THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

48 Hour Follow Up Evaluation:

Final Report

2016

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
ACI	Agency for Clinical Innovation
AHLO	Aboriginal Hospital Liaison Officer
APDC	Admitted Patient Data Collection
CCAP	Chronic Care for Aboriginal People
CCI	Charlson Comorbidity Index
CCP	Chronic Care Program
CDMP	Chronic Disease Management Program
CHIME	Community Health Information Management Enterprise
CHOC	Community Health and Outpatient Care
CI	Confidence Interval
CNS	Clinical Nurse Specialist
ED	Emergency Department
EDDC	Emergency Department Data Collection
FTE	Full Time Equivalent
GEE	Generalised Estimating Equation
ICD-10	International Classification of Diseases-10
iPM	i.Patient Manager
IRSD	Index of Relative Socio-Economic Disadvantage
KPI	Key Performance Indicator
LHD	Local Health District
NAIDOC	National Aborigines and Islanders Day Observance Committee
NSW	New South Wales
OR	Odds Ratio
PPN	Project Person Number
RBDM	NSW Registry of Births, Deaths and Marriages Death Registrations
RN	Registered Nurse
SD	Standard Deviation

EXECUTIVE SUMMARY

BACKGROUND

In New South Wales (NSW), Aboriginal people undergo hospitalisations which are potentially avoidable at a rate 2.5 times higher than non-Aboriginal people, and experience unplanned hospital readmissions following an initial hospital admission at a rate 1.3 times higher than non-Aboriginal people(1). Between 2008 and 2010, the Walgan Tilly clinical services redesign project was undertaken to develop practical solutions to improve access to chronic care services for Aboriginal people. A key recommendation arising from this project was that all Aboriginal people with a chronic disease, aged 15 years and older, who are admitted to an acute care facility should receive telephone follow up from a health care worker within two working days of discharge. This recommendation led to the development and implementation of the 48 Hour Follow Up Program.

The overall aim of 48 Hour Follow Up is to improve coordination and management of care for Aboriginal people with chronic diseases. Goals of the program are:

- **Short term:** To follow up 90% of Aboriginal patients aged 15 years or older who are admitted to hospital with a chronic disease within two working days of discharge from hospital.
- **Medium term:** To decrease hospital readmissions within 28 days of discharge.
- **Long term:** To improve health outcomes for Aboriginal people with chronic disease.

As part of 48 Hour Follow Up, eligible Aboriginal patients with specified International Classification of Diseases - 10 (ICD-10) chronic diseases (cardiovascular disease, diabetes, and chronic renal and respiratory disease) receive a telephone call within two working days of discharge from hospital. An eligible patient should be followed up from an acute facility within two working days, or 48 hours, of discharge from hospital, by any member of the agreed health provider team. Follow up covers, at a minimum, the following issues: knowledge of, and access to, medications; referrals and follow up appointments (Are they booked and is transport arranged?); and general wellbeing. Local Health Districts (LHDs) are required to report program outputs to the Agency for Clinical Innovation (ACI).

The University of Newcastle was contracted to conduct an evaluation of the 48 Hour Follow Up Program. This final report summarises and synthesises the findings of the three components of the evaluation, which have each previously been reported on separately. Each of the components is outlined below.

COMPONENT A: EVIDENCE FOR THE EFFECTIVENESS OF TELEPHONE FOLLOW UP IN REDUCING UNPLANNED HOSPITAL READMISSION

Component A of the evaluation involved conducting a systematic review of the literature to:

1. Identify best practices for interventions that utilise telephone follow up for individuals with chronic disease in order to prevent hospital readmissions, with an emphasis on best practice for Aboriginal people wherever evidence is available
2. Make evidence-based recommendations for future development of 48 Hour Follow Up.

A summary of key findings of the literature review is presented on page 19 of this report. A copy of the literature review can be obtained from the NSW Ministry of Health.

COMPONENT B: EVALUATION OF THE IMPLEMENTATION OF 48 HOUR FOLLOW UP

Aims: To:

1. Describe how 48 Hour Follow Up has been implemented across LHDs, with a focus on how enhancement funding has been utilised
2. Identify achievements and challenges in the implementation of 48 Hour Follow Up.

