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Best practice primary and secondary preventative interventions in chronic disease in remote Australia

Schmidt, Barbara ; Smith, Janie Dade; Battye, Kristine

Strategies for implementing best practice primary and secondary preventative interventions in chronic disease in remote Australia

FINAL REPORT

for

The Australian Commission on Quality and Safety in Health Care.

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Barbara Schmidt

Janie Dade Smith

Kristine Battye

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LIST OF ACRONYMS

ACCHO	Aboriginal Community Controlled Health Organisation
ACCHS	Aboriginal Community Controlled Health Service
AHP	Aboriginal Health Practitioner
AIHW	Australian Institute of Health and Welfare
ALPA	Arnhem Land Progress Aboriginal Corporation
AMS	Aboriginal Medical Service
APY	Anangu Pitjantjatjara Yankunytjatjara
BRAMS	Broome Regional Aboriginal Medical Service
CAAC	Central Australian Aboriginal Congress
CCMM	Chronic Conditions Management Model
CD	Chronic Disease
CDU	Charles Darwin University
COPD	Chronic Obstructive Pulmonary Disease
CWHHS	Central West Hospital and Health Service
DR	Diabetic Retinopathy
GP	General Practitioner
GPMP	General Practice Management Plan
HbA1C	Haemoglobin A1C – a blood test that indicates blood glucose is control
ICOP	Indigenous Cardiac Outreach Program
IHP	Indigenous Health Practitioner
IHW	Indigenous Health Worker
KAMS	Kimberley Aboriginal Medical Service
KWHB	Katherine West Health Board
LHN	Local Health Network
MBS	Medical Benefits Scheme
MMEx	This the name of the patient information system marketed by IPA Healthcare
MoU	Memorandum of Understanding
NGO	Non-Government Organisation
NHMRC	National Health and Medical Research Council
NHC	Nganampa Health Council
NT	Northern Territory
PBS	Pharmaceutical Benefits Scheme

PCIS	Primary Care Information System
PHC	Primary Health Care
PHN	Primary Health Network
PIS	Patient Information System
RACGP	Royal Australian College of General Practitioners
RANZCO	Royal Australian and New Zealand College of Ophthalmologists
RHD	Rheumatic Heart Disease
RFDS	Royal Flying Doctor Service
RN	Registered Nurse
RODRSS	Remote Outreach Diabetic Retinopathy Screening Service
SWHHS	South West Hospital and Health Service
TEHS	Top End Health Service

EXECUTIVE SUMMARY

People living in remote Australia have a much higher prevalence of chronic disease and significant variation in interventions delivered when compared with urban dwellers. These largely include variations in medicines for asthma, chronic obstructive pulmonary disease and Alzheimer's disease; and significant variations in hospital admission rates for heart failure and diabetes related lower limb amputations.

In March 2017, *the Australian Commission on Safety and Quality in Health Care* contracted *Barbara Schmidt and Associates* to undertake a consultancy to identify and describe successful strategies that effectively implement best practice primary and secondary prevention services for patients with chronic disease in remote Australia. The methodology consisted of a literature overview, consultation with key stakeholders in remote Australia, collation and analysis of materials and a written report.

The literature overview identified a number of successful interventions for effective primary prevention of chronic disease. These include existing child, adult and older person's health checks, immunization programs, and healthy lifestyle programs for smoking, nutrition and physical activity. Best practice secondary prevention initiatives were also identified in the literature, these include: several best practice clinical chronic disease guidelines and care planning instruments for chronic disease management in remote areas; studies into diabetes management specifically the *Getting Better at Chronic Care* project in north Queensland, the *ABCDE Project* in the Northern Territory and the *Kimberley Aboriginal Medical Service Retinal Screening Program(1-3)*. While a number of other initiatives were also identified, there is limited published literature on successful initiatives, and many of those identified were found to no longer being delivered in remote communities. This may be due to common issues found in remote Australia such as the initiative being a pilot program, defunding of the initiative, the person who championed it has left, or the program outcomes have not been published.

The consultation process consisted of – a roundtable discussion forum (n=12) held in Cairns to align the participants from the *National Rural Health Conference*, and a remote consultation process (n=15) across five states. The roundtable assisted in identifying several best practice examples of primary and secondary prevention services in remote Australia, and in identifying key stakeholders for the interviewing process. The conference presentations were also targeted to identify new initiatives in primary and secondary prevention in remote Australia.

The consultation findings revealed that for success any initiative must reflect features of the Chronic Care Model (4). Successful primary prevention strategies had the following features -collaboration with several communities based agencies usually external to the health services, a partnership approach, and a focus on the social determinants of health. These features contribute to the sustainability of initiatives. Two successful primary prevention initiatives were reported to demonstrate these characteristics. The first is the *Food Ladder,* a food security and social business model, being conducted in Ramingining and Katherine in the Northern Territory. In the first 6 months of operation in Ramingining a 5% increase in the sale and consumption of fruit and vegetables is reported. The second is a successful health promotion model – the *Be Heathy and Safe Maranoa Project* – from Roma in Queensland, whereby the regional council is the first stop and coordinator for all health promotion initiatives in the shire.

Three successful and well embedded secondary prevention models were identified in the consultation process that demonstrate how a change in **service delivery design** can improve access to services to manage chronic disease. The three successful models were:

1. *Central Australian Aboriginal Congress* (Congress in the NT – shows how a decentralised model of care based on population numbers, better use of infrastructure, and a redefinition of service delivery roles improved screening and care planning.

2. *Generalist Physician Outreach Model* in Katherine in the NT – demonstrates how a general physician model of specialist service delivery integrated into primary health care service delivery improves continuity of care; and

3. *Telehealth model* in central Western Queensland – demonstrates another way to provide access to specialist services for remote people, to avoid patient travel, improve appropriate screening, prevent hospitalisations and manage a chronic condition using best practice guidelines.

Four examples where **clinical patient information systems** were identified to demonstrate best practice clinical **decision support** and the importance of using a systematic approach to chronic care, including: electronic patient records; practice management; care planning and recall systems; medication management; and secure referral processes. *Kimberley Aboriginal Medical Service* uses MMex as their corporate system for a network of eight community controlled health services in Western Australia. The *Northern Territory Government* uses the *Chronic Conditions Management Model* as a systematic and integrated approach to prevent and manage chronic disease by streamlining systems to improve coordination, integration, delivery, documentation and evaluation of

chronic disease care. Over four years these changes have led to almost a doubling in care planning for patients to 61%, with nearly 96% of diabetic patients having had a HbA1C recorded in the past year as well as a reduction in preventable hospitalisations. Another information system identified was *MedicineInsight* being used in rural Tasmania, that promotes quality improvement in GP prescribing whereby they can compare their prescribing with other GPs at local, regional and national levels.

Nganampa Health Service in Central Australia found that having a dedicated chronic disease program manager who provides ongoing professional development for staff and measures compliance with clinical protocols for chronic disease prevention, has contributed to a reduction in emergency evacuations by 57% in the past year. *Maari Ma Health Service Aboriginal Corporation* in Broken Hill uses a hub and spoke model to deliver a comprehensive coordinated primary care strategy in the Far West Region of New South Wales. The key features of the strategy include: client focused delivery of care; quality improvement; and population health approach to address risk factors across the continuum. In the past five years this has resulted in a ten-fold increase in screening, almost 80% of clients have a care plan and there are reported improvements in blood pressure control.

The overarching finding of this study is that a systematic approach to chronic disease prevention and management is critical for success. The main **enablers** for success to improve **primary prevention** are to ensure: that any intervention is embedded into the social fabric of the community; strong partnerships are developed to empower the community, recognising that these are often found outside the health sector; intervention(s) are tailored specifically to each remote community; targeting screening for different age and gender groups; and having sustainable long term funding to support initiatives that should build on the social determinants of health.

To improve **secondary prevention** interventions the **enablers** are to: use a system approach to chronic disease care; redesigning health services to implement the chronic care model and maximize Medicare billing for ongoing resourcing; and embedding continuous quality improvement into the culture of service planning, monitoring and evaluation to ensure chronic disease is 'everyone's business'. This will involve having a clear blueprint for service development, actively engaging with clinicians, investing in training and supporting the workforce, having and ensuring all practitioners use the same clinical information and decision support system, proactively supporting telehealth and ensuring all initiatives and staff understand the construct of the community in which they serve.

1.   INTRODUCTION

People living in remote parts of Australia have higher rates of chronic disease than people living in urban and regional areas (5-7). The percentage of the population people who smoke, drink to excess, are obese and are physically inactive is also higher (8). Hospital admission rates for asthma, COPD and heart failure are markedly higher in remote areas and highest in low socioeconomic status groups. Death rates for diabetes is three times those living in urban areas and death rates for chronic obstructive pulmonary disease, coronary heart disease and asthma are all significantly higher (5, 6, 9).

The Australian Atlas of Healthcare Variation (the Atlas) identified variation in interventions delivered for a number of chronic conditions between remote, regional and urban areas (5). These included dispensing of medicines for asthma and chronic obstructive pulmonary disease (COPD), and anticholinesterase medicine used to treat Alzheimer's disease, hospital admission rates following heart failure and diabetes related low limb amputation and average length of stay in hospital for people with stroke. Dispensing of medicines for asthma showed a strong socioeconomic trend, with dispensing rates highest in the lowest socioeconomic groups, highest in major cities and lowest in remote areas (5). Rates of diabetes-related lower limb amputations are high in remote areas compared to metropolitan areas. Indigenous people in remote areas are about three times more likely to have diabetes, 10 times more likely to be admitted for diabetic foot complications and 30 times more likely to suffer diabetes-related lower limb amputation than non-Indigenous people (5). There is considerable variation in the dispensing of anticholinesterase medicines, used to alleviate symptoms of some dementia types. Dispensing rates were higher in major cities than in regional and remote areas (5).

There are distinct features of remote populations that contribute to the variation in interventions to address chronic disease. These include: the remote health context; the models of service delivery; many different health service providers; and workforce recruitment and retention. Public Health policy, and the approach to service delivery that underpins how chronic diseases are managed in remote areas, also influence the variation in health outcomes.

1.1   The remote context

Remote Australia makes up 78 per cent of the landmass of Australia. It is enormously diverse geographically, climatically, culturally as well as clinically for those health professionals working there.

Remote populations are geographically dispersed, with many small communities spread over large distances. This means there is not the critical mass of population to have the full range of primary health care services in every community to prevent and manage chronic disease. In addition to being geographically remote, people living in remote areas are generally of lower socio-economic status and there is a higher proportion of Aboriginal and Torres Strait Islander people who have complex health care needs (10, 11). These geographic factors and underlying social determinants of health all contribute to this variation in health status and service utilisation in remote areas.

There are also significant differences between remote and very remote practice because of the distance to deliver health care or for people to access care, the types of health professionals available, support available for clinicians, the cross-cultural nature of the work and the types of populations being serviced (12). It is this remote context that changes everything about a normal situation and requires health professionals to work from different remote models of care that usually don't include – hospitals, general practices and doctors who are based in the larger centres.

1.1.1 Remote Health Service Delivery Models

Remote health service delivery models are different from urban services due to the remote context. Remote services are typically characterised by geographical, professional and often social isolation of practitioners; a strong multidisciplinary approach; overlapping and changing roles of team members; a relatively high degree of GP substitution; and practitioners requiring public health, emergency and extended clinical skills (13). Remote practitioners are required to manage a full range of services across the lifespan with often limited resources. The types of remote service delivery models include:

- Fly in fly out / drive in drive out models
- Primary health care clinics – often led by remote area nurses and Aboriginal and Torres Strait Islander health workers
- Hub and spoke models – to provide allied health and specialist services that also use fly in fly out/ drive in drive out arrangements.

1.1.2 Health Providers in Remote Australia

There are many different health service providers operating in remote areas, often delivering services in the same community. This occurs due to the State/Territory responsibilities under the National Health Care Agreement (2016) to improve health outcomes for all Australians(14). It involves specific funding programs to improve access to primary health care services including initiatives to prevent and manage chronic disease care services.

The type of service provider often depends on the population being served, geographic location and the model of service delivery. Health service providers include:

- State and Territory Government hospital and health services
- Aboriginal Community Controlled Services – that are managed and led by Aboriginal people
- Private and non-government organisations (NGOs)
- Mining, Defence Force, and other industries – often led by paramedics, nurses or occupational health and safety officers (15).

1.1.3 Retaining the workforce

Governments and employers often have difficulty in recruiting and retaining health professionals to live and work in remote areas. This has resulted in serious workforce shortages, extremely high turnover rates of staff, and maldistribution of most workforce groups (15). This is of concern when dealing with the management of chronic disease, where continuity of care, a systems approach, and the overall management of programs to maintain sustainability are of the highest importance. This is compounded by generally poor orientation to remote practice, variable management practices and a rising number of staff employed on short term contracts through recruitment agencies.

1.2 Public Policy and Health – the clinical context

Patients with chronic diseases have different needs to people with an acute illness and require different solutions that include a comprehensive and systematic approach to service delivery. In 1998 Wagner developed the *Chronic Care Model* to guide service providers to reorganise the health care system to better prevent and manage chronic conditions (16). This approach is very different to the acute model of care in which health professionals are usually trained.

