COORDINATED HIGH INTENSITY PATIENT CARE INITIATIVE 2018

SEASONAL DEMAND

NSW GOVERNMENT Health
Mid North Coast Local Health District

phn NORTH COAST

Mid North Coast Seasonal Demand Coordinated High Intensity Patient Care Initiative

EVALUATION REPORT

Prepared for:

North Coast Primary Health Network and Mid North Coast Local Health District

Authors:

Theresa Caruana MPH MSW

Christina Aggar PhD

Frances Doran PhD

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Contact:

Christina Aggar

School of Health and Human Sciences

Southern Cross University

T +61 7 5589 3316

E christina.aggar@scu.edu.au

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Abbreviations

Acronym	Explanation
ACI	NSW Health Agency for Clinical Innovation
CDMP	Chronic Disease Management Program (NSW Government)
CHIP	Seasonal Demand Coordinated High Intensity Patient Care Initiative
COPD	Chronic obstructive pulmonary disease
DaPPHne	Diagnosing Potentially Preventable Hospitalisations (study)
DVA	Department of Veteran's Affairs
GP	General Practitioner
ICDM	Integrated Chronic Disease Management
HARP	Hospital Admission Risk Profile (risk level score)
HMR	Home Medication Review
MNCLHD	Mid North Coast Local Health District
MyHR	My Health Record
NCPHN	North Coast Primary Health Network
PDSA	Plan, Do, Study, Act (quality improvement process)
PM	Practice Manager
PN	Practice Nurse
PREMs	Patient Reported Experience Measures
PROMs	Patient Reported Outcome Measures
RN	Registered Nurse
SDAP	Sick Day Action Plan
SMART	Simple, Monitored, Attainable, Realistic, and Timely (goal setting in care planning processes)

Operational definitions

Term	Explanation
Allied health services	Qualified non-medical professionals that act to support and promote a person's physical, psychological, cognitive, and social abilities, with a focus on increasing their independence and maintaining their health and wellbeing (NSW Health, 2018a).
Clinician	Any health practitioner involved in delivering health services to patients under the Seasonal Demand Coordinated High Intensity Patient Care Initiative (CHIP). Includes general practitioners, nurses, allied health, and other medical professionals.
General practice	A service that provides primary health care to individuals, families, and communities (Royal Australian College of General Practitioners, 2015, p.135).
General Practitioner (GP)	A qualified and registered medical practitioner who provides primary health care services (RACGP, 2015, p.135).
HealtheNet	An eHealth NSW program that connects health information across different databases, including NSW Health clinical portals, secure electronic messaging to GPs, and My Health Record (NSW Government, 2018a).
HealthPathways	An online health information resource for clinicians to assist in assessing and managing medical conditions, including referral options and processes (NSW Health, 2018b).
My Health Record (MyHR)	Centralised online medical record-keeping system provided by the Australian Government to enable more efficient health service delivery (Australian Digital Health Agency, 2018b).
Practice Manager (PM)	Person responsible for managing the finances, human resources, risk mitigation processes, information, governance, and other service planning processes of the general practice (Australian Association of Practice Managers, 2018).
Practice Nurse (PN)	A registered or endorsed nurse employed by, or providing services for, a general practice (Australian Primary Health Care Nurses Association, 2017).
Psychosocial care	Providing holistic supports to address psychological, social, cultural, and spiritual needs (Legg, 2011).

Executive Summary

Background

The increasing rates and burden of chronic disease, and associated escalating health costs, have led to national and state government health care reforms that aim to create better management of chronic diseases in the community. The NSW Integrated Chronic Disease Management model was established to provide coordinated community care for people with chronic conditions, and to support patient self-management. In this, primary health care services have a critical role in reducing reliance on health services and preventable hospital admissions through their delivery of coordinated and empowered care.

Using these principles, the Mid North Coast Seasonal Demand Coordinated High Intensity Patient Care Initiative (CHIP) was developed from a co-design process and undertaken from April to September 2018. The broad aims of CHIP were to identify patients with chronic health conditions that were at high risk of hospitalisation over the winter months, and provide them with an intensive care approach that increased their ability to manage their illnesses at home. Specific aims were to reduce the rate of unplanned hospitalisations in this cohort, to implement coordinated communication and care planning systems across general practices and MNCLHD health services, and to increase the use of person-centred care planning strategies and techniques. These aims are in line with integrated care models that inform chronic disease management programs in NSW.

The CHIP model of care used a person-centred, coordinated, and intensive approach in delivering services that included sick day action plans, home medication reviews, health coaching strategies, and partnership between general practices and MNCLHD Integrated Chronic Disease Management teams. General practices received payments for protected nursing time to implement the program.

Methods

Evaluation included quantitative tools to collect implementation data and measures of patient and clinician experiences, and qualitative accounts from general practice and MNCLHD staff about patient outcomes, benefits and challenges in CHIP implementation, and suggestions for improvement.

Major Findings

Four general practices and 133 patients participated in the 16-week program. Patients were an average of 80 years old and had a range of chronic illnesses, with heart conditions (other than heart failure), chronic pulmonary obstructive disease, and osteoarthritis recorded most often. Patient measures recorded positive experiences in understanding, satisfaction, and involvement in health care increasing over the CHIP service delivery period. Clinician experience measures indicated

significantly improved collaborative care processes, confidence in using health coaching approaches, adequacy of patient monitoring, and work satisfaction.

Clinician/staff feedback described a range of strengths and challenges in implementing the model of care, with experiences indicating program aims were met to some extent, and better coordination of patient care was hoped to continue into the future as a result of the program. Insufficient protected time and systems/technology issues were factors most identified as inhibiting full implementation of the model of care. Sick day action plans were found to be the most valued and effectively implemented aspect across all evaluation methods, with 97% of CHIP patients receiving these. Clinicians describe benefits of the program that involved better knowledge and rapport with patients and other health care providers, and the provision of resources and structure to improve patient care activities and coordination.

Recommendations

Suggestions to improve and better evaluate CHIP included an earlier start and longer time period, increasing paid protected time and other resourcing for general practices, and increasing the accessibility of evaluation tools. Suggestions were also made to embed the model of care as standardised practice for patient with chronic and complex health issues, to extend the model of care to other high risk population groups including those not consistently engaged with GPs, and to enable greater participation by allied health and psychosocial care providers.

Improved data collection and further research into chronic disease management programs was needed to be able to assess the extent to which CHIP contributed to hospital avoidance and greater patient empowerment. Program evaluation recommendations included incorporating all the elements of the model of care in the evaluation tools, collecting qualitative information from a patient perspective, and evaluating program appraisal with reference to the systems of implementation at the service level.

The continued implementation and evaluation of integrated care programs involving general practices is a primary recommendation, and promoting the value of programs in modelling and resourcing general health service improvements should be an important feature in further programs. This evaluation of the CHIP program contributes to understanding how programs can be implemented across primary health and NSW Health services; further refinement and future iterations of integrated care programs for this and other at-risk patient cohorts will assist in creating a stronger evidence base for future program planning.

Introduction

The rate of hospitalisation and length of hospital stay for people with chronic health conditions has been found to increase during the Australian winter months (Argha, Savkin, Liaw, & Celler, 2018; Jenkins et al., 2012). Unplanned hospital admissions for chronic illnesses are associated with lack of access to health or other needed services, non-adherence to medication and health-maintaining behaviours, mental health symptoms or fear related to health condition, and deficits in understanding and responding to health deterioration (Longman, Rix, Johnston, & Passey, 2018). Regular proactive visits to a primary health care provider has been associated with reduced hospitalisations for older people with chronic respiratory diseases (Einarsdóttir, Preen, Emery, Kelman, & Holman, 2010); and compared to usual care, self-management interventions have been associated with a reduction in hospital admissions and improved health-related quality of life in people with chronic obstructive pulmonary disease (COPD) (Zwerink et al., 2014).

The Mid North Coast Seasonal Demand Coordinated High Intensity Patient Care Initiative (CHIP) was undertaken from April to September 2018 in the Mid North Coast region of New South Wales (NSW) (see Figure 1). It was a joint program of the Mid North Coast Local Health District (MNCLHD) and the North Coast Primary Health Network (NCPHN) and involved collaboration with participating general practices and the NSW Health Agency for Clinical Innovation (ACI) (see Figure 2). CHIP aimed to empower people with chronic or complex health conditions to stay well and safe at home during winter, and to develop a whole of system approach in responding to increased seasonal healthcare demands.

Figure 1. NSW Mid North Coast Local Health District (MNCLHD) region (NSW Government, 2018c).

Service	Contribution
North Coast Primary Health Network (NCPHN)	• Provide coordination support to general practice for enrolment, registration, payments and evaluation • Manage online portal of shared forums, resources, guides and tools, including sick day action plan templates, Health Pathways, and Hospital in the Home information • Provide education on health coaching and on strategies to build the capacity of practice nurses • Promote sharing of patient data between MNCLHD and general practices • Participate in program evaluation and reporting
Mid North Coast Local Health District (MNCLHD)	• Manage patient registrations at local health district level • Manage and support ACI Patient Report Experience/Outcome Measures via ACI Tablets • Flag admission and discharge notifications to general practice • Integrated Chronic Disease Management nurses partner with general practice to support the development of patient self-care plans, and provide health coaching education and support • Raise profile of Health Pathways, Community Health referrals, and Hospital in the Home program
General practices	• Identify adult patients with high intensity, chronic, and complex illnesses • Manage patient registrations at general practice level • Develop a plan in collaboration with the patient for keeping well over winter • Monitor patients regularly throughout winter • Work with the MNCLHD to share information and coordinate care • Participate in program evaluation and reporting
Agency for Clinical Innovation (ACI)	• Provide tablets for collecting Patient Reported Experience Measures (PREMs) and Patient Reported Outcome Measures (PROMs) • Provide reports of PREMs and PROMs findings to program team

Figure 2. Summary of service contributions to the implementation of the 2018 Mid North Coast Seasonal Demand Coordinated High Intensity Patient Care Initiative (CHIP) (Adapted from MNCLHD & NCPHN, 2018).

CHIP was informed by a co-design strategy: in 2017 over 50 health workforce and consumer stakeholders identified a range of population health aims, including to "support general practice keep their most vulnerable patients well and reduce their likelihood of being hospitalised in winter" (NNSWLHD & NCPHN, 2018). The subsequently developed CHIP program involved NCPHN providing funding to primary health care providers (general practices) in the NSW Mid North Coast for time and resources to better identify and support patients with high intensity health care needs. Promotion and implementation strategies included a dedicated NCPHN project coordinator and the development of a website with comprehensive program information and resources for general practices (https://ncphn.org.au/chip).

CHIP was designed to support the implementation of enhanced patient care systems that involved:

- priority access to the general practice, regular monitoring, and a designated contact person for participants;
- greater care team coordination, including improved collaboration between general practices and the MNCLHD Integrated Chronic Disease Management (ICDM) team;
- increased patient engagement, enabling more opportunities for early intervention services; and
- improved self-management of health care through the use of sick day action plans (SDAPs), medication management (HMR), health coaching, and other person-centred approaches.

Evaluation of CHIP has been undertaken in order to provide information about the design, recruitment, engagement, and outcomes of the program from the perspectives of patients, clinicians, and general practice and MNCLHD staff. Quantitative and qualitative information has been sought and collected throughout the program period to assist in providing an evidence base with which to evaluate the CHIP model of care and its implementation, as well as provide suggestions to improve future iterations of similar patient care initiatives.

This evaluation report will describe CHIP program outcomes, and summarise the sources and findings of information collected with reference to the program aims and model of care. Information on chronic disease management policy and a summary of learnings and recommendations for future implementation of patient care initiatives are also provided.

Background to the NSW chronic disease management policy and program development context

Chronic diseases are the main cause of illness, premature mortality, and health system utilisation (Australian Health Ministers' Advisory Council, 2017). Chronic diseases account for 37% of hospitalisations (Australian Institute of Health and Welfare, 2018), and 70% of the current total disease burden which is estimated to rise to 80% by 2020 (Feyer et al., 2014). In 2014–2015, over one in seven deaths were due to eight of the most common chronic conditions: arthritis, asthma, back pain, cancer, cardiovascular disease, COPD, diabetes, and mental health conditions (AIHW, 2018). Over one in two Australians have at least one of these eight chronic diseases and nearly one in four Australians have two or more of these conditions (AIHW, 2018). Older patients who experience chronic disease account for almost half of total acute in-patient bed days (Feyer et al., 2014). The incidence of chronic disease will continue to rise with an ageing population (AIHW, 2018).

Chronic disease is associated with significant personal, economic, and social consequences for the individual, their families, carers, and the health system. Individuals diagnosed with one or more chronic conditions are likely to have additional and complex health needs, die prematurely, have a poor quality of life, live with a disability, experience psychological distress and depression, and be unemployed compared to individuals without a chronic disease (AIHW, 2018). Compared to people who do not experience chronic health conditions, those with chronic conditions access the health care system more frequently (Feyer et al., 2018).

The increasing rates of chronic disease is placing enormous pressure on our health care system for the management, treatment, prevention of hospitalisation, and prevention of premature mortality particularly within primary health care settings where the GP is the first point of access (Australian Health Ministers' Advisory Council, 2017). In 2015–2016, almost 40% of GP consultations were related to at least one chronic condition (Britt et al. as cited in AIHW, 2018).

Policy initiatives and reforms

Recent national initiatives implemented by the Australian government to improve coordination of care within the primary health care setting include:

- Chronic Disease Management Care Plans through the Medicare Benefits Schedule (Australian Government, 2018) which promotes a coordinated approach to care from the GP and a range of health care providers through Team Care arrangements (Australian Government, 2014);
- Subsidies through the Pharmaceutical Benefits Scheme for medication used in the treatment of chronic diseases (AIHW, 2018); and

- The introduction of Health Care Homes which provides patients with a coordinated approach to facilitate access to a range of services (Department of Health as cited in AIHW, 2018).

The increasing rates of chronic disease, the associated burden of disease, and escalating health cost have required urgent national and state government health care reform to meet the demand on the health care system for the management of chronic disease in the community. New models of "coordinated, joined up and shared care" in the community have been proposed (Feyer et al., 2014, p. 14). Primary care services are critical in delivering coordinated, integrated community and empowered health care to reduce reliance on health services and reduce preventable hospital admissions. The Chronic Disease Management Program (CDMP) emerged in 2008 in response to the "tsunami" of chronic disease predicted, as part of health service reform (Feyer et al., 2014, p. 10).

The CDMP, a NSW State government initiative, engaged local health districts to deliver a suite of interventions to better integrate and coordinate community care and enhance self-management support (Feyer et al., 2014). Evidence for the role of primary health care services in reducing avoidable hospital admissions and supporting chronic disease management is clear (Gatling Report, National Health and Hospital Reform Commission Report, and National Primary Health Strategy as cited in Feyer et al., 2014).

A key element of the CDMP was the targeted enrolment of people who experience chronic disease and are most at risk of hospitalisation (as well as subsequent increased health care costs) who would best respond to improved care coordination and support within the local health district. The model had six components:

1. Targeted enrolment
2. Comprehensive assessment
3. Shared care planning
4. Care coordination
5. Self-management support
6. Monitoring and review

A comprehensive review of the CDMP demonstrated the capacity of the public health system to link community based and hospital services around the patient but noted low levels of engagement with primary care settings. Thus, the key aim of the CDMP to reduce potentially preventable hospital admissions was not achieved. Recommendations were made to engage primary care settings and shift the focus from acute care settings (Feyer et al., 2014). Risk stratification to identify people with chronic diseases at risk of hospitalisation rather than identification of high risk groups in acute settings was also recommended, alongside preventive measures such as coordinated care and self-management support (Feyer et al., 2014). Key insights

from the review of the CDMP informed the initiatives to deliver more connected care across local health service providers, and test unique system-wide approaches to integrating care (NSW Government, 2015).

In 2017, the National Strategic Framework for Chronic Conditions was adopted (Australian Health Ministers' Advisory Council, 2017). It provides guidance for the development and implementation of policies, strategies, actions and services to reduce the impact of chronic conditions in Australia. A more integrated model of care, which recognises health determinants, risk factors and multi-morbidities across a broad range of chronic conditions, was advocated as key to care and prevention (Australian Health Ministers' Advisory Council, 2017). This integration of care between primary and specialist services is in line with the United Nations and World Health Organisation Policy on chronic care (Harris, Harris-Roxas, & Knight, 2018).

Referral pathways, shared information including My Health Record, self-management and support through state based services, and telehealth outreach to patients through coordinated programs contribute to improved management of chronic health conditions (Harris, Harris-Roxas & Knight, 2018). Care planning within primary health care settings that includes multidisciplinary teams, practice nurses, and allied health services are required to reduce hospital admissions for those who experience long-term conditions (Harris, Harris-Roxas & Knight, 2018). Strategies to minimise barriers experienced by patients who access primary health care services require effective integration of care and a person-centred approach to care tailored to language and literacy levels. Practice population management that considers specific level of risk for chronic disease through improved outreach and flexible funding models will deliver better outcomes for chronic disease management, with accountability shared across professionals and services (Harris, Harris-Roxas & Knight, 2018).

Integrated care model

Following the evaluation of the Chronic Disease Management Program in 2014, focus on improving health outcomes for people with chronic conditions shifted to a more integrated approach in NSW (NSW Government, 2015). The Integrated Care for People with Chronic Conditions model was established to identify and target people with one or more chronic conditions, who were at risk of hospitalisation in the next 15 months, and who would benefit from interventions (NSW Government, 2018b). This model also reflects Commonwealth reforms to ensure collaborative relationships with primary care networks and GPs to build capacity in primary health care. The model was introduced to NSW health services in 2017. In 2018, the NSW CPMP Connecting Care in the Community service was introduced to help people with chronic disease better manage their condition, reduce complications, and prevent hospitalisation through integrated care. This service actively targets people

at high risk of hospitalisation, including Aboriginal people and frail elderly people (NSW Government, 2018d).

In 2015, the NSW Agency for Clinical Innovation (ACI) commissioned the SAX institute of Australia to examine the evidence of targeting integrated care to those most likely to need frequent health care and review social and clinical risk factors. The review was commissioned as part of the agenda of NSW Ministry of Health to develop "an approach to risk stratification that identified people who are at risk [of poor health outcomes] and enable targeted delivery of integrated care to those who will maximally benefit" (Sansoni, Grootemaat, Seraji, Blanchard, & Snoek, 2015, p. 7). The review was undertaken to gather evidence for targeted integrated care, given the lack of evaluation of suitable models of care.

As acknowledged by the authors of the review, risk stratification for patient integrated care interventions can be determined by physician knowledge, specific criteria such as age/ chronic disease, and predictive models developed from statistical analysis of health system data (Sansoni et al., 2015). However, the review focussed on predictive models, as they more accurately identify those who would most benefit from targeted and coordinated integrated care. It also focussed on generic risk factors and risk prediction approaches in relation to potentially preventable hospitalisations. Age, gender, socioeconomic status, living alone, rural and remote location, Aboriginal and Torres Strait Islander status, and ethnicity were key socio-demographic markers for targeted interventions. Clinical risk factors included comorbidity, severity of illness, long-term disability and multiple medications (Sansoni et al., 2015).