Method: To gather information about how the 48 Hour Follow Up Program has been implemented, three separate activities were undertaken:

1. Surveys and in-depth telephone interviews with 48 Hour Follow Up Program Managers (n=23)
2. In-depth telephone interviews with staff who implement 48 Hour Follow Up (n=17)
3. Review of available documentation pertaining to 48 Hour Follow Up. Documents were obtained through internet searches and provided by interviewees.

Qualitative data from surveys and in-depth interviews were analysed using qualitative thematic analysis, utilising a combination of inductive and deductive coding. When possible, these qualitative data were triangulated with information obtained from the document review.

Results:

- Forty staff members from 15 LHDs participated in interviews. The duration of interviews ranged from 30 minutes to one hour.
- *Overall perceptions:* Program Managers and implementation staff had positive views about the benefits of 48 Hour Follow Up for Aboriginal patients with chronic disease.
- *Implementation:* The methods used to conduct 48 Hour Follow Up varied greatly among LHDs.
    - Ten of 15 LHDs conduct 48 Hour Follow Up at every hospital within the LHD.
    - Each LHD has developed its own program model, and therefore the range of issues covered and services provided during the 48 Hour Follow Up call varies greatly.
    - The method of providing 48 Hour Follow Up differed by LHD, with four distinct models of care identified:
        1. ***A centralised model*** is implemented within four LHDs and is in the process of being implemented in one further LHD. In the centralised model, 48 Hour Follow Up calls for the entire LHD are conducted from a central call centre using computer-generated call lists.
        2. ***An integrated model*** is implemented within three LHDs. In the integrated model, health care is delivered collaboratively by 48 Hour Follow Up staff and other chronic care services (e.g. the Chronic Disease Management Program, Aboriginal Community Controlled Health Services), with the service perceived as the most appropriate being selected to conduct 48 Hour Follow Up for each patient. This model involves a high level of integration between staff and services involved in chronic care health service delivery.

3. ***A localised model*** is implemented in six LHDs. In the localised model, an Aboriginal Health Education Officer or Aboriginal Liaison Officer visits patients prior to discharge from hospital to introduce the program, and then conducts the 48 Hour Follow Up phone call. This model sometimes also involves conducting home visits.
4. ***A mixed LHD / Aboriginal Community Controlled Health Service model*** is implemented in one LHD. In this model, patients receive a ward visit by an Aboriginal Liaison Officer to be assessed for eligibility and introduced to the program. Telephone follow up is then conducted by the local Aboriginal Community Controlled Health Service (for current patients) or the LHD Aboriginal Liaison Officer (for those who were not patients of Aboriginal Community Controlled Health Services).

- Several LHDs reported providing additional contact with patients, such as additional phone calls or home visits, after the 48 Hour Follow Up period.
- *Training:* There is currently no standardised training to introduce 48 Hour Follow Up to staff (including training in its objectives and the components of follow up), and little training is provided in how to conduct 48 Hour Follow Up calls. Some staff reported feeling unsupported when beginning their roles.
- *Eligibility criteria*: There was significant variability in the eligibility criteria used across LHDs. Several LHDs reported that they felt the current eligibility guidelines were ambiguous and were unsure whether the criteria they were using were consistent with central eligibility criteria.
- *Workforce:*
  - A number of sites reported significant difficulties recruiting to Aboriginal-identified positions, particularly Registered Nurse (RN) positions. Some LHDs also reported not having an Aboriginal staff member to promote the program in hospital, or to meet with eligible patients to discuss 48 Hour Follow Up.
  - Several LHDs valued the pairing of an RN with an Aboriginal Health Worker. This staff mix was thought to facilitate ongoing informal health education for Aboriginal Health Workers, especially in LHDs where Aboriginal Health Workers accompanied RNs on home visits.

