Network by Network: Transforming Health Care in Australasia

Lessons from 'Network to Network 2010: The Inaugural Australasian Clinical Networks Conference'

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1. Introduction

In April 2010, the Council of Australian Governments, with the exception of Western Australia, reached an historic agreement on health and hospitals reform – the establishment of a National Health and Hospitals Network. Against this backdrop of the lead-up to the adoption of health service networks, the *Inaugural Australasian Clinical Networks Conference* was convened in Melbourne in March 2010. With over 280 delegates representing clinical networks from every Australian jurisdiction and from New Zealand, the Conference signalled the recognition of clinical networks on the national stage, and their capacity for transformational change in health care. By recognising the move from acute episodic care to chronic long term care, and addressing the critical importance of care integration and of care pathways, networks have unique opportunities to advise and influence policy and to shape the orientation of future health systems.

The Conference objectives were (1) to strengthen ties between clinical network communities across Australasia with clinicians, consumers and policy makers working together and sharing information to transform healthcare, and (2) to disseminate strategies to improve patient care through the collaborative work of networks and the evaluation of outcome focused approaches. As a network of networks, the Conference would itself provide opportunities for delegates to learn about networks from each other and to support each other, with the possibility of the bigger network becoming greater than the sum of its parts. Four main themes provided a focus for the Conference: establishing and maintaining effective networks, evaluation and outcomes of clinical networks, consumers as network participants and partners in improving care, and connected and collaborative care – how networks are contributing. Welcoming delegates to the Conference, the Secretary of the Victorian Department of Health, Fran Thorn, said:

> Networks provide a very clear and tangible example of how real change in patient care can be delivered through cooperation and collaborative work between clinicians across jurisdictions and across different levels of service delivery, based on support for standards and best practice, and based on evidence.

2. Clinical networks as a catalyst for health reform

Clinical networks may be defined in different ways. Conference Keynote Speaker, Professor Jeffrey Braithwaite (2010), of the Centre for Clinical Governance Research, Australian Institute of Health Innovation, University of New South Wales, pointed to the structure of the set of relationships in networks, and proposed working definitions:

> A network is an interconnected system of things and people comprising nodes and ties linking them.

> A clinical network is a social-professional structure made up of doctors, nurses and allied health staff tied through inter-dependencies such as collegiality, friendship, referrals, function or common interest.

Over the past 15 years there has been an explosion of scientific articles on different types of networks from mathematicians, sociologists, psychologists and others. Braithwaite (as published in Braithwaite,

Runciman, and Merry 2009) outlined the natural features that people have examined that enable us to understand networks and then create spread and sustainable change through them (Table 1). Additional terms for opinion leaders in networks include mavens, boundary-riders, cosmopolites, and brokers.

Table 1: Natural properties and features of complex systems

Properties of complex systems	Healthcare manifestations
Natural networks	Groups of clinicians who interact professionally to share information, support, consult, refer and jointly manage patients
Natural hubs and scale-free behaviour	Opinion leaders in networks who disproportionately influence policies, events or practices
Natural pathways, connectivity and small worlds	Communication channels facilitating the rapid dissemination of information via 'grapevines' and communities of practice
Natural appeal and stickiness	Messages and communications that are convincing and are absorbed among clinical cohorts
Natural propagation and tipping points	The point at which a message, idea or practice whose time has come is readily adopted by a critical mass of clinicians
Natural categories and natural mapping	The identification of clinically relevant problems grouped as accessible data, to facilitate decision-making and solutions to healthcare problems
Natural interest and self-selection	Clinicians with common concerns and complementary expertise voluntarily grouped together to collectively resolve coal-face clinical problems

Source: Braithwaite, Runciman and Merry, 2009.

Patient safety is described by Braithwaite and colleagues (2009), following Rittel and Webber (1973), as a *wicked problem*, one that is a messy, difficult, multi-dimensional problem, not amenable to simple fixes. Although top-down approaches have imposed a plethora of different strategies, policies and initiatives to improve patient safety there are still problems, and current approaches to addressing health system problems have proven inadequate. Politicians and bureaucrats seek to shape clinical practice by pronouncing policy. However, clinical practice is actually shaped by the behaviours and attitudes of thousands of practising clinicians who every day make relatively independent decisions. Hierarchical approaches have largely failed in the face of the entrenched opposing forces of clinical autonomy. Braithwaite argued that we should harness the natural properties of the socio-technical system which come naturally to clinicians through networks, thereby promoting effective self-regulation. Clinicians work best when they are encouraged to flourish in groupings of their own interests and preference, when they are empowered, not directed, and when they are nurtured and influenced by their peers, rather than controlled by others. This is a bottom up situation not readily amenable to top down solutions.

Similarly, says Braithwaite, there are two types of networks: those which are purpose designed, funded or imposed by an authority, and natural networks, composed of relationships amongst clinicians through professional interests, referrals, supports, friendships, communications and advice. Natural networks do not respond well to conventional management or control measures: they emerge spontaneously and propagate or function with little or no externally imposed structure or resources. They can exert powerful and pervasive influences on how systems function and on systems performance. This, said Braithwaite, leads us to the issue of how we can use networks to really tackle

patient safety, as networks are a device for culture change. Braithwaite and colleagues (2009) proposed that this idea be explored through inviting the involvement of expert groups with a natural interest in a problem corresponding to a natural category which compromises the safety and quality of healthcare, thereby harnessing the natural properties of networks and of clinicians' behaviour.

Other Conference speakers argued that hybrid models incorporating features of mandated and natural networks may be more sustainable. According to Keynote Speaker, Professor Andrew Morris, Professor of Diabetic Medicine at the University of Dundee, former chair of the Scottish Diabetes Group, and Lead Clinician for Diabetes in Scotland (Morris 2010), 'networks are not new, they are not rocket science, but importantly, they must not be woolly and free-floating … in our view, the grass roots and the top down have to meet if they are going to be sustainable and reliable'. Although naturally formed networks may work better, they do not always exist, and when they exist they may be fragmented, so that they need to be optimised in some way, resulting in a convergence of the top-down and bottom-up approaches.