Findings of the review suggested that whilst there are a wide variety of whole-of-population risk prediction models available, when developing local models the relative costs must be considered in terms of development and adaptation so that benefits outweigh costs. According to Lewis et al. (as cited in Sansoni et al., 2015) as the predictive accuracy of risk stratification is only moderate, interventions must accurately and appropriately target individuals to avoid unnecessary costs and decrease preventable admission to health care facilities. The findings of the review suggested the need for further robust research and refinements to risk stratified integrated care interventions suitable for implementation within local populations (Sansoni et al., 2015).

Although disease specific risk stratification approaches and models were not the substantial focus of the ACI review, evidence was reported from a systematic literature review undertaken by the Clinical Epidemiology and Health Services Evaluation Unit on interventions for chronic disease to reduce potentially preventable hospitalisations which could benefit from risk stratification. Results of this review highlighted the variability of effectiveness of multidisciplinary interventions to reduce preventable hospital admission due to chronic disease with exceptions for evidence

for integrated care interventions for heart disease and exercise-related interventions for COPD (as cited Sansoni et al., 2015).

A protocol for a regional investigation to develop effective interventions and improved measures of health system performance was established as a collaborative project between two regional hospitals and one metropolitan hospital in NSW. The project sought to identify modifiable factors for individual admissions for ambulatory care sensitive chronic conditions among community dwelling older people. DaPPHne—Diagnosing Potentially Preventable Hospitalisations—focussed on people over 45 years and preventability in the three months prior to admission of COPD, congestive cardiac failure, angina, or diabetes complications (Passey et al., 2015). It defined preventative admissions as an unplanned admission could have been prevented if:

- there was adequate, appropriate, accessible, and good quality support in the community that was available and accessed in the preceding three months; and
- appropriate individual health behaviours had occurred in the three months prior to admission (Passey et al., 2015).

Although the results of the DaPPHne study have not been formally made available, findings from a qualitative sub-study of the project which explored patient perspectives on recent hospital admission have recently been published (Longman et al., 2018). Patient perspectives on modifiable factors that are associated with preventable hospital admission due to chronic diseases were explored through interviews with 24 participants. Whilst most of the participants did not believe that their hospital admission was preventable, the results pointed to a series of interlinking factors related to clinician and patient level factors and broader social support factors that may have contributed to the hospital admission. Findings from participant feedback were thematically grouped into ‘support deficits’ (lack of access to health care and social support); ‘non-adherence to treatment’ (medication, health regimes, and health behaviours); ‘mental health’ (related to their chronic health issue); and ‘lack of awareness or understanding of their conditions’ (exacerbated by complexity of comorbidities) (Longman et al., 2018). Many of the participants reported barriers they experienced to seeking help that influenced management of their chronic disease. Broader socioeconomic (e.g. poverty) and social or personal factors (e.g. older age, gender norms, dislike of hospitals) influenced the patient’s ability to access care (Longman et al., 2018). The authors suggested that the lack of patient awareness and understanding of their chronic health conditions points to multiple possible entry points for intervention within a primary health care framework.

The findings highlighted the need for affordable, holistic, accessible, and appropriate primary health care services; the provision of integrated care to assist patients in better self-managing their conditions; and increased social supports to

reduce social isolation. The findings also highlighted the compounding effects of multi-morbidity and the challenges of understanding, managing, and living with a chronic condition, especially if alone and poor. Given the need for improvements related to system, clinician, and patient factors, the authors suggest that comprehensive primary health care that is adequately resourced, affordable, and accessible may "contribute to improving patient's quality of life, delaying or preventing hospital admission for chronic conditions and to a more equitable health system" (Longman et al., 2018, p. 307). The key focus of the preventative primary health care interventions is to identify modifiable factors and reduce ambulatory care sensitive chronic conditions.

Seasonal Demand Coordinated High Intensity Patient Care Initiative

In line with national and state reforms to support people with chronic disease to better manage their conditions, reduce complications, and reduce avoidable hospital admissions, programs were established at the local level through primary health networks.

In May 2017 NCPHN undertook a co-design process with key stakeholders to identify opportunities for hospital avoidance across the NSW Mid North Coast. The target group were people who experienced chronic disease, had a high risk of hospitalisation, and who could be better supported to manage their condition, stay well, and reduce the risk of hospital presentations. A key objective was to reduce the seasonal increases in hospital admissions due to increased rates of influenza in high risk groups. A specific aim was identified to provide support and assistance to general practices to facilitate planned and proactive management of high risk patients in the community.

To address this aim, the Seasonal Demand Coordinated High Intensity Patient Care Initiative was established for 2018, the main objective to empower patients to stay well over winter through an integrated approach to care. General practices and patients across the Mid North Coast were involved in the program. NCPHN funded additional practice nursing hours and facilitated connections with the MNCLHD ICDM team to coordinate patient care over the winter 2018 period.

CHIP implementation

General practice and patient recruitment

Participation in CHIP was sought for up to 250 patients and five general practices in the MNCLHD region. General practices were invited to complete a planning template to assess their service ability to participate in CHIP (see Appendix A), and then submit an enrolment form to NCPHN for program registration. Clinicians from each participating general practice selected suitable patients by applying the following criteria: aged over 18, diagnosed with chronic and complex health problems, likely to benefit from proactive care (which excluded palliative patients), and likely to be hospitalised within the next twelve months. Other suggested selection criteria included patients with multiple chronic illnesses, complex treatment regimes, frequent hospital presentations, pathology results indicating advanced or unstable chronic health conditions, poor social connectedness, or characteristics of being older and frail, Indigenous, or having a disability or mental illness.

To assess patient likelihood of near-future hospitalisation, clinicians were encouraged to use the Hospital Admission Risk Profile (HARP) tool (see Appendix B). This brief screening tool targets older hospital inpatients and assesses areas such as the person's ability to take medication, manage finances, prepare food, and use transportation. It generates a low, medium, or high risk level score which stratifies patients according to their risk of functional decline leading to increased morbidity or mortality (Graf, 2008).

Patients who met these criteria were then informed about the CHIP program, and invited to voluntarily participate at no cost to them. A consent form was completed (Appendix C) and forwarded to the MNCLHD ICDM team for registration.

Service delivery

Participating general practices developed their own systems for CHIP implementation according to the program timeline. These included:

- nominating program leaders;
- ensuring capable use of secure electronic messaging and MyHR software to enable receipt of electronic admission notifications and discharge summaries from hospitals (via ICDM team); and facilitate the uploading of shared health summary to patient MyHR;
- making arrangements for enabling priority service access to, and regular communication with, CHIP participants;
- selecting, inviting, informing, and registering patient cohort (including creating a flag or alert in service database upon presentation or contact);
- collecting patient surveys and completing clinician surveys (at start and end of CHIP program period);
- undertaking person-centred, comprehensive care planning with use of strategies to promote better self-management;

- using Plan, Do, Study, Act (PDSA) quality improvement processes to monitor and improve CHIP implementation;
- providing quantitative information on CHIP implementation including patients registered, SDAPs and HMR performed, and PDSA activities (at start and end of CHIP program period); and
- participating in program leader monthly reviews with NCPHN Practice Support Officer and focus group feedback sessions for GPs and practice nurses (PNs) with CHIP GP consultant upon program completion.

Model of care

The focus of the CHIP program was the implementation and enhancement of individual health care planning that is coordinated, intensive, person-centred, comprehensive, preventative, accountable, and that promoted patient ability to self-manage. This involved augmenting and updating existing GP management plans for the patient (including the use of SMART goals), and using a health coaching approach to encourage patient empowerment. A range of planning tools, communication strategies, and education were available as part of this model of care.

Sick day action plan (SDAP)

Sick day action plans assist in the identification and self-management of chronic illness symptoms, and aim to reduce the risk and severity of health deterioration. Developed in collaboration with the patient and carer, SDAPs contain clear and relevant information on how to seek help if experiencing new or increasing symptoms of concern. They include the clinician or service to contact, and the immediacy of action required according to the symptom and its severity. SDAPs are tailored to the patient's level of English and health literacy, and should be regularly discussed and reviewed with health care providers. They are available for a range of specific chronic illnesses (e.g. COPD, diabetes, asthma) or as a generic template (see Appendix D), and were accessed via the CHIP website or HealthPathways.

Home medication review (HMR)

Reviewing medication is conducted collaboratively by GPs and pharmacists to reduce the risks associated with polypharmacy (the concurrent use of multiple medicines), including the use of unnecessary medicines or use of medicines at higher doses or frequency than required to treat medical conditions. These risks can lead to frailty, cognitive impairment, and disability or death (Chen, 2016). CHIP included HMR as part of its model of care to minimise risk of health deterioration and hospitalisation as a result of medication misuse or overuse. Suggestions for action on HMR include checking patient inhaler use technique and removing old, inappropriate, or stockpiled medications from the home.

My Health Record (MyHR)

My Health Record was launched in 2015 as the national electronic health record system. It enables patients to access their own health assessments, medication details, and immunisation records, and enables quick information sharing between health providers with the aim of delivering more streamlined and effective care (ADCA, 2018a; Walsh et al., 2018). Promotion of patient registration in MyHR was a strategy within CHIP to better facilitate health care provider coordination. Clinicians were encouraged to upload shared health summaries (representing the patient's current health status) to maintain health information accuracy and facilitate nomination as that person's primary health care provider, with the patient's agreement (ADCA, 2018c).

HealthPathways

HealthPathways is an online health information resource for clinicians, providing information on how to assess, inform, manage, and refer patients locally for over 500 medical conditions (NSW Health, 2018b). Clinician use of Mid North Coast HealthPathways resources was encouraged to support CHIP patients in line with current best practice principles and available service utilisation.

Clinicians were also encouraged to use HealthPathways resources to discuss advanced care planning with patients who had advanced disease or age, and that were at risk of losing capacity to be self-determining in their health care in the near future.

Integrated Chronic Disease Management (ICDM) teams

The MNCLHD ICDM teams partner with general practices to reduce hospital readmission rates of patients with targeted chronic illnesses. They offer phone support to practice nurses to assist in developing health coaching skills and care plans with patients, and have some capacity to make home visits. They can connect patients with other NSW Health services including Community Health, allied health clinicians, Aged Care Transitional Intervention Program (short term home-based care with nurse and allied health services), and Hospital in the Home (acute treatment provided in the home as an alternative to hospital admission) (MNCLHD & NCPHN, 2018). Information on how to utilise ICDM team services and support to prevent hospital admissions in the CHIP patient cohort was provided to participating general practices. Two ICDM teams, from Port Macquarie and Coffs Harbour, participated in CHIP.

Secure electronic messaging

The MNCLHD admission and discharge notifications service enables a message to be sent instantly to inform the ICDM team when and why an enrolled patient has been admitted to hospital, which is then relayed to the patient's GP with the aim of facilitating GP participation in discharge planning (MNCLHD, 2018).

Case conferences

Conducting interdisciplinary case conference was encouraged as a way to enable CHIP patient care plan coordination and information sharing across clinicians, involving (for instance) the GP or practice nurse, pharmacist, ICDM nurse, and allied health service provider.

Patient engagement strategies

Person-centred care planning requires the active engagement of the patient in the process. It involves incorporating the patient's beliefs, values, and preferences and giving them the tools to understand and participate in their care planning (Delaney, 2018). Strategies to engage patients in CHIP were provided to general practices, and are summarised below:

- Clarifying who is in the CHIP care team for each patient, and ensuring that each person (including the patient) knows their roles and responsibilities and has adequate information to undertake these;
- Asking patients their preferences for contact method and frequency, implementing a process of regular monitoring (using scheduled appointments, phone calls, and text messages), and following up with patients who do not attend their appointments;
- Regularly checking patient and carer understandings of care plans and their confidence in using SDAPs;
- Regularly checking for any changes in symptoms and on the effectiveness of any services or referrals that the patient has engaged;
- Ensuring that assessments, immunisations, medications, and medical records are enacted as needed and kept up to date;
- Making sure the patient has the medications or equipment they need to manage their SDAPs. For example, having scales to monitor daily weight, having an easy to read action plan, and having adequate medication supply;
- Recognising and responding to underlying mental health issues. Planning what supports may be needed for the patient's key carer; and
- Organising referrals for psychosocial care to support patient wellbeing (Adapted from MNCLHD & NCPHN, 2018).

Health coaching

Health coaching builds upon the person-centred care approach to empower the patient to better self-manage their health condition and care planning. The clinician in a health coach role will provide health education relevant to the patient's condition, and use techniques such as motivational interviewing and action planning to help the patient build self-efficacy and make healthier lifestyle choices and actions (Thom, 2018). Health coaching training sessions were held for CHIP general practice clinicians in June 2018, facilitated by a certified wellness coach. A health coaching suggestion provided on the CHIP website was to set "personalised goals that are simple, can be monitored and are attainable, realistic and timely. For example, 'I will walk to the letterbox and back five days per week', or 'I will quit smoking by 30th December'." (MNCLHD & NCPHN, 2018).

Influenza vaccination

As influenza is one of the most prevalent causes of unplanned hospitalisation in the winter months, CHIP involved the promotion of flu vaccination. It is available free of cost for people in NSW aged over 65 or with certain illnesses including heart disease, chronic lung disease, diabetes, and asthma (Department of Health, 2018).

General practice payments

Payment was provided to participating general practices for protected time to implement the CHIP program according to an activity schedule (see Figure 3). The payments were benchmarked against the average hourly nursing rate of $37.20 (i.e. 1 hour and 45 minutes for registration and 20 minutes per week, per patient). Payments were automatically released upon submission of required activity records.

Stage	Activities	Payment for protected time
Practice preparation and enrolment	• Register for CHIP program • Nominate CHIP contact person • Plan priority access, engagement, and record-keeping strategies • Select patient cohort • Enable MyHR and electronic messaging software access	A one-off payment of $370
Patient registration and care planning	• Invite patients to register, providing information and documenting consent • Register patient and commence care planning • Collect pre-intervention patient and clinician surveys	$64.75 per patient
Service delivery	• Provide care planning according to the CHIP model of care until end date (13 September 2018)	$12.40 per patient, per week

Figure 3. Mid North Coast Seasonal Demand Coordinated High Intensity Patient Care Initiative (CHIP) 2018 general practice activity and payment schedule (Adapted from MNCLHD & NCPHN, 2018).

Example A

Income per patient for 16 weeks = $263.15
[$64.75 (patient registration) + $198.40 ($12.40 x 16 weeks)]

Example B

Income per general practice with 25 patients for 16 weeks = $6,948.75
[$263.15 (*Example A*) x 25 patients + $370 (general practice enrolment)]
(Adapted from MNCLHD & NCPHN, 2018).

Evaluation methods

The broad aims of CHIP were for general practices to identify patients with chronic or complex health conditions in the MNCLHD area, who were at high risk of health deterioration or hospitalisation in winter 2018, and be resourced to provide intensive, coordinated, preventative, and empowering health care planning. To evaluate the success of the approach, a number of indicators were identified and strategies or tools were sourced or developed to measure any changes. Collecting qualitative feedback from CHIP service providers and patients was a planned complementary approach to assist in interpreting the quantitative data and assessing program effectiveness.

Quantitative

Proposed quantitative indicators of CHIP effectiveness using patient cohort data during the program period included incidences or rates of:

- Patient care planning activities, including SDAPs developed, HMRs undertaken, case conferences conducted, and clinician contacts made;
- Unplanned hospitalisations;
- Hospital admission and discharge notifications and summaries provided to general practices in a timely manner through secure electronic messaging systems (via ICDM team);
- HARP assessments completed, and rating given;
- Change in patient experience measures (PREMs);
- MyHR uptake and shared health summary completion by general practices;
- Influenza vaccination uptake; and
- Clinician HealthPathways usage and referrals made to psychosocial, allied health, or ICDM supports.

Additional quantitative indicators of CHIP effectiveness proposed at the general practice service level were incidences or rates of:

- Change in clinician experience measures;
- GP and PN participation;
- PN attendance in health coaching training;
- PDSA quality improvement activities; and
- Communication and care coordination between general practices and MNCLHD ICDM teams, including case conferences undertaken.

A further quantitative measure for consideration in CHIP evaluation was the overall program expenditure (provided by NCPHN).

Qualitative

Proposed qualitative information to be collected within and at the end of the CHIP project period were verbal accounts of experiences and feedback from:

- Patients (collected via interviews directly with patients and indirectly with service providers);
- General practices and clinicians; and
- MNCLHD ICDM team.

A number of planned quantitative indicators or qualitative feedback were either not collected, conducted, or there was insufficient data to contribute to CHIP evaluation. These were:

- Case conferences conducted;
- MyHR uptake;
- Influenza vaccination uptake;
- Clinician HealthPathways usage and referrals to psychosocial or allied health supports;
- Hospital admission notifications and discharge summary provision; and
- Direct verbal accounts of patient experiences and feedback.

Findings of these activities were not able to be directly reported on in this evaluation but some were referred to indirectly when discussed in clinician qualitative feedback.

Tools

General practice, patient, and MNCLHD quantitative information

General practices and MNCLHD health workers were required to collect initial and ongoing service and patient quantitative information for CHIP evaluation, as is detailed in Figure 4.

General practice		MNCLHD	
Service level	**CHIP patient cohort**		**Service level**
Nurse participation GP participation PDSA activities undertaken	Total number of registrants Date of program consent submission Date of birth Service/contact provided HARP assessment and score SDAPs completed HMRs completed CHIP patient withdrawal or death, including date	Unplanned hospital presentations, including details on: - If chronic disease related - If GP advised - The length of stay - Patient HARP score HARP assessment and score Referrals made Total registrants already enrolled with ICDM at start New ICDM assessments and enrolments	Hospital admission notifications forwarded to general practices Discharge summary notifications forwarded to general practices Other contact made with general practices General practice clinician participation in health coaching training

Figure 4. General practice, patient, and MNCLHD quantitative information for the 2018 Mid North Coast Seasonal Demand Coordinated High Intensity Patient Care Initiative (CHIP) evaluation.

Patient reported experience measures (PREMs) and patient reported outcome measures (PROMs)

PREMs collect information on patient perceptions of their health care for the previous three months, and are important in monitoring how patients understand and experience their care planning and treatment. Ordinal and nominal responses relating to patient health care experiences are scored according to weightings developed by ACI that indicate the strength of agreement with the question across participants as a percentage. Summary reports of findings are provided to the health service for performance feedback and to inform quality improvement processes (ACI, 2018). The participating CHIP patient cohort completed PREMs as electronic questionnaires on tablets provided by ACI at or close to the time of their registration and again near the end of the program period. Survey responses were mostly quantitative ordinal rankings of care experiences and perceptions. PREM summary reports measured the responses provided for each question across the whole patient

cohort, and used a scoring system to quantify overall performance as a percentage. Summary reports of CHIP participant responses in periods of 1 June to 31 July 2018 (Time 1) and 1 August to 30 September 2018 (Time 2) are analysed in this evaluation.

