3. SIBs reward the social sector's investment in what works.

New Zealand have recently implemented a program to address youth mental health using the Social Impact Bond concept to provide funding and to manage the process.

NSW launched a trial in September 2011 to test the capacity for Social Benefit Bonds to:

- Increase funding for prevention and early intervention programs sustainably
- Improve accountability for the effectiveness of expenditure on social services
- Catalyse the development of the social finance sector
- Harness the innovation capacity of both investors and service providers
- Improve the evidence base for, and focus on measuring the impact of, social services.

The KPMG evaluation of the planning and development of the bonds found that social benefit bonds are viable in New South Wales (NSW).

- The Newpin Bond – A $7 million bond over seven years is funding UnitingCare Burnside's (UCB) Newpin program, which provides support for families to facilitate their child's return from foster care. Principal repayment and financial returns are paid to investors dependent on the restoration rate of children to their families.
- The Benevolent Society Bond – A $10 million bond over five years is funding the Resilient Families service, which provides intensive work with up to 400 families and children for 12 months, including up to nine months post-crisis support. There are two tranches of investment, with principal repayment and financial returns to investors differing and dependent on the performance of the service.

In its first two years, Newpin has successfully restored 66 children to their families and supported another 35 families to prevent their children from entering care. This translates to an 8.9 per cent return to investors for the second year of the bond, building on a 7.5 per cent return in the first year.

In November 2014 the South Australian Government released an EOI in the first stage of a potential procurement process to identify partners and work out the details of a social impact bond trial. Focus areas might include health, child protection mental health, homelessness and recidivism. (see: Building a stronger society: a discussion paper on social impact investment).

The report from McKinsey and Co, From potential to action: bringing social impact bonds to the US. Gives a detailed critique of the areas of opportunity for SIB investment from a US perspective.

This approach warrants further consideration in the context of the potential establishment of a Health Conservation Zone in the Latrobe Valley, and the need for cross institutional collaboration and cooperation. The explicit framework for the introduction of the Pay by Results contracting approach to multi-agency partnership investment via the SIB will bring some discipline to interagency partnerships to address complex social problems in healthcare, and for this reason as well as the built in accountability and acquittal process, makes the SIB an attractive option. The evidence that will accumulate from trials in South Australia and New Zealand will have direct applicability to the Latrobe Valley.

The SIB also provides a potential vehicle to link investment from local industry in improving health outcomes for the people of the Latrobe Valley, perhaps linking investment to address the health ill-effects and the social cost of coal mining and return money to investors linked to the performance of the social investment bond. This might include a variety of local service providers across the acute and primary health care and residential care perspectives, health promotion agencies such as Quit and VicHealth as well as local medical service providers in the primary and secondary service settings.

There is a further question that must be actively considered in relation to the direct health impacts of coal-fired electricity generation in the Latrobe Valley, and that is simply whether there should be a more direct link established between the level of particulate pollution emissions and investment in provision of better healthcare in order to improve the health outcomes and health status of the citizens of the Latrobe Valley.

In other industries and more broadly, the idea of placing a levy on the production of harmful pollutants and investing in reduction of production of those same pollutants as well as investment in mitigating the harmful effects of their production, along with regenerative and restorative activities is widely accepted. Vehicular emissions and cigarettes are prime examples of the introduction of levies to foster reduction in use and mitigation of impact. VicHealth is a local beneficiary of this form of progressive thinking. Whether a levy on particulate emissions could be reinvested locally to help to improve the health status of citizens most directly affected by their production and also help to reduce the level of particulate air pollution at the site of electricity generation is a testable hypothesis.

References

http://environmentvictoria.org.au/sites/default/files/Hazelwood%20Report_Social%20cost%20of%20carbon.pdf

http://data.gov.uk/sib_knowledge_box/

http://www.socialfinance.org.uk/services/social-impact-bonds/

http://data.gov.uk/sib_knowledge_box/knowledge-box

http://www.radionz.co.nz/news/political/275153/social-bond-system-to-target-mental-health

http://www.dpc.nsw.gov.au/programs_and_services/social_impact_investment/blog/newpin_continues_to_perform_well_2nd_year_results_now_available

http://www.smh.com.au/business/nsw-social-impact-bond-returns-75-per-cent-20140831-10ajsa.html

http://www.dpc.nsw.gov.au/programs_and_services/social_impact_investment/social_benefit_bonds#nsw_social_benefit_bond_trial

http://yoursay.sa.gov.au/decisions/social-impact-bonds/about

http://ysa-v2-katalyst-com-au.s3.amazonaws.com/production/2013/12/18/00_24_24_430_Building_a_Stronger_Society_web_version_.pdf

From potential to action:bringing social impact bonds to the US

http://mckinseyonsociety.com/downloads/reports/Social-Innovation/McKinsey_Social_Impact_Bonds_Report.pdf

http://mckinseyonsociety.com/social-impact-bonds/