Although the current Australian federal health reforms are directed at high level changes, primarily to the funding and management of hospitals, a range of Conference speakers identified the focus of the Conference on clinical networks as the right one to engender some change, as it is clinical networks that deliver care. High level change takes a long time, but people in clinical networks are effecting change day by day. Similarly, a number of conference presentations highlighted the resilience of clinical networks and their capacity for sustainability, in spite of changes in government and associated changes in health policy.

The clinical networks discussed at the Conference included examples from the United Kingdom (UK) – England and Scotland – and most of the clinical networks from the Australian jurisdictions of New South Wales, Queensland, South Australia, Western Australia, Victoria and Tasmania. In the United Kingdom, network-based models of service delivery were adopted as a mode of organising UK public services following the 1997 election of the Labour government. Keynote speaker and Director of the Cancer Programme for the Southeast London Integrated Cancer Centre, Dr Fran Woodard (2010), described the different UK network models as functioning to provide integrated, cost-effective, equitable services and the best clinical outcomes, and to provide improved patient experience in the population from the perspective of an entire patient pathway. Such pathways must be designed to be highly specialised to local patients' needs and to provide optimal service configurations. UK clinical networks include commissioning networks, or purchaser networks, and provider networks of clinicians working together, and the earlier model of governed partnerships which are looser, with more of an advisory role. Woodard stressed the importance of integration in transforming health care for quality, as highlighted in the US Institute of Medicine's Report on *Crossing the Quality Chasm (2001)* and from Woodard's direct experience in the UK Modernisation Initiative, a large whole-pathway change program across South-East London which used networks to work across the pathway to deliver change (Greenhalgh et al. 2008).

As described by Professor Andrew Morris (2010), Scotland has had *managed clinical networks* (MCNs) since 1998, and now has 28 national networks, 24 regional networks and over 100 local board networks. MCNs are defined as: 'one way of helping to build effective partnerships which encourage services to

work in a coordinated way across traditional organisational and professional boundaries to tackle complex problems, which cannot be resolved by any one area of the service in isolation'. As every NHS Health Board is a single fund-holder from primary to secondary to tertiary care and prevention, indicated Morris, it makes it much easier to adopt networks in Scotland than in Australia, because there is no need for transactional negotiations over responsibilities. In Scotland, policy makers said they would support the initial grassroots establishment of networks, by adding support and structure. Thus they defined the *core principles* for Managed Clinical Networks (MCNs) in 2002, and required networks to meet all of the core principles in order to be recognised as MCNs (Table 2).

Table 2: 'Core Principles' for Managed Clinical Networks in Scotland

- Clear management / leadership arrangements
- Defined structures – organisational and service
- Statement of goals for clinical and service improvements
- Commitment to evidence-based practice
- Commitment to research and development
- Multidisciplinary – clarity of roles
- Support for patient representation
- Policy for dissemination of information to patients
- Commitment to education / training / continuing professional development – new ways
- Audit and open review of results
- Annual report – public
- Exploration of improving value for money

An integral part of each MCN must be a quality assurance program, acceptable to the NHS Quality Improvement Scotland which has a role in ensuring the consistency of standards and quality of treatment across all MCNs. Networks have the service quality defined by multi-professional groups working with patients, with peer review visits as part of the quality assurance program. National level clinical guidelines are issued through the Scottish Intercollegiate Guidelines Network. Morris described how their diabetes MCN has been able to link patient care pathway events across a whole system for all patients, through the pivotal role of e-health. In keeping with the important tenet, 'If you cannot measure it, you cannot improve it', attention was directed at developing the diabetes dataset, with preset audits conducted electronically on the dataset for patients. Statistical process control charts, a quality improvement methodology, were based on real time information delivered to patients. Linking data was the key to seamless care. A patient-controlled record, accessible over the internet, with print versions also available, empowered patients in Scotland to follow-up overdue clinical assessments. With as much as 95 per cent of diabetes care being self care, on-line access enabled patients to take an active role in their own self-care.

Although there have been five Health Ministers in Scotland since 2000, the networks have held the 'same script', according to Morris (2010). The Diabetes Managed Clinical Networks have provided the vehicle for delivering systematic improvement in care, for example in improving diabetic retinopathy screening and in achieving a significant reduction in major extremity amputations in patients with

diabetes over a seven year period from 1 January 2000 to 31 December 2006 (Greene et al. 2009; Schofield et al. 2009). 'Systematic improvements in care are achievable nationally', says Morris. He describes networks as providing the vehicle for a common path of delivery across governmental, professional, industrial/organisational and economic approaches to improving patient care.

3. Development of clinical networks in Australasia

Several authors (Braithwaite and Goulston 2004; Southon, Perkins, and Galler 2005; Stewart, Dwyer, and Goulston 2006) have described the development of the first Australian models of clinical networks in New South Wales (NSW). Studies have identified the potential for networks in Australasia (Southon, Perkins, and Galler 2005), and the role of a community of practice in emergency medicine (Huckson and Davies 2007). In 2001, the NSW Greater Metropolitan Transition Taskforce sought to address specific clinical quality improvement issues by re-engaging clinicians in the governance and planning of health services through clinical networks. Subsequently in November 2004, the NSW Transition Taskforce merged into the NSW Greater Metropolitan Clinical Taskforce (GMCT), with the GMCT having clinician-led responsibility for ensuring clinician and consumer involvement in the development of networks and plans for clinical services across the greater Sydney metropolitan area.

Following recommendations in the report to the NSW Government resulting from the Special Commission of Inquiry into Acute Care Services in NSW Public Hospitals, led by Peter Garling SC (2008: pp. 4-5), the GMCT with its 22 Clinical Networks has now been subsumed into the state-wide NSW Agency for Clinical Innovation (ACI). In December 2009, the ACI was constituted under the NSW Health Services Act 1997 as a statutory health corporation to be governed by a Board, and to report to the Director-General of NSW Health and the Minister for Health (NSW Parliament 2009; NSW Minister for Health 2009). As one of the 'four pillars of reform' identified by Garling, the agency has been granted a vastly expanded role to work with other NSW public health organisations to improve health care for patients and the public by rapidly developing and spreading new ways of caring for patients which represent evidence-based practice.