PROMs capture patient perceptions of the impacts of illness and health care on their wellbeing. PROMs come in a variety of different forms depending on the patient illness and care provided, and can be used by a health service as evidence of health service delivery effectiveness (ACI, 2018). Under the CHIP program, PROMs were required to be completed at patient registration and program end. Findings were provided to the general practice for internal clinical outcomes feedback and quality improvement processes, but were not intended for CHIP program evaluation.

PREMs and PROMs were self-completed by the patient either independently or with assistance from general practice staff (nurse or administrator). Practice staff were invited to complete online educational modules and have training with the ACI Patient Reported Measures Project Officer to assist with their implementation. The findings of PROMs are not discussed in this evaluation report, as PROMs data was made available for internal use only (ACI, 2018).

Clinician experience survey

CHIP clinicians in general practices and ICDM teams completed a nine-question online survey containing ordinal (strongly agree, agree, disagree, strongly disagree) and nominal (undecided, not relevant) response options regarding high risk chronic disease patient care over the previous three months (see Appendix E). These were undertaken at or near the start (Time 1: 21 May to 29 June) and near or after the end (Time 2: 14 September to 5 November) of the CHIP program period. Findings from the raw data analysis are presented in this report.

Interviews with general practice staff

Practice Managers (PMs) and/or PNs in each participating general practice were interviewed face-to-face by the NCPHN Practice Support Officer in June, July, August and September 2018 using a structured topic/question format aligned to CHIP aims and service delivery strategies (see Appendix F). Each interview was approximately one hour long. Summary notes taken from the 16 conducted interviews were thematically analysed and are presented in this report.

Focus groups feedback

Wrap up dinners were held for CHIP general practice GPs and PNs and staff from MNCLHD, NCPHN and ACI in Port Macquarie (20 November 2018) and Coffs Harbour (22 November 2018). CHIP overview performance information from MNCLHD was presented, and a GP consultant facilitated a one-hour focus group discussing CHIP implementation and outcomes. One general practice did not send a

clinician to attend, and feedback was collected from the PM by email correspondence. Three broad discussion topics were utilised, covering observed changes to patient engagement and self-management of health care throughout the program period, and suggestions to improve CHIP implementation and patient outcomes and experiences. Summary notes taken from these two feedback sessions (and the one subsequent emailed response) were thematically analysed and are presented in this report.

Other sources of information that have been included in the evaluation to enhance interpretation are:

- Feedback provided by MNCLHD: clinicians from MNCLHD ICDM teams (Port Macquarie and Coffs Harbour) provided information on the benefits and barriers of CHIP from a team perspective to the NCPHN Practice Support Officer at various points in the program; and
- NCPHN program expenditure information.

Reporting

As this evaluation is focussed on CHIP program outcomes rather than site or participant performance, the analysis of general practice, patient, clinician, and MNCLHD information was conducted by pooling data within each result category and is presented as aggregate results across the cohort. The only exception to this is the clinician experience surveys: non-parametric tests were applied to determine if clinician initial responses and their responses at the end of the CHIP program were significantly different, and the direction and strength of this effect was measured.

Results

Four general practices participated across the local health district, and 133 people with chronic health conditions were registered between 30 May and 16 July 2018. Of these, 6 died and 5 withdrew before the end of the program. Care planning commenced from 30 May and ended at 14 September, with half of the cohort (*n* = 68) participating in the full 16 weeks, and an average participation of 14 weeks per patient.

Patient information

Patient age ranged from 50 to 102, with a mean and median of 80 years and standard deviation of 8.12 years (*n* = 131). Figure 5 displays registrants by age band.

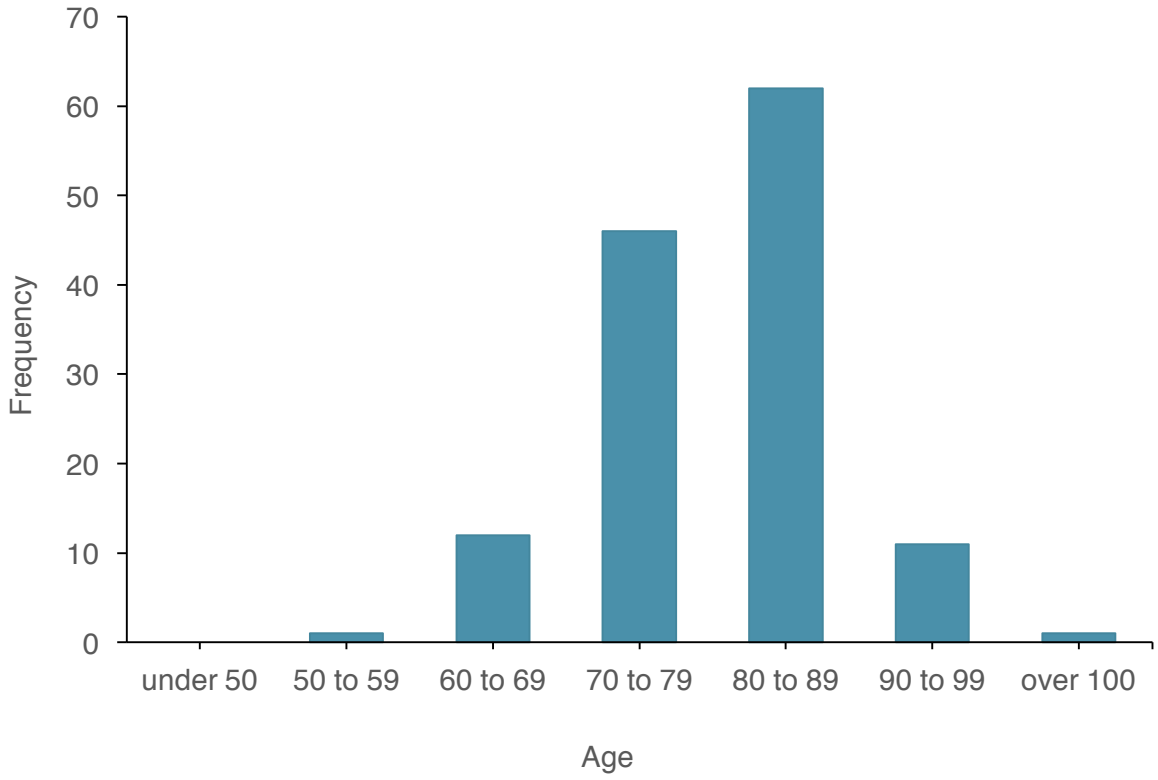

Figure 5. Mid North Coast Seasonal Demand Coordinated High Intensity Patient Care Initiative (CHIP) patient participant age (calculated as of 31 December 2018; *n* = 133).

Details of patient diagnosed chronic health conditions were not provided from registration data, but are inferred here by using the results of the PREM surveys. Of the 77 patients that completed PREMs early in the CHIP service delivery period (Time 1; response rate of 58%), 189 chronic health conditions were identified at an average of 2.4 conditions per person, with COPD, heart condition (other than heart

failure), and osteoarthritis recording the highest prevalence. Rates were slightly different in the PREMs conducted later (Time 2; *n* = 52; response rate of 43%; mean number of chronic health conditions per person = 2.1), but the three aforementioned conditions retained the highest prevalence (see Table 1).

Table 1
CHIP patient chronic health conditions as reported in PREM by incidence and percentage of patients

	Time 1 (*n* = 77)		Time 2 (*n* = 52)		
Chronic health condition	no.	%	no.	%	Difference
Other heart condition	33	43%	21	40%	-3%
COPD	33	43%	19	37%	-6%
Osteoarthritis	32	42%	17	33%	-9%
Diabetes	24	31%	16	31%	–
Chronic pain	22	29%	12	23%	-6%
Osteoporosis	17	22%	9	17%	-5%
Other	16	21%	9	17%	-4%
Heart failure	10	13%	7	13%	–
Did not know if they had a chronic health condition	2	3%	2	4%	+1%

Note. Time 1 is 1 June to 31 July 2018; Time 2 is 1 August to 30 September 2018.

At registration, seven patients were already enrolled for MNCLHD ICDM team services, and there were eleven new enrolments in the CHIP program period. There were 31 emergency department presentations and/or hospital admissions recorded from the CHIP patient cohort. More information exists for 18 of these: seven were readmissions, seven were related to a chronic condition, five GP-referred, and seven had received a HARP assessment by the ICDM team and had been ranked as medium (*n* = 3) or high risk (*n* = 4). Two presentations were indicated as being planned and 16 indicated as unplanned (with length of stay ranging from <1 day to 16 days). During the CHIP program period, the ICDM team reported referring three patients to palliative care.

General practices conducted 24 HARP assessments with CHIP cohort patients (18% of total cohort; mean HARP score of 20.88 [Medium risk]). ICDM team nurses conducted 30 HARP assessments on CHIP patients (22% of total cohort). HARP scores resulted in mostly medium (*n* = 33) and high (*n* = 19) risk profiles, with only two deemed as low risk and none as urgent.

Patient care planning at the general practice level was indicated quantitatively by the number of patients who had received SDAPs and HMRs in addition to their GP management plans. At the start of the CHIP program period, ten of 61 patients (16%) were noted as having an existing SDAP, and no HMR had been recorded. At the end of the CHIP program period, 116 of the 120 patients remaining had SDAPs (97%), and two of thirteen patients were indicated as having had an HMR. MNCLHD ICDM teams noted that they had made 158 care-oriented phone calls to patients during the CHIP program period.

Overall PREM performance was rated as 82% at Time 1 and 89% at Time 2 (see Appendices G and H for PREM summary reports). Areas of improvement between the two timeframes were in overall satisfaction with healthcare, access to services at home, all care received for condition, and patient involvement in care; and there were no areas where perception of care experience had meaningfully reduced (see Table 2).

Table 2
CHIP patient PREM response summary scores by question category

Question category	Time 1 score	Time 2 score	Difference
Overall satisfaction with healthcare	73%	88%	+15%
Access to services at home	73%	88%	+15%
All care received for condition	80%	91%	+11%
Patient involvement in care	82%	92%	+10%
Family/friends involvement in care	80%	87%	+7%
Ease of understanding condition/treatment	84%	90%	+6%
Ease of making appointments	85%	89%	+4%
Medical history knowledge	93%	95%	+2%
Ease of understanding medication information	95%	94%	-1%
Up-to-date care plan status	93%	91%	-2%

Note. Time 1 is 1 June to 31 July 2018; Time 2 is 1 August to 30 September 2018.

Other PREM findings that were more positive at Time 2 included:

- all participants felt that they were able to be involved in their care planning and felt greater overall involvement;
- more respondents gave affirmative responses to the ease of managing their health conditions;
- more respondents indicated that their care plans covered all aspects of care necessary, that all planned care and treatment had occurred, and that they had received all of the care that they required for their condition; and
- clinician knowledge of medical history was high overall, but was improved in the latter time period with all respondents indicating that their clinician knew their medical history on every or most interactions.

Qualitative information provided by clinicians in their monthly interviews indicated that many patients gave positive feedback about the experience of being involved in CHIP. Benefits included a stronger rapport with their clinician, greater reassurance and confidence in ways that they could act to improve their health, and more inclusion of carers in SDAPs and GP management plans. Positive experiences reported included patients feeling empowered to use their SDAP to assess and

manage their symptoms, with one clinician stating that a patient had said “he feels like he is in control of his care again”. There were accounts of hospitalisations avoided by more responsive clinical care, and an account of a HMR revealing deficiencies in patient medication that was quickly rectified, thus preventing probable health deterioration. Another patient was supported by their general practice clinician for a planned hospital admission.

Some negative patient experiences described were that the use of electronic tablets to collect PREMs/PROMs data created barriers for many generally older patients, the purpose and language in PREMs/PROMs was not understandable to all patients, and that some had found a high intensity approach intrusive. A clinician described a scenario regarding a carer’s unhappiness in a lack of care coordination: the general practice had not been notified when the patient had attended the hospital emergency department.

General practice, ICDM team, and clinician information

Nine nurses (75% of those employed by CHIP general practices) and 16 GPs (59% of those employed by CHIP general practices) participated in CHIP patient service coordination and/or delivery. Four PDSA quality improvement processes to support CHIP service delivery aims and practices were instigated by general practices. In June 2018, 43 nurses across the Mid North Coast attended health coaching training, and five general practice nurses involved in CHIP were indicated to have participated in this (from monthly general practice interviews). Twelve nurses from Port Macquarie and Coffs Harbour ICDM teams participated in CHIP, collaborating with general practices in coordinating patient care and implementing CHIP by way of weekly meetings and/or phone calls.

Clinician/general practice staff experiences

The clinician experience survey was completed by 25 clinicians/staff early in CHIP implementation (Time 1), and 22 clinicians/staff near the end or after the CHIP program period (Time 2), representing all participating general practices and ICDM teams. The most frequent responses (mode) by all respondents at Time 1 and Time 2 are presented in Table 3, and show improvements in the level of agreeance to almost all questions.

Table 3
CHIP clinician experience survey responses (mode)

Question content	Time 1	Time 2
Notified of hospital admissions	Disagree	Agree
Involved in care decision-making when patient admitted to hospital	Strongly disagree	Disagree
Involved in planning for hospital discharge	Strongly disagree	Undecided; Agree
Have easy access to external services and/or care resources needed	Disagree	Agree
Are confident that appropriate patient checking or monitoring is occurring	Agree	Agree
Feel that patients experience well-connected health services	Undecided	Undecided; Agree
Work is professionally satisfying	Undecided	Agree
Are confident in coaching patients in lifestyle change and self-management	Undecided; Agree	Strongly agree
Collaboration between NSW Health ICDM and general practice is working well	Strongly disagree	Agree

Note. Time 1 is 21 May to 29 June 2018; Time 2 is 14 September to 5 November 2018.

Seventeen clinicians completed both surveys, including 13 from general practices (7 GP, 3 RN, 2 PN, 1 nurse manager) and 4 from ICDM teams (3 Clinical Nurse Specialists, 1 Coordinator). Two general practice managers also completed both surveys. Using the paired ordinal data, Wilcoxon signed rank tests were conducted for each question to test if the responses at Time 2 were significantly to those at Time 1, as shown in Table 4. Note that the findings include only the 11 to 17 respondents in each question that answered at both times with a response other than ‘not relevant’, and after removing those who gave the same response at both times (ties) this dropped to between 5 and 13 respondents per question.

Table 4
Paired-data analysis of CHIP clinician experience responses at Time 1 and Time 2

Question content	T	z	$N - Ties$	p	r
Notified of hospital admissions	69.5	-2.43	12	.015*	.70
Involved in care decision-making when patient admitted to hospital	28	-2.41	7	.016*	.91#
Involved in planning for hospital discharge	15	-2.04	5	.041*	.91#
Have easy access to external services and/or care resources needed	46.50	-0.62	12	.537	.18
Are confident that appropriate patient checking or monitoring is occurring	91	-3.27	13	.001*	.91#
Feel that patients experience well-connected health services	66	-3.13	11	.002*	.94#
Work is professionally satisfying	66	-3.07	11	.002*	.93#
Are confident in coaching patients in lifestyle change and self-management	45	-2.74	9	.006*	.91#
Collaboration between NSW Health ICDM and general practice is working well	91	-3.21	13	.001*	.89#

*Note. Time 1 is 21 May to 29 June 2018; Time 2 is 14 September to 5 November 2018; p-value is two tailed; * $p < .05$; # large effect size ($r > .8$).*

There were significant differences and large positive effect sizes between Time 1 and Time 2 for all questions except:

- 'Have easy access to external services and/or care resources needed' was non-significant ($p > .005$) with negligible effect ($r < .2$); and
- 'Notified of hospital admissions' was significant ($p < .005$) with a medium effect size ($r > .5$).

Therefore, strong improvements in clinician experience were measured over the CHIP program period in: decision-making involvement in hospital admissions and discharge planning, confidence in patient monitoring, patient's experiencing well-connected health services, professional satisfaction, confidence in health coaching, and collaboration between NSW Health ICDM teams and general practices.

CHIP implementation

Qualitative information collected in monthly general practice interviews indicated aspects of CHIP were implemented very effectively according to the program guidelines, including patient selection processes, general practice team formation and collaboration (with most indicating near whole service involvement), and appropriate team communication strategies (including meetings, file sharing, messaging, and informal processes). Effective approaches to engaging patients in high-intensity care planning were also described, including widespread use of SDAPs, weekly phone calls, carer inclusion in care planning, HARP assessments, and health coaching strategies. Some general practices described formalised intensive engagement processes, whereas others described more opportunistic or reactive strategies, citing the lack of protected time for program implementation as an underlying determinant in this. All services indicated that comprehensive social welfare plans with SMART goals were already being used, but some indicated that actioning these were often hindered by a lack of available psychosocial care and transport services. All considered SDAPs as useful in promoting patient self-management, and three general practices identified that they had not previously used SDAPs, with some now considering them as standard practice for patients with chronic conditions. One general practice expressed appreciation for the assistance in developing and implementing a more responsive model of care for patients with complex care needs, and that this had improved their engagement with some of their most vulnerable patients.

The most commonly reported barrier to CHIP implementation identified by general practice clinicians and staff was the amount of time needed to fully implement the model of care, including planning, documentation, and evaluation processes. The payments for protected time were considered by some to be adequate, but others reported that the payments were not aligned to the level of nurse engagement and resourcing needed. The time needed for administrative system development and patient registration was given as a reason by some for delays to full implementation, and the expected weekly contact frequency was considered to be too onerous and time-consuming for some, especially when dealing with patients who are socially isolated. Another criticism of the funding model was its system of retrospective payments. SDAP development and implementation was also seen by some as being time-consuming, especially when needed for multiple chronic illnesses or conditions not covered by the SDAP templates such as chronic pain. Most general practices reported that key staff were lost during the CHIP program period which affected implementation efficacy to varying extents.

Some respondents did not consider the use of tablets for PREMs/PROMs to be viable with elderly patients, with general practice staff frequently required to assist, and spoke about delays in receiving the tablets as hindering implementation. Other problems that affected PREMs/PROMs completion rates were confusion about

the tools (leading to one or the other being completed instead of both), the repetitiveness of the questions engendering patient disengagement at times, and the complexity of survey registration (which needed to be facilitated by MNCLHD staff). One general practice noted that it would like to have ACI tablets available at the service for ongoing PREMs/PROMs data collection to assist in service evaluation and quality improvement processes.

A lack of incentive for GP participation was identified as another barrier, and included possible financial impacts due to most CHIP participants being bulk-bill service recipients. A further shortfall was the inability to establish effective systems for patient care coordination between general practices and MNCLHD health services including ICDM, allied health, and hospitals (which was also noted in feedback from the MNCLHD ICDM teams). Hospital admission and discharge information was reported as sometimes but not always being relayed by the ICDM team, and GP participation in hospital discharge planning was still not considered to be occurring enough.