1.2.1 Chronic disease model of care

Over the last 11 years the Australian Government has developed the *National Chronic Disease Strategy* (17) and funded a number of initiatives to support services to redesign their health delivery systems. These include: the *Healthy for Life Program* (18); the *Australian Primary Care Collaboratives* (19); and the *One21seventy* program (20). These initiatives supported services to move from an acute episodic approach to service delivery to a systematic approach using the *Chronic Care Model* (4, 21).

The *Chronic Care Model* identifies six domains within the health system that all need to be working effectively to build the capacity of individuals and the health team to improve health outcomes. The domains are shown in Figure 1 and include:

1. Organisational influence and integration

2.   Delivery systems design

3.   Clinical decision support

4.   Information systems

5.   Self-management support, and

6.   Links with the community, other health services and other resources.

Figure 1.1. The Chronic Care Model (22)

The Chronic Care Model

Community
Resources and Policies

Health Systems
Organization of Health Care

Self-Management Support

Delivery System Design

Decision Support

Clinical Information Systems

Informed, Activated Patient

Productive Interactions

Prepared, Proactive Practice Team

Improved Outcomes

Developed by The MacColl Institute
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The model is underpinned by the philosophy of continuous quality improvement to strengthen the domains of the chronic care model to achieve best practice in chronic disease care. The MacColl Centre for Health Innovation developed a systems assessment tool to help health services analyse their service delivery systems and identify areas for improvement(22). The tool has been adapted for use in Australia by different jurisdictions (23-25). The adaptation for Indigenous primary health care collapses the model into 5 domains combining the information systems and decision support domains together (25). This recognises that current best practice is for primary health care services to have an electronic information system with built-in decision support functions. Remote health services that implement the chronic disease model, and actively participate in continuous quality improvement activities, are more likely to have a well-developed health system to improve health outcomes (26).

1.2.2   Medicare and Pharmaceutical Benefits Scheme in remote Australia

Medicare is the Commonwealth-funded health insurance scheme that provides free or subsidised health care services to the Australian population. The Medicare system is largely structured around the work of private General Practitioners (GPs) and medical specialists. The Medicare system is

complimented by the *Pharmaceutical Benefits Scheme* (PBS) which is managed under the *National Medicines Policy* and is designed to provide timely, reliable and affordable access to medicines and medicines services to ensure optimal health outcomes with consideration of economic objectives (27).

Management of chronic and complex conditions by GPs is currently funded under the fee-for-service based *Medicare Benefit Schedule* (MBS) using a mix of timed and untimed Medicare items. These items pay GPs to assess, plan, coordinate and review the health care of patients with chronic or terminal medical conditions and complex care needs. In addition, MBS provides fully paid five 'untimed' Chronic Disease Management benefits annually for clients to access allied health services for multidisciplinary care.

In remote areas, there are very few private GPs so a complementary system to access Medicare funding for GP services has evolved. In 2006-2007 the *Council of Australian Governments* introduced the Section 19 (2) *Exemptions Initiative – Improving Access to Primary Care in Rural and Remote Areas Initiative.* The initiative provides access to Medicare funding to pay for primary health care, including chronic disease management services, to public health sites located within categories five to seven of the Modified Monash Model geographical classification system (28). Even with this initiative Medicare claiming is much lower in remote areas. This is because many services usually delivered by a GP in urban and regional areas are delivered by remote areas nurses or Aboriginal Health Practitioners in remote areas, and some GP consultations occur by telephone, which cannot be claimed under Medicare.

It is also unusual to find community pharmacies in remote communities. Government and non-government services in remote areas have been granted an exemption under Section 100 of the *National Health Act* as an alternative way to provide medicines to people who do not have access to a community pharmacy. Medicines dispensed under the Section 100 provision do not appear in PBS data, resulting in artificially low rates of dispensing in many remote communities (5). This explains some of the variation in medication dispensing for asthma, COPD and Alzheimer's disease report in the ATLAS. Other reasons for variation is the lower life expectancy for Aboriginal and Torres Strait Islander people as they are often dying before they develop Alzheimer's disease.

2. PROJECT AIM, SCOPE AND METHODOLOGY

The aims of the project are to:

I.   Gain a greater understanding of attributes of successful strategies implemented in remote communities to address chronic disease; their potential application more broadly in remote health and the sustained impact of these strategies.

II.   Explore opportunities for the Commission to support or initiate best practice primary and secondary prevention services for patients with chronic disease in remote Australia.

III. Identify relevant stakeholders who can promote best practice in remote areas.

The expected outcomes are to:

- Identify successful strategies to effectively implement best practice primary and secondary prevention services for patients with chronic disease in remote Australia and also:
  - Identify reasons for success of the projects
  - Identify key drivers and barriers faced in delivering these services
- Document suggestions from the stakeholders on:
  - Feasibility of rolling out the successful strategies more broadly
  - The role the Commission can play in supporting/promoting successful strategies
- Document suggestions to:
  - Promote change nationally
  - Monitor change
- Document suggestions for:
  - New items for future atlases
  - Future analytics for the interactive atlas.

2.1 Project Scope

The scope of the project includes primary and secondary prevention strategies in remote areas for the chronic disease conditions where variation between remote and other areas was reported in the Atlas. A simple way to distinguish between primary and secondary prevention is that primary prevention activities are those that assist individuals, organisations, or governments to prevent health problems from developing. Secondary prevention is aimed at detecting risk factors early and proactively managing the diagnosed condition to prevent progression and complications from the condition.

The conditions within the scope of this project include asthma, COPD, heart failure, diabetes, diabetes related low limb amputation, stroke and Alzheimer's disease in remote Australia. These conditions

align with items reported in the Atlas e.g. dispensing of medicines for asthma, COPD, and anticholinesterase medicine used to treat Alzheimer's disease, hospital admission rates following heart failure and diabetes related low limb amputation and average length of stay in hospital for people with stroke (5). Renal disease and mental health conditions are out of scope.

2.2   Methodology

The methodology included: **a** literature review, development of a consultation plan informed by an expert roundtable, key informant interviews, interpretation and analysis of findings and the development of a written report. *See Appendix 1 for methodology details.*

3.   LITERATURE OVERVIEW

There is a limited amount of literature reporting on successful primary and secondary interventions for chronic disease in remote Australia. A total of 38 journal articles, clinical guidelines and evaluation reports met the search criteria for the literature review. There were seven related to preventative screening and clinical guidelines (29-35), six reporting on smoking interventions (36-41), five publications reporting on nutrition and lifestyle interventions (37, 42-45), nine reporting on diabetes care (2, 3, 10, 23, 46-49), ten reporting on cardiovascular disease (7, 50-58) and two reporting on respiratory disease (59, 60). Many of the publications report on Indigenous populations specifically. The interventions were categorised as primary or secondary prevention interventions and analysed to identify their contribution to health improvement.

3.1   Primary Prevention for Chronic Conditions

Common risk factors for lifestyle related non-communicable chronic diseases include tobacco smoking, poor nutrition, physical inactivity, obesity, high blood pressure and high blood cholesterol. Prevention strategies to reduce risk factors can have a significant impact on preventing the development of asthma, COPD, diabetes, heart disease, Alzheimer's disease and stroke.

3.1.1   Child, adult and older person's health checks

Annual child, adult, and older person's health checks are the most common systematic primary prevention strategy that all remote health services offer to Aboriginal and Torres Strait Islander to facilitate early identification of risk factors(29). The Australian Institute of Health and Welfare (AIHW) reported that as at June 2016 for Aboriginal and Torres Strait Islander people, 48% of regular adult clients and 35% of children aged 0-4 had a health assessment (61). This is an increase of 18% for adults and 10% for children since 2012. The results are not reported by urban, rural and remote locations.

3.1.2   Health information systems

An electronic patient information system supports health services to plan and deliver health checks and other prevention strategies to specific population groups including Aboriginal and Torres Strait Islander people. Patient information systems include best practice protocols for population screening and chronic disease care with electronic flags and reminders (34). Enhancing patient information systems to incorporate clinical decision support tools such as the cardiovascular risk assessment (which is part of the health assessment) into the patient management software is demonstrating positive results for improved risk factor identification in the Northern Territory (10).

3.1.3   Immunisation

In remote Australia, immunisation to prevent influenza and pneumococcal disease is best practice primary prevention for all Aboriginal and Torres Strait Islander people as well as those who are at risk of developing a chronic condition (33). Fluvax and pneumovax vaccines are routine items recommended in chronic disease guidelines (30-32) for people with diabetes, asthma, COPD, and cardiovascular disease. Annual influenza and pneumococcal polysaccharide vaccination are offered free of charge for high-risk groups including:

- Pregnant women

- Persons aged 65 years and older

- Aboriginal and/or Torres Strait Islanders aged 6 months to less than 5 years, or 15+ years

- Persons aged 6 months and older with specified medical conditions that put them at increased risk of influenza complications.

3.1.4   Healthy lifestyle programs

In 2010/11 the *Australian Government* funded *Regional Tackling Smoking and Healthy Lifestyle* teams for Aboriginal and Torres Strait Islander communities to develop and implement social marketing and community-based programs and activities, focused on smoking cessation and healthy lifestyles. Outcome data is not available to report on the impact of the initiative on health outcomes. This brief review of the evidence of interventions to address lifestyle factors is provided here to help tease out potential examples of primary prevention services.

3.1.5   Smoking

Smoking rates in the general Australian population have been steadily reducing over the past decade using a combination of national social marketing campaigns, effective public policy to restrict smoking in public places and increase the cost of cigarettes, pharmacological and behavioural interventions,

and workforce training strategies to promote smoking cessation(36). The same is not true for remote areas where smoking rates are much higher (62).

A multi-strategy smoking cessation program was trialled in three Northern Territory communities reporting 628 participants(37). All health professionals in the participating communities were trained in delivering a brief intervention on tobacco. The intervention included: providing brief advice on cessation with culturally appropriate health promotion materials – pamphlets, posters and flip charts; the use of nicotine patches; a point-of-sale intervention; and school education about tobacco delivered over a period of months. Aboriginal project officers delivered the evidence-based interventions. While a reduction in store orders for tobacco was reported in one community, no significant changes in the prevalence of tobacco use were seen. A similar multi strategy intervention was implemented into five sites in north Queensland remote communities. The six components of the intervention included: a school based "Smokin No Way", SmokeCheck Tobacco brief intervention training for health workers, assistance to develop workplace smoke free policies, an Event Support Program, "Smoke Rings" Support Group and enforcement of tobacco sales legislation. The intervention reported modest decline in self-reported smoking after 12 months(38). Other studies in remote areas have reportedly trialled strategies including: subsidised nicotine replacement therapy (NRT) (39); training in brief interventions for Aboriginal Health Workers (40); and total health service brief interventions training with access to free NRT (41).

3.1.6 Nutrition

Improving nutritional intake, particularly the consumption of fresh fruit and vegetables and the reduction of sugary soft drinks can significantly reduce the risk of developing a preventable chronic condition (42). Access to fresh food and the average cost of food in remote areas is much higher than other parts of Australia, which affects fresh food intake (43). Factors that drive prices in remote areas are small community size, transport costs, store management practices and inability to compete on price with large supermarkets (43). Interventions trialled to overcome these issues in remote communities include the establishment of community gardens, for example, *the Edge of Nowhere Thriving Communities program* operating in remote parts of Western Australia (44) and through school programs (45).

The challenge for improving nutrition in remote communities is two-fold, which requires ensuring food security at a price that is affordable to community members, and changing behaviour to each healthy food. A review of nutrition improvement strategies found that for adults tailoring nutritional

education is the most effective approach to bring about behaviour change. Children require multi strategy lifestyle interventions connected with school based interventions (37).

3.1.7   Physical activity

There is very little recent research or reports on physical activity interventions in remote communities. The rapid review of the smoking and healthy lifestyle program reported that for adult individual level interventions which focus on participants intention to implement physical activity appear to be the most effective for behaviour change, and the impact of walking groups for older adults should not be discounted (37). Theory based lifestyle interventions were found to deliver the most sustained effects for children, particularly those who are obese or overweight in a rural community (37).

3.2 Secondary Prevention for Specific Chronic Conditions

The delivery of best practice secondary prevention services that facilitate early identification of risk factors and manage chronic diseases relies on a well organised system of care and effective health information systems (4). *For example,* even though a secondary prevention service may visit a community, unless there is a clear referral pathway and case management using information recall systems, there is a high risk that a client will not be connected to the visiting service. The lack of a systems approach can lead to underutilisation of visiting allied health, specialist and other services to those most in need.

3.2.1   Chronic disease guidelines and care planning

Clinical guidelines that describe best practice management to prevent complications from chronic conditions are available for all remote clinicians (31, 32, 35). However, there is great variability in compliance with the use of clinical guidelines and the development of care plans for remote people with chronic disease. Audit and review cycles are often used to monitor practice and compliance with clinical guidelines. Orientation of new staff is another key strategy to ensure staff are aware of which guidelines the service use and how to use the patient information system to manage care.

3.2.2   Diabetes/Amputations

Two long term research studies have been implemented in remote Australia to improve the management of Aboriginal and Torres Strait Islander people living with diabetes and to reduce preventable hospitalisations such as lower leg amputations (2, 46). The two studies focus on different elements of diabetes care. The first study seeks to develop a model of care to improve access to care while the other seeks to use quality improvement interventions to strengthen systems of care.