The National Health and Hospitals Reform Commission (Australian Government National Health and Hospitals Reform Commission 2009: pp. 124-125) drew attention to problems with the disenfranchisement of clinicians around Australia, particularly in the public sector. Recognising the effectiveness of the GMCT approach in re-engaging clinicians, a majority of Australian states have also established clinical networks. The Final Report of the Queensland Health Systems Review (Forster 2005) recommended the establishment of clinical networks as a cornerstone of the new decision-making and leadership structure of Queensland Health. Following government commitment to networks in the Government's Action Plan (Queensland Government 2005), Statewide Clinical Networks were established. At the time of the conference, there were 12 Statewide Clinical Networks (and several Service Networks) acting as peak advisory bodies to government.

After a major review (Western Australia Department of Health 2004, 2005), Clinical Networks were implemented in Western Australia in December 2006, to enable a new focus across all clinical disciplines

towards prevention of illness and injury and the maintenance of health. In late 2006, the name was changed to Health Networks to reflect the focus across the continuum of care from prevention, to palliation in all health settings. The current 17 networks, which report directly to the Chief Medical Officer, have actively involved consumers as well as clinicians, and the private sector as well as the public health sector. In Victoria, in line with the Victorian Health Reform targets for 2007-08, the first five state-wide Clinical Networks were established in 2007, followed by an additional two networks (Victorian Department of Human Services Metropolitan Health and Aged Care Services Division 2008). These networks have focused initially on high volume, high risk clinical areas.

Building on one of the recommendations of the South Australian Generational Health Review (Menadue 2002) and addressing concerns about the disenfranchisement of clinicians from the planning processes, in 2007 South Australia developed a framework for Statewide Clinical Networks (South Australian Department of Health 2007). Nine networks report directly to the Chief Executive of the Department. They engage clinicians, support and advise the Department of Health, for example, by providing advice on the South Australian Services Plan, and assist in implementing reforms. Tasmania's Health Plan (Tasmania Department of Health and Human Services 2007) signalled that government's intention to establish ten Clinical Networks as enablers for a sustainable Tasmanian health system. In 2008, Tasmania formed a Clinical Advisory Council as the governance body for all Clinical Networks (Tasmania Department of Health and Human Services 2009). Three Clinical Networks have now been established, two are under development and a further two are proposed for future implementation.

In New Zealand (NZ), Regional Cancer Networks (RCNs) work across organisational boundaries to promote a collaborative approach to service planning and delivery. Four regional cancer networks are based around district health board geographical coverage areas, and the patient flow to the regional cancer centres. Their role is to advance the New Zealand Cancer Control Strategy (New Zealand Ministry of Health and the New Zealand Cancer Control Trust 2003) by fostering working relationships between the RCNs, the Ministry of Health and the Cancer Control Council through the regular NZ RCN Forum.

Clinical networks are both old and new, according to Adjunct Professor Chris Brook, Executive Director, Integrated Care, Victorian Department of Health (2010). Although they may have been called 'advisory committees' and not 'networks', over many years most Australian jurisdictions have had some form of clinical networks. Brook sees clinical networks as 'an important feature of the modern way in which we deal with health system issues', with great opportunities to better inform both policy makers and the drivers of health care systems. Victorian Clinical Networks are described by Brook as being based around disease-type, and having the common features of: (1) some form of management structure, (2) being multidisciplinary - bringing together a wide variety of professionals across all walks of life and (3) including patients.

According to Brook (2010), networks provide an organised approach to clinical care, analogous to organised approaches to systems management, with an extension of the same kind of thinking to the very thing for which healthcare services exist – clinical care, and its care for people. Brook sees networks as not only allowing a focus on clinical issues, but also engaging in the various attributes of clinical

leadership, collaboration, consumer involvement and the dissemination of evidence-based practice. Dr Simon Towler, Chief Medical Officer, Western Australia, acknowledged that while networks in Australasia may have a diversity of goals, we need to understand how to support each other's different activities, and not become obsessed with any particular network model (Towler 2010).

4. Establishing and maintaining effective networks

Based on the United Kingdom's experience with different models of clinical networks, Woodard (2010) argued that regardless of the type of clinical network, which may vary according to the particular specialty of the network, or may be used to cover a multitude of different things in different ways, the main question shaping the network is: 'What is it trying to achieve?' Woodard identified the key issues for effective networks as accountability, responsibility, funding, and clarity of purpose, with the biggest driver being information. To be successful, networks have to build trust and partnership across organisations and across professions (Woodard 2007). Woodard stressed the importance of being patient-centred and harnessing a strong patient involvement voice to ensure that consumers: 'have a voice at the table, to seriously change how healthcare is delivered'. Not only do networks need to be truly sensitive to the patients' needs, but they also need to involve patients effectively so that services are designed around their needs, with care closer to home, and with a constant focus on patient-centred outcomes to drive change. From the experience of Woodard, senior executive involvement in network management is essential to keep participants engaged.

Table 3: Network Mechanisms for transformational change

Coordinating Mechanisms	Control Mechanisms
Protocols and care pathways that transcend boundaries	Selection of staff for their ability and willingness to work across boundaries
Cross-functional meetings and events	Performance measurement in relation to cross-boundary work
Cross-functional boundary spanning roles	Rewards and incentives for this dimension of work
Information systems that transcend boundaries	Cross-functional conflict resolution

If they are to be effective and to have influence at policy and health service levels, networks need a strong clinical focus and clinical leadership, says Woodard (2010). To build long-term sustainable clinical networks, the style of leadership must be *involvement* leadership, with stakeholder engagement and collective collaborative working, and not autocratic, hierarchical leadership. A *collective voice* is needed, working with others to be more effective, so that the sum is greater than the parts. Woodard agreed with Braithwaite on the critical importance of key roles in networks – portfolio roles, bridging roles, boundary spanners, and clinical champions. Woodard urged delegates to use strategies to keep people engaged and involved across the journey, as the clinical network and the pathway approach is not a moment in time. Woodard identified four coordinating mechanisms and four control mechanisms that need to be considered if networks are to be effective in delivering transformational change (Table 3). She raised the issue of addressing how to achieve clinical integration with research: 'How do you get your research bench-lined, then from the bench to the patient and back to the bench, and get that to happen much more quickly?'