Feedback from the MNCLHD ICDM teams identified challenges in communicating with GPs, the geographic spread of general practices, and the investment of time needed in implementation including establishing relationships with general practice staff. Delays in ICDM team patient registration led to a later service delivery start date for one of the teams (25 June). One team member noted that staffing changes within the team led to a rupture in CHIP coordination that continued until the program end date. Other implementation deficiencies noted were that general practice patient selection did not always align to CHIP/ICDM criteria, the provision of hospital admission and discharge notifications from ICDM teams to general practices was ad hoc rather than consistent, and that case conferencing was not utilised. Another problem raised was that the program was unable to be offered to suitable high risk patients enrolled with the ICDM teams but who did not have a regular GP or a GP who was registered with CHIP. Positive aspects of CHIP implementation that were discussed included improved patient care experiences and outcomes, improved communication and patient care coordination within teams and across services, and better relationships with general practices, who were found to be very welcoming to the ICDM teams.

Focus group feedback provided at the two wrap up dinners (with representatives from three general practices, MNCLHD, NCPHN, and ACI) found the area of CHIP implementation most in need of improvement was the sharing of patient information between health service settings, including hospital admission notifications and discharge summaries. Other aspects of the CHIP model of care that were least effectively implemented were case conferences and HMR, with the unavailability of funding to enable general practice nursing and allied health service participation in these noted as a barrier.

Other implementation issues described were:

- an experience of suboptimal coordination and care by a high risk patient admitted to hospital;
- some general practices did not experience increased communication or clinical care coordination with their respective ICDM team, including hospital admission notifications and involvement in hospital discharge planning;
- calls by ICDM team to CHIP patients not enrolled with ICDM were considered by some general practice clinicians to be largely ineffective because, having built rapport with their general practice PN and/or GP, the patient did not know or necessarily feel comfortable in discussing their health with the caller;
- a lack of direct contact with GPs and MNCLHD clinicians, leading to no recorded GP involvement in CHIP patient hospital discharge planning;
- some patients were not familiar with or open to preventative planning, which impacted on SDAP effectiveness;
- protected time payments were not considered by all general practices to have covered all of the program implementation and delivery costs;
- some ICDM staff were not using MyHR to review or update patient care, and some were not provided with (or did not provide to general practices) up-to-date contact lists of CHIP patients to monitor and/or follow up; and
- the purpose of PREMs/PROMs was not clear to patients and took up a lot of clinical care time, with some questions seeming only marginally or not relevant to CHIP or general practice service provision. General experiences of patient and staff engagement with these tools was negative for many, and the overall benefits of these tools remains unclear for some.

One respondent stated that they would only be prepared to run the program again if *"funding was available to fold the process into the [general] practice routine activity, such that high-risk patients could be picked up earlier if they were deteriorating, and lower risk patients could be identified and preventative measures put in place much earlier, even to reduce the chance of them becoming high risk at all".*

General practice staff described the 'getting to know you' events and meetings prior to CHIP service delivery to have been very useful in understanding the program and building relationships with health service providers. Other beneficial aspects of CHIP implementation involved:

- more PN time to call and review patients, and patient appreciation for increased contacts in monitoring their health;
- increased communication with ICDM team in coordinating patient care, including reducing service duplications, and increased general practice awareness of MNCLHD services and clinicians;
- patient use of SDAPs, including contacting their general practice clinician when unwell instead of presenting to the emergency department;

- increased patient understanding of and confidence in self-managing their health issues, including stronger understandings of risks and of the need for closer monitoring;
- protected time payments, which provided some coverage for and extension of care planning and follow up contact processes that PN often undertake and are not remunerated for; and
- provision of implementation resources and information to assist general practices in developing and implementing a more preventative, patient-centred model of care.

CHIP outcomes

The outcome from CHIP identified by general practice interviewees as most positive was the prioritisation and consolidation of proactive care planning for at risk patients. This included better clinician insight into patient care needs and options, and greater patient confidence in self-managing their conditions. Other outcomes identified were:

- stronger relationships and feelings of collaboration between general practice and ICDM team, particularly in supporting health coaching skill development, and facilitating ongoing information exchange. One clinician stated that *"[The CHIP] program has been a catalyst for communication between the health settings; the [general] practice had no idea that the [ICDM team] existed or was seeing their patients a few months ago and the ICDM did not know [the patient's] GP or who to speak to"*;
- use of standardised data collection tools (PREMs/PROMs and clinician experience surveys) to provide an evidence-base for program efficacy including measurement of improvements over time, and to contribute to health service development more broadly;
- utilisation of a more patient-centred model of care was valuable in itself, as well as in informing and providing momentum for better service care planning practices into the future; and
- improved relationships with patients, improved utilisation of patient care options, and use of achievable and sustainable resources including SDAP and health coaching techniques.

In the focus groups feedback, general practice clinicians and staff identified the most valued deliverable of CHIP was the payment for practice nurse protected time. Practice nurses described SDAPs as their most valued aspect of the model of care and gave a number of positive accounts and outcomes of their use, including prevented hospital presentations and increased patient trust, engagement, and satisfaction in care planning. Some PNs expressed plans to use SDAPs to support other high risk patients and conditions, including Aboriginal and mental health cohorts. A general practice noted that CHIP had led them to reconsider the threshold

of disease severity for inclusion in clinics for chronic conditions such as COPD, and to consider using more early interventions (including SDAPs) to limit the severity of disease progression. An ICDM team member noted that the CHIP experience had generated impetus and PDSAs for targeting other patient cohorts at risk of hospitalisation who could benefit from a systematic approach to health checking.

On the other hand, one general practice staff member described CHIP implementation and delivery as insensitive to general practice operations, requiring onerous documentation and feedback processes within urgent timeframes, and yet the program did not consider or report on patient outcomes adequately. They had the opinion that there were no clear benefits to patient clinical care, and that the one advantage that CHIP offered was more effective clinical handover of patients from the community to hospital and vice versa, but this was not achieved.

Suggestions for improvement

Feedback and suggestions to improve future programs involving general practices, ICDM teams, and patients with chronic health conditions at risk of hospitalisation are presented below, collated from clinician and staff qualitative evaluation tools (interviews and focus groups) and feedback otherwise received by NCPHN.

An earlier start date. Commence the program preparation phase in January; enabling general practices to register and start reviewing their patient lists in February; and to select, assess using HARP, register, and complete pre-intervention data with their patients in March; before an April service delivery start. This extension would enable the program to incorporate influenza vaccination within its timeframe, and allow general practices and ICDM teams better opportunity to develop efficient working models for implementation and communication, and increased ability to select appropriate patients. It would also assist in evaluating the program effectiveness, as it was suggested by some that the 2018 timeframe was too short to measure the impact of strategies such as SDAPs. One other suggestion was to keep the timing tighter between general practice enrolment and commencing CHIP patient activities to avoid loss of momentum.

Improvements to patient access. Extend CHIP program access to further high risk patients with chronic and complex health needs, particularly those who may not receive services regularly or consistently from a general practice. This could involve ICDM team involvement in facilitating patient access to a general practice for CHIP service provision, and including more chronic conditions such as renal failure, congestive cardiac failure, and insulin-dependent diabetes mellitus. It was suggested that private hospitals and other services which have a large proportion of patients who are covered by Department of Veteran's Affairs (DVA) entitlements should also be incorporated into the program, as those in this cohort often have high intensity needs that could benefit from CHIP. However, other feedback indicated that patients under DVA already receive more intensive care planning and monitoring, so CHIP increased equity by enabling a similar level of care for patients without DVA

coverage. A general practice staff member noted that they provide a nurse home visit service for assessment of sick and frail patients, but that Medicare only funds GP home visits, so this can have negative financial and logistical impacts. They suggested that ICDM teams could consider providing this service for CHIP participants (and high risk cohorts more generally) as part of a coordinated care approach to prevent hospital presentations.

Improvements to implementation planning. Have clear implementation and evaluation strategies that simplify and systematise activities and data collection from the outset, with a more supportive than prescriptive approach. Enable general practices to develop ways to incorporate risk identification and intensive care/prevention planning for patients into routine activities, rather than just as a standalone program. Facilitate upfront payments to general practices, including a start-up allowance for service preparation and mentoring support time for the service CHIP champion, and funding for protected time that covers all nurse calls and visits to patient cohort. Ensure a consistent definition of chronic disease across all health settings. Recommend completion of SDAP with the patient at their initial appointment, in conjunction with after-hours and ambulance planning. Investigate or advocate for options to allow GP management plans, SDAPs, and advanced care directives to be uploaded to MyHR. Improve communications between health settings by using consistent tools and systems, including MyHR and secure electronic messaging.

Improvements to service delivery and communication. Utilise case conferences to coordinate individual care planning involving MNCLHD, general practice, carers, and other care providers. Addressing psychosocial issues outside of clinical care was an area that needed further development within the model of care, especially for socially isolated and economically disadvantaged patients. A suggestion was made that social workers be involved in CHIP implementation to help in providing or linking to relevant psychosocial care services, and that an ICDM nurse be allocated to each general practice to facilitate improved communication. Enable secure messaging systems for automated hospital admission notification and discharge summary provision to general practices (via HealtheNet) to be in place and functioning (NSW Government, 2018a). It was also suggested that CHIP needed a stronger awareness campaign to explain its purpose and promote its use, and that each ICDM team should have a centralised intake line for referrals.

Improvements to data collection tools. Clinicians assisting in the completion of patient PREMs/PROMs surveys suggested that the questions needed to be more easily understandable, less time-consuming to complete, be made accessible for older and frail patient cohorts, and more directly related to patient care and wellbeing. This included asking patients if they knew what to do when they felt sick, if their home environment was adequate (e.g. heating in winter), or if they were drinking enough fluids. One way to assist in providing information relevant to clinical

care may be to develop or provide additional client assessment tools that investigate and provide strategies to address environmental and other holistic needs.

Improvements to GP engagement. Targeting advocacy and promotional strategies towards GPs was suggested as an additional way to improve CHIP uptake and effectiveness. This includes hosting program events such as meetings and health coaching training in the evenings so that GPs are able to attend.

Improvements to program evaluation. Provide resources to enable general practices and ICDM teams to review their patient selection, progression, and outcomes within the program. This would facilitate greater ability to assess effectiveness and provide detailed implementation feedback and advice to support future program iterations.

Offer similar programs to other high risk patient groups. The CHIP model of care could be beneficial to other high risk patient population groups, such as people with frailty or mental health issues, or to Aboriginal people, and extension or development of programs to cover these groups is suggested.

NCPHN financial information

Funding provided to general practices for protected time to implement and deliver the CHIP program came to a total of $33,106. Of this, $1,480 was for general practice registration and set up; $8,612 was for patient registration; and $23,014 was for patient activities (n = 1856). This was an average of $249 per CHIP patient or $8,279 per general practice.

NCPHN program support expenditure (excluding time contributed by executive, advisory, and managerial staff) came to an estimated total of $42,446. This was an average of $319 per patient, or $10,612 per general practice.

Thus, total NCPHN expenditure for CHIP implementation and service delivery was $75,552, which was an average of $18,888 per general practice or $568 per patient.

Discussion

Findings of the CHIP evaluation are presented here thematically, and then compared with best practice principles in promoting self-management and wellness with this patient group.

Implementation and service delivery

CHIP participation targets were not fully met, with space for one further general practice and 117 further patients. Further promotional strategies for general practices may have been required, and more general practices may have needed to be registered to meet the patient target. As rates or reasons for program refusal were not collected, any problems with the program promotion and registration process is limited to feedback from clinicians/staff, who described tight timeframes and burdensome documentation processes as challenges.

Patient selection appeared to be consistent with CHIP criteria according to the quantitative data collected, with an average of over two chronic conditions per person (from 129 PREMs surveys) and results of the 52 HARP assessments conducted indicating mostly a medium risk of hospitalisation. There is scope to improve patient selection assessment by collecting further information on diagnoses and comorbidities, cultural identification, previous rates of hospitalisation, and level of social connectedness or isolation. Most registered patients received CHIP services over the full program period, with a low level of program withdrawal (4%) indicating that the model of care was largely acceptable to the cohort. The rate of hospital presentations and admissions was not able to be calculated due to inconsistent and missing data.

General practices and ICDM teams had differing approaches to implementation, which were broadly described as systematic or opportunistic but not internally analysed. Most staff reported effective implementation of many aspects of the model of care and improved patient engagement. Systematic service-level implementation strategies were seemingly associated with clinician and staff responses that indicated more effective ability to deliver and evaluate the CHIP model of care, but this was unable to be directly evaluated. Clinician/staff consideration of the resourcing opportunities and limitations within the CHIP program, as well as understanding of and ability to deliver its integrated patient-centred model of care, also appeared to affect overall appraisal of the program. A loss of key staff created difficulties in maintaining program consistency and momentum for a number of services, indicating that contingency strategies for staff loss may be needed.

Model of care

SDAPs were identified as the most valued and effectively implemented aspect of the model of care across all quantitative measures and qualitative information. Clinicians

gave statements and accounts of SDAPs reducing hospitalisations and enabling greater patient empowerment. HMRs were not reported to have been conducted often during the CHIP program period, but qualitative appraisals were very positive when it had been done. MyHR and HealthPathways uptake and use across services was not reported, but one clinician did state their general practice had full CHIP patient uptake of MyHR. Rates of CHIP patient influenza vaccination were not reported, and would have most likely occurred prior to the CHIP service delivery period. Secure electronic messaging of hospital admission notifications and discharge summaries via the ICDM team were appreciated when received by general practices, but this did not always occur. Case conferences were not reported to have occurred, and the lack of Medicare funding for clinicians other than GPs to attend was given as a reason for this. According to clinician experience survey responses, clinician confidence in health coaching improved significantly with CHIP implementation (with the most frequent response in the latter time period showing strong agreement with health coaching confidence); and over half of the participating PNs attended health coaching training. Collaboration between the ICDM teams and general practices was rated as being significantly improved (with the most frequent response recorded shifting from 'strongly disagree' to 'agree'). Therefore, SDAP use, clinician confidence in using health coaching approaches, and collaboration between health services were considered to be the strongest benefits in implementing the CHIP model of care.

Patient experiences

Comparisons of patient experience measures of health care and care planning from early to late in the CHIP service delivery period showed improvements in many areas. These were particularly in reference to satisfaction, access, care sufficiency, and patient/carer involvement. However, as it is not known how many of the same respondents completed PREMs at Time 1 and Time 2, it is not possible to draw any strong evidence about program outcomes from this measure.

Positive patient experiences in utilising the high intensity model of care were described by clinicians. These included:

- avoided hospitalisations;
- stronger rapport with clinicians;
- appreciation for increased contacts; and
- greater empowerment and confidence in self-managing their health conditions.

Negative experiences were related to failures or difficulties in implementation or evaluation including:

- a lack of communication between the MNCLHD and GPs regarding hospital presentations;

- difficulties in understanding survey questions and in using tablets for PREMs/PROMs data collection; and
- preferences for general practice contact frequency not being collected or followed.

Also, some patients were described as not wanting to engage in preventative care planning. This suggests that screening of patient motivation may contribute to more effective patient selection, or other strategies may need to be developed to alternatively engage these patients in a manner that they are comfortable with.

Health service communication and collaboration

Clinician experience survey responses showed significant improvements in almost all aspects of patient care coordination over the CHIP program period, except in accessing necessary external services and resources for patient care. This provides evidence of considerable benefits in implementing the CHIP model of care from a clinician/staff perspective. Clinicians/staff initially gave responses that most often expressed disagreement to statements regarding the occurrence of collaborative work practices, but in the latter survey only one statement maintained a negative response (clinician involvement in care decision-making when a patient is admitted to hospital). Focus group feedback identified that service duplication had reduced, but a lack of information sharing between health services was a major deficiency to program effectiveness (with barriers described as occurring in both general practices and ICDM team processes). Thus, CHIP was not seen to have increased access or availability of needed external services for its patient cohort, and whilst communication with hospitals and GP involvement in care planning at the MNCLHD level was perceived to have improved, it still did not occur enough.

About ten percent of CHIP participants who were eligible for (but had not previously received) ICDM team services were enrolled in these during the CHIP program period. IDCM teams noted that establishing relationships with general practices needed considerable time, and it is hoped that these relationships would continue beyond the program. As such, CHIP provided a beneficial catalyst for creating better opportunities and ongoing systems of coordinated care, which aligns to a more integrated patient-centred approach. However, the way this care is coordinated may need further development, as some general practice clinicians noted that some patients did not respond well to ICDM team contact, that some ICDM were not utilising MyHR to provide centralised patient care information, and that there were some issues and delays in ICDM team patient registration processes.

Clinicians found the model of care was valuable in prioritising proactive care, increasing clinician insight and ability to plan effective care, and as a resource with standardised delivery and evaluation processes to systematise and improve care practices for all service patients.

Resourcing

General practice staff expressed appreciation for the resources they received as part of the CHIP program including protected time payments, information and templates to assist in implementing the model of care, and facilitated collaboration with ICDM teams. However, the amount of protected nursing time provided for CHIP implementation and service delivery was appraised by most general practice clinicians/staff to be insufficient. The intensity of the model of care, the complexity of evaluation processes, and characteristics of the patient cohort (older, many were socially isolated), were cited as reasons underlying this insufficiency. The lack of Medicare funding for home visits and participation in case conferences by nurses and allied health staff inhibited these strategies. More incentives for GP participation was identified as a need by general practices, and ICDM teams noted the lack of GP participation as a hindrance to effective collaboration, so appropriate resourcing of GP engagement is a further consideration here. One general practice suggested funding should enable the CHIP program to be embedded as ongoing standard practice for patients with chronic conditions.

Evaluation limitations

CHIP service delivery and evaluation tools contained numerous complex elements to be completed within a short program timeframe. Limitations to accurate and full use of the evaluation tools included time and urgency restraints within health services and loss of key staff. Some parts of the model of care were not contained in the evaluation tools (e.g. influenza vaccination status, HealthPathways or MyHR usage) or not reported upon (e.g. case conferences, patient engagement strategies). Clinicians/staff described mixed experiences and valuations of CHIP, indicating that program effectiveness and acceptability is informed by a range of localised variables. Thus, considering features of implementation at a service level in future may provide useful information with which to assess and improve integrated care health programs generally. This may include examining the roles and efforts of staff in championing, coordinating, and participating in program implementation at the service level, and include the relative contribution of practice managers, practice nurses, general practitioners, and ICDM staff. Also, it has been suggested that the service delivery timeframe (16 weeks) may have been too short to measure improvements in patient experiences and outcomes, including the benefits of SDAPs.