  - Having a mix of Aboriginal-identified and clinical positions implementing 48 Hour Follow Up was considered valuable by a number of LHDs. Aboriginal staff were considered to have an important role in supporting non-Aboriginal staff to learn more about Aboriginal culture.
  - Having Aboriginal staff in hospitals to introduce the program and Aboriginal staff in the community to promote it were reported to have fostered the program and created lasting ties between the LHD and the Aboriginal community.
  - While staffing levels were variable across LHDs, some programs had only one staff member who conducted all aspects of 48 Hour Follow Up. This meant there was little capacity to backfill vacant positions when staff were on leave.
- *Systems for identification of eligible patients:* Few LHDs have streamlined processes to identify eligible patients, with most LHDs using a combination of systems. The central eligibility criteria for 48 Hour Follow Up are based on ICD-10 codes. However, delay in the application of ICD-10 codes to patient medical records was reported to make timely and accurate judgements regarding 48 Hour Follow Up eligibility difficult.
- *Performance monitoring and reporting:* There was duplication of reporting at many LHDs, with 48 Hour Follow Up data being recorded and saved on multiple platforms. The LHDs with localised program delivery reported expending significant time collating data from numerous sites that may have differing systems in place for recording data.
- *Performance feedback:* Dissemination of centrally collated data about performance against Key Performance Indicators (KPIs) to frontline staff was intermittent across the state. Several LHDs valued centrally collated benchmarking data which were previously provided on a six-monthly basis. This method was perceived as useful as it allowed review of personal progress and enabled comparison of performance with other LHDs.

COMPONENT C: EVALUATION OF REACH AND IMPACT OF 48 HOUR FOLLOW UP

Aims: To determine:

1. The proportion of eligible patients who receive 48 Hour Follow Up
2. The socio-demographic, disease and health service factors that predict whether someone receives 48 Hour Follow Up

3. Whether patients who receive 48 Hour Follow Up have lower rates of unplanned hospital readmission (primary outcome) and other adverse events (e.g. mortality and unplanned presentation to Emergency Department (ED)) within 28 days.

Method:

Study design: A retrospective cohort was obtained through audit of medical records and administrative data linkage.

Study population: Patients eligible to receive 48 Hour Follow Up in the period May 2009 to December 2014.

Health outcomes: The health outcomes of interest were unplanned hospital readmissions, ED presentations and mortality within 28 days of discharge from hospital.

Data sources: Data were obtained from the 48 Hour Follow Up Program Register, a public health register comprising linked data from the following five sources:

1. 48 Hour Follow Up Program Dataset (all records of patients identified by LHDs as eligible for 48 Hour Follow Up from May 2009 to December 2014, held by New South Wales (NSW) LHDs)
2. NSW Admitted Patient Data Collection (APDC)
3. NSW Registry of Births, Deaths and Marriages (RBDM) Death Registrations
4. Chronic Disease Management Program (CDMP) Minimum Dataset
5. NSW Emergency Department Data Collection (EDDC).

The data sources were linked by the Centre for Health Record Linkage using probabilistic record linkage methods. A number of quality checks were then applied to each of these data sets, and the two populations of eligible separations were created:

1. Separations for which the patient was identified as eligible for 48 Hour Follow Up by LHD staff in real time (i.e. admissions recorded in the 48 Hour Follow Up Program Dataset) (referred to as the *LHD Eligible Dataset*)

2. Separations recorded in the 48 Hour Follow Up Program dataset (as in 1), as well as additional separations where the patient met the 48 Hour Follow Up eligibility criteria but was not identified by LHD staff as eligible (i.e. eligible separations recorded in the APDC) (referred to as the *LHD+APDC Dataset*).