4.1 Overriding strategic issues

Issues raised in relation to the maintenance and sustainability of networks include those posed by Brook (2010) to delegates: 'Are the networks still in the right areas? How many networks should we have? Are there areas where additional networks could be effective?' Victoria has chosen disease-type, but should clinical networks be thought about in other ways? There is also the question of sustainability and sustaining change. Of critical importance, networks need to be right 'on song', giving persuasive and simple pictures of how change will look. Brook identified a number of challenges for delegates (Table 4):

Table 4: Network Challenges

- What are the measures of success of networks?
- What does patient-centred care mean, and how do you collectively contribute to that?
- How do you embed system changes, but avoid networks that are just another structure?
- Should you always question the ongoing role of networks in general, and networks individually – should they just continue forever? Is there an argument for saying that they have a certain time in which they should change?
- What are the relationships of clinical networks with government policy makers? Such relationships can be good to variable, in part because government has its own interests, reflected in the political prioritisation and resourcing of one disease in contrast to others.

Other speakers recognised the need for clinical networks to work within a political framework, and the importance of collaboration between corporate management and clinicians, to help 'corporate' to work better on behalf of consumers. For example, the Queensland Cancer Clinical Leadership Group has a direct linkage to the Deputy Director-General in Queensland Health (Walpole, Whitfield, and Yeo 2010). There was recognition that corporate management cooperation with clinical networks was essential at both state and regional levels.

South Australian Chief Medical Officer, Professor Paddy Phillips, argued that networks have 'helped to get people together to talk about issues that are real issues that have a high probability of implementation'. Dr Philip Tideman, Clinical Director of the South Australian Integrated Cardiovascular Clinical Network, and Deputy Regional Director of Cardiology, Southern Area Health Services, South Australia, commented in the Conference Cardiac Network Meeting that, for a variety of reasons, including clinician buy-in, clinical networks have to be tailored to local circumstances to fit state health service structures, populations, resources and existing referral patterns. Although the networks must be based on the same principles and standards of care, nationally determined clinical guidelines, and other features, it is up to the individual networks to determine how best to undertake implementation for their particular circumstances. In South Australia, for example, the state-based networks are centralised, whereas in Victoria they are decentralised. Victoria differs from South Australia in having a very well developed base-hospital system. In Victoria, the cohort of resident medical staff rotates from the metropolitan hospitals to staff the base-hospitals at the senior medical officer level, whereas in South Australia there are possibly only two similar base-hospitals, Whyalla and Mt Gambier. Tideman also identified the issue of workforce, and whether networks should consider this topic.

4.2 Funding of networks

Financial support, and the on-going funding of networks, emerged as a central issue. For example, in the Conference Cardiac Network Meeting, Tideman highlighted funding as the most important issue for networks, suggesting that new networks should not source funding on a program basis, but instead source funding from State Health Departments, as the networks would then be more likely to become sustainable. When networks are established, says Tideman, the most important thing is sustainability, and there is no point in implementing network recommendations if it is not going to be possible to continue them: 'The system actually saves money at the end of the day, and it has to be part of recurrent funding'. Arrangements vary between states, with some clinical networks holding funds and some networks not having direct funding. Funding can lend power to the networks and can facilitate the implementation of network initiatives, for example in increasing workforce capacity (Walpole, Whitfield, and Yeo 2010).

4.3 Information and e-health

Morris (2010) described the pivotal role of informatics in 21st century health care, and argued that informatics is 'the glue' for the health system. In Scotland, where the unique patient identifier is 40 years old, the integrated medical record forms the basis for the total information landscape: 'Collect data once and use it often.' In the diabetes MCN there is quality support from a team to ensure the quality of the data, and strict confidentiality and access requirements. In Scotland, data linkage is achieved across the entire health system for clinical, administrative and business systems for a healthcare domain view, with tens of thousands of items. Then, it is possible to link patient care pathway events across a whole system, and merge them into patient streams and healthcare events treated, providing real time information. The quality improvement methodology of statistical process control charts is based on real time information on care delivered to patients. Morris contrasted this data linkage with the current Australian situation with a high number of heterogeneous datasets which are all siloed, and vertically filled: laboratory, pharmacy, administration, referrals. There is no linkage or alignment to patient care, patient journeys or outcomes and no real linkage to financial cost data. Therefore Australian policy makers would be making decisions with a very limited view of the system. Clinicians need to grapple with e-health, says Morris, and they need to be the champions of this *disruptive technology.*

A number of Australian speakers also recognised e-health as an enabler for networks. They commented on the importance of information management and data systems, including adequate resources, and the allocation of clear responsibility for information management. Tideman (2010) raised concerns about the dearth of quantitative data in clinical networks, 'without data – electronic data in this day and age – we cannot achieve the outcomes we aspire to'.

4.4 Network objectives and mechanisms

Clinical networks in Australia have addressed a range of objectives. A review of the 100 conference abstracts (Victorian Department of Health 2010) shows the frequency of key objectives, with some authors reporting more than one objective. The objectives can be categorised as follows:

(1) Improving clinical practice and the delivery of care (e.g., through developing and implementing models of care): *33 abstracts;*
(2) Developing quality improvement programs and improving quality of care and patient safety (e.g., through the implementation of clinical guidelines, improving patient care and outcomes by ensuring consistent clinical practice, developing a safer culture, reducing metropolitan/country disparities in outcomes): *16 abstracts;*
(3) Providing clinical education: *18 abstracts*;
(4) Improving or providing patient access to services (e.g., developing service planning and delivery, and integrating community care for the elderly to reduce inpatient bed utilisation): *30 abstracts;*
(5) Improving the coordination of services and collaboration: *31 abstracts*; and
(6) Enhancing consumer participation, or informing consumers: *9 abstracts.*

From an administrative perspective, the establishment of networks and the implementation of network initiatives may involve the development of interdisciplinary governance frameworks, the forming of steering committees and working groups, the negotiation of contracts, management of timelines, and recruitment of any staff required. Clinical networks have employed a range of strategies to improve clinical care, as listed in Table 5.