Quantitative data

Not all quantitative measures were completed or reported upon consistently by general practices and MNCLHD staff, which limits the quantification of program outcomes, measurement of any changes, and interpretation of results. Quantitative data collection did not include information on patient gender, cultural identification,

chronic illnesses, or other descriptive information that could have enabled demographic analysis and stronger evaluation of the appropriateness of patient selection. General practices did not report the frequency or nature of patient activities such as referrals to allied health or psychosocial care services, or communication with the ICDM team. Patient identifiers were not provided in reporting, which prevented the confidential linking of information about a patient from general practices and ICDM teams (such as HARP scores, if the patient was enrolled with or referred to the ICDM team, or if they had presented to hospital). In general, stratification and analysis by patient characteristics or aspects of service delivery was not possible because of limitations and deficiencies in the data collection and reporting tools.

Deficiencies identified in the ICDM team approach of receiving and forwarding secure electronic admission and discharge notifications to general practices limited the ability to collect and report on CHIP patient hospitalisations accurately.

PREMs were conducted in two time periods that related to early and late program implementation but were unable to be verified as occurring pre- and post-intervention, reducing the ability to interpret PREMs results as reflective of CHIP program outcomes. It is unknown how many CHIP participants completed both PREM surveys, but it was less than half the cohort (a maximum of 52 out of 133) which restricts the generalisability of the results. Some clinicians questioned the relevance of PREMs/PROMs measures, which suggests that further efforts may need to be invested in selecting questions and promoting the benefits of these tools to assist in increasing response rates. Linking PREMs completion by patient identifier, and providing raw data rather than ACI summary reports, would have enabled paired-data analysis and increased the meaning that could be extracted from the survey results, including measuring improvements over time.

The clinician experience survey paired responses contained small sample sizes, which reduced the meaningful interpretation of results and indicated a greater risk of type I or II errors (false significant or nonsignificant results).

Qualitative data

Direct verbal accounts of patient experiences and program feedback was not collected, but would have been useful in contributing to program evaluation and continuing a co-design process in future program planning. Qualitative information from general practice and MNCLHD staff was mostly undertaken by NCPHN interviewer or GP consultant facilitator, with results provided as summary notes, so may have contained some respondent or researcher biases.

Comparison with chronic disease policy framework and models of care

The need to reduce preventable hospital admissions and to increase health-promoting behaviours has been and continues to be national and state government health priorities. The CHIP model of care aligned itself with best practice principles in reducing avoidable hospital admissions and encouraging greater patient self-management of their health, and showed successful implementation of various strategies to meet these aims including patient selection processes and the model of care. CHIP implementation strengthened and augmented existing integrated care practices for patients with chronic conditions, which is in line with the aims of NSW policy and program reforms including integrating care for people with chronic conditions, and increasing the role of general practices in preventing hospital presentations (NSW Government, 2015). Thus, the theoretical basis for CHIP was informed by current health program strategies in NSW, and CHIP provides a valuable working model of how health services can collaborate to provide more comprehensive care for at risk patients.

Preventable hospitalisation risk factors and predictive models are considered to have moderate accuracy, so a targeted program would only be expected to show moderate effectiveness in reducing hospitalisation (Lewis et al. as cited in Sansoni et al., 2015). However, there is a lack of research guidance as to what amount of hospital presentations by people with chronic conditions are preventable. Although this evaluation was unable to effectively calculate rates of hospital presentations or determine what proportion of them may have been preventable, a lack of comparable data or direction as to what these findings would have indicated is a major limitation in this area of study. It is hoped that the findings of the DaPPHNE study will contribute to clearer understanding of the factors underlying preventable hospitalisation and inform clearer goal setting to reduce these (Passey et al., 2015).

Finally, there are also no clear parameters with which to assess if the program benefits outweighed the costs of implementation. Benefits from a health service perspective were better knowledge and rapport with patients and other health care providers, and the provision of resources and structure to improve patient care activities and coordination. Continued research would assist in seeing if these benefits were sustained beyond the program, contributing to a stronger ability to assess program value.

Recommendations

The CHIP program partially demonstrated effective implementation of an intensive approach to care for patients at risk of avoidable hospitalisations, but a number of inefficiencies and challenges inhibited full implementation and evaluation of its success. These included time and resource limitations, and deficiencies or failures in communication and evaluation systems. A range of recommendations to improve future program implementation for this cohort was generated from the evaluation findings and is presented below (see Figure 6).

Mid North Coast Seasonal Demand Coordinated High Intensity Patient Care Initiative (CHIP) program recommendations	
Program improvement	
1. Involve general practices in program planning to increase its relevance to their business and patient care models. 2. Create a stronger awareness campaign for clinicians, general practices, and patients to promote program understanding and uptake. 3. Include evaluation measures in the program design, clearly link measures to specific program aims and strategies, and appraise the suitability and sufficiency of measures before implementation. 4. Address barriers to information sharing between general practices and MNCLHD services prior to program implementation, including referral systems and strategies to coordinate shared patient care.	5. Ensure sufficient prospective payments to general practices for protected time to implement and deliver the program. 6. Start program earlier in the year to incorporate influenza vaccination clinics. 7. Have a longer service delivery time period to increase patient care coverage and enable better assessment of program outcomes. 8. Assess patient motivations and preferred frequency of contact, and encourage clinicians to tailor the model of care to these characteristics. 9. Increase clinician access to resources for patient care. 10. Prioritise strategies to engage GPs in program delivery.
Program extension	
1. Extend program access to other high risk patients (including sick, frail, Aboriginal, those with mental health issues, and those not engaged with GP). 2. Develop strategies for ICDM teams to link patients to general practice services. 3. Include social workers and other allied health or psychosocial care providers in program delivery.	4. Extend protected time payments to include nurse and allied health participation in case conferences and to enable home visits. 5. Provide protected time and resources to assist general practices in embedding the model of care as standardised practice for at risk patients. 6. Consider improved and prioritised linking of patient cohort to psychosocial care and other external services.
Program evaluation	
1. Reduce the number of evaluation tools, or increase protected time payments to cover time needed to complete or assist patients in completing these. 2. Ensure secure electronic messaging systems are operational before service delivery, and its data is routinely collected. 3. Incorporate all elements of the model of care in the evaluation tools. 4. Collect rates of refusal and reasons. 5. Use patient identifiers in data collection. 6. Improve accessibility of PREMs/PROMs questions and data collection devices, and provide clearer instruction on the purpose and use of these tools.	7. Conduct patient interviews to generate qualitative information from a patient perspective. 8. Evaluate patient and clinician/staff appraisal of the program with reference to the systems of implementation at the service level. 9. Provide resources to support internal service evaluation (in addition to PDSAs), with the aim of improving program implementation and patient outcomes. 10. Consider ways to include and extract information from service record systems, or provide an online data collection portal that can be completed after each activity.

Figure 6. Recommendations for Mid North Coast Seasonal Demand Coordinated High Intensity Patient Care Initiative (CHIP) program improvement, extension, and evaluation.

A major limitation to evaluating the CHIP program is the lack of completed research on the success of current NSW approaches to reduce preventable hospitalisations and increase patient empowerment in managing their health. As further research is published that evaluates the effectiveness of integrated care models in meeting these aims, more evidence to support or modify the CHIP model of care and implementation approach will become available. This evaluation of the CHIP program contributes to understanding how programs can be implemented across primary health and NSW Health services; further refinement and future iterations of integrated care programs for this and other at-risk patient cohorts will assist in creating a stronger evidence base for program planning. As such, continued planning, implementation, and evaluation of integrated models of care and programs is a primary and overarching recommendation of this evaluation.

Further publication of patient and health services experiences and outcomes in implementing programs that aim to reduce preventable hospitalisations and increase patient empowerment is needed at local, state, national, and international levels. Further research will help to create better knowledge of the range of factors that contribute to the ability of programs to meet health service aims. The co-design basis of CHIP is an important quality, but needs to be extended into the program evaluation to effectively capture patient experiences and goals that may contribute to improved future programs. A substantial focus on clinician/staff experiences and feedback is a strength in the CHIP program evaluation, generating some of its strongest findings (including improvements in care collaboration and clinician confidence across health settings) and most of its recommendations. This aspect of the evaluation is recommended to be maintained in future programs, as health service providers are the drivers of implementation and are integral to program success. Improvements to other data collection (including quantitative indicators and qualitative patient information) is recommended to assist in increasing evidence generally, but also to contribute in validating and understanding the experiences of health service providers.

Lastly, this evaluation has shown that health program planning can act as a driver of service quality improvement. CHIP provided resources and momentum to improve health care principles and practices, and some elements of the model of care (e.g. SDAPs, PDSA processes, hospital admission notifications, and GP involvement in hospital discharge planning) are being planned to be implemented as standard practice in some general practices. As such, the value of programs in modelling and resourcing general practice and health service improvements is an important consideration in future planning.

References

Agency for Clinical Innovation. (2018). *Patient reported measures – program overview*. Chatswood, NSW: NSW Health. Retrieved from https://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0004/415219/ACI18050_PRM_ProgOverview_Guide_v1.pdf

Argha, A., Savkin, A., Liaw, S. T., & Celler, B. G. (2018). Effect of seasonal variation on clinical outcome in patients with chronic conditions: Analysis of the Commonwealth Scientific and Industrial Research Organization (CSIRO) National Telehealth Trial. *JMIR medical informatics, 6*(1). Retrieved from https://www-ncbi-nlm-nih-gov.ezproxy.scu.edu.au/pmc/articles/PMC5878365/

Australian Association of Practice Managers. (2018). *Definition of a Practice Manager.* Retrieved from https://www.aapm.org.au/Your-Profession/Definition-of-a-Practice-Manager

Australian Digital Health Agency. (2018a). *My Health Record*. Canberra, ACT: Australian Government. Retrieved from https://www.myhealthrecord.gov.au

Australian Digital Health Agency. (2018b). *My Health Record benefits when managing a chronic condition.* Canberra, ACT: Australian Government. Retrieved from https://www.myhealthrecord.gov.au/for-managing-chronic-condition

Australian Digital Health Agency. (2018c). *Shared health summaries*. Canberra, ACT: Australian Government. Retrieved from https://www.myhealthrecord.gov.au/for-healthcare-professionals/shared-health-summaries

Australian Government. (2014). *Chronic Disease Management (formerly Enhanced Primary Care or EPC) — GP services*. Canberra, ACT: Australian Government. Retrieved from http://www.health.gov.au/internet/main/publishing.nsf/Content/mbsprimarycare-chronicdiseasemanagement

Australian Health Ministers' Advisory Council. (2017). *National Strategic Framework for Chronic Conditions.* Canberra, ACT: Australian Government. Retrieved from http://www.health.gov.au/internet/main/publishing.nsf/Content/nsfcc

Australian Institute of Health and Welfare. (2018). *Australia's health 2018. Australia's health series no. 16 AUS 221*. Canberra: AIHW. Retrieved from https://www.aihw.gov.au/reports/australias-health/australias-health-2018/contents/table-of-contents

Australian Primary Health Care Nurses Association. (2017). *General practice nursing*. Retrieved from https://www.apna.asn.au/profession/what-is-primary-health-care-nursing/general-practice-nursing

Chen, T. F. (2016). Pharmacist-led home medicines review and residential medication management review: The Australian model. *Drugs & Aging, 33*(3), 199–204. doi:10.1007/s40266-016-0357-2

Delaney, L. J. (2018). Patient-centred care as an approach to improving health care in Australia. *Collegian, 25*, 119–123. doi:10.1016/j.colegn.2017.02.005

Department of Health. (2018, April 6). *The flu vaccine —factsheet for consumers.* Canberra, ACT: Australian Government. Retrieved from https://health.gov.au/news-and-events/news/2018-influenza-vaccines-your-best-shot-at-stopping-the-flu

Einarsdóttir, K., Preen, D. B., Emery, J. D., Kelman, C., & Holman, C. D. J. (2010). Regular primary care lowers hospitalisation risk and mortality in seniors with chronic respiratory diseases. *Journal Of General Internal Medicine*, *25*(8), 766–773. doi:10.1007/s11606-010-1361-6

Feyer, A., McDonald, A., Billot, L., Cass, A., Turnbull, F., Corcoran, K., . . . Viney, R. (2014, October). *State-wide evaluation: NSW Health Chronic Disease Management Program Final Report*. Retrieved from https://www.health.nsw.gov.au/cdm/Documents/CDMP-evaluation-report-2014.pdf

Graf, C. (2008). The Hospital Admission Risk Profile (HARP). *Try This: Best Practices in Nursing Care to Older Adults*, (24). Retrieved from https://nursing.ceconnection.com/ovidfiles/00000446-200808000-00031.pdf

Harris, M., Harris-Roxas, B., & Knight, A. W. (2018). Care of patients with chronic disease: Achievements in Australia over the past decade. *Medical Journal of Australia, 209*(2), 55–57. doi:10.5694/mja18.00333

Jenkins, C. R., Celli, B., Anderson, J. A., Ferguson, G. T., Jones, P. W., Vestbo, J., ... & Calverley, P. M. A. (2012). Seasonality and determinants of moderate and severe COPD exacerbations in the TORCH study. *European Respiratory Journal*, *39*(1), 38-45. doi:10.1183/09031936.00194610

Legg, M. J. (2011). What is psychosocial care and how can nurses better provide it to adult oncology patients. *Australian Journal of Advanced Nursing, 28*(3), 61–67. Retrieved from http://www.ajan.com.au/vol28/28-3_legg.pdf

Longman, J., Rix, L., Johnston, J., & Passey, M. (2018). Ambulatory care sensitive chronic conditions: What can we learn from patients about the role of primary health care in preventing admissions? *Australian Journal of Primary Health, 24*(4), 304–310. doi:10.1071/PY17191

Mid North Coast Local Health District. (2018, August 24). *Transition of care*. Retrieved from https://mnclhd.health.nsw.gov.au/services/integrated-care/transition-of-care/

Mid North Coast Local Health District & North Coast Primary Health Network. (2018). *Coordinated High Intensity Patient Care*. Retrieved from https://ncphn.org.au/chip

Northern NSW Local Health District & North Coast Primary Health Network. (2018). *Northern NSW Winter Strategy 2017 evaluation report*. Retrieved from https://ncphn.org.au/archives/programs/northern-nsw-winter-strategy

NSW Government. (2015). *NSW State Health Plan Progress Report 2015*. Retrieved from https://www.health.nsw.gov.au/statehealthplan/Pages/NSW-state-health-plan-towards-2021.aspx

NSW Government. (2018a). *HealtheNet: Better healthcare*. Retrieved from http://www.ehealth.nsw.gov.au/programs/clinical/healthenet

NSW Government. (2018b). *Integrated care for patients with chronic conditions*. Retrieved from https://www.health.nsw.gov.au/integratedcare/Pages/chronic-conditions.aspx.

NSW Government. (2018c). *Mid North Coast*. Retrieved from https://www.health.nsw.gov.au/lhd/Pages/mnclhd.aspx

NSW Government. (2018d). *NSW Chronic Disease Management Program – Connecting Care in the Community*. Retrieved from https://www.aci.health.nsw.gov.au/networks/chronic-care/about/nsw-cdmp.

NSW Health (2018a, October 4). *Allied health professions within NSW Health.* Retrieved from https://www.health.nsw.gov.au/workforce/alliedhealth/Pages/default.aspx

NSW Health. (2018b). *Clinical Access Information Portal: NSW HealthPathways.* Retrieved from https://www.ciap.health.nsw.gov.au/browse/nsw-healthpathways.html

Office of the eSafety Commissioner. (2018). Older Australians and digital confidence. Canberra, ACT: Australian Government. Retrieved from https://www.esafety.gov.au/about-the-office/research-library/older-australians-and-digital-confidence

Royal Australian College of General Practitioners. (2015). *Standards for general practices* (4th ed.). East Melbourne, Vic: The Royal Australian College of General Practitioners. Retrieved from https://www.racgp.org.au/FSDEDEV/media/documents/Running%20a%20practice/Practice%20standards/4th%20edition/Standards-4th-edtion.pdf

Passey, M. E., Longman, J. M., Johnston, J. J., Jorm, L., Ewald, D., Morgan, G. G., . . . Chalker, B. (2015). Diagnosing Potentially Preventable Hospitalisations (DaPPHne): Protocol for a mixed-methods data-linkage study. *BMJ Open, 5*(11), e009879. doi:10.1136/bmjopen-2015-009879

Sansoni, J., Grootemaat, P., Seraji, M., Blanchard, M., & Snoek, M. (2015). Targeting integrated care to those most likely to need frequent health care: A review of the social a clinical risk factors. Lane Cove, NSW: Sax Institute Australia. Retrieved from https://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0008/274742/Evidence_Check_Targeting_integrated_care_Social_and_clinical_risk_factors.pdf

Thom, D. H. (2018). Keeping pace with the expanding role of health coaching. *Journal of General Internal Medicine*. Advance online publication. doi:10.1007/s11606-018-4730-1

Walsh, L., Hill, S., Allan, M., Balandin, S., Georgiou, A., Higgins, I., … Hemsley, B. (2018). A content analysis of the consumer-facing online information about My Health Record: Implications for increasing knowledge and awareness to facilitate uptake and use. *Health Information Management Journal*, *47*(3), 106–115. doi:10.1177/1833358317712200

Zwerink, M., Brusse-Keizer, M., van der Valk, P. D., Zielhuis, G. A., Monninkhof, E. M., van der Palen, J., . . . Effing, T. (2014). Self management for patients with chronic obstructive pulmonary disease. *Cochrane Database of Systematic Reviews 2014 [Art. No.: CD0029904], 3.* doi: 10.1002/14651858.CD002990.pub3.