The Getting Better at Chronic Care Project was a trial of intensive case management by Aboriginal and Torres Strait Islander Health Workers (IHW) of 213 people with complex chronic conditions in Far North Queensland (46). IHWs provided education to patients and coordinated their care using standard clinical protocols and care plans developed in conjunction with GPs. The study reported that after 18 months of supported diabetes care by IHWs there was a clinically significant reduction in HbA1c levels and a reduction in admission rates for diabetes related conditions (47, 48). The IHWs were found to be particularly effective in influencing the self-management and linking with other service providers in the community to access other community support programs (49).

The ABCD Project was implemented in 12 health services across the Northern Territory. The project was later extended to other sites in Australia through the ABCDE project (26). This study demonstrated how ongoing quality improvement cycles, using clinical audit and annual systems assessment, is effective in improving the systems of care for diabetic clients (2, 23). The process of regular review of outcomes against best practice clinical guidelines helps to identify professional development needs of staff, gaps in service delivery and provide an objective basis for discussion about the standard of care. The systems assessment tool helps to review each component of the chronic care model in the health service, prompt discussion about the effectiveness of the service overall and identify opportunities for service improvements. Automating audit and review functions through routine reporting functions is becoming a more efficient way to review work practices.

The rates of Type 2 childhood diabetes is rising particularly in the Aboriginal and Torres Strait Islander communities (10). *The Baker IDI Heart and Diabetes Institute* convened a group of clinicians to develop recommendations for the prevention and management of childhood diabetes (10). They report food insecurity, limited resources, infrequent follow up and socioeconomic disadvantage as key factors contributing to Type 2 childhood diabetes.

Poor management of diabetes can lead to microvascular disease affecting the eyes, heart, kidneys and feet. Therefore, regular foot checks, retinal screening and annual ECG are required in addition to routine clinical tests to assess kidney function. These services are often omitted as they require specific skills to complete. *The Kimberly Aboriginal Medical Service* (KAMS) implemented a retinal screening program by purchasing retinal cameras for remote sites and training remote staff in using the cameras to take photos, performing visual acuities and giving basic eye education to clients (3). A key feature of this program is an annual retinal camera operator conference in Broome to refresh skills (3). The program has been operating for over 20 years and has reported a steady increase in visual acuity testing as part of screening.

3.2.3 Cardiovascular disease and respiratory disease

A comprehensive systematic approach (50, 53, 54, 56) with education and services delivered by culturally competent service providers(54, 63) and regular monitoring against performance indicators (55) is required to achieve best practice secondary prevention for cardiovascular disease (CVD). A systematic review of primary and secondary prevention for ischaemic heart disease (IHD) in rural areas found very few interventions focused specifically on IHD(7). The Indigenous Cardiac Outreach Program (ICOP) in Queensland is an example of a hub and spoke model of care to provide specialist services to remote communities. The program uses a four phased approach of engagement, recovery interventions, capacity building and self governance (58). The focus of the program is to capacity build the Indigenous Health Workers to manage cardiac care and reconnect clients to visiting specialist. This model of service delivery has increased specialist attendance in communities to 98%. An initiative targeting primary health care service providers is the cardiac risk assessment implemented in the Northern Territory(51). Significant improvements in the delivery of preventative care services (30%-53%) and CVD related medication (28%-89%) were reported in the Northern Territory following the implementation of the cardiac risk assessment(51). Improvements in cardiac risk assessment screening has continued to improve. By 2014, 7266 clients had their cardiovascular risk assessed improving population coverage to 58%. 57% of at risk clients were achieving clinical targets for blood pressure control and 40% for lipids control (52). Other strategies recommended for improving cardiac care in the community include the implementation of nurse lead models of care to provide comprehensive care coordination and the use of technology to assist with self monitoring (57), but no remote examples of these interventions were found.

Following the success of the ICOP in Queensland, the Indigenous Respiratory Outreach Care (IROC) program was established in 2011. The same four-step process used by the ICOP is used to plan and implement clinical, health promotion and educational services to 12 remote communities in Queensland. Outreach services are delivered 3-4 times per year and training is delivered by the visiting nurses to patients, Indigenous Health Workers and community members in specific topics such as asthma knowledge, puffer techniques and smoking cessation(60). In the first 2 years of service delivery 934 patients were seen. The Breathe Easy Walk Easy pulmonary rehabilitation program designed by the Lung Foundation aims to improve the capacity of remote health care practitioners to deliver pulmonary rehabilitation. It consists of a workshop to train users in guidelines, assessment and the use of training resources(59). It was trialled with 33 health care practitioners in New South Wales and the Northern Territory. At 12 month follow up three locally run pulmonary rehabilitation programs had been established and 22 patients had completed the pulmonary rehabilitation program(59).

4. FINDINGS – BEST PRACTICE INTERVENTIONS

This section reports on the findings from the roundtable with key informants and shares examples of best practice identified through the consultation process. See *Appendix 4* for full details of interventions – how they work, their enablers and barriers, success factors and any impact they are having on health outcomes.

4.1 Roundtable discussion

The Roundtable was attended by 12 key informants employed by government, non-government and community controlled health service providers, universities, a college, peak bodies and Primary Health Networks, representing every State and Territory except South Australia. *See Appendix 2 for a list of participants.* The group identified a small number of examples of best practice interventions in chronic conditions in their states and discussed enablers and barriers to the delivery of the intervention.

Participants identified a number of primary prevention interventions currently operating in remote areas to address nutrition and physical activity, but very few interventions for smoking. Nutrition and physical activity interventions that had been successfully implemented in the past, but were no longer operating were: *Garden Kai Kai* (Torres Strait), *Edge of Nowhere* (WA), and *Looma Healthy Lifestyle Program* (WA). Barriers identified included: the lack of seed funding; the high cost of project establishment; changes to government funding priorities and policies; time limited/short term funding; staff turnover; limited investment in community capacity building; and reliance on one enthusiastic individual to drive the intervention. The key enablers to success were: recurrent funding; working in partnership with other community based services and organisations e.g. primary schools, Men's Sheds, women's groups; and building local capacity to lead interventions.

There was agreement amongst the roundtable participants that the implementation of a systematic approach to chronic disease care, effective partnerships between service providers and commitment to continuous quality improvement are the essential foundations for the implementation of secondary prevention interventions. Other key enablers included: a commitment to common strategy e.g. *NT Preventable Chronic Disease Strategy*; consistent leadership; long term funding; shared information systems; and common performance measures e.g. NT Key Performance Indicators. Barriers to the delivery of chronic disease care included: the high demands for acute care services; the challenges of recruitment and retention of culturally competent and clinically experienced staff in remote areas; poor orientation to chronic disease systems and protocols; limited access to GPs to complete chronic disease care plans; and multiple service providers. The group could not identify any specific

interventions to address variations in hospitalisation rates specifically directed at asthma, COPD, heart failure, stroke or lower leg amputations except the consistent implementation of chronic disease protocols by competent staff. Instead the group identified examples of stakeholders and services that had taken action to strengthen their chronic disease systems to enable improved compliance with chronic disease protocols. These were listed and followed up in the interviewing process.

4.2 Primary prevention interventions

The stakeholder interviews identified primary prevention interventions that address nutrition, physical activity, and the social determinants of health, such as unemployment and education, in remote areas. However no successful smoking interventions were identified. Two examples are presented to share successful interventions in remote areas that are contributing to improvement in nutrition and physical activity. These are the Food *Ladder* project operating in Katherine and Ramingining, and the *Be Healthy and Safe Maranoa* project in the Maranoa Regional Council in South West Queensland. It was clear from interviews with these organisations that successful primary interventions have the following characteristics:

- Community leadership of the initiative
- Collaboration of several agencies to establish and sustain the programs
- Focus on the social determinants of health – as well as the specific risk factor
- Sustainable funding.

4.2.1 Nutrition and the Food Ladder - Ramingining

Very poor dietary intake continues to be a feature of remote communities in Australia (64). Three key reasons for poor intake of fruit and vegetables in remote areas are the quality, availability and price of fresh fruit and vegetables in remote communities. *Food Ladder* – a non-profit organisation, has developed a food security system that was trialled and refined in India. It is now being implemented in Katherine and Ramingining in the Northern Territory.

The *Food Ladder* model produces commercial quantities of food using a water efficient hydroponic system. The project works by employing local community people to manage the food production system and embedding the project within a community organisation. It creates a healthy hub by:

- Linking with existing community infrastructure – to find opportunities to deliver nutrition and food production education
- Employing and training local people in food production and
- Establishing commercial arrangements to sell produce to local businesses.

The social business model used by *Food Ladder* leads to social, economic and health benefits, as a result of the improved nutrition from the food produced. A multi-strategy approach is used to embed the food security system in the community. This includes a whole of community approach whereby:

- A variety of stakeholders are welcomed to be part of the enterprise to encourage a feeling of ownership, and
- Partnerships with agencies to create symbiotic relationships.

There is no data available to report the impact of the project in Katherine as yet. In the first six months of operations in Ramingining, a community with a population of about 800, the ALPA store reported a 5% increase in the sale and consumption of fruit and vegetables since the *Food Ladder* system commenced. *See Appendix 4.1 and 4.2 for full details.*

4.2.2 Be Healthy and Safe Maranoa Project

The Be Healthy and Safe Maranoa Project is sponsored by the *Maranoa Regional Council* based in Roma, in southern Queensland. The region covers 59,000 km^2, includes six small towns and a population of approximately 13,000 people. The Council aims to motivate and support residents of the Maranoa region to live happier and healthier lives. This is done by developing and coordinating community based health promotion and community development activities inthe local community. The Maranoa Regional Council has committed to delivering the program until at least 2020 when the program commitment will be reviewed again as part of the Council's strategic planning process.

There are 13 service partners that support the project, all of whom have a stake in maintaining the health of people in the priority target groups. Service partners meet every month to plan projects, share information about upcoming initiatives and to collaborate on funding proposals. An annual partnership workshop is held to reflect on the success of the events and programs delivered, to generate ideas for future events, to discuss how to improve the marketing of health promoting activities, reflect on the state of the partnerships and to develop the plan for the next year. Client surveys are undertaken every 6 months to assess the impact of, and satisfaction with, project activities.

Between July 2011 and April 2014, there were 4731 occasions of service for project activities. In addition to high level of satisfaction and increased knowledge of healthy behaviours (65), the success of the project is demonstrated by the fact that all services in Roma know that the first step to start planning any health promotion initiatives in the Maranoa Regional Council area is to connect with the *Be Healthy and Safe Maranoa* project. There are well developed systems for planning events which means that the limited resources are used efficiently. *See Appendix 4.3 for full details.*

4.3   Secondary prevention interventions

Interview participants confirmed the views expressed by Roundtable participants that a systems approach is required to implement effective secondary prevention strategies. They reported that best practice secondary prevention interventions require collaboration across many different agencies, who are using a common policy framework to manage the 'system' of care for people with established chronic disease.

The following examples share initiatives implemented by remote health services to improve the delivery of secondary prevention strategies. Each of these examples demonstrate how services have implemented actions to strengthen one of the domains from the Chronic Care Model. These changes enable best practice clinical care to improve secondary prevention and/or reduce the impact of specific chronic conditions..

4.3.1 Service Delivery Design

The following three case studies are provided to demonstrate how changes in the delivery system design can improve access to care and implementation of best practice clinical protocols. The examples include:

4. *Central Australian Aboriginal Congress* (Congress) in the NT. This shows how a decentralised model of care based on population numbers, better use of infrastructure, and a redefinition of service delivery roles improved screening and care planning.
5. *Generalist Physician Outreach Model* in Katherine in the NT – demonstrates how a general physician model of specialist service delivery integrated into a primary health care service delivery improves continuity of care; and
6. *Telehealth model* in central Western Queensland – demonstrates another way to provide access to specialist services for remote people, to avoid patient travel, improve appropriate screening, prevent hospitalisations and manage using best practice guidelines.

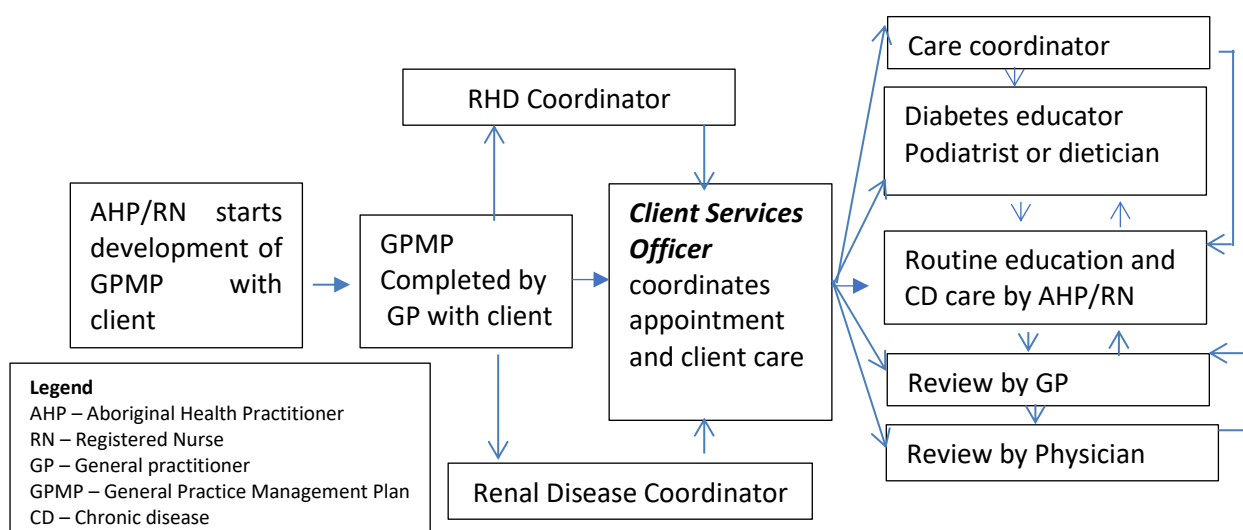### 4.3.1.1 Decentralised Service Delivery Model – Congress.