General Statistical Methodology:

- *Aim 1*: The reach of the program was defined as the proportion of eligible separations that were followed up either within or outside 48 hours, examined and presented by LHD, model of care and year (from 2009 to 2014). Differences in the reach of the program between LHDs, models of care and trends over time were investigated using logistic regression models. We modelled the potential clustering of outcomes within sites by including LHD (or alternatively model of care) as a fixed effect, with Generalised Estimating Equations (GEEs) used to account for potential correlations from repeated measures from the same person.
- *Aim 2:* In order to receive 48 Hour Follow Up an eligible patient must first be identified and then follow up must be provided. Patient characteristics associated with being **identified as eligible** for 48 Hour Follow Up by LHD staff were assessed using logistic regression models (using GEE to account for potential clustering). The characteristics associated with **receiving** 48 Hour Follow Up were investigated using the same techniques.
- *Aim 3:* Rates of unplanned hospital readmission, mortality and presentation to ED within 28 days, and at least one of these adverse events, among patients who received 48 Hour Follow Up were compared with findings for eligible patients who did not receive the program, using logistic regression models.

Results:

Results are presented for patients identified as eligible by LHD staff or through central eligibility criteria (i.e. the LHD+APDC dataset), and for patients followed up within or outside 48 hours, unless otherwise specified.

- *Number of separations:* For the LHD Eligible Dataset, there were 12,629 eligible separations during the study period. For the LHD+APDC dataset, there were considerably more (n=49,721) eligible separations during the study period. This discrepancy is likely to be due to the fact that LHDs have developed their own processes for identifying eligible patients because the central criteria cannot be applied by LHDs in real time.

- *Overall rate of follow up:* Overall, 17% of eligible patients received 48 Hour Follow Up. The odds of receiving 48 Hour Follow Up were increased by: the utilisation of a centralised model of follow up; length of stay in hospital greater than 1 day; increasing social disadvantage; lower Charlson Comorbidity Index; and having fewer than two diagnoses.
- *Rates of follow up by LHD:* Rates of follow up varied significantly by LHD. In one LHD, eligible patients were 2.4 times more likely to be followed up compared to the rate of follow up among all eligible patients in NSW. Conversely, in another LHD, eligible patients had a one in five chance of being followed up compared to the rate of follow up among all eligible patients in NSW.
- *Rates of follow up by model of care:* Rates of follow up varied significantly ($p < 0.0001$) by model of care. Compared to a centralised model of care, integrated, localised, and mixed models of care all had significantly lower odds of follow up.
- *Effect of enhancement funding on rates of follow up:* The provision of enhancement funding did not lead to improvements in rates of follow up.
- *Effect of follow up on adverse health events:* There were reductions across all measures of adverse events for those who received Follow Up. However, not all reductions were statistically significant:
    - *Effect of follow up on 28-day unplanned hospital readmission:* There was no significant difference in 28-day unplanned hospital readmission for those receiving 48 Hour Follow Up, compared to eligible patients who did not receive follow up. The impact of 48 Hour Follow Up on readmissions was similar regardless of whether the follow up was delivered within or outside 48 hours.
    - *Effect of follow up on unplanned ED presentation within 28 days of discharge:* There was evidence that patients who received 48 Hour Follow Up were 8% less likely to experience an unplanned ED presentation

within 28 days of discharge, compared to eligible patients who did not receive follow up. This finding was statistically significant (p = 0.0312).

- *Effect of follow up on death within 28 days:* There were no significant differences in deaths within 28 days for patients receiving 48 Hour Follow Up compared to eligible patients who did not receive follow up.
- *Effect of follow up on experiencing at least one adverse event:* There was evidence that patients who received 48 Hour Follow Up were 9% less likely to experience at least one adverse event, compared to eligible patients who did not receive follow up. This finding was statistically significant (p = 0.0136).

KEY IMPLICATIONS

Drawing on the findings of the three components of the evaluation, the following implications have been identified to inform the future implementation and monitoring of the 48 Hour Follow Up Program.

1. The 48 Hour Follow Up Program should form part of a coordinated approach to chronic disease management in NSW.

In some LHDs, 48 Hour Follow Up is one of a number of programs that are implemented to improve the management of chronic disease among Aboriginal patients. There is a need to ensure that delivery of 48 Hour Follow Up forms part of a coordinated and integrated approach to the secondary and tertiary prevention of chronic conditions in NSW. Such an approach would strengthen the quality and continuity of care for Aboriginal patients and improve the efficiency of service provision.