Appendices

A CHIP 2018 planning guide

B HARP assessment tool

C Patient consent to participate in Coordinated High Intensity Patient Care

D Sick day action plan – Generic template

E Clinician experience survey

F General practice monthly interview format

G PREM MNC CHIP summary report – 1 June to 31 July 2018

H PREM MNC CHIP summary report – 1 August to 30 September 2018

Coordinated High Intensity Patient Care 2018 PLANNING GUIDE

	TASK	WHATS INVOLVED	NOTES – WHO, WHEN?	DEADLINE
PRACTICE PREPARATION AND ENROLMENT PHASE	**Decide** if the practice wants to join the program	*This needs commitment from the practice owner(s) and staff. In particular the Practice Principal needs to have considered:* • *Protected time for staff to do the activities* • *Arrangements for patient consent* • *Privacy and confidentiality agreements*		30/04/2018
	Build your Team Work out who will be responsible for the different activities and time required to do the work.	• *Who will be responsible for different parts of the patient care* • *How will protected time be arranged? How will the team meet and communicate in-house?* • *Make sure all the practice knows what is happening. How will patient care developments be communicated throughout the practice team?* *Use this template to work through this and record your arrangements*		30/04/2018
	Plan how you will give priority access to your cohort	*What will your system be? Are there existing arrangements you can use? How will everyone know what to do? How can you reinforce the system over the life of the strategy?*		30/04/2018
	Plan how to contact patients	*Plan how the patients will be contacted, informed and consented. Who will do this? When?*		30/04/2018
	Select your high intensity patient cohort	*Clinicians can choose the patient cohort based on their knowledge of who they think is most at risk of hospitalisation and who would benefit most. Plan how patients will be selected and the cohort list compiled and finalised.* *MNCLHD may also provide a list of frequent hospital users from their database to each Practice for consideration.*		30/04/2018
	Update your MyHR and electronic messaging details	*Ensure practice PenCAT, MyHR and secure electronic messaging SMD is enabled and usable by all participants. This is required to upload shared health summaries and receive discharge summaries.*		30/04/2018

Coordinated High Intensity Patient Care 2018 PLANNING GUIDE

	TASK	WHATS INVOLVED	NOTES – WHO, WHEN?	DEADLINE
PATIENT REGISTRATION AND CARE PLANNING PHASE	**Invite patients to Register**	*Work out as a team how you will engage the patients – would you like to do it in conjunction with flu vax for example or as they come in for Drs appointments etc?. Document your approach as this will be needed for reporting.*		25/05/2018
	Provide patient with information	*Inform patients about what to expect, including the before and after surveys and how the surveys will be used.*		25/05/2018
	Gather and document consent	*See consent form on website ncphn.org.au/CHIP for instructions*		25/05/2018
	Register each Patient	*Each practice will be advised on how patients will be registered into the program – we anticipate this will be done by securely providing the consent form to the MNCLHD*		25/05/2018
	Commence Care Planning	*Does the person have an up to date GPMP if relevant?* *What does the individualised care plan look like for each patient this winter*		25/05/2018
	Collect patient surveys	*Patients will be requested to complete a survey..* *Collect patient surveys at the earliest point of contact possible.* *Training and support will be provided to practices on Survey collection and submission.*		25/05/2018
	Flag each Patient	*Flag each patient in your practice software records. (Enables data extraction)*		25/05/2018
	Ensure clinician surveys are completed	*Every clinician (both GP and Nurse) participating in the activity must fill out an electronic survey.* *A good strategy is to allocate one person the task of sending reminders and ensuring that everyone has filled it out.*		25/05/2018

NOTE: Consider commencing care planning when you are registering your patients and have their file open.

Coordinated High Intensity Patient Care 2018 PLANNING GUIDE

	TASK	WHATS INVOLVED	NOTES – WHO, WHEN?	DEADLINE
SERVICE DELIVERY PHASE	**Person centred Care Planning**	*Care plans and action plans use appropriate level of language for patient and carer* *Patient specific goals, best in their own words* *Patient/ carer has copy/ access to health summary* *Care is tailored to each patient's needs including active monitoring to detect deterioration where relevant.* *Coaching patients and carers in self-management and use of SDAPs.*		From 28/05/2018 to 14/09/2018
	Comprehensive & Coordinated Care	*Links to, or includes ;* *Sick Day Action Plan and Home Medication Reviews* *Integrated Chronic Disease Management Team (MNCLHD)* *Social support that help to keep the person well* *Other clinical services* *Allied health and extra care coordination is available when needed (CHIP18 Allied Health funding available).* *My Health Record health summary uploaded and recent*		From 28/05/2018 to 14/09/2018
	Priority access to care	*Patient knows who their main primary care clinician is and how to contact them* *Patient can get same day support, especially as indicated in Sick Day Action Plan.*		From 28/05/2018 to 14/09/2018
	Quality Improvement and Safety	*Health Summaries are accurate and contemporaneous, including medication lists.* *Use PDSA quality improvement processes with practice team to monitor implementation ideas* *Seek and test improvement ideas.*		From 28/05/2018 to 14/09/2018
	Program evaluation and learning/ sharing	*Monthly review with your Practice Support Officer (QISO) of implementation methods chosen in each practice, what works, what was a struggle.*		From 28/05/2018 to 14/09/2018
	Collect all surveys	*Ensure all participating patients and clinicians have completed follow up survey*		05/10/2018

Care Coordination Service

Chronic Condition Risk of Readmission Calculator (HARP)

Client Name: _____

Date of Assessment: _____

Part A: Clinical Assessment	
Diagnosis of Chronic Respiratory condition such as COPD, asthma	1
Diagnosis of Chronic Cardiac condition such as CHF, Angina	1
Diagnosis of Complex care needs in frail aged such as dementia, falls, incontinence	1
Diagnosis of Complex care needs in people under 55 yrs such as mental health issues	1
Co-morbid diagnosis of diabetes and/or renal failure and/or liver disease	1
RATE the impact these factors have = Score	/ 5
2. Service Access Profile	
Acute admission/presentation (Have you been to hospital more than once in the last 12 months including	4
No regular GP follow up (regular medical checks 2 times a year)	3
Reduced ability to self - care (to the extent it impacts on disease management)	3
Add the scores = Score	/10
3. Risk Factors	
Smoking	1
Overweight/Obesity (Guide BMI 26-35)	1
Underweight (Guide BMI <19)	1
High Cholesterol (total cholesterol ≥ **5.5 mmol/L, HDL** ≤ 1.0 mmol/L, LDL ≥ **2.0mmol/L)**	1
High blood pressure **(≥ 140/90mmHg)** or on medication for high blood pressure)	1
Physical inactivity (less than 30 mins/d & 4 days/wk)	1
Polypharmacy > 5 medications with difficulty Managing	1
Add the scores = Score	/ 7
4. Extenuating Factors	
Use of services previously	1
Carer Stress issues	1
No carer availability	1
Cognitive impairment	1
Change to drug regimen	1
Chronic pain	1
Compromised skin integrity eg Wounds, PAC, Cellulitis	1
Exposure to triggers for asthma	1
Add scores = Score	/ 8
TOTAL SCORE for Clinical Assessment Add scores for 1,2,3,4	/ 30

Part B: Factors impacting on self-management	
5. Psycho-social and demographic issues (if the issue is present, circle Y, if absent circle N)	
Mental Health (depression, anxiety or psychiatric illness)	**Y N**
Disability (Intellectual, physical, visual, hearing)	**Y N**
Transport to services	**Y N**
Financial issues (inability to afford health services and/or medication)	**Y N**
CALD or Indigenous (health beliefs)	**Y N**
Illiteracy and/or limited English	**Y N**
Unstable Living Environment	**Y N**
Socially isolated	**Y N**
Drug and Alcohol problems	**Y N**
Rate the impact these combined factors have on the person's ability to self-manage their condition as nil, low or high.	
No impact (on clients ability to self-manage)	**0**
Low impact (on clients ability to self-manage)	**7**
High Impact (on clients ability to self-manage)	**15**
Score	**/15**
6. Readiness to change assessment	
No Capacity for self-management (Cognitive impairment: end stage disease)	**4**
Pre-contemplation (not ready to change)	**3**
Contemplation (considering but unlikely to change soon)	**3**
Preparation (Intending to take action in the immediate future)	**2**
Action (Actively changing health behaviours but have difficulties maintaining plan)	**1**
Maintenance (Maintained behaviour for ≥ 6 months)	**1**
Relapse (A return to the old behaviour)	**3**
Score	**/4**
TOTAL SCORE (add 5 + 6) for Self- management impact	**/19**

PART C: RISK PROFILE	
Calculate the risk profile by adding PART A and B	
Total Score for A and B	**/49**
Level of risk	**Score**
Urgent	39 - 49
High	24 – 38
Medium	11 – 23
Low	1 – 10

Signature: _____ **Doctor Name:** _____

Name: _____ **Date:** _____

COORDINATED HIGH INTENSITY PATIENT CARE

SEASONAL DEMAND INITIATIVE 2018

PATIENT CONSENT TO PARTICIPATE IN COORDINATED HIGH INTENSITY PATIENT CARE

From the _____ to the 14 September 2018

By agreeing to participate in the Coordinated High Intensity Patient Care Initiative our general practice team will provide extra support to assist you to stay well and safely at home during winter.

You agree to participate to:

- ☐ Receive priority access to General Practice
- ☐ Receive active engagement with care team coordination
- ☐ Receive increase in skills in managing your health via Sick Day Action Plans
- ☐ Give feedback via surveys conducted at the start and end of the initiative (see over for more information)

Your feedback about your experience is anonymous and will not negatively impact the care you receive in any way. Your participation is entirely voluntary and you can change your mind and stop without any disadvantage or impact to your future health care.

If you are happy and willing to proceed please confirm your participation:

Name _____

Signature _____ Date ___/___/___

FOR ANY QUESTIONS CONTACT _____

phn NORTH COAST An Australian Government Initiative

NSW GOVERNMENT Health Mid North Coast Local Health District

www.ncphn.org.au/CHIP

These activities are supported by funding from the Australian Government under the PHN Program.

COORDINATED HIGH INTENSITY PATIENT CARE

SEASONAL DEMAND INITIATIVE 2018

FEEDBACK & SURVEYS

Participation in Coordinated High Intensity Patient Care Initiative will keep you well this winter. In addition to receiving high intensity care from your healthcare team you will be required to participate in a survey. The survey of Patient Reported Measures are questions that ask you about what matters most to you, how you feel about the care you have received and your experience with the care. Your answers in the surveys will help your healthcare team to understand what matters most to you and support you with the right services or care. They will also allow us to look at how we can improve your health, wellbeing and care which you are receiving.

Patient Reported Experience Measures PREMS

As part of the care you receive at our service you will be asked a few questions about your experiences. You will be given an easy to use electronic tablet device to complete the questionnaire. It takes about 5 minutes to answer the questions and gives you the opportunity to provide your feedback which helps us to gain valuable information about what we are doing well and what areas we need to focus on to improve our service.

Patient Reported Outcome Measures PROMS

As part of your assessment we may optionally collect information about what is important to you, this is done through asking you to complete a questionnaire. We collect this information so we know how to best plan your care/treatment around what matters to you most. Through asking some important questions it provides us with valuable information about how we can best help care for you. When you have finished answering the questions your GP will look at these results and discuss them with you to ensure all the important information has been captured. The information really helps your health team to see if they need to change any of your care or treatment, or monitor your symptoms.

phn NORTH COAST An Australian Government Initiative

NSW GOVERNMENT Health Mid North Coast Local Health District

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These activities are supported by funding from the Australian Government under the PHN Program.

Appendix D

GENERAL ACTION PLAN

This may be useful for those with multiple conditions that could deteriorate causing a need for change in self management. Different patient-initiated actions may be appropriate in different scenarios. The aim here is to capture one or two of the most likely scenarios and guide the patient on how to respond. Edit the template as needed. Make sure the description of how to recognise the symptoms or signs and what the patient or carer needs to do is simple and well understood. If the patient/ carer seems more confident in how to recognise deal with the scenarios, then you are probably on the right track.

Date of Plan: _____ Date for Review: _____

Patient Name: Date of Birth:

GP Name: GP Phone: A/H:

Health Worker Name: Health Worker Phone:

When I am well...

My usual medications	Dosage	How often

My usual limiting symptoms are: _____ *(discuss with your doctor)*

The symptoms most likely to suggest I need to change how I care for myself at home are: _____ *(discuss with your doctor)*

When (this symptom) gets worse, I will try the following changes to treatment;

When my usual symptoms get worse...

Firstly .....
if this fails to improve things , then try

My changes to medicine*	Dosage	How often

Secondly .....
If this (other symptom or sign) is the main thing getting worse, I will try .....

Arrange to see my GP within .....hours

My changes to medicine*	Dosage	How often

* GP to fill in if prescribed.

If I am still getting worse...

If I am still getting worse, or if (this symptom happens) then .....

These symptoms or situations should trigger calling an ambulance by phoning 000.
.....
.....
.....

ACTION:
Phone an Ambulance 000
Show them this plan.

032016

CHIP 2018

Clinician Experience Survey

We are interested in your experience of delivering healthcare services to your high risk chronically ill patients. We would greatly appreciate your assistance, as your responses will be used to help review the experience of health care providers, and to make improvements where required. Responses will be kept confidential and reporting will not include names.

This survey takes 1-2 minutes to complete.

Name: *(preferred but optional. If not using name, use the same code in the pre and post surveys to allow linkage of pre-post responses in analysis)*	
Practice / Organization Name: *(required)*	
Position: *(required)*	

1	Over the last 3 months, I was notified, as much as I wanted to be, when my high risk chronic disease patients were admitted to hospital? ***Please select one box***	
	Strongly Agree	☐
	Agree	☐
	Undecided	☐
	Disagree	☐
	Strongly Disagree	☐
	Not relevant	☐

CHIP 2018

2	Over the last 3 months, I was involved, as much as I wanted to be, in decisions about the care and treatment of my high risk chronic disease patients when they were admitted to hospital? ***Please select one box***
	Strongly Agree ☐
	Agree ☐
	Undecided ☐
	Disagree ☐
	Strongly Disagree ☐
	Not relevant ☐

3	Over the last 3 months, I was involved, as much as I wanted to be, in planning for the discharge of my high risk chronic disease patients from hospital? ***Please select one box***
	Strongly Agree ☐
	Agree ☐
	Undecided ☐
	Disagree ☐
	Strongly Disagree ☐
	Not relevant ☐

CHIP 2018

4	Over the last 3 months, it has been easy for me to access external services and/or resources needed to care for my high risk chronic disease patients (e.g. allied health, transport, education, care coordination etc.) ***Please select one box***	
Strongly Agree		☐
Agree		☐
Undecided		☐
Disagree		☐
Strongly Disagree		☐
Not relevant		☐

5	Over the last 3 months, I felt confident that my high risk chronic disease patients were regularly checked on or appropriately monitored to reduce risk of hospital admission ***Please select one box***	
	Strongly Agree	☐
	Agree	☐
	Undecided	☐
	Disagree	☐
	Strongly Disagree	☐
	Not relevant	☐

CHIP 2018

6	Over the last 3 months, I felt my patients experienced well-connected health services across the region ***Please select one box***	
	Strongly Agree	☐
	Agree	☐
	Undecided	☐
	Disagree	☐
	Strongly Disagree	☐
	Not relevant	☐

7	Over the last 3 months, I have found caring for my high risk patients professionally satisfying work. ***Please select one box***	
	Strongly Agree	☐
	Agree	☐
	Undecided	☐
	Disagree	☐
	Strongly Disagree	☐
	Not relevant	☐

CHIP 2018

8	I am confident in coaching my patients in lifestyle changes and self-management strategies. ***Please select one box***
	Strongly Agree ☐
	Agree ☐
	Undecided ☐
	Disagree ☐
	Strongly Disagree ☐
	Not relevant ☐

9	Over the past 3 months collaboration between NSW Health Chronic Disease Nurses and General Practice has been working well. ***Please select one box***
	Strongly Agree ☐
	Agree ☐
	Undecided ☐
	Disagree ☐
	Strongly Disagree ☐
	Not relevant ☐

Thank you for completing this survey.

Monthly QISO led review of CHIP18 Implementation for each practice 20180530 FINAL

PURPOSE OF THE MONTHLY INTERVIEW

The monthly interview questions are a checklist for QISO to:

1. **Gather information at different points in time** about the experience at practice level of implementing the Seasonal Demand Coordinated High Intensity Patient Care Initiative CHIP
2. **Capture success stories** – these are needed to propagate to other practices and for the evaluation and public talks and presentations about the Seasonal Demand Coordinated High Intensity Patient Care Initiative CHIP
3. **Capture 'pain points' and failures**
4. **Prompt practices to approaches** we want the practices to take in CHIP strategy
5. **Determine whether practices are fully participating** and remind them of their commitment and obligation.

HOW WILL THE INFORMATION BE USED IN THE EVALUATION?

The information you gather will be used to report on:

1. What the **predominant challenges were across practices AND** how these were **progressed or overcome**
2. How **practices that struggled were identified and assisted**
3. How **successes were identified and propagated**
4. The way in which **practices changed business as usual** in terms of key areas such as patient centeredness, coordinated care, comprehensiveness and access

WHEN WILL THE INTERVIEW TAKE PLACE AND HOW THE INFORMATION WILL BE ANALYSED

1. Agreed interview schedule so they are happening in the same time frame
2. Contingency planning for interviews where times have to change
3. Process for submitting information to NCPHN Practice Support Officer

Monthly QISO led review of CHIP18 Implementation for each practice 20180530 FINAL

Patient Selection (first interview)

Number of Patients Registered?
How did your practice select patients?

Maintaining the Practice Team

Is the practice participating as a whole or just one or a few individuals?

Mostly one person	Mostly 2-3 people	We have a larger dedicated team	Almost the whole practice is involved.

Is there adequate in-house support for accommodating the CHIP work / protected time?

No protected time, just fit into normal work day	There is some protected time, but CHIP takes more time than this	There is adequate protected time.

How is communication about CHIP shared within the team? For example team meetings or other communication channels?

Engaging patients and Patient Centredness

Gather a brief description each month of the model of implementation – What is the routine for proactive care? Name all the different approaches used to delivering proactive care – which is most commonly used, which is used the least and why.

Are patient priorities reflected in care plans? For example use of SMART goals and

No	Some have their priorities in the plans, but not all	Yes, all patients

Is the approach above a change to routine practices in care planning for this practice?

Yes	No – note what is different

Monthly QISO led review of CHIP18 Implementation for each practice 20180530 FINAL

Are carers, where they exist, routinely being included as part of the team for each patient?

No	Some	Yes

Please note anything else to do with patient centredness, for example, use of plain English so the patient easily understands discussion and instruction etc.

Is there evidence of systematic health coaching taking place?

Who is doing the health coaching?

Are all patients who could benefit from an SDAP getting one?

No	Some	Yes

Are SDAPs reinforced with patients on a regular and systematic basis?

No	Some	Yes

What are some successes the Practice has experienced with using SDAPs in the CHIP strategy?

What are the barriers for the Practice using SDAPs with CHIP patients?

Access

Is there a system in place for urgent access to both non-F2F advice and face to face service?

No	Some	Yes

Comprehensive

Are the social/ welfare needs of patients being considered and included? (e.g mental health, isolation, transport, cost barriers, safety or stability at home). Ask the practices to provide an example of how they are doing this.

What are the struggles, 'pain points', with providing or engaging in comprehensive care for CHIP patients?

Monthly QISO led review of CHIP18 Implementation for each practice 20180530 FINAL

QI process

Are PDSA cycles of some sort being done? (This is not a requirement for CHIP, but encouraged).

No	Some	Yes

Please give examples of changes that will be preserved beyond the CHIP Strategy

Care coordination

Has collaboration with MNCLHD ICDM team increased?

No	Some	Yes

Please gather an example of increased ICDM collaboration or of a situation where increased collaboration was called for but did not occur.

Is case conferencing being used?

No	Some	Yes

Is there heightened coordination with allied health or specialists? Please describe

Is handover to or from hospital being done differently?

Are Admission/Discharge Notifications being received?

No	Some	Yes

Do the practices find the Admission/Discharge Notifications useful?

No	Some	Yes

Surveys (when relevant)

Were patient surveys conducted as intended eg with patient giving unbiased answers?