Over the last 10 years Congress have continually reviewed and refined their system of chronic care. Since 2010 results against key performance indicators in the Alice Springs clinic have plateaued and this clinic recognised that it was not achieving the same level of population coverage for chronic disease care as their smaller remote clinics.

Following a visit from Dr Douglas Eby, who shared the approach used by the *Anchorage Native Alaskan Primary Health Care Service,* and a site visit to the *Institute of Urban Indigenous Health* in Brisbane, Congress realised that their main clinic had grown so large that continuity of care, one of the key elements required for effective chronic disease management, had been lost.   The relationship between practitioners and clients had been eroded because 80% clients were seeing a different practitioner at every consultation, making it difficult for clinicians to know their patients and provide continuity of care. Ensuring continuity of care is important as increased provider continuity is associated with improved patient outcomes and satisfaction (66). The size of the main clinic also made innovation and change management processes more difficult.

To address this problem, Congress implemented a strategic change by decentralising their service delivery. They established two new clinics in the suburbs of Alice Springs, each to service a population of 2000 or less. With this much smaller multidisciplinary staffing profile the clinics were able to meet the routine chronic disease care needs of their client population.   Congress also created a new category of staff known as **client service officers** to organise client care. These critical positions were filled by local Aboriginal staff who have a connection with the local client population.   Care Coordinators and Aboriginal Liaison Officers were allocated to the teams to case manage clients with complex care needs and those who were not self-managing their care. These strategic changes greatly improved continuity of care between health practitioners and clients, improved cultural safety and improved the effectiveness of the multidisciplinary team and visiting specialists. More than 70% of clients now see the same GP, or one other for each appointment, enabling them to get to know this smaller client population very well. *Figure 4.3* describes the standard client chronic disease client flow chart.

Figure 4.3: Chronic Disease Client Flow – Congress suburban clinics

Legend
AHP – Aboriginal Health Practitioner
RN – Registered Nurse
GP – General practitioner
GPMP – General Practice Management Plan
CD – Chronic disease

In addition to improving continuity of care, the service re-design has increased service utilisation and increased Medicare revenue to sustain the service delivery model. In the first 12 months, there has been a 17.3% increase in Aboriginal health checks in the 15-54-year age group at the Sadadeen clinic and a 14.2% increase in the Larapinta clinic. The number of clients on a diabetes care plans has increased by 18.9% in the Larapinta clinic and 4.2% in the Sadadeen clinic. The differences in outcomes achieved between clinics was investigated and Congress found the catchment population for the Sadadeen clinic was much higher than expected (1800 people). To address this issue more clinic rooms are being built and the staffing ratios will be adjusted accordingly to respond to the local demand. *Appendix 4.4 for full details.*

4.3.1.2 Outreach Generalist Physician Model – Katherine Hospital

The Katherine region in the Northern Territory covers 336,674 km^{2}and services a population of approximately 24,000 people. Many people in the remote Katherine region with a chronic disease have more than one chronic condition and see many different specialists to manage their care e.g endocrinologist, cardiologist, renal physician. Prior to the implementation of the General Physician Outreach service from Katherine, specialists visited remote communities from Darwin. Each practitioner only managed one aspect of the patient's care e.g. renal care, and not their total health care needs. The working relationship with the specialists and doctors at the Katherine Hospital or general practitioners in communities was not strong. This affected continuity of care.

Katherine Hospital implemented a generalist physician model of outreach service delivery to improve integration between primary and secondary services and improve continuity of care, quality of care and chronic disease outcomes. The Physician regularly visits remote communities in the Katherine region to see patients referred by the GP under a *General Practice Management Plan* (GPMP). In addition, the Physician undertakes telehealth consultations with patients in remote communities where there are telehealth facilities. The model represents a strategic paradigm shift in service delivery with specialist services integrated into a primary health care service model.

The Generalist Physician model has achieved improvements in the quality of chronic disease care due to better communication, relationships and engagement with local health teams, and systems. This has produced a 23% reduction in the number of clients transferred to Darwin for inpatient care, a 43% reduction in aeromedical evacuations,, a 9% reduction in total hospitalisations, and patient travel costs have been reduced (67). Improved continuity of care and relationships with remote clients has

reduced the number of people discharging themselves from hospital from 27% in 2011 to 4% in 2016. *See Appendix 4.5 for full details.*

4.3.1.3 Telehealth outreach services for diabetic retinopathy

The *Central West Hospital and Health Service* (CWHHS) covers 396,650 km^2 including five hospitals and eight primary health care centres servicing a population of over 12,400 across Central Western Queensland. They report finding it challenging to facilitate access to all care needs for people with diabetes, including diabetic retinopathy screening. Diabetic retinopathy is the most serious ocular complications of diabetes and is the leading cause of preventable blindness in working age populations (68). The Queensland Chronic Conditions Manual recommends diabetics have annual screening (31). Prior to 2012, visiting ophthalmologists and optometrists performed most of the remote area diabetic retinopathy screening in the region. However, data indicated that less than one fifth of remote diabetic patients were being screened in accordance with clinical guidelines, and did not meet retinal screening recommendations (68). It was also found that performing retinal screening was an inefficient use of the ophthalmologists' specialist skills.

The CWHHS implemented telehealth to mobilise the *Remote Outreach Diabetic Retinopathy Screening Service*. Telehealth programs are found to be most successful when they integrate technology with a team approach of practitioners on the ground. In this model a nurse is trained in the use of an automated nonmydriatic camera to undertake fundal photography for retinal screening. The nurse visits the community with an Aboriginal and Torres Strait Islander Health Worker to perform the screening. The retinal images are sent via telehealth to the local general practitioner who has been trained to read and grade the image. A protocol has been developed for follow up after screening. If any pathology is identified the patient is referred to the visiting ophthalmologist.

This model increased diabetic retinopathy screening from 33.7% in 2012 to 47.9% in 2014 (68). Diabetic retinopathy was detected in 24.3% of clients, which is higher than other rural and remote studies that report 16 to 18%. *See Appendix 4.6 for full details of this model and a diagram of the remote outreach diabetic retinopathy screen pathway.*

4.3.2 Clinical Decision Support Systems

An electronic *Patient Information System* (PIS) with clinical decision support and reporting functions, embedded into the software, supports best practice in chronic disease care. Prompting care needs based on clinical guidelines assists with reducing variation in clinical practice and prompts regular

follow up with the client. Three examples from the government, non-government and private practice environment demonstrate how the PIS supports:

- A systematic approach to clinical practice
- The clinician to make the right decisions about interventions, and
- Quality improvement activities to inform where service delivery improvement is required.

4.3.2.1   Patient information system management- Kimberly Aboriginal Medical Service

The *Kimberley Aboriginal Medical Services* (KAMS) is a regional *Aboriginal Community Controlled Health Service* (ACCHS) in Western Australia that provides services across 424,517 km^2 to a population of approximately 35,000 people in six small townships and 200 remote Aboriginal communities. KAMS provides a collective voice and support for a network of eight ACCHS across the Kimberley region. KAMS made the strategic decision to implement a patient information system called MMEx as their corporate system for all member organisations to manage their patient care and service reporting needs. They are continually adapting the system to support primary and secondary prevention for chronic disease.

The PIS supports a population health approach and comprehensive shared care. It contains all the standard features required to support primary and secondary prevention of chronic disease including:

- Electronic patient records
- Practice management i.e. appointments and billing
- Secure messaging for referrals
- Care planning and recall system
- Medication management
- Links to *My Health Record*.

The system is care plan driven, with endorsed chronic disease protocols embedded within the systems software. A lead clinician forum made up of Doctors, Nurses and Aboriginal Health Workers makes decisions about systems requirements, changes to clinical protocols and modifications to the system. Self-care is promoted by producing trend diagrams for clients to illustrate changes in their clinical care results over time. A key feature of the system, which enables information sharing and continuity of care, is the electronic consent for release of information function. This permits real time information sharing between primary health services and the hospital Emergency Departments in the region. This reduces risks of adverse outcomes and improves feedback to primary health care services about any changes to medication and care delivered at the hospital.

The regional PIS has enabled quality improvement initiatives targeting chronic disease care processes. One initiative established between KAMS and the *Kimberly Pharmacy Services* is to talk with people about chronic disease medications to identify their preferred dose administration aid. Clients are offered the option of generic packaging, Webster packs or medi-sachets for their medication. It is expected that tailoring dose administration aids to suit the individual will improve medication compliance. For example, young people prefer their chronic disease medications to be supplied in medi-sachets as they are more portable and discrete than Webster packs, which they often associate with old people. A formal evaluation of this initiative is planned to assess if tailoring dose aids to the client improves compliance. *See Appendix 4.7 for full information.*

4.3.2.3 Clinical Decisions making tools – Top End Health Service

The Northern Territory Government has developed the *Chronic Conditions Management Model* (CCMM) as a systematic and integrated approach to prevent and manage chronic disease by streamlining systems. The model was designed to improve coordination, support for clinicians, integration, delivery, documentation and evaluation of chronic disease care (52). The *Patient Care Information System* (PCIS) is used by the majority of Northern Territory Government primary health care services to plan and record care. PCIS is being continuously updated to build in clinical decision support functions to assist clinicians with client care and monitor health care service delivery. Integrated into the information systems are clinical decision support tools that improve the clinician's practice as well as routine reporting mechanisms that support ongoing quality improvement activities.

Recent enhancements to PCIS system include:
- The implementation of cardiovascular risk calculator to produce a cardiovascular risk assessment score
- A combined chronic disease care plan for people with multiple chronic conditions and
- The development of the 'Traffic Light' Chronic Conditions Management Report.

The production of one chronic disease plan for people with multiple conditions reduces the risk that some interventions of checks and the relevant Medicare items might be missed as they are on a different care plan, or they might be delivered twice. These regular monitoring and review systems, using the traffic light reports, supports a continuous quality improvement approach to improve chronic disease health outcomes.

Increased intelligence about these service activities has strengthened clinical governance, as noncompliance of individual practitioners to standard treatment protocols can be identified and rectified quickly. Collectively these changes have reportedly led to improvement with the completion

of general management care plans from 35% in 2012 to 61% in 2016. Nearly 96% of diabetic clients had a HbA1c recorded in the past 12 months and there has been a reported reduction in preventable hospitalisations. *See Appendix 4.6 for full information.*

4.3.2.4 Quality improvement using *MedicineInsight* – Tasmania GP

Traditionally general practice has not benchmarked their service performance against other similar general practice services, because they did not have the time or systems capability to do so. The Australian Government Department of Health supported *National Prescribing Service* (NPS) MedicineWise to develop a software program – *MedicineInsight* – that promotes quality improvement. *MedicineInsight* enables GPs to:

- Reflect on their own patterns of prescribing and patient care
- Compare these with other GPs in their practice, and
- Compare the practice against local, regional and national benchmarks.

Many remote General Practices in Tasmania have implemented *MedicineInsight* to support quality improvement and population health activities for best practice chronic disease care. Each general practice has its own portal, and tailored reports can be produced to support quality improvement activities. Gaps in clinical data can be highlighted and customised searches can be saved to a dashboard. These can then monitor performance over time with delivery of annual cycles of care, management of clinical care, and medication management. This software is available for private GPs anywhere in Australia to help review variation in their practice. *See Appendix 4.9 for full details.*

4.3.3 Organisational influence and integration

The following two case studies demonstrate the importance of organisational influence in creating and supporting   organisational structures and processes to promote safe, high quality care and integration of all systems (69). The examples are from *Nganampa Health* and *Maari Ma Health*. They demonstrate the importance of clear organisational direction and commitment to chronic disease care with regular evaluation over a long period of time. A consistent and comprehensive approach to best practice chronic disease care will provide better support to clinicians and assist with addressing the variation in hospitalisation and prescribing practices.

4.3.3.1 `Regional program support systems – Nganampa Health

Nganampa Health Council (NHC) is an Aboriginal Community Controlled Health Organisation operating on the Anangu Pitjantjatjara Yankunytjatjara (APY) Lands in the far north west of South Australia. It covers over 105,000 km^2, manages seven remote clinics and reports over 60,000 patient contacts per annum.

The clinics are staffed by Aboriginal health workers, nurses and medical officers and there is a common patient information system used across the service. NHC has a dedicated chronic disease program manager employed to provide leadership for chronic disease care. The incumbent recruited to the position has worked on the APY lands previously so understands the context and the support required for teams based in remote communities. The position monitors the care needs of clients and visits communities to help deliver chronic disease prevention and management services. Weekly in-service training sessions are delivered to staff to build local capacity to deliver primary and secondary preventions for chronic disease and to review progress against key performance indicators.