2. The process for identifying patients as eligible for follow up would benefit from further review and refinement.

The LHDs are unable to apply the current central program eligibility criteria in real time to determine the eligibility of patients to receive 48 Hour Follow Up. This is because the central eligibility criteria are based on a set of ICD-10 codes and the process of applying ICD-10 codes to medical records reportedly occurs 3-6 weeks after admission to hospital.

Consequently, LHDs use different criteria and processes to identify eligible patients. There is therefore a need to review and refine the program eligibility criteria to introduce uniformity across LHDs, while maintaining the flexibility to account for local contexts. Such a review should be conducted in collaboration with LHDs to ensure the revised criteria reflect the information available in patient information management systems, **are feasible to implement in real time**, and are locally relevant. Revisions to the eligibility criteria should focus on maximising the likelihood that those most at risk of readmission are identified for follow up.

3. Automated systems to identify eligible patients could be strengthened.

Most LHDs identify eligible patients via an automated search of medical records held in electronic patient information systems. However, manual processes are still used in some LHDs, and few LHDs have streamlined processes to identify eligible patients. Therefore, to increase the efficiency of follow up, there is a need to implement new or enhance existing automated systems for the real-time identification of eligible patients. This might involve modifying automated patient identification systems set up for other chronic disease management programs to include the 48 Hour Follow Up Program. Given that greater medical complexity is a risk factor for unplanned readmission, increasing the identification of patients with multiple chronic diseases should be a priority.

4. Standardised call scripts that incorporate evidence-based components should be developed and implemented.

Given the variability in processes used to conduct follow up calls by LHDs, consideration should be given to the development and use of call scripts to facilitate the rapid assessment of patient status, and increase the likelihood that all relevant needs of patients are identified and addressed. Given the lack of clear and specific evidence related to the effectiveness of telephone follow up for people with chronic disease, such evidence could be drawn from the broader literature on evidence-based strategies to improve self-management and adherence to medical care. There is a need to ensure that call scripts support patients' participation in community-based support and rehabilitation programs and services (if clinically appropriate), such as the NSW Government Get Healthy Service.

5. Standardised staff training should be developed and implemented.

Standardised competency-based staff training should be implemented to support staff in developing appropriate skills to conduct follow up according to defined protocols, and to encourage program fidelity. There may be some value in supporting LHDs with common models of follow up to share training materials and agree on how core components of each model should be implemented. Consistency in the delivery of follow up will enable future evaluations to provide a clearer indication of model characteristics that may improve outcomes.

6. The optimal mix of clinical and non-clinical staff, and Aboriginal-identified and non-identified positions, in conducting follow up should be considered by each LHD.

The optimal mix of clinical and non-clinical, and Aboriginal-identified and non-identified positions working together to deliver follow up should be considered by each LHD, taking into account workforce availability. The implementation review identified the benefits of having clinical staff provide 48 Hour Follow Up, and the importance of Aboriginal staff in ensuring cultural safety. It also found that involving Aboriginal health workers in follow up processes can build the chronic disease management expertise of this workforce.

7. Consider the implementation of a stepwise care approach for patients with more complex needs.

Ensuring that patients with comorbidities and/or complex health care needs receive enhanced support is common practice in the management of chronic disease in NSW. Consequently, a stepwise approach to implementation of 48 Hour Follow Up could be considered, where individuals with complex needs receive additional telephone calls and/or are prioritised for referral to additional support. Individuals with a higher Charlson Comorbidity Index and multiple chronic diseases are at greatest risk of experiencing an adverse event after discharge from hospital and yet had the lowest rates of follow up.

8. Systems to monitor the implementation of call scripts and overall adherence to follow up protocols should be developed and adopted.

Once standardised call scripts have been developed and implemented, LHDs should be encouraged to develop systems for the ongoing assessment of call quality and fidelity to call scripts. This should form part of a coordinated approach to continuous quality improvement.

9. Setting benchmarks for, and providing feedback to, services implementing the 48 Hour Follow Up Program could be used to increase program reach.