4.5 Characteristics of effective networks

Presenters identified the keys to the success of clinical networks as including executive support, a clear governance structure (e.g., with the Victorian Stroke Clinical Network, all sites have a Steering Committee), stakeholder management, local champions, communication, and strategic work plans. Stakeholder engagement includes: communication, collaboration, inclusiveness, and consultation. Woodard argued that attention needs to be paid to relationship building and trust development, for example through face-to-face workshops, or team study visits to innovative clinical practice sites. Clinical engagement is essential and it is important to continue to maintain the enthusiasm of clinicians. Such engagement is critical for longer term sustainability, particularly if funding is not ongoing. There may be a limit set to the number of networks that members may join: for example, in South Australia clinicians may join a maximum of three networks (Phillips and Horne 2010). In New South Wales, the success of the Stroke Services, NSW is attributed to the effective implementation of a governmental health policy through the development of a strong partnership between stroke clinicians and health service management (Longworth, Day, and Pollack 2010). Speakers' recommendations for effective networks are summarised in Table 6.

Table 5: Strategies Used by Networks

Mechanism	Example
Review of current status	Use of Program Logic to identify current activities from all stakeholders, e.g., Cancer Australia's state-based CanNET projects (Thomas et al. 2010).
	Gap analyses and surveys of current service provision and utilisation, and consumer surveys to assist with determining key network priorities, and developing work plans, e.g., NSW GMCT Clinical Networks (Eisman et al. 2010); Victorian Stroke Clinical Network (Denisenko, Mollo, and Bladin 2010); mapping of services, e.g., cancer services mapping in Southern Melbourne (Davis et al. 2010).
Specialised clinical databases to measure clinical outcomes	The Cardiac Surgery database in NSW, implemented in 8 cardiothoracic units (Carr et al. 2010). The NSW Endocrine/Diabetes Network has NHMRC approval to collect Blood Glucose Level>14 data in EDs. With 16 hospitals involved, identified cases receive a formal notification to the diabetes centre (Donovan et al. 2010). The Acute Coronary Syndrome Referral Manager Database for Queensland Central Region (Walters et al. 2010). The need for regular reporting in agreed format was noted by the Victorian Stroke Clinical Network (Denisenko, Mollo, and Bladin 2010). Minimum datasets of cardiac outcome and process indicators for cardiac databases were implemented by the SA Statewide Cardiology Clinical Network, following development of a business case (Phillips and Horne 2010). WA Health Networks, e.g., the Cardiovascular Network, have had significant input into extending the accessibility of the state e-health system (Bloomer 2010).
Developing clinical guidelines, models of care and pathways, standards of care	E.g., formalising networks of services through the Clinical Service Capability Framework (CSCF) and Services Plan for the Queensland Cancer Clinical Leadership Group (Walpole, Whitfield, and Yeo 2010). WA Health Networks have developed Models of Care (Henderson 2010). In SA, the Integrated Cardiovascular Clinical Network used a state-wide planning policy process to reach agreement with all cardiologists regarding the standard of care for a patient in rural SA (Tideman, Trimacco, and Simpson 2010).
Establishing integrated evidence-based clinical pathways	E.g., the SA Integrated Cardiovascular Clinical Network established integrated evidence-based clinical pathways covering diagnosis and risk stratification, treatment and triage to a tertiary centre (Burrell, Murgo, and Calabria 2010) .
Service improvements and innovations	Point-of-care pathology was introduced by the SA Integrated Cardiovascular Clinical Network (Bubner et al. 2009), and is on the agenda for the WA Cardiovascular Network (Bloomer 2010). The SA Network also established Cardiology Service Delineation and a Plan across all health services and hospital levels, and established ambulance diagnosis of ST elevation myocardial infarction (STEMI) (Phillips and Horne 2010). Queensland established a centralised coordinated management system for acute coronary syndrome patients (Walters et al. 2010). Victoria is improving the assessment of chest pain in its emergency departments' project (Kelly et al. 2010).
	The NSW Home Enteral Nutrition Service has made access available through a funding contract with NSW Health (Pang et al. 2010). In 2008, a NSW Rural Spinal Cord Injury Service Model was developed and funded by NSW Health to increase access to specialised care for rural communities (Johnson et al. 2010). The NSW Severe Burn Injury Service (SBIS) has implemented Transfer Feedback Forms to provide feedback to Medical Directors of Emergency Departments that refer burn injured patients to an SBIS unit, and to the SBIS units (Darton and Millis 2010).
	The Southern Melbourne Integrated Cancer Service, one of 9 Integrated Cancer Services across Victoria, jointly involves major cancer treatment providers in the southern metropolitan region, and has provided cancer-related multidisciplinary teams with change management expertise and administrative support to enhance collaboration across tumour streams (Wild 2010).
Developing a business case for access to services	The NSW GMCT Urology Network submitted a business plan to NSW Health for funding access to brachytherapy for public patients(Prudom, Brooks, and Bucci 2010).