A centralised coordinated focus on the chronic disease program and ongoing professional development has resulted in an increase in health checks from 84 in 2008/09 to 1427 in 2017. Compliance with clinical protocols for chronic disease has contributed to a reduction in emergency evacuations from 350 in 2011-12 to less than 200 in 2015-2016. *See Appendix 4.8 for full details.*

4.2.3.2 Health system organisation and integration - Maari Ma

Maari Ma Health Aboriginal Corporation (Maari Ma) is based in Broken Hill and uses a hub and spoke model to deliver services to communities in the Far West Region of New South Wales. Remote communities within the Maari Ma footprint include Wilcannia, Ivanhoe, Menindee and Tibooburra. *Maari Ma* provides an example of best practice organisational influence over the health system, as well as integration of all components of the *Chronic Care Model* to enable innovation in primary and secondary prevention strategies for chronic disease.

Maari Ma is managed by an elected Board, made up of representatives from the seven communities across the Maari Ma region. All Directors are members of the local *Aboriginal Land Councils.* The governance structure ensures there is a strong link with communities to enable effective partnerships to be formed and good flow of information between *Maari Ma* and community (70). In 2005, *Maari Ma* developed a Chronic Disease Strategy to provide the blueprint for service development to set the direction for planning, management, service implementation and programs to prevent and manage chronic disease. The key premise of the strategy is that improvements in chronic disease outcomes can be achieved through more comprehensive and effectively coordinated primary health care services using a client focused population health approach to address risk factors across the life continuum. The strategy addresses both the clinical and cultural aspects of service delivery to improve access to care. Chronic disease service delivery is supported by a systems approach to care and

continuous quality improvement. This includes ongoing clinical auditing and systems assessment to refine strategies through ongoing plan-do-study-act cycles.

The Chronic Disease Strategy was formally evaluated in 2016. The evaluation highlighted that there has been 10 years of continuous change management to implement the strategy and that this is likely to continue in the future. The strategy has been implemented incrementally, as new funding opportunities became available and, in response to quality improvement activities. External factors have also been drivers of change. These include: NSW Health organisational restructures; changes to funding arrangements; new state and national policies; and changing relationships with service partners. Therefore, ongoing modifications have been required to the service delivery design and systems of care.

Prevention and management of chronic disease is complex and occurs in a dynamic environment. The production of the Chronic Disease Strategy enabled *Maari Ma* to engage with the community and external service providers regarding the preferred approach to chronic disease care within this changing environment. It has supported the development of community partners by improving their health literacy thus enabling them to be active partners to respond to health issues. The process was described by the Community Engagement Manager as "like a series of doors one opening after another, the services progressed side by side with the community"(70).

Improved systems management and service partnerships has increased screening of well adults from 111 in 2010 to 1145 in 2015. Almost 80% of chronic disease clients had a care plan completed in the past two years. There have been improvements in follow up of abnormal blood pressure control for people with diabetes and cardiovascular disease, and an increase in home medication reviews. Collectively the improvements in clinical management are contributing to a reduction in preventable hospitalisations for chronic disease.

5.   ENABLERS AND BARRIERS TO BEST PRACTICE

This report shares a number of successful interventions that demonstrate how remote services can improve access to best practice primary and secondary prevention programs. Addressing risk factors for chronic disease and the delivery of 'the right care at the right time' will help reduce the variation in hospitalisation rates reported in the Atlas between urban and remote Australians for heart disease, diabetes related lower limb amputations and stroke. Understanding the enablers and barriers will assist with transferability of interventions to other remote locations.

5.1 Enablers to best practice interventions

Each exemplar highlights enablers required to strengthen chronic disease prevention and management to achieve best practice and improve the effectiveness of programs and services. The enablers for primary and secondary prevention are slightly different.

5.1.1 Improving primary prevention interventions

The analysis of the interviews identified there were four common features that enable the success and sustainability of primary prevention interventions in remote areas. They are:

1. *Embedding the intervention into the social fabric of the community* – to build the capacity of the community and mobilise community resources

2. *Partnership empowerment approaches* – whereby a strong coalition of stakeholders, both within and outside the health sector, work together using a coordinated multi-strategy approach to address the risk factors and underlying determinants of health. This should include aligning activities to meet the objectives of other government and non-government service providers, as it will increase commitment to the intervention.

3. *Continued funding source* – to support and manage the governance and planning for primary prevention strategies.

The case exemplars for best practice primary prevention interventions reflected two quite different contexts, a remote Aboriginal community in the Northern Territory – *see Appendix 4.2,* and a rural community in Western Queensland – *see Appendix 4.3 for full details.* However, they both demonstrate the importance of embedding the intervention into the community and working in partnership with community stakeholders to ensure the intervention is both successful and sustainable in remote areas.

The literature review and consultations identified four key considerations when commissioning, developing, or implementing primary prevention interventions.

1. Determine the agency or collaborator best placed to lead the intervention in the community*.* In most cases this will not be the health service, as demand for acute services and staff turnover will impact on the sustainability of the intervention.

2. Secure an ongoing commitment and funding source for the primary prevention intervention. This will help build certainty to gain commitment by service partners and the community, and build the social capital required in communities to sustain interventions and make them relevant and useful to the remote community.

3. Tailor interventions to meet the needs of each remote community. Every remote community has a different governance structure, demography and community resources. Therefore, what works in one community may not be transferable to another community, unless it is tailored to meet the specific requirements of that community.

4. Target screening for risk factors specifically for different age and gender groups. This provides the opportunity for early risk identification and brief interventions to encourage community members to use community primary prevention programs.

Primary prevention interventions can fail where there is lack of influence on the key factors critical for success. An example of this is the numerous stop smoking campaigns. Research projects have demonstrated how multi-strategy approaches in remote areas have been successful at:

- Restricting the supply of cigarettes by banning the display and promotion of cigarettes
- Preventing sales of cigarettes to minors, and
- The establishment of smoke free workplaces and community spaces.

Despite these efforts, there has been very little sustained change to smoking rates in remote areas. The lack of access to nicotine replacement therapies, cognitive behaviour therapies for people seeking to quit, and the underlying Aboriginal and Torres Strait Islander kinship and obligation systems, which negate the usual impact of reduction in sales due to increasing the price of cigarettes, are barriers to stop smoking. These barriers could be reduced through:

- Partnerships or commissioning to engage service providers to provide cognitive therapy
- Taking a family centred health promotion approach
- Health literacy programs to support kin in efforts to quit, and
- Advocating for policy change to include nicotine replacement therapy on the *Pharmaceutical Benefit Scheme.*

5.1.2 Improving secondary prevention interventions

The remote health service exemplars presented in this study have three common enabling features that have contributed to improving outcomes for people with chronic disease. These include:

1. Using a systems approach to chronic disease care e.g. regular screening, developing disease registers and reminder systems

2. Redesigning their services to implement the chronic disease care model using a team approach, new roles, and processes to maximise Medicare revenue to support resourcing for sustainable service delivery

3. Embedding continuous quality improvement into the culture of service planning, monitoring and evaluation to strengthen their systematic response to chronic disease management.

These features provide a robust foundation for services to implement strategic innovations and make incremental changes to health service delivery through technology, service redesign and workforce management to deliver best practice clinical care to patients.

Again, this study has highlighted important elements to be addressed by commissioning bodies and service providers for effective secondary prevention activities in remote areas. These include:

➢ *A clear blueprint for service development* – at a strategic and organisational level, such as the *Maari Ma Chronic Disease Strategy – Appendix 4.10;* – and the *Northern Territory Chronic Disease Strategy – Appendix 4.4* for full details*. This enables services to stay focused on the long-term commitment to the implementation of their chronic disease model of care within an environment where there may be changes to funding arrangements, strategic policy, service partners, or emergent health issues in a community.

➢ *Actively engaging with clinicians* – including those employed by a health service and those providing a visiting service, e.g. medical specialists and allied health professionals such as the model used in the Katherine region – see *Appendix 4.5* for full details. This is important to gain a commitment to the service vision and model of care, particularly when refocusing from an acute to a proactive chronic care model. Executive and clinical leadership are critical for sustainable change to the model of care.

➢ *Investing in the workforce* – to ensure there are enough health professionals and ancillary staff with the necessary skills and capabilities, to meet service demands. Orientation to remote practice, with regular and consistent training for remote health teams to understand chronic disease guidelines, the model of care, quality improvement activities, and to work as part of a cross cultural multidisciplinary team to support the delivery of the best practice chronic care is essential, as demonstrated in the *Maari Ma – Appendix 4.11* and *Nganampa Health exemplars – Appendix 4.10*. Employing and developing the Aboriginal and Torres Strait Islander health workforce in clinical, client management and administrative roles is essential to building and sustaining health services in remote areas.

➢ *Clinical Information Systems* – Creating a work environment and organisational culture to effectively use clinical information and decision support systems to their full potential as demonstrated by *KAMS – Appendix 4.7* and the *Top End Health Service – Appendix 4.8 for full details.* This includes:

- o Ensuring all visiting medical specialists and other health professionals use the local information systems to record clinical care and interventions delivered, for comprehensive data capture
- o All team members having access to training and support – to be involved in quality improvement activities
- o Actively engaging the team through structured and scheduled meetings – to use the data to plan services, review reports, and understand the service delivery outcomes
- o Using the information system for continuous quality improvement – to identify barriers to access and quality care, implement change and measure effect.

- ➢ *Understand the construct of the community(s)* – the lifestyle factors and social determinants of health that contribute to chronic disease. Services need to tailor health literacy programs to the needs of the community and the individual and promote pro-active care and self-management of chronic conditions as per the approach used by Congress, which then increases revenue to invest in service delivery – see *Appendix 4.4 for full details.*
- ➢ *Proactively support telehealth* – at a strategic and service level to integrate telehealth into usual team based work practices to maximise its potential to improve access to specialist services as demonstrated by the CWHHS in the remote retinopathy screening service – see *Appendix 4.6 for full details.* This includes:
  - o access to and maintenance of equipment
  - o training staff to use the equipment
  - o developing agreed protocols between telehealth consultation providers, including information required and follow up processes to ensure a successful consultation
  - o engaging with patients to use the technology.

The emergent enablers highlighted by exemplars to improve access to primary and secondary interventions are summarised in Table 5.1.

Table 5.1 Summary of enablers from exemplar primary and secondary interventions										
Enablers	Ramingining	BHSM	Congress	Katherine	CWHHS	KAMS	TEHS	Medicines Insight	Nganampa Health	Maari Ma
Primary prevention interventions										
Intervention embedded in the social fabric of the community	x	x								
Partnerships where Intervention contributes the the goals and outcomes of all partners	x	x								
Sustainable funding source	x	x								
Secondary prevention interventions										
Systematic approach to care			x	x	x	x	x		x	x
Chronic disease model using multidisicplinary team			x	x	x	x	x		x	x
Commitment to continuous quality imrpovement			x	x	x	x	x	x	x	x
Clear vision shared by all service providers to embed CD care	x	x	x	x	x	x	x		x	x
Long term leadership to ensure consistent support for CD activities	x	x	x	x	x	x	x		x	x
Clinical leadership & strong clinical governance			x	x	x	x	x		x	x
Service designed to suit community/client centred	x	x	x	x	x	x	x		x	x
Clinical information system with decision support functions			x	x	x	x	x	x	x	x
The right mix of staff to deliver all care needs			x	x	x				x	x
Development of new roles within the multidisciplinary teams			x	x	x				x	x
Supportive and integrated team approach			x	x	x				x	x
Referral and communication pathways with specialist and visiting services			x	x	x	x	x	x	x	x
Knowledge of community & cultural needs			x	x					x	x
Capacity building of staff through:										
Multidisciplinary team approach			x	x	x	x	x		x	x
Cultural education and structured orientation			x	x	x	x	x		x	x
Training in chronic disease screening and management			x	x	x	x	x		x	x
Employment of local Aboriginal and Torres Strait Islander staff			x	x	x	x	x		x	x

5.2   Barriers to best practice and improved chronic disease outcomes

A continued challenge to improving the effectiveness of chronic disease interventions in remote areas is the absence of an overarching Rural and Remote Health Strategy that provides a clear vision and blueprint for rural and remote health. The strategy requires a consistent approach to policy and funding with agreed standards for chronic disease management and strategies to address the social determinants, the underlying contributors to poor health in rural and remote Australia. The development of a National Rural and Remote Health Strategy was a key recommendation from the 14th National Rural Health Conference, held in April 2017, to address this issue.

There are structural and data collection barriers that will continue to contribute to the variation in prescribing rates between remote, rural and urban settings. People living in remote Indigenous communities and remote towns have less access to GPs to review chronic disease care needs and

prescribe appropriate medication. If the individual lives in a remote town without a community pharmacy, the individual or service must arrange for their prescriptions to be sent to the nearest community pharmacist to be filled and returned. This could take several days depending on local transport routes and infrastructure.   In remote Indigenous communities medications are provided through section 100 provisions, which are not reflected in PBS data collection systems. Therefore, while the PBS data is used as the only source for analysing prescribing rates, there will always be an artificial under prescribing of medications reported for remote areas.