A formal process for providing monthly or quarterly feedback and benchmarking data on rates of follow up to services implementing 48 Hour Follow Up should be implemented. Feedback should include performance against agreed targets, changes in rates of follow up since the previous reporting period, and performance compared to other services implementing the program.

10. Communication and collaboration between LHDs should be encouraged and supported.

Consideration should be given to establishing a formal process to encourage communication and collaboration between LHDs. Such a process would facilitate the sharing of experiences, perceived success factors and program resources within and among LHDs.

11. Provision of central funding to LHDs could be used to implement specific strategies thought to be associated with increased rates of follow up, or improved program effectiveness.

Given LHDs' reported variability in use of enhancement funding, and that the provision of enhancement funding did not lead to improvements in rates of follow up, the provision of central funding should be used to implement strategies thought to improve the effectiveness and reach of follow up.

12. While local flexibility is needed, core components of follow up should include (i) automated patient identification; (ii) a patient-centred approach to care delivery that includes comprehensive staff training and the use of evidence-based call scripts; and (iii) a quality monitoring and feedback system.

While the findings of this evaluation do not provide clear evidence of the superior effectiveness of one model of follow up over another, the following aspects of care are likely to contribute to the effectiveness of follow up and should be considered core components of any model:

1. Automated systems of identification to maximise identification of eligible patients and facilitate timely delivery of 48 Hour Follow Up
2. The provision of comprehensive staff training and the use of evidence-based call scripts to facilitate the delivery of high-quality patient-centred care
3. The provision of regular feedback to services implementing the program on their performance to motivate achievement of follow up targets.

13. Review and consider revising the requirement for follow up to be conducted within 48 hours.

Stakeholders reported it is often difficult to contact patients within 48 hours because, for example, patients may not return home immediately after discharge. The evaluation also found that the impact of 48 Hour Follow Up on health outcomes was similar for those who received follow up outside the 48 hour timeframe (compared to those who received follow up within 48 hours). The requirement for follow up to be completed within two working days requires further consideration.

14. Strengthen partnerships between hospital services delivering 48 Hour Follow Up and primary health services.

The LHDs are using four models to implement the 48 Hour Follow Up Program. Effective implementation of two of these models (the *Integrated Care / Shared Care model* and the *Mixed LHD / Aboriginal Community Controlled Health Service model*) requires strong collaborative partnerships between hospital services and primary health care services. Additionally, implementation staff in some LHDs felt that links with general practice were suboptimal. The LHDs should therefore explore opportunities to strengthen their relationships with the primary health care sector, especially Aboriginal Community Controlled Health Services and General Practitioner organisations.

BACKGROUND

THE HEALTH OF ABORIGINAL PEOPLE

DISPROPORTIONATE BURDEN OF CHRONIC DISEASE IN ABORIGINAL PEOPLE

New South Wales (NSW) has the largest population of Aboriginal people in Australia. Aboriginal people living in NSW suffer from higher rates of chronic diseases compared to the general population(2). Conditions including cardiovascular disease, kidney disease, chronic respiratory disease and diabetes are responsible for 70% of the health gap between Aboriginal and non-Aboriginal people in disability-adjusted life years, and 59% of excess mortality(2). Nationally, life expectancy for Aboriginal men and women is significantly reduced compared to non-Aboriginal men and women (10.6 years and 9.5 years lower, respectively)(3).

UNPLANNED HOSPITAL READMISSIONS IN ABORIGINAL PEOPLE

In NSW, Aboriginal people undergo hospitalisations which are potentially avoidable at a rate 2.5 times higher than non-Aboriginal people, and experience unplanned hospital readmissions following an initial hospital admission at a rate 1.3 times higher than non-Aboriginal people(1). In 2010, 8.1% of Aboriginal people admitted to hospital experienced an unplanned readmission within 28 days(1). This rate of unplanned readmission has remained steady over the past decade.