Table 5: Strategies Used by Networks (Continued)

Mechanism	Example
Changing state legislation	The WA Cardiovascular Health Network will amend legislation to include nursing protocols for thrombolysis under the WA Poisons Act, 1965, for nurse administration to indigenous patients, with the 'high risk foot' an issue for indigenous health (Bloomer 2010).
Education, training and support	The Victorian Stroke Clinical Network held Stroke Education Seminars at all sites (Denisenko, Mollo, and Bladin 2010).
	The NSW Severe Burn Injury Service Network developed the NSW Multidisciplinary Burn Education Program, including lectures organised for teams. Since 2006 over 7 000 clinicians have received burn education (Darton, Harvey, and Elfleet 2010) .
	Educational tools include use of websites and discussion forums. The NSW Bone & Marrow Transplant Network has separate discussion forums for nurses, doctors and scientists, with the nurses being the highest users. They have 350 users on their new website (Trickett, Ahern, and Morrow 2010). The NSW GMCT Ophthalmology Network produced an Eye Manual for hospitals and the GMCT Spinal Network produced an on-line Seating Manual (Carr et al. 2010). The NSW GMCT Urology Network produced a Urology Nursing Toolkit (Prudom and Williams 2010). The NSW Spinal Network developed educational tools for Autonomic Dysreflexia (Middleton et al. 2010).
	Webcasts for advanced trainees and doctors, videos (Collins, Owen, and Morrow 2010), training sessions, e.g., for the NSW Central Line Associated Bacteraemia – ICU Project (Burrell, Murgo, and Calabria 2010).
	The SA Cardiovascular Clinical Network developed a state-wide rotational training program for advanced trainees, and collaborated with SA Universities to develop a state-wide cardiac nursing training curriculum (Tideman, Trimacco, and Simpson 2010). Nursing toolkits have been developed , e.g., GMCT Urology Network (Prudom and Williams 2010). WA provides training for the Medical Senate and for the Citizen Juries (Towler 2010).
Lobbying	The NSW GMCT Cardiology Clinical Network lobbied for expansion of reperfusion strategies (Carr et al. 2010); and the NSW Home Enteral Nutrition Service helped with lobbying the Federal Government for inclusion of the issue on the Australian Health Ministers Council agenda (Pang et al. 2010). In 2000, the NSW Statewide Ophthalmology Service developed guidelines for childhood vision surveillance and screening, and successfully lobbied for continuation of this practice by NSW Health (Silveira and Steen 2010).
Badgeing of clinical network activities	With the Medication Advice Card of the Western Australian Cardiovascular Health Network, every cardiologist in the state is aware of the network because they have Medication Advice Cards, with network details provided on the back (Bloomer and Goodman 2010).
Communication strategy	An effective communication strategy may include: forums, seminars, meetings, teleconferences, websites, newsletters, email, telephone calls, reports up and down the network, site visits. Mass emails can be used: e.g., with the WA Cardiovascular Network, having a formal clinical network means that there is a large extended database of over 500 people on the network for communications (Bloomer 2010). For its communication system, the SA Integrated Cardiovascular Clinical Network introduced 36 PDAs, a fax-mobile, e-fax, redundant paging/SMS service (Tideman, Trimacco, and Simpson 2010).
Collaboration	Work in the Queensland Statewide Maternity and Neonatal Clinical Network has stressed the importance of collaboration between corporate and clinicians (Koh et al. 2010). Developing the collaboration for the NSW Central Line Associated Bacteraemia – ICU Project (CLAB) included: training sessions, teleconferences, websites, newsletters, emails, telephone calls, reports up and down the network, site visits (Burrell, Murgo, and Calabria 2010).
Consumer participation/ consultation	The NSW GMCT consumer and community participation program actively recruits members of the NSW community (patients, carers and NGO representatives) to participate in clinical networks (Eikli, Needham, and Watts 2010). The Southern Melbourne Integrated Cancer Service has encouraged consumer participation (Liersch 2010) and the Health Consumers' Council WA provides a model for partnership with networks to meet consumer involvement objectives (Drake 2010).

4.6 Leadership

A number of speakers underscored the importance of network leadership through the appointment of a suitable network chairperson, with the appropriate leadership skills and attributes. The converse was noted by some speakers whose networks had experienced variability in the capability of chairpersons to manage the role. Woodard (2007) argues that to be effective, to work across clinical networks, there needs to be a different type of leadership, employing a collective voice, having an *involvement leadership* style, with shared leadership between clinicians, managers, consumers and others, as appropriate. Thus, their network spent considerable time with clinicians concentrating on interpersonal skills, influencing and negotiating expertise, and conflict management skills. In addition, the NHS has developed a Medical Leadership Competency Framework (NHS Institute for Innovation and Improvement and Academy of Medical Royal Colleges 2009) to assist in the development of critical clinical leadership skills. In Queensland, the Clinical Practice Improvement Centre (CPIC) has developed training programs for heads of clinical networks on leadership and teamwork in a network setting. Speakers agreed on the importance of having a clinician heading up not only the clinical network, but also particular projects.

Table 6: Recommendations for effective networks

- Create a culture of unification
- Establish a clear governance structure
- Avoid network 'capture', e.g., by a network or steering committee member with a single focus
- Stay fresh – succession is important
- Recognise the need for some variability across organisations
- Have a clear task-focus to ensure continued clinician engagement
- Adhere to a clear life-cycle for projects
- Develop effective communication strategies
- Ensure strong leadership from clinicians and from the executive sponsor
- Organise sufficient resources to support activity, including network development management support
- Bring discussions back to a patient-focus
- Include consumers in the network to provide balance to clinicians
- Establish ground rules and business rules
- Promote inter-professionalism across the 'tribes'
- Have an effective network manager
- Secure project funding for the networks

4.7 Challenges

Speakers identified a number of challenges associated with working through clinical networks. For example, clinical networks are not established for every specialty area, and specialty areas not covered may perceive the lack of influencing opportunities. Some clinical networks experienced delays or impediments to implementation of initiatives caused through prolonged ethics approval processes. Other issues raised included the need to achieve greater involvement of rural clinicians in networks, and

of the indigenous population, the issue of resourcing across networks, difficulties experienced by networks in providing support needs, and the issue of addressing 'mature' networks. These challenges highlight the need for further research into networks directed at the development of a framework and tools that can be used to evaluate networks for their effectiveness and sustainability, and this is the objective of current research being undertaken by Braithwaite and colleagues (Braithwaite et al. 2009).