At the community and service level the key barriers to implementation of effective primary and secondary prevention programs is high demand for acute care services, lack of program leadership and team approach, poor orientation to community and service systems, high staff turnover, ad hoc funding and lack of culturally appropriate strategies to address risk factors. The high prevalence of risk factors for chronic disease will continue to drive higher hospitalisation rates for asthma, heart disease and stroke in remote areas until effective primary prevention strategies are implemented that address factors contributing to intergenerational social determinants.

6.   SUMMARY

Improving access to well-coordinated services that deliver evidence based primary and secondary care is recommended in the Atlas to address the variation in heart failure, stroke and diabetes related lower limb amputations (5). A sample of successful best practice primary and secondary prevention interventions from across Australia were shared to demonstrate how access to primary and secondary interventions in remote areas can be improved. The key enabler for successful and sustainable primary prevention programs is leadership by a community organisation. The common success factor for secondary prevention intervention is that the health service has made the paradigm shift to the chronic care model to guide service planning underpinned by a continuous quality improvement framework. Each of the exemplars showcased an intervention that improved service access by strengthening at least one of the health service domains of the chronic care model. They demonstrate what a "well developed" service looks using the criteria outlined in the Indigenous chronic disease systems assessment tool.

APPENDIX 1.   METHODOLOGY

Step 1.   Literature review discussion paper

A literature review was undertaken to identify potential best practice examples of primary and secondary prevention. The methodology included: A search of Medline, Cinahl, Scopus, Pubmed and Informit library data bases on the topic of primary and secondary prevention strategies in rural and remote Australia. Key search terms included "chronic disease prevention", chronic disease care", "remote", "very remote", "rural", "Indigenous" and other similar terms including "Aboriginal"," Islander" or "Native", "chronic disease", "prevention" and "screening". The agreed chronic conditions were also be included in the search terms.

A pragmatic search of the grey literature was completed using a reference list of articles found from the literature search, by contacting professional networks and from websites of those with an interest in Aboriginal and Torres Strait Islander health[1], and rural and rural and remote health.

The literature search was restricted to Australian literature and reports published since January 2007. This timeframe coincided with investments in General Practice through the *Australian Health Care Collaboratives* and in *Aboriginal Community Controlled Health Services* through the *Healthy for Life* program, which developed chronic disease prevention and management interventions. A summary of the scope of the literature search is shown in *Table 2.1*

Table 2.1 Inclusion and exclusion criteria for the literature search

Criteria	Inclusion	Exclusion
Geographic area	Remote and very remote areas in Australia. Rural outreach to rural and remote services.	Metropolitan, urban, and regional areas in Australia and elsewhere.
Intervention types	Primary and secondary prevention strategies. Hub and spoke outreach services originating from regional cities and rural towns.	Hospital and specialist clinical treatments delivered in regional or rural hospitals
Time period	2007 – 2017	Prior to 2007

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[1] This http://www.healthinfonet.ecu.edu.au/population-groups/rural-remote/programs-and-projects web site shows 281 programs listed but on glance only few may be relevant

Publication	Peer reviewed journals, grey literature, websites	Research protocols

A discussion paper was developed to summarise best practice primary and secondary interventions for the designated chronic conditions and used as the basis for discussion with key stakeholders.

Step 2. Roundtable meeting

A list of key stakeholders to invite to the Roundtable meeting was developed in consultation with the Commission. A total of 40 invitations were sent to potential key informants. The Roundtable meeting was held in Cairns to opportunistically attract stakeholders attending the 14th National Rural Health Conference. The purpose of the meeting was to discuss examples of best practice primary and secondary interventions in remote Australia. Participants were provided with a copy of the literature review as a starting point for discussion. Many potential examples of best practice primary and secondary interventions from across Australia were identified for follow up.

The consultants also used the conference sessions as an opportunity to identify preventable chronic disease initiatives, which were then followed up in the consultation process. A focus on selected *Primary Health Networks* (PHNs), *Aboriginal Community Controlled Health Services*, Local Heath Networks, GPs and Aboriginal Health Professionals, also occurred.

Step 3. Consultation process

The stakeholders and sites visited were identified by the consultants. The list was informed by participants from the Roundtable discussion, the consultant's knowledge of remote locations, where existing chronic disease initiatives were known to be working, and through their working relationships. Semi structured interviews (n=10) were undertaken either face to face or by telephone based on a set list of questions to identify best practice examples of primary and secondary prevention services, for patients with chronic disease in remote communities. *See Appendix 3* for interview questions; and Figure *2* for the location of sites reflected in examples of primary and secondary prevention interventions.

Figure 2: Geographic locations where consultations occurred
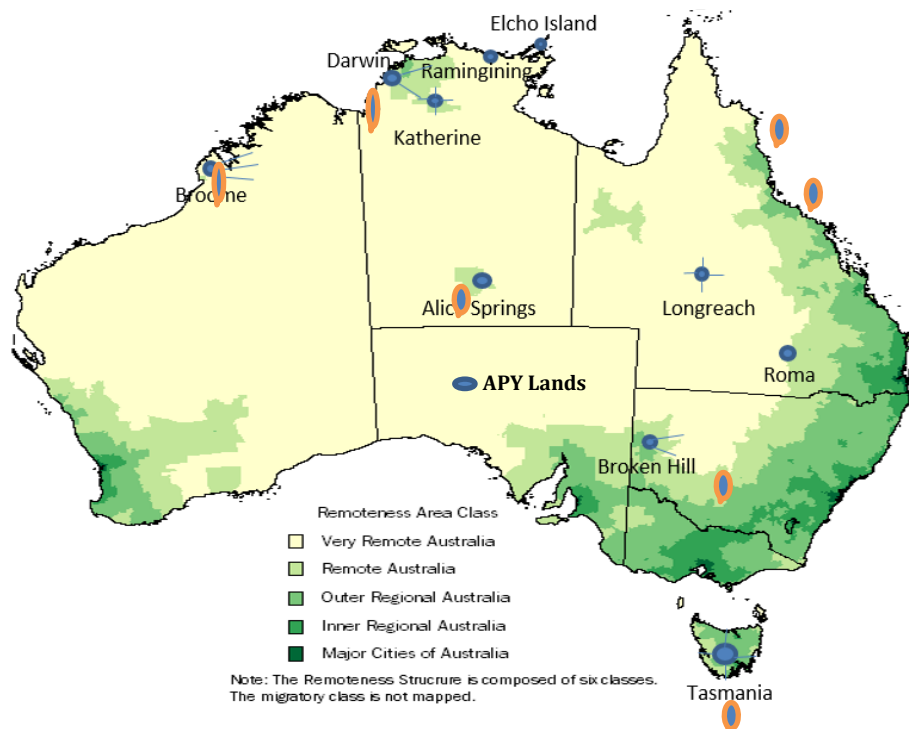
Interviews were recorded and hand-written notes were also taken. Each consultant wrote up their interview reports which were sent back to the stakeholders interviewed to validate that strategies shared had been understood and recorded correctly.

Step 4. Collation and analysis

Collated data from the literature review and the stakeholder interviews was presented by each consultant, and discussed at a consulting team meeting in Brisbane in mid-June. Findings from the interviews were then common themed and synthesised with the learnings from the literature.

Step 5. Production of the project report

A written draft report was developed and presented for feedback from the Commission. A teleconference with the Commission, to discuss the findings, was undertaken in early August. A final report was then prepared.

APPENDIX 2.   STAKEHOLDERS CONSULTED

ROUNTABLE – CAIRNS

Facilitated by Professor Janie Dade Smith, Bond University Medical School, Gold Coast, Qld

Dr Dennis Pashen	Chair, Quality and Safety Committee Australian College of Rural and Remote Medicine (ACRRM), Launceston, Tasmania
Ms Collen Watkins	Chronic Care Systems Lead, North Queensland Primary Health Network (PHN), Cairns, Qld
Ms Kerrie Copley	Continuous Quality Improvement Coordinator Top End, Aboriginal Services Alliance of the Northern Territory (AMSANT), Darwin, NT
Ms Louise Patel	Continuous Quality Improvement Coordinator Central Australia AMSANT, Alice Springs, NT
Ms Angela Jarkiewicz	Regional Services Manager, North Royal Flying Doctors Service (RFDS) Queensland, Cairns, NQ
Ms Ruth Bullen	Primary Health Care Program Manager, North RFDS Queensland, Cairn, NQ
Ms Fiona Brook	National Rural Health Alliance, Senior Policy Advisor, Canberra, ACT
Dr Kieran Hannerly	Medical Officer, Royal Flying Doctor Service, Derby, WA
Ms Kim Whitely	Western NSW PHN, Aboriginal Health Manager, Dubbo, NSW
Dr Sue Devine	James Cook University, Townsville, NQ
Dr Kristine Battye	KBC Australia, Orange, NSW
Ms Barbara Schmidt	Barbara Schmidt & Associates, Cairns, NQ.

KEY STAKEHOLDER CONSULTATIONS

Ms Nicki Herriot	Chief Executive Officer, NT Primary Health Network, Darwin NT
Dr Christine Connors	General Manager, Primary Health Care, Top End Health Service, Darwin NT
Dr Andrew Bell	Rural Medical Practitioner, Primary Health Care, Top End Health Service, NT
Dr Rosemary Lee	Rural Medical Practitioner, Primary Health Care, Top End Health Service, NT
Mr Bob Davis	Chief Executive Officer, Maari Ma Health Aboriginal Corporation, Broken Hill NSW
Dr Hugh Burke	Medical Director, Maari Ma Health Aboriginal Corporation, Broken Hill, NSW
Ms Lucy Falcocchio	Health Systems Development Manager, Kimberly Aboriginal Medical Service, WA
Mr Martin Cutter	Director of Nursing & Aboriginal Health Work, Co-Lead Clinical Services, Kimberly Aboriginal Medical Services, Broome, WA
Ms Donna AhChee	Chief Executive Officer, Central Australian Aboriginal Congress, Alice Springs, NT
Dr John Boffa	Public Health Medical Officer, Central Australian Aboriginal Congress, Alice Springs, NT

Ms Annaliese St George	Specialist – Be Healthy & Safe Maranoa, Customer & Community Services, Maranoa Shire Council, Roma, Qld
David Busuttil	Health Service Manager, Nganampa Health Services, Alice Springs NT
Dr Simon Quilty	Director of Medical Services, Katherine Hospital, Katherine, NT
Mr Jeff Cook	Chief Executive Officer, Laynhapuy Homelands Aboriginal Corporation, NT
Ms Lisa Sommerville	Innovation and Sustainability Manager, Food Ladder, Ramingining, NT.

APPENDIX 3.   INTERVIEW QUESTIONS

The following questions were used as a guide in both the Roundtable discussion forum and the semi-structured interviewing process.

Objective

- To identify best practice examples of primary and secondary prevention services, for patients with chronic disease in remote communities
- To identify communities of interest or other stakeholders to interview
- To identify the policy, systems and people and organisation providers.

Roundtable and interview questions

1. Can you tell me about a really effective remote model of primary or secondary chronic prevention service, based on the particular diseases we are addressing in this project?
2. What do you think are the features of this model of care that make it work?
3. In what structure is this happening that make it work? e.g PHC practice, ACCHO
4. What clinical decision-making tools are used in this program? e.g Communicare
5. Do you think it is sustainable in the long term? What makes it sustainable? What are the drivers and barriers?
6. Has there been a change in the health data and clinical outcomes as a result of this project/program? e.g. variation in admissions to hospital / transfers, clinical outcomes.
7. How is this program underpinned by the data? What data is collected? How by whom?
8. What is the connection to the community and how are they involved in the service model?
9. If this program was rolled out in other places what structure would they need in place to make it happen?
10. We will be undertaking an interviewing process in the next few weeks. Are there key areas and people that you think we should interview to find out about effective models in remote?

APPENDIX 4.   CASE EXEMPLARS

Appendix 4.1 – Food Ladder - Ramingining

4.1	Food Ladder
About the Food Ladder	A food security system trialled and refined in India and now implemented in Katherine and Ramingining in the Northern Territory.
Aim	To produce commercial quality food using a water efficient hydroponic system, developed by the community, in the community and embedded within a community organisation that Food Ladder can work with.
Approach	It creates healthy hub by: • Linking with existing community infrastructure to identify opportunities to deliver education about food production and good nutrition, • Using a whole of community multi strategy approach to embed the food security system in the community. Stakeholders are welcomed to be part of the enterprise to encourage a feeling of ownership by the community. • Establishing partnerships with agencies that identify a positive benefit in being connected to the project to create symbiotic relationships. • Employing and training local people in food production and • Establishing commercial arrangement to sell produce to local businesses. • The project has the potential to contribute to cultural, employment, educational, economic, health and social benefits by maximising partnership arrangements. This also assists with sustainability of the project as continued local food production becomes important to community stakeholders and community members.
Context - Ramingining	Ramingining is a remote Aboriginal community in Arnhem Land of approximately 800 people. Farming was undertaken in Ramingining in the past and community members were keen to reintroduce food production into the community.
Project establishment	• The community approached *Food Ladder* to establish the project in Ramingining to grow market demand for locally grown produce in a Greenhouse, which they sell in the store to ensure food security.