No	Some	Yes

Have all the clinicians involved in the CHIP completed the clinician survey?

No	Some	Yes

Monthly QISO led review of CHIP18 Implementation for each practice 20180530 FINAL

Population Health Campaign

Is there any feedback about the NCPHN influenza vaccination and respiratory hygiene resources – posters, media, facebook?

LONGER FREE TEXT ANSWERS

Barrier/ Challenges that have been overcome – what was the challenge and how did they overcome it?

Stories to share?

Do you have any examples of how CHIP has helped avoid hospital admission?

Stories of success or failures/ barriers in collaboration with MNCLHD ICDM team?

Impacts within the practice team?

Patient and/or carer feedback

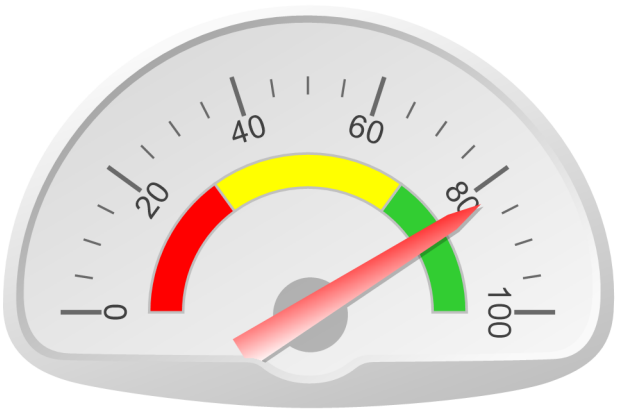
Any other stories of note prompted by the above questions

MNCLHD PHN - Seasonal Demand PREM

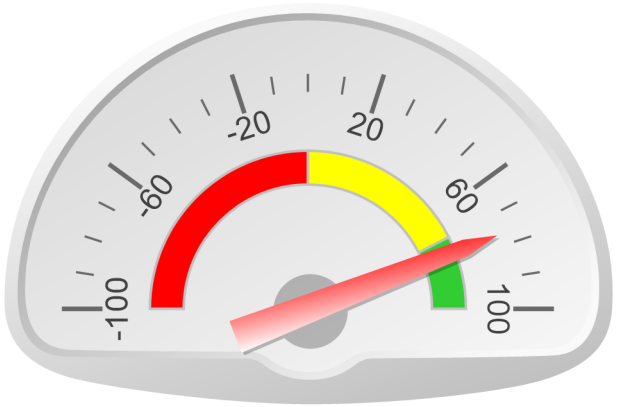
MNCLHD PHN - Seasonal Demand PREM Overall LHD Results

Period: 01 Jun 2018 - 31 Jul 2018

Number of Surveys	Overall Score
77	82%

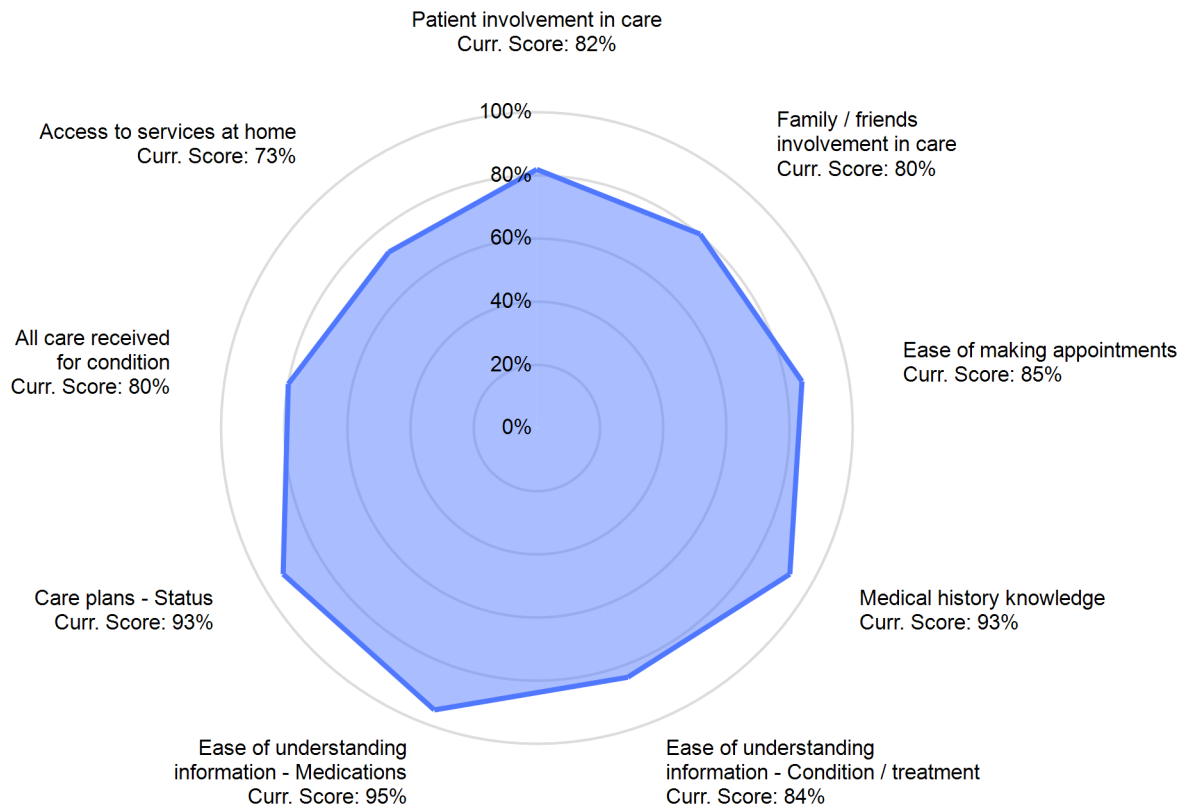


Overall Performance



Likelihood to recommend to family and friends

Performance by Theme / Question



The closer to 100%, the better the performance is.

MNCLHD PHN - Seasonal Demand PREM

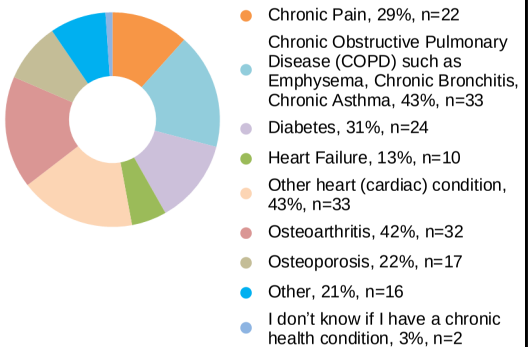
MNCLHD PHN - Seasonal Demand PREM Overall LHD Results

Period: 01 Jun 2018 - 31 Jul 2018

Chronic health conditions
N = 77

Which of the following chronic health conditions do you have?

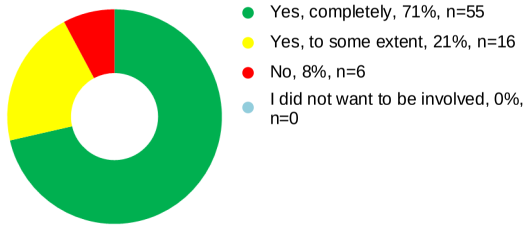
Please select all that apply.



Patient involvement in care
Question Score: 82% N = 77

Over the last 3 months, were you involved, as much as you wanted to be, in decisions about the care and treatment of your chronic health condition?

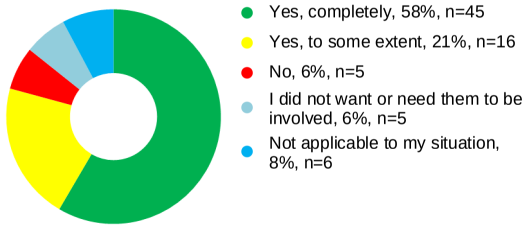
Please select one option only.



Family / friends involvement in care
Question Score: 80% N = 77

Over the last 3 months, were your family or carer given the opportunity to be involved, as much as you wanted them to be, in decisions about your care and treatment?

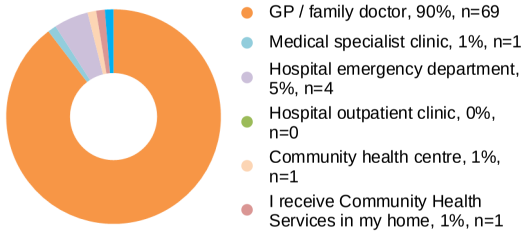
Please select one option only.



Services accessed when care required
N = 77

Over the last 3 months, where have you most often gone when you needed care for your chronic health condition?

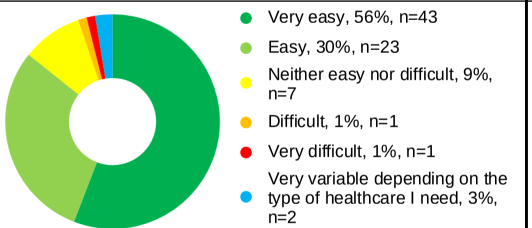
Please select one option only.



Ease of making appointments
Question Score: 85% N = 77

Over the last 3 months, how easy has it been for you to make appointments to see healthcare professionals when you needed to?

Please select one option only.



Medical history knowledge
Question Score: 93% N = 77

Over the last 3 months, how often did your healthcare professionals seem to know the important information about your medical history?

Please select one option only.

Communication of healthcare professionals
Question Score: 85% N = 77

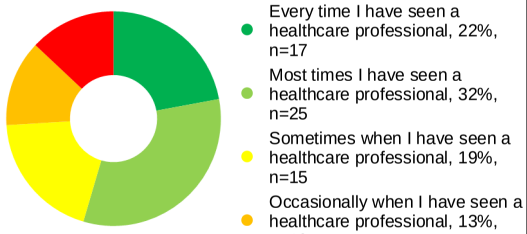
Over the last 3 months when you have seen healthcare professionals, how often have they asked about your chronic health condition?

Please select one option only.

Personal / emotional support from healthcare professionals
Question Score: 59% N = 77

Over the last 3 months when you have seen healthcare professionals, how often have they asked about personal or emotional issues in your life that affect your health?

Please select one option only.



MNCLHD PHN - Seasonal Demand PREM

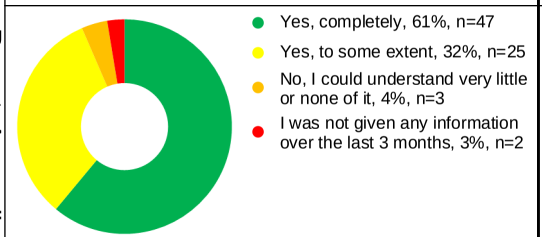
MNCLHD PHN - Seasonal Demand PREM Overall LHD Results

Period: 01 Jun 2018 - 31 Jul 2018

Ease of understanding information - Condition / treatment
Question Score: 84% N = 77

Over the last 3 months, when healthcare professionals have given you information about your chronic health condition or treatment, was the information easy to understand?

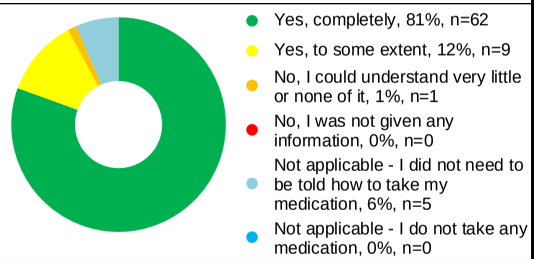
Please select one option only.



Ease of understanding information - Medications
Question Score: 95% N = 77

Over the last 3 months, have healthcare professionals told you how to take your medication in a way you could understand?

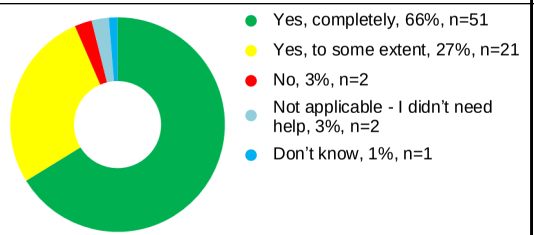
Please select one option only.



Identification of important things to do
Question Score: 83% N = 77

Over the last 3 months, did your healthcare professionals help you to identify the most important things you need to do for your chronic health condition?

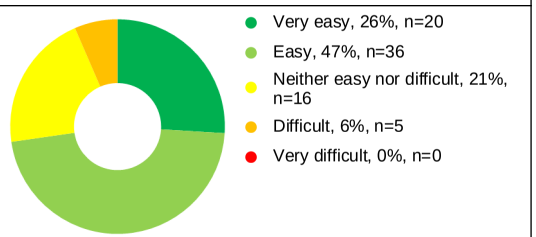
Please select one option only.



Ease of management of health conditions
Question Score: 73% N = 77

Over the last 3 months, how easy has it been for you to manage your chronic health condition?

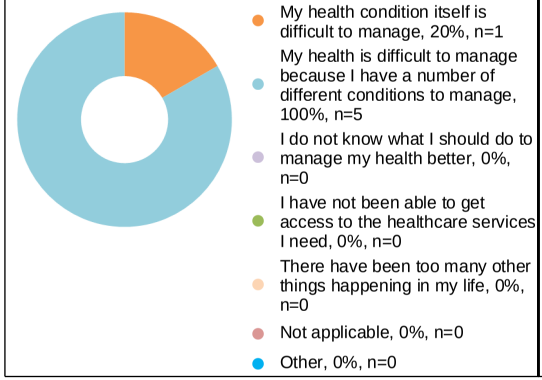
Please select one option only.



Degree of difficulty managing conditions
N = 5

Over the last 3 months, which of the following would you say has made managing your condition difficult?

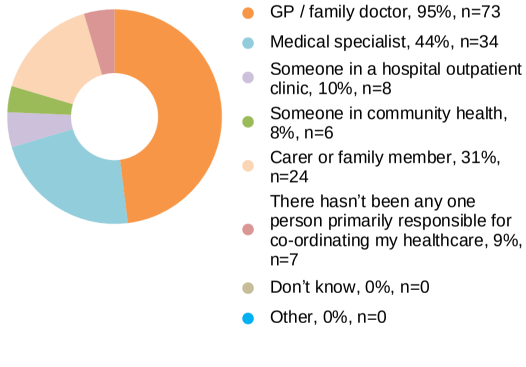
Please select all that apply.



People primarily responsible for care
N = 77

Over the last 3 months, which of the following people been primarily responsible for co-ordinating your care for your chronic health condition?

Please select all that apply.

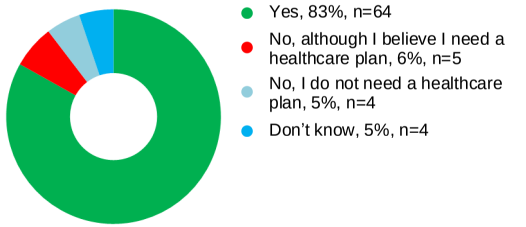


Care plans - Status
Question Score: 93% N = 77

Over the last 3 months, has there been an up to date care plan to address your chronic health condition?

A care plan is a document that sets out your needs and goals for the treatment and management of your condition.

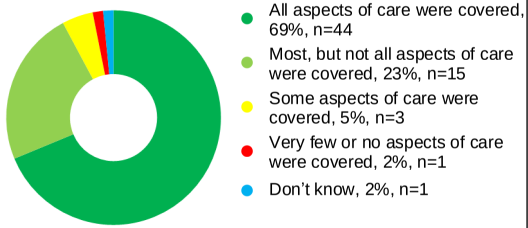
Please select one option only.



Care plans - Management
Question Score: 87% N = 64

Over the last 3 months, do you feel your care plan covered all aspects of care necessary for your chronic health condition?

Please select one option only.



MNCLHD PHN - Seasonal Demand PREM

MNCLHD PHN - Seasonal Demand PREM Overall LHD Results

Period: 01 Jun 2018 - 31 Jul 2018

Care plans - Treatment that occurred
Question Score: 81% N = 64

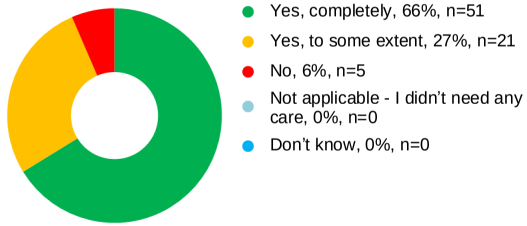
Over the last 3 months, how much of the planned treatment in your care plan, including ongoing treatment, occurred?

Please select one option only.

All care received for condition
Question Score: 80% N = 77

Over the last 3 months, have you received all the care you feel you needed for your chronic health condition?

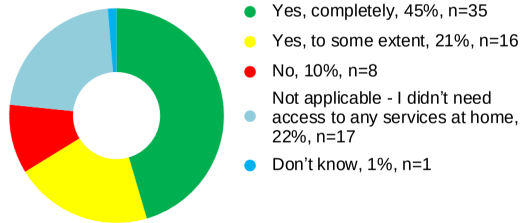
Please select one option only.



Access to services at home
Question Score: 73% N = 77

Over the last 3 months, did your healthcare professionals help you get access to services you needed at home to help you take care of your chronic health condition?

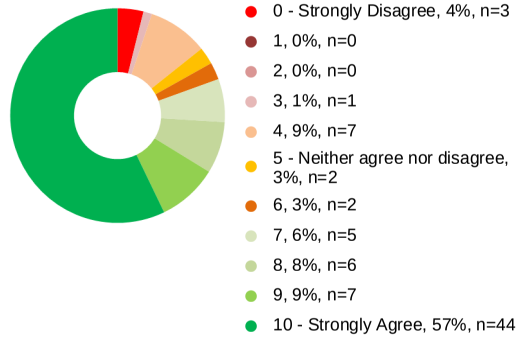
Please select one option only.



NPS Score
NPS: 47% N = 77

Please indicate the extent to which you agree or disagree with the following statement, where Zero means you strongly disagree, Five means you neither agree nor disagree, and Ten means you strongly agree:

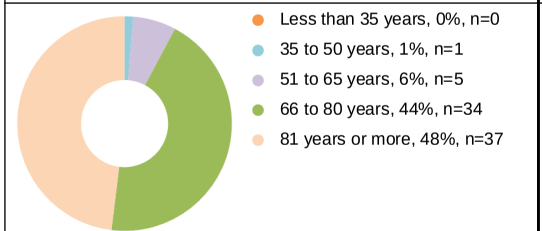
Overall, I am satisfied with the healthcare I have received over the last 3 months.



Age group
N = 77

Which age group are you in?

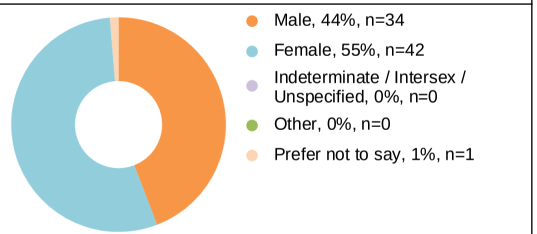
Please select one option only.



Gender
N = 77

What is your gender?