5. Evaluation and outcomes of clinical networks

Opting for external evaluation of their clinical networks, in 2007-08 the Western Australian Department of Health (Mullen et al. 2010) commissioned an evaluation of their state-wide networks, with another evaluation conducted in 2009, of the 14 Health Networks and of the support in the Department. The Department is broadly evaluating the overall effectiveness of networks as a concept. There is a need for stakeholders to be clear about what is meant by external evaluation, and whether it can be completely separate from an internal process. The limitations of standard government procurement processes were noted, in relation to commissioning a complex evaluation. For example, while the tender specification must be flexible enough for the evaluation, there also needs to be an appreciation that it is difficult to assess like for like. Further, evaluation may be affected by timing issues. Between the time of the brief going out and the conduct of the evaluation, the actual project may have changed. There is also complexity in evaluating all the layers; for example, in Western Australia the evaluation covered up to 14 networks, as well as the Health Networks Branch in the Department. One approach could be to appoint the evaluation agency over a number of years, with the report being posted, the learnings examined, and the Department benefiting from the input of this external voice. An evaluation of WA Health Networks and their work on Models of Care (Donnellan, Slattery, and Henderson 2010) created an evaluation framework, including a template for a state-wide survey of 65 projects relating to chronic disease. The evaluators noted that there was a synergy between data collection for reporting and for guiding implementation support activities.

In Queensland, an internal assessment process was initiated in 2006, and repeated in 2008 and 2009, to evaluate 14 Statewide Clinical Networks on their progress over a 12 month period (Mullen et al. 2010). All Clinical Networks are governed by a Clinical Networks Policy v2.0 and Implementation Standard v1.0. Networks were evaluated under categories set out in the standard. The survey gave the Department feedback on how the networks were progressing and provided feedback to the networks. The South Australian Integrated Cardiovascular Clinical Network used an outcomes analysis to assess the intervention pre (2002) and post (2004) network implementation (Tideman, Trimacco, and Simpson 2010).

In a qualitative study of NSW GMCT Clinical Networks by the NSW Sax Institute (McInnes et al. 2010), 25 participants were interviewed to capture the language of network participants, including their description of successes and barriers and how they construe outcomes of successful clinical networks. Results suggested that indicators of successful networks included *giving clinicians a voice* and *facilitating policy change*. Determinants of positive outcomes included the presence of an effective network manager, sufficient time and resources to support network activities, an executive coordinating body

and the involvement of multidisciplinary stakeholders. On the other hand, barriers included limited time and resources and unsupportive local health services. The outcomes clustered around different themes, such as interdisciplinary collaboration. A network was seen as successful if it brought together doctors, nurses, and allied health professionals from a large geographical area, if there were partnerships and engagement with consumers, area health services and the Department of Health, and engagement and influence with policy makers. Markers of success included: improving services and models of delivery of care, optimising health outcomes by tackling clinical variation and quality and safety, enhancing communication and dissemination across sectors and providing a voice to nurses and allied health. Participants thought that building sustainability was an important outcome, an issue also raised by other conference speakers. Therefore one measure of the success of a network would be its continuation. Participants viewed the measurement of outcomes as difficult, with some outcomes being measurable, and others unmeasurable. Haines (2010) reported on the overall approach by the Sax Institute to researching clinical networks with the NSW GMCT.

Cancer Australia funded the CanNET program to develop clinical networks between cancer care providers in regional and metropolitan areas across Australia. The CanNET Victorian Project reported to delegates on their evaluation (McKenzie et al. 2010). Tools used in the evaluation included program logic and accompanying matrices, a dissemination log, and the use of a Network Assessment Questionnaire, a Partnership Self-Assessment Tool from the Nuffield Institute for Health (2000), and a Sustainability, Capacity Building and Generalisability Tool (Siggins Miller 2009). The latter tool was used on members of their Steering Committee, their governance group and also some of the senior clinicians within the Network. Surveys were conducted of consumers involved in the project, and clinicians and members of the Steering Committee. One of the evaluation issues identified was that given project timelines it was not possible to look at long-term clinical outcomes and impacts from these projects.

6. Consumers as network participants and partners in improving care

Wooding (2010) identified patient involvement, engagement and leadership as critical to network success. Patients must be seen as leaders – leading, chairing groups, and part of the governance of projects. The power of evidence-based, co-design is very important. This involves requesting advice from patients who have been through the service recently. Margaret Murphy, patient advocate from Ireland and a member of the World Health Organisation (WHO) Steering Group, Patients for Patients' Safety, argued (2010) in support of the WHO Patient Safety Program. This program advocates for a culture of safe care that is more inclusive of the patient and family, and it now has over 200 champions in 48 countries, and 13 collaborating organisations.

From a consumer's perspective, Murphy reiterated the plea made by Dr Wooding for 'looking through the patient's glasses', because patients often see through a different lens, and see things that busy health care workers often miss. The patient (and the family) is also the constant factor in the continuum of care, says Murphy. This continuing presence of the patient, together with recognition of the patient, both as a repository of critical information and as a valuable resource in the care plan, are the most compelling arguments in favour of patient and family involvement. Care is only patient-centred when it

is perceived as such by the patient. That is the litmus test, and it is a useful validation tool in relation to the implementation of guidelines, processes and protocols. Patients, health professionals, policy makers and health care leaders should be working together, most particularly on efforts to prevent avoidable harm, on transparency and disclosure following adverse events and in designing and implementing just reporting and learning systems. According to Murphy, such disclosure is not about accepting blame, it is not about apportioning blame, it is about integrity and about being truly professional, acknowledging that adverse events impact not alone on the patient and family, but also on clinicians.

In addressing the question, 'How can my organisation involve patients? Which areas would fit best?' Murphy responded, 'We patients belong everywhere – nothing about us without us. And we will embrace the opportunity to partner and collaborate.' She argued that the way forward has to be through partnership and collaboration, not just consultation, with patients involved from the start and right through implementation. It does require a level of openness and transparency resulting in the identification of errors for improvement, and that shift requires that monitoring, evaluation, testing of systems and processes and especially behaviours are viewed as positive interventions with which to cooperate, not as policing measures to be resisted. Murphy also argued for the patient's voice in health professional education, citing a report from an international conference on this topic held in Vancouver, Canada in 2005 (Farrell, Towle, and Godolphin 2006). In closing, Murphy quoted Sir Liam Donaldson, Chair of the World Alliance for Patient Safety, 'To err is human, to cover up is unforgiveable, but to refuse to learn is inexcusable'.