	- The greenhouse took a year to plan, 4 weeks to construct and was completed in In August 2016. The first harvest was produced 5 weeks later. - The local school children immerse themselves in practical class learning by planting the first seeds, returning to inspect the germination process and by participating in the first harvest. - ALPA works with the *Food Ladder* nutritionist in health and nutrition training by providing harvest recipes to help local Aboriginal people explore new vegetables and again nutritional knowledge to support their own and their families health. - ALPA is seeking to replicate the *Food Ladder* system across 25 other sites in the Northern Territory to ensure the food security for remote communities.
Governance	The greenhouse is owned and governed by a triumvirate of three Aboriginal businesses – *Dinybulu Regional Services Pty Ltd*, *Rulku Enterprise Pty Ltd* and *Arnhem Land Progress Aboriginal Corporation* (ALPA).
Funding	- Seed funding was provided by Food Ladder to build food ladder Commercial Hydroponics system and to employ project manager - *Australian Government* – capital funding for the construction of the food production system.
Staff training & employment	Training strategies includes: - Formal studies and on the job training. All workers undertake training to work in the greenhouse to ensure compliance with food production and Work Place Health and Safety standards. - Plain English training videos with practical demonstration of skills are produced for a minimal cost using mobile phones. - A hosting arrangement with *Charles Darwin University* (CDU) allows the space to be used for training. CDU is delivering Certificate II in Rural Operations to 15 CDP participants with the greenhouse as the practical teaching example. Once trained workers can work in the greenhouse in Ramingining or elsewhere if they so choose. Employment approach:

	• The Greenhouse provides casual employment, with harvest and planting crews of up to seven people coming from a pool of 17 trained workers. • The flexible employment pool is a culturally conscious and respectful employment model allowing the pool to self-organise and flex to fit with cultural obligations.
Enablers	Enablers for successful implementation are: • Seed funding to establish the infrastructure initiative and infrastructure support • Partner with a community organisation to ensure that the enterprise is locally driven and embedded within the community organisations • Robust governance structures • Consistent expertise from *Food Ladder* to address issues during the establishment phase with legislative and technical compliance requirements, construction of hydroponic gardens, food production, training of workers, establishment of business relationships to sell produce and community education and longer term with training and workforce development. • Formal and on the job training is provided in food production • Health promotion and education about good nutrition to the community to encourage behaviour change
Barriers	Water supply, soil quality, staffing, retention of staff.
Health outcomes	In the first 6 months of operations the nutritionist working in Ramingining reported a 5 per cent incr ease in the sale and consumption of fruit and vegetables since the *Food Ladder* system has been implemented.
Success factors - steps for success	• A project management methodology is used to plan and implement the project. • There is a genuine and mutually beneficial partnership between stakeholders • Involvement of children, community members and elders in greenhouse activities. • Produce is sold to the local store • *Engage people with* expertise

	• Undertaking a risk assessment – to ensure that the project can progress and there are not any barriers which cannot be overcome e.g. extreme water supply issues. • Embed leadership for the project in a community organisation to be the business partner as they provide expertise in cultural protocols, community relationships, opportunities for commercial enterprises, the workforce, links with community organisations and how to increase the demand for fresh food.

Appendix 4.2 – Be Healthy and Safe Maranoa Project, Qld

4.2	Be Healthy and Safe Maranoa Project
Aim	To develop and coordinate community based health promotion and community development activities to deliver health promoting activities to the local community that is driven by mutual benefit.
About Maranoa	This project is sponsored by the Maranoa Council in Roma, Queensland. It has been operating for 7 years.
Target group	Those most at risk in the Maranoa Shire – seniors, men, youth, geographically isolated and Aboriginal people.
Funding	Healthy Community funding from 2010 until 2014. Since then the Maranoa Council allocated resources to employ the project officer to lead project activities, as well as a small budget to leverage contributions from partner organisations.
What do they do?	The project offers a range of programs, activities and events throughout the region to promote a wellbeing culture in the community.
Programs delivered	Examples of programs delivered include: • Mums and Bubs nutrition workshops involving the Maranoa Shire Council and the SWHHS • Men's health checks at the Sale Yards involving the Maranoa Shire Council, SWHHS, Stroke Foundation and 'Psychs on Bikes' • Go for green program, cooking workshops, nutrition sessions and supermarket tours delivered by the *Be Healthy and Safe*

	Maranoa project officer in partnership with nutrition and dietetics students. • Establishment of community gardens with Council • Coordinating Women's Mental Health days during Mental Health week with the SWHHS. • Coordination of the RUOK day for which the project was nominated for an Australia Day award. • Heart Foundation walking groups • Placement of outdoor exercise equipment in the community – fitted out with bar codes that show how the equipment can be used by scanning with a smartphone. This also measures the frequency of users so help evaluate their use.
Service partners	Blue Care, Vital Health, Police Youth Citizens Club, Anglicare, Centrelink, Aftercare, the South West Hospital and Health Service (SWHHS), Charleville and Western Areas Aboriginal and Torres Strait Islander Community Health Service, Catholic Care, Queensland Police Service, TAFE, Carers Queensland and Goolbari Aboriginal Health Advancement Company. Service partners meet every month to plan projects, share information about upcoming initiatives and to collaborate on funding proposals.
Enablers	• Continued engagement of partners for sustainability of the project – If one organisation is going through difficulties or has funding cut, another organisations with capacity is often able to step up. • An annual partnership workshop is held to reflect on the success of the events/programs delivered, to generate ideas for future events, to discuss how to improve the marketing of health promoting activities and to develop the plan for the next year.
Staffing	• The Project Officer is a designated dietitian/nutritionist position so they are able to link evidence about the benefits of the activity into the marketing of events and programs. They document the

	plan, and provide assistance with developing grant submissions to implement the plan; and lead community health promotion events in partnership with the relevant service partner(s).
Success factors	• All services in Roma and visiting services know that the first stop to start planning any health promotion initiatives in the Shire is the *Be Healthy and Safe Maranoa* project. There are well developed systems for planning events which means that the limited resources are used efficiently. • Aligning interventions with the partner organisations strategic directions makes it easier for them to commit resources to initiatives as well as establishing networks that can be used to market the initiative at little cost. *For example:* men are a key target group for the project. A common meeting place for men is the Shire Council's saleyards. A men's health day was arranged at the saleyards and attended by *Queensland Health*, *the Stroke Foundation* and 'Psychs on Bikes[i2]' who offered screening and to open discussion about men health issues. Partnering with the Council offered an opportunity to engage with men using the established communication processes by which cattlemen receive information about sales as well as promoting the event to the target group.
Health outcomes	No data systems are in place to draw a direct link between these primary prevention interventions and health outcomes in the SWHHS. However the partner organisations have identified the benefit in the project continuing and the Council has responded by continuing to host the position.
Barriers	The key risk to ongoing sustainability of the project is rural decline. Due to several years of drought and reduction in mining activity in

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[2] 'Psychs on bikes' is a group of psychiatrists, psychologists, counsellors and mental health nurses who enjoy riding motorcyles, they go on runs to raise awareness of mental health issues in rural and remote communities

	the region the population in Roma is declining. This impacts on all organisations reducing the financial and human resources available in the community to support wellbeing activities.

Appendix 4.3 – Decentralised Service Delivery Model – Congress NT

4.3	Decentralised Service Delivery Model
Organisation	Central Australian Aboriginal Congress – Alice Springs
Aim	• To establish two suburban clinics – Sadadeen and Larapinta, as one stop shops for primary health care services for <2000 people.
Principles underpinning the model	• Chronic disease prevention and management is 'core business'. • Employing local Aboriginal people to improve client communication, care coordination and health outcomes. • Consistent staffing means the local health teams get to know their clients better and improve care. • Information about performance against population health key performance indicators is shared with the community.
Service innovation	• Service delivery staffing infrastructure designed to service a population of 2000 or less. • Introduction of a new category of non-clinical service coordinators who are local Aboriginal people to organise and coordinate care, but not deliver clinical care.
Staffing	Each clinic is staffed with a multidisciplinary team as follows: • 2 x General Practitioners, 1 x GP Registrar, • 1 x Care Coordinator • 4 x Aboriginal Health Practitioners/Registered Nurses, • 1 x Child Health Nurse, • 1 x Aboriginal Liaison Officer, • 1 x Driver • 3 x Aboriginal Clinical Services Officers – manage reception, appointments, Medicare claiming and care coordination. • Visiting services include: Diabetes Educator, Dietitian, Podiatrist

	• Specialist service coordinators across the service include Rheumatic Heart Disease (RHD) Coordinator and Renal Care Coordinator for stage 4 & 5 renal clients
Outcomes	• Improved continuity of care • Increased service utilisation • Increased compliance with annual cycles of care • Increased Medicare revenue
Enablers	• Chronic disease care is embedded into the culture of service delivery. • Locating clinics closer to where the client lives strengthens the relationship with the community and increases access to services • Implementation of a client centred business model with clear roles and responsibilities. • Culturally competent and culturally safe multidisciplinary team • More AHP/RN/Dr/Allied Health professionals time to spend on education and direct patient care. • Standardisation of practice across clinics. • Increased funding from Medicare to reinvest into service delivery.
Challenges to sustainability	• Maintaining the skilled workforce.

Appendix 4.4 – Outreach Generalist Physician Model – Katherine NT

Appendix No 4.4	Outreach Generalist Physician Model
Organisation	Katherine Hospital, NT
Aim	To improve the continuity of care in communities and between communities and Katherine hospital, and provide clinical leadership to remote communities in the region.
Context	Katherine Hospital is a rural hospital located 300 kilometres south of Darwin. It provides services to remote Aboriginal communities, pastoral properties, as well as Katherine and Mataranka. Prior to the appointment of the outreach physician in Katherine patients were managed by junior doctors in Katherine or transferred to Darwin.
Service Innovation	The appointment of a generalist outreach physician to manage the care needs of patients with endocrine, cardiac and renal disease. The Physician is generalist trained and can manage about 75% of the client load reducing the number being transferred to Darwin.
Role of Physician	The role of the Physician is to: • regularly visit communities in the region to see referrals as per team care arrangements to support GPMPs and undertakes telehealth consultations for remote communities with telehealth facilities. • provide peer support and clinical leadership. • undertake local diagnostic investigations (Physician travels with an echo machine, sonographer and registered nurse) • operate as a member of the local health team in communities and use local patient information systems • provide care for patients admitted to hospital
Service Changes	• A paradigm shift – specialist services are integrated into a primary health care service model. • Consistency in service providers and better continuity of care as Remote teams deal with fewer visiting specialists • Language, culture and Aboriginal world view are considered when planning treatment and care

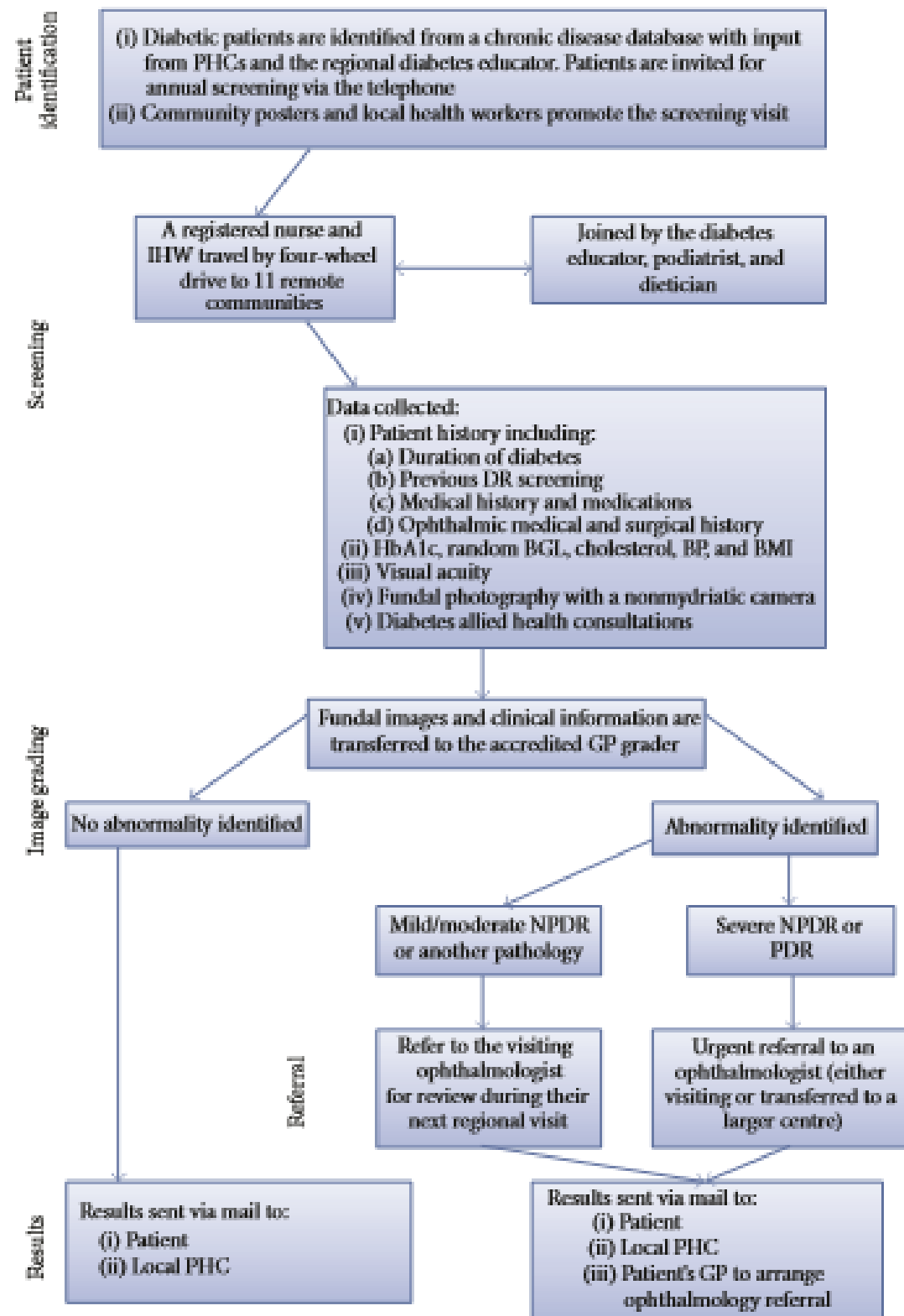|	
	• Physician care are driven by community health team expectations
	• Hospitalisation can occur closer to home with family support
	• Enables physician training on site for registrar / trainee
	• Junior doctors are being rotated through to expose them to remote practice and relationships with other hospitals to increase interest
Outcomes	• The quality of chronic disease health care has improved.
	• Better systematic chronic disease management
	• Better communication, relationships and engagement with local health teams, and systems.
	• Significant reduction in clients being transferred to Darwin for inpatient and specialist outpatient care
	• Patient travel costs have been reduced
	• Significant reduction in the number of Aboriginal people discharging themselves from hospital against medical advice.
Enablers	• Support from medical registrar at Katherine Hospital.
	• Supportive working relationship with general practitioners in remote communities.
	• Operating as a member of the local health team and using local systems.
	• Improved knowledge of the communities and individual social, cultural and health needs.
	• Improved cultural competence of specialist service provider.
Challenges to sustainability	• Continuous remote travel and hospital on-call can lead to burnout
	• Succession planning.