Please select one option only.



Qualitative Results

Chronic health conditions - Other

Date	SbjNum	Comments
06/13/2018	66541045	polycythemia
06/15/2018	66544488	kidney failure
06/20/2018	66953261	hypothyroid
06/20/2018	66961695	prostate
06/21/2018	67094772	parkinsonism, prostate ca, bone metastes
06/22/2018	67220857	cancer lung
06/25/2018	67532338	asthma pnomenia
06/25/2018	67548760	pmr maralgia parasthitica
07/02/2018	68189623	rectal carcinoma locally advanced
07/02/2018	68191781	IBS, recurrent UTI, suprapubic catheter
07/03/2018	68258173	kidney failure
07/03/2018	68271391	bronchiectasis
07/05/2018	68734812	fybromyalgia, arthritis
07/25/2018	69953879	parkinsons
07/27/2018	70078392	renal
07/27/2018	70086628	parkinsons disease

Services accessed when care required - Other

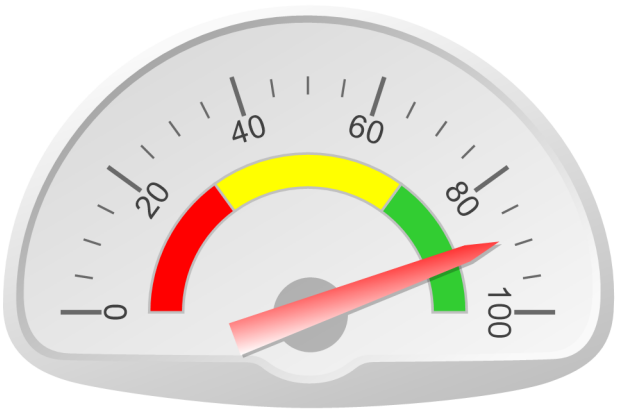
Date	SbjNum	Comments
07/02/2018	68191781	all except for community health

MNCLHD PHN - Seasonal Demand PREM

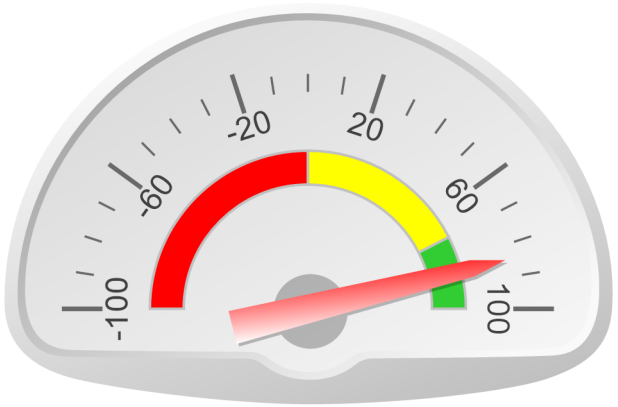
MNCLHD PHN - Seasonal Demand PREM Overall LHD Results

Period: 01 Aug 2018 - 30 Sep 2018

Number of Surveys	Overall Score
52	89%

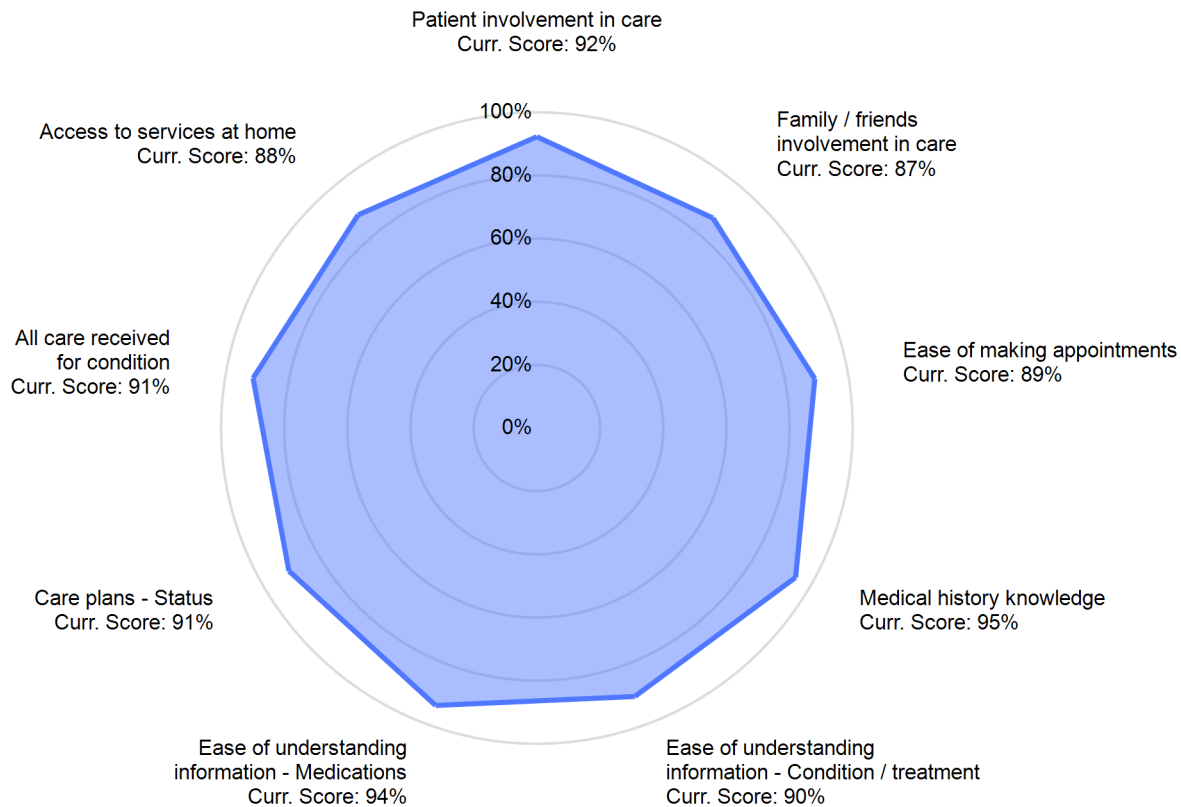


Overall Performance



Likelihood to recommend to family and friends

Performance by Theme / Question



The closer to 100%, the better the performance is.

MNCLHD PHN - Seasonal Demand PREM

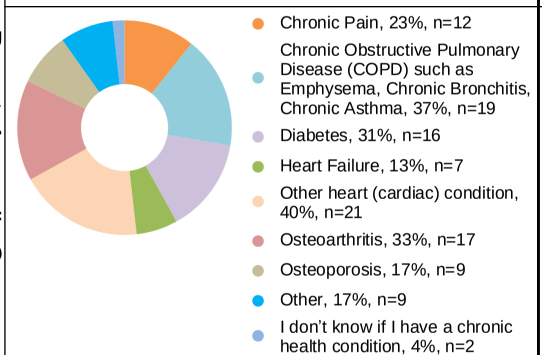
MNCLHD PHN - Seasonal Demand PREM Overall LHD Results

Period: 01 Aug 2018 - 30 Sep 2018

Chronic health conditions
N = 52

Which of the following chronic health conditions do you have?

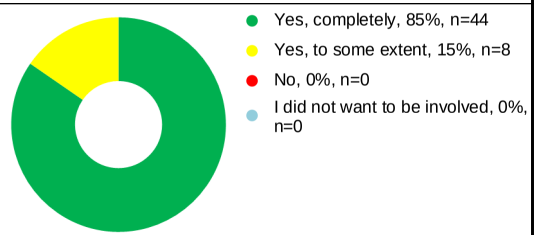
Please select all that apply.



Patient involvement in care
Question Score: 92% N = 52

Over the last 3 months, were you involved, as much as you wanted to be, in decisions about the care and treatment of your chronic health condition?

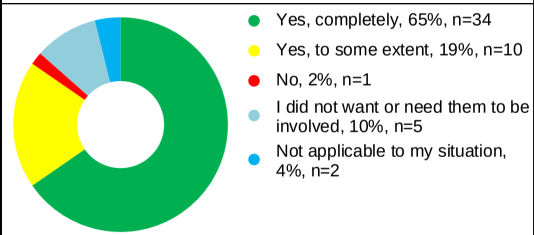
Please select one option only.



Family / friends involvement in care
Question Score: 87% N = 52

Over the last 3 months, were your family or carer given the opportunity to be involved, as much as you wanted them to be, in decisions about your care and treatment?

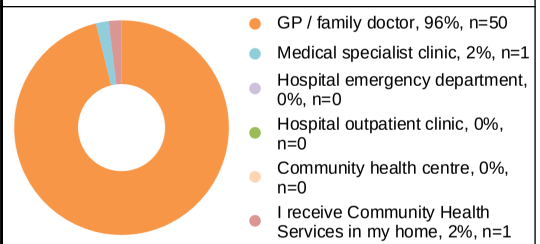
Please select one option only.



Services accessed when care required
N = 52

Over the last 3 months, where have you most often gone when you needed care for your chronic health condition?

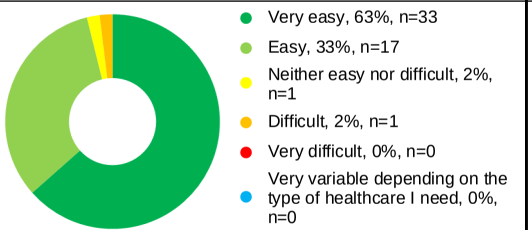
Please select one option only.



Ease of making appointments
Question Score: 89% N = 52

Over the last 3 months, how easy has it been for you to make appointments to see healthcare professionals when you needed to?

Please select one option only.



Medical history knowledge
Question Score: 95% N = 52

Over the last 3 months, how often did your healthcare professionals seem to know the important information about your medical history?

Please select one option only.

Communication of healthcare professionals
Question Score: 91% N = 52

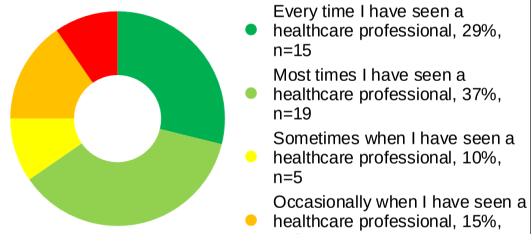
Over the last 3 months when you have seen healthcare professionals, how often have they asked about your chronic health condition?

Please select one option only.

Personal / emotional support from healthcare professionals
Question Score: 65% N = 52

Over the last 3 months when you have seen healthcare professionals, how often have they asked about personal or emotional issues in your life that affect your health?

Please select one option only.



MNCLHD PHN - Seasonal Demand PREM

MNCLHD PHN - Seasonal Demand PREM Overall LHD Results

Period: 01 Aug 2018 - 30 Sep 2018

Ease of understanding information - Condition / treatment
Question Score: 90% N = 52

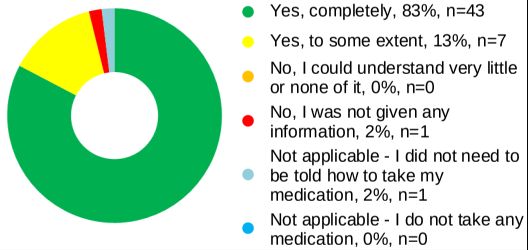
Over the last 3 months, when healthcare professionals have given you information about your chronic health condition or treatment, was the information easy to understand?

Please select one option only.

Ease of understanding information - Medications
Question Score: 94% N = 52

Over the last 3 months, have healthcare professionals told you how to take your medication in a way you could understand?

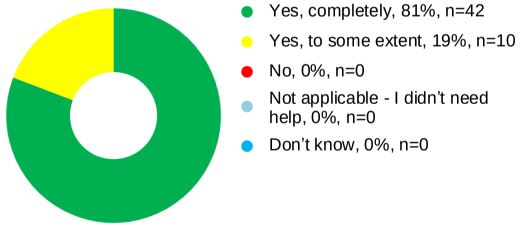
Please select one option only.



Identification of important things to do
Question Score: 90% N = 52

Over the last 3 months, did your healthcare professionals help you to identify the most important things you need to do for your chronic health condition?

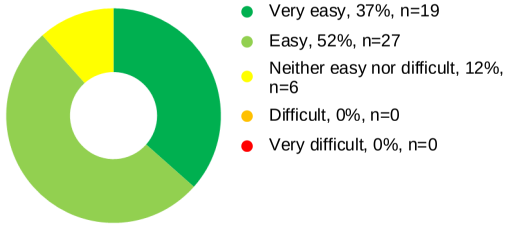
Please select one option only.



Ease of management of health conditions
Question Score: 81% N = 52

Over the last 3 months, how easy has it been for you to manage your chronic health condition?

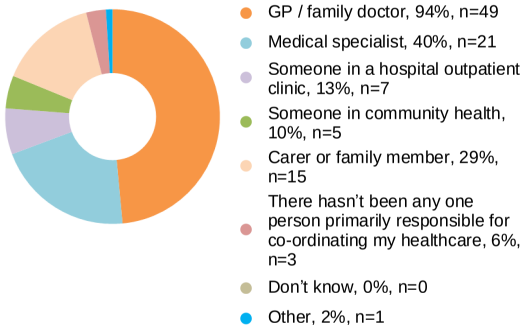
Please select one option only.



People primarily responsible for care
N = 52

Over the last 3 months, which of the following people been primarily responsible for co-ordinating your care for your chronic health condition?

Please select all that apply.

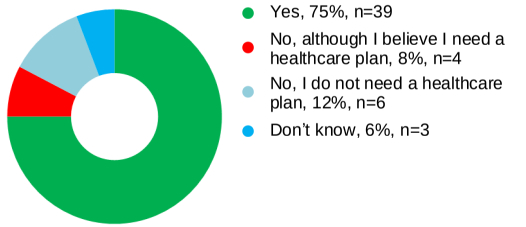


Care plans - Status
Question Score: 91% N = 52

Over the last 3 months, has there been an up to date care plan to address your chronic health condition?

A care plan is a document that sets out your needs and goals for the treatment and management of your condition.

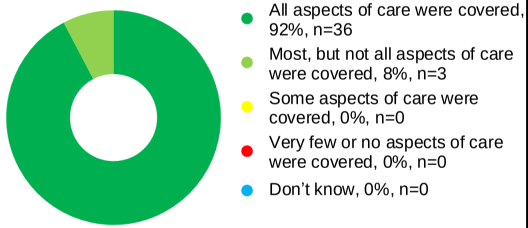
Please select one option only.



Care plans - Management
Question Score: 97% N = 39

Over the last 3 months, do you feel your care plan covered all aspects of care necessary for your chronic health condition?

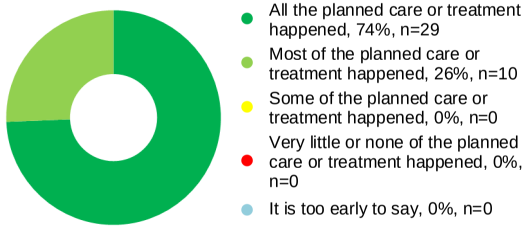
Please select one option only.



Care plans - Treatment that occurred
Question Score: 92% N = 39

Over the last 3 months, how much of the planned treatment in your care plan, including ongoing treatment, occurred?

Please select one option only.



MNCLHD PHN - Seasonal Demand PREM

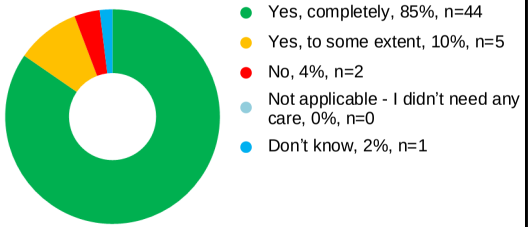
MNCLHD PHN - Seasonal Demand PREM Overall LHD Results

Period: 01 Aug 2018 - 30 Sep 2018

All care received for condition
Question Score: 91% N = 52

Over the last 3 months, have you received all the care you feel you needed for your chronic health condition?

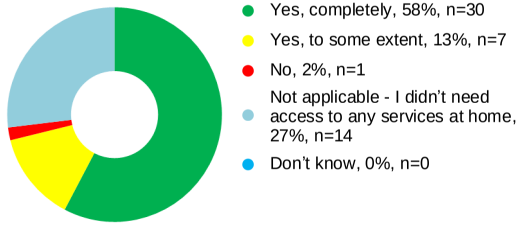
Please select one option only.



Access to services at home
Question Score: 88% N = 52

Over the last 3 months, did your healthcare professionals help you get access to services you needed at home to help you take care of your chronic health condition?

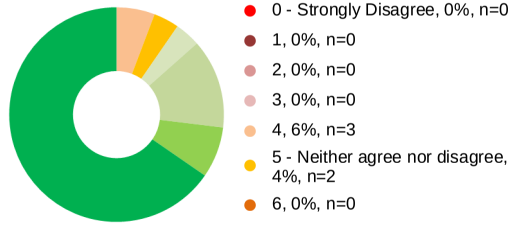
Please select one option only.



NPS Score
NPS: 63% N = 52

Please indicate the extent to which you agree or disagree with the following statement, where Zero means you strongly disagree, Five means you neither agree nor disagree, and Ten means you strongly agree:

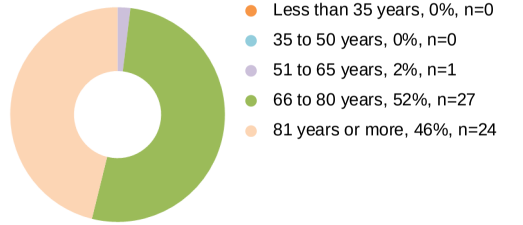
Overall, I am satisfied with the healthcare I have received over the last 3 months.



Age group
N = 52

Which age group are you in?

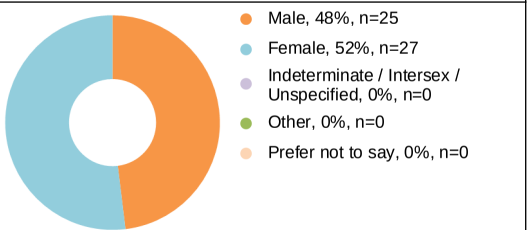
Please select one option only.



Gender
N = 52

What is your gender?

Please select one option only.



MNCLHD PHN - Seasonal Demand PREM

MNCLHD PHN - Seasonal Demand PREM Overall LHD Results

Period: 01 Aug 2018 - 30 Sep 2018

Qualitative Results

Chronic health conditions - Other

Date	SbjNum	Comments
08/02/2018	70516171	skin cancer
08/27/2018	72327035	diverticulitis
09/07/2018	73166969	prostate cancer
09/12/2018	73543477	gord
09/12/2018	73545657	gord, macular degeneration
09/12/2018	73550086	liver and pancreatic metastasis
09/12/2018	73554518	renal insufficiency and glaucoma
09/12/2018	73556851	obesity
09/19/2018	74145031	kidney failure and ascities

People primarily responsible for care - Other

Date	SbjNum	Comments
09/24/2018	74573497	pharmacist