According to Morris (2010), 'When consumers sit next to clinicians, stating the value of networks, it is difficult for health policy makers to ignore it.' He described consumer involvement as critical, and identified this as an area where Australian networks are doing well. Maxine Drake (2010) presented the Health Consumers' Council of Western Australia as a successful model for consumer partnerships with networks, to meet consumer involvement objectives, as it provides an independent consumers' voice. She argued for the establishment of similar organisations in every state to help involve the non-government organisations in each state and to teach consumer advocacy. The NSW Agency for Clinical Innovation has invited members of the NSW community to join and participate in Clinical Networks – their community members include patients, carers and representatives of non-government organisations. Consumers are offered a seat at the table as equal partners with clinicians. Cancer Australia's CanNet projects also included a focus on achieving consumer participation in cancer clinical networks (Shand et al. 2010).

7. Connected and collaborative care – how networks are contributing

For Professor Paddy Phillips, Chief Medical Officer, South Australian Department of Health, the most significant network achievement was a 'sense of cohesion', as well as a voice with decision-makers. Networks have learned from each other, for example, the WA Cardiovascular Network acknowledged learning from the SA Statewide Cardiology Network (Bloomer 2010). Where an interstate network has successfully implemented changes, such examples can provide leverage to clinical networks in other states in achieving similar changes. For example, as Queensland has implemented point-of-care testing

in the cardiovascular area, this experience can provide evidence to support implementation through networks in other states (Bloomer 2010). Other speakers commented that they tried to work in with networks in other States, with their activities, and that they are happy to learn from them (Walpole, Whitfield, and Yeo 2010). For the WA Cardiovascular Network, a proctorship in Melbourne involved bringing the whole team over for training, including nursing staff, anaesthetists, and cardiac surgeons (Bloomer 2010). Some speakers noted challenges with getting the disciplines to work together with inter-team functionality – even if it is possible to get all the disciplines together, it does not necessarily mean they will work together as a team.

8. Discussion

The Inaugural Australasian Clinical Networks Conference provided a wide range of international, national and local presentations from speakers directly involved in clinical and health networks. It provided opportunities to strengthen ties and to share information across networks to improve care. Many speakers viewed clinical and health networks as a fundamental vehicle for clinical improvement and change and for maintenance of that from the ward, to the boardroom and into the community. Presentations addressed the factors associated with developing and sustaining effective networks, the issues to address in evaluating clinical networks, how to achieve active participation from consumers in networks, and how to improve network collaboration and connections.

9. Conclusion

In concluding comments, Braithwaite advised delegates that however networks start out, they need policy support and funding, consumers must be part of them, and networks should not be just another restructure, 'Remember they are a device for culture change, don't choke your network – let it thrive'. Towler challenged delegates to be bold, to learn from the lessons presented by Woodard on successful networks in the United Kingdom, to learn how to engage people, and how to build relationships to get the commitment to achieve change. Clear acknowledgement of networks in health policy with delegated authority was recommended by Morris, so that they can deliver on reliability and durability. Delegates learned about the essential role of measurement and metrics of success for health targets, and there was recognition that it was time for networks to harness information science. Finally, at the close of the Conference, Kate Needham, NSW Agency for Clinical Innovation (ACI), invited delegates to the next Australasian Clinical Networks Conference which the ACI will facilitate in 2012.

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11. Appendices

Keynote Plenary Speakers

- Professor Jeffrey Braithwaite: Director of the Centre for Clinical Governance Research and Professor, Australian Institute of Health Innovation, University of New South Wales, NSW, Australia

- Professor Andrew Morris: Professor of Diabetic Medicine, University of Dundee, Scotland

- Ms Margaret Murphy: Member, Steering Group, Patients for Patient Safety Programme, WHO Patient Safety.

- Professor Paddy Phillips: Chief Medical Officer, South Australian Department of Health and Chair of the South Australian Clinical Senate, and Chair of the South Australian Statewide Clinical Network in Cardiology, South Australia, Australia.

- Dr Simon Towler: Chief Medical Officer, Western Australian Department of Health, Western Australia, Australia.

- Dr Fran Woodard, Director, Cancer Programme, Southeast London Integrated Cancer Centre, England, United Kingdom.

Useful Links:

New South Wales Agency for Clinical Innovation: http://www.health.nsw.gov.au/gmct/

Queensland Statewide Clinical Networks: http://www.health.qld.gov.au/cpic/service_improve/clinical_networks.asp

South Australia: http://www.health.sa.gov.au/Default.aspx?tabid=212

SA Integrated Cardiovascular Clinical Network: www.iccnetsa.org.au

Tasmania - Clinical Networks Tasmania: https://clinicalnetworks.dhhs.tas.gov.au/display/HOME/Home+Page

Victoria - Clinical Networks: http://www.health.vic.gov.au/clinicalnetworks/

Victorian North NE Metropolitan Integrated Cancer Service (resources and consumer participation reports): www.nemics.org.au

Western Australia – Health Networks: http://www.healthnetworks.health.wa.gov.au

Cancer Australia – CanNET: http://www.canceraustralia.gov.au/cannet/about-cannet/cannet-homepage

Centre for Clinical Governance Research, University of NSW: http://www.med.unsw.edu.au/medweb.nsf/page/ClinGov_About

NHS Medical Leadership Competency Framework:

http://www.institute.nhs.uk/assessment_tool/general/medical_leadership_competency_framework_-_homepage.html

Scotland Diabetes Care Network (link to guidelines): http://www.mydiabetesmyway.scot.nhs.uk

NHS Tayside Diabetes MCN: http://www.diabetes-healthnet.ac.uk

Nuffield Institute for Health in the United Kingdom (*The Partnership Assessment Tool*):
http://www.icn.csip.org.uk/icn/index.cfm?pid=102&catalogueContentID=292

WHO website – Patients for Patients' Safety: http://www.who.int/patientsafety/en/