Appendix 4.5 – Remote Outreach Diabetic Retinopathy Screening Service – NSW

4.5	Remote Outreach Diabetic Retinopathy Screening Service (RODRS)
Organisation	Central West Hospital and Health Service
Aim	To improve access to retinal screening for people with diabetes by.
Service innovation	Training local teams to undertake fundal photography and sending the fundal image by telehealth to a general practitioner to read and determine if referral to an ophthalmologist is required.

Features of service delivery model	The key features of the service model include:
	
	• A nurse, trained in the use of an automated nonmydriatic camera for fundal photography visits the community with an Aboriginal and Torres Strait Islander Health Worker.
	
	• The GPs undertake a four hour online upskilling program through the University of Queensland Masters of Medicine (General Practice) program, followed by an accreditation assessment through the Royal Australian College of Ophthalmologists (RANZCO) Queensland Faculty.
	
	• Clinical information and fundal images are transferred via email /telehealth in the form of digital images to a regional GP, who is an accredited Diabetic Retinopathy grader, and nomination of an appropriate management plan, which includes:
	   o No pathology detected – results go to the PHC clinic for filing.
	   o Pathology detected – results sent to the PHC clinic, the patient, and their GP, for ophthalmology referral.
	   o Severe Non-proliferative Diabetic Retinopathy or proliferative Diabetic Retinopathy – patient is reviewed by the visiting ophthalmologist at next visit (depending on timing) or transferred to larger urban centre for treatment.
	
	• An urban-based 'buddy' ophthalmologist supports the GP grader. The buddy is the same specialist that visits the region tri-annually.

Clinical outcomes	• The RORDS services 11 remote communities in the HHS District annually. • Screening increased from 33.7% in 2012 – 47.9% in 2014. • 24.3% of clients had diabetic retinopathy detected, higher than other rural and remote studies that report 16 to 18%.(Barry et al., 2006; Harper et al., 1998, Murray, et al., 2005, Lee et al., 2000)
Enablers	• The registered nurse and health worker coordinate their visits to occur at the same time as the diabetes outreach team to access diabetics already presenting for care. • The chronic disease database identified clients who need screening. • Training in retinal screening provided to registered nurses and reading of retinal photographs by general practitioners. • The allied health team, i.e. podiatrist and diabetes educator, attend at the same time as this service.
Barriers	• Consistency in general practitioners visiting the community which can impact on appropriate follow up after screening.

Figure 4 The remote outreach diabetic retinopathy screening pathway

(i) Diabetic patients are identified from a chronic disease database with input from PHCs and the regional diabetes educator. Patients are invited for annual screening via the telephone
(ii) Community posters and local health workers promote the screening visit

Screening

A registered nurse and IHW travel by four-wheel drive to 11 remote communities

Joined by the diabetes educator, podiatrist, and dietician

Data collected:
(i) Patient history including:
  (a) Duration of diabetes
  (b) Previous DR screening
  (c) Medical history and medications
  (d) Ophthalmic medical and surgical history
(ii) HbA1c, random BGL, cholesterol, BP, and BMI
(iii) Visual acuity
(iv) Fundal photography with a nonmydriatic camera
(v) Diabetes allied health consultations

Image grading

Fundal images and clinical information are transferred to the accredited GP grader

No abnormality identified

Abnormality identified

Mild/moderate NPDR or another pathology

Severe NPDR or PDR

Referral

Refer to the visiting ophthalmologist for review during their next regional visit

Urgent referral to an ophthalmologist (either visiting or transferred to a larger centre)

Results

Results sent via mail to:
(i) Patient
(ii) Local PHC

Results sent via mail to:
(i) Patient
(ii) Local PHC
(iii) Patient's GP to arrange ophthalmology referral

(Glasson N.M., Crossland L.J., Larkins S.L. 2015)

Appendix 4.6 – Regional electronic patient information system – Kimberly WA

4.6	Regional electronic patient information system
Organisation	Kimberly Aboriginal Medical Service
Aim	To deliver comprehensive and systematic chronic disease care using a population health approach driven by whole of life care plans, general practice management plans and team care arrangements.
Service innovation	Implementation of a regional patient information system (PIS) into all primary health care services in KAMS and refinement of the system to support the Kimberly health service delivery context.
Features of service delivery model and governance	- The PIS is built on a philosophy of a population health approach and comprehensive shared care - The system contains all the standard features required to support primary and secondary prevention of chronic disease. These include: - Electronic patient record - Practice management i.e. appointments and billing - Secure messaging for referrals - Care planning and recall system - Medication management - Links to My Health Record. - The system is care plan driven with chronic disease protocols embedded within the software for the system. - A Lead Clinician forum made up of Doctors, Nurses and Aboriginal Health Workers makes decisions about systems requirements and modifications to the system. - All clinical care, practice administration and system support functions are managed electronically. - Access is available to hospitals in the region - An MoU defines mutual obligation required to support information sharing between the KAMS and the Kimberley Regional Health Service hospitals within the region. - Continuous quality improvement is used to monitor compliance with the system.
Clinical outcomes	Improved capacity for service reporting

	• Improved continuity of care between the primary health care services and the hospital.
Enablers	• MMEx is a web-based e-Health platform enabling sharing of the system across different organisations.
	• Clinicians from the Kimberly are actively involved in the development of the system thus committed to the system.
	• The system is user friendly and intuitive.
	• Self-care is promoted through the ability to produce trend diagrams for clients.
	• Electronic consents are built into the system to facilitate sharing of information between health services and the hospital;
	• Delivery of face to face training for all new staff with scheduled refresher training by videoconference.
	• Integration of training for Aboriginal Health Workers into Certificate III and Certificate IV training in primary health care.
	• Regional support team to assist with systems administration and monitoring of systems compliance.
Barriers to implementation	• Lack of clarity or consistency between models of care used by the different member services.
	• Insufficient number of Aboriginal Health Practitioners to deliver all the care required.

Appendix 4.7 – Clinical decision support tools – Top End Health Service, NT

4.7	Clinical decision support tools
Organisation	Top End Health Service, NT
Aim	To implement comprehensive high quality chronic disease care.
Service innovation	Enhancement to the Primary Care Information System (PCIS) to include the cardiovascular risk assessment score, combined chronic disease care plan and a traffic light report to highlight performance against NT key performance indicators.
Features of enhancements to PCIS	• Traffic Light Chronic Conditions Management Reports are generated from PCIS service activity recording from 49 clinics across the Northern Territory. • Traffic light reports monitor performance in completing General Practice Management Plans, the proportion of people with a cardiovascular risk assessment and appropriate management, diabetes care and adult health check coverage.
Clinical outcomes	• improvement with the completion of general management care plans from 35% in 2012 to 61% in 2016 • 95.9% of diabetic clients had a HbA1c in the past 12 months. • Reduction in preventable hospitalisations
Enablers	• A long term chronic disease strategy in place for over 18 years • Consistent leadership for the chronic disease strategy • Standard chronic disease protocols that all staff are required to follow • Resources to support chronic disease service delivery and systems support e.g. preventable chronic care educator and chronic disease outreach teams • An information system that includes a recall and reminder system, and regular reporting • An orientation program to train staff in service expectations • A culture of continuous quality improvement to use evidence to guide service planning and review. • Routine reporting against performance indicators

	• Support from a regional quality improvement coordinator to support ongoing quality improvement activities. • Collaborative practice approach • Aboriginal leadership in teams • Consistency in staffing
Barriers to implementation	• Lack of understanding as to how the PCIS system works • Non-compliance with PCIS business rules • High staff turnover • Lack of Aboriginal Health Practitioners to provide leadership in some communities.

Appendix 4.8 – Utilisation of *MedicineInsight* Software – Tasmania

4.8	Utilisation of Medicine Insight Software
Organisation	General practice in Tasmania
Aim	To improve the quality of chronic disease care in general practice by enabling the production of data to inform quality improvement activities.
Service innovation	Implementation of computer software to enable benchmarking against other general practices at the local, regional, state and national level.
Features of MedicineInsight software	• Extracts longitudinal de-identified patient health records from general practice software. • Each general practice has its own portal • Tailored reports can be produced to support quality improvement activities and to improve population health. • All PHNs are represented in the *MedicineInsight* data. • Assists with strengthening the general practice systems of care by highlighting gaps in clinical data. • Customised searches can be saved to a dashboard, to monitor performance over time with delivery annual cycles of care, management of clinical care and medication management.
Clinical outcomes	•

Enablers	• Customised searches to support areas of interest for quality improvement.
	• Aggregated clinical data of all participating general practices supports benchmarking
Barriers to implementation	• Lack of computerised patient information system.

Appendix 4.9 – Regional program coordination – Nganampa Health SA

4.9	**Regional program coordination**
Organisation	Nganampa Health Council
Aim	To support local health teams in APY communities to delivery high quality chronic disease to residents of the APY lands.
Service innovation	Implementation of a regional program management structure for chronic disease management
Features of regional programs model	• Regional program managers based in Perth or Alice Springs
	• Program manager has worked on the lands and understand the context.
	• Program Manager supports service delivery in community
Clinical outcomes	• Increase in adult health checks from 84 2008/09 to 1263 in 2014
	• Reduction in emergency evacuations from 350 in 2011/12 to less than 200 in 2015/2016
Enablers	• Consistency in service leadership
	• Culturally appropriate clinic teams
	• Program managers work as part of the team
	• Good HR practices to retain effective staff
	• Succession planning
	• Ongoing professional development.
Barriers to implementation	• Turnover rate of staff.

Appendix 4.10 – Implementation of the Maari Ma Chronic Disease Strategy, NSW

4.10	**Implementation of the Maari Ma Chronic disease strategy**

Organisation	Maari Ma Health
Aim	To provide a comprehensive chronic disease service delivery to Wilcannia, Ivanhoe and Menindee.
Service innovation	The implementation of an integrated model of care to operationalise the chronic disease strategy into remote locations
Features of Maari Ma	• Hub and spoke model of care for service delivery to remote communities. Broken Hill is the hub. • Services operationalised through the Healthy Start program and the Keeping Well program. • The Healthy Start program is a strategic initiative to prevent the development of chronic disease. It is designed around Aboriginal families – pregnant mums, their children and families. • The Keeping Well program is designed around adults targeting people at risk of, or living with, chronic disease. • General practice led model care with multidisciplinary team approach facilitated by nurses and health workers, supported by visiting specialist services. • Ongoing service evaluation and review
Clinical outcomes	• Improving access to a comprehensive range of primary health care services • Increase in screening of well adults from 111 in 2010 to 1145 in 2015. • Almost 80% of chronic disease clients have a care plan completed in the past two years. • Improvement in follow up of abnormal blood pressure control for people with diabetes and cardiovascular disease • Increase in home medication reviews.
Enablers	• Clear vision for health • Consistency in leadership of the service by CEO, Board and medical leadership. • Clearly defined programs to support implementation of the chronic disease strategy

	- Aboriginal Health practitioners and Aboriginal workers who provide both clinical care and cultural interface, and have essential knowledge about their community.
	- Investment in Aboriginal Health Worker training to support Aboriginal Health practitioner registration.
	- Culturally appropriate model of care.
	- Investment on chronic disease prevention and management training for all staff.
	- Engagement with the community and external service providers about the preferred approach to chronic disease care.
	- Recruitment and retention of staff committed to the vision.
	- Development of community partnerships
Barriers to implementation	- Reduction in grant funding as geography makes it difficult to generate sufficient revenue for services to be self-funding through Medicare.

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