CLOSING THE GAP IN ABORIGINAL HEALTH OUTCOMES

Improving the health of Aboriginal people, and closing the gap in health outcomes between Aboriginal and non-Aboriginal people, is a NSW Health priority. Between 2008 and 2010, the Walgan Tilly clinical services redesign project was undertaken to develop practical solutions to address the gaps in health care and to improve access for Aboriginal people to chronic care services. This project was overseen by the Chronic Care for Aboriginal People (CCAP) Program at NSW Health and completed in June 2010. A recommendation arising from this project was that all Aboriginal people aged 15 years and older, who were admitted to an acute care facility and who had a chronic disease in scope for the CCAP Program, should be followed up within two working days of discharge.

OVERVIEW OF 48 HOUR FOLLOW UP

AIMS AND OVERVIEW OF 48 HOUR FOLLOW UP

The overall aim of 48 Hour Follow Up is to improve coordination and management of care for Aboriginal people with chronic diseases. Goals of the program are to:

- **Short term:** Follow up 90% of Aboriginal patients aged 15 years or older who are admitted to hospital with a chronic disease within two working days of discharge from hospital
- **Medium term:** Decrease hospital readmissions within 28 days of discharge
- **Long term:** Improve health outcomes for Aboriginal people with chronic disease.

As part of 48 Hour Follow Up, eligible Aboriginal patients with a chronic disease (based on specified International Classification of Diseases - 10 (ICD-10) codes for cardiovascular disease, diabetes, and chronic renal and respiratory disease) receive a telephone call within two working days of discharge from hospital. Follow up covers, at a minimum:

- Knowledge of, and access to, medications
- Referrals and follow up appointments (Are they booked and is transport arranged?)
- General wellbeing.

The 48 Hour Follow Up Program seeks to identify and resolve any issues that may put individuals at high risk of readmission, and to ensure appropriate links to General Practitioners, Aboriginal Community Controlled Health Services, Specialists, or other services that are able to assist the patient with receiving appropriate post-discharge care.

PRELIMINARY EVALUATION OF 48 HOUR FOLLOW UP

48 Hour Follow Up was first implemented in May 2009, with gradual roll-out to Local Health Districts (LHDs) across NSW. At the time of writing this report in September 2015, 48 Hour Follow Up was being provided within all fifteen LHDs in NSW.

In 2010, an initial evaluation of the implementation of the 48 Hour Follow Up was conducted by the Chronic Disease Management Office. The evaluation comprised four separate but linked activities that aimed to provide a comprehensive account of the delivery and health outcomes of the program. The evaluation included the following:

1. Analysis of routinely reported data to assess outputs from 48 Hour Follow Up and data quality
2. Analysis of hospitalisation data to assess the impact of 48 Hour Follow Up on the medium term goal of reducing hospital readmissions within 28 days of discharge
3. Surveys with staff and patients to capture their experiences of providing or participating in 48 Hour Follow Up
4. A literature review of the structure and impact of follow up processes.

The above evaluation found that readmissions within 28 days of discharge from hospital occurred among 17% of people who received 48 Hour Follow Up compared with 22% of those who were eligible for follow up but did not receive it. Levels of staff and patient satisfaction with the program were high. Recommendations from the evaluation included the following:

- The expanded use of home visits as part of 48 Hour Follow Up be explored
- 48 Hour Follow Up be more actively promoted to patients while they are in hospital
- The issues covered as part of follow up be expanded to also enquire about new problems that may have developed after discharge
- Processes for identifying eligible patients in hospital be reviewed to ensure all eligible patients are offered 48 Hour Follow Up.

The evaluation also made extensive recommendations regarding data collection processes, data quality and appropriateness of Key Performance Indicators (KPIs).

ENHANCEMENTS TO 48 HOUR FOLLOW UP THROUGH THE CHRONIC CARE SERVICE ENHANCEMENTS PROGRAM

The Chronic Care Service Enhancements Program was established to improve coordination and management of care for Aboriginal people with chronic diseases in NSW. One component of the Chronic Care Service Enhancements Program was the enhancement of 48 Hour Follow Up. In May 2012 additional funding was provided to each LHD to recruit a new dedicated chronic care position responsible for the coordination of 48 Hour Follow Up.

COMPONENTS AND AIMS OF THE CURRENT EVALUATION

In August 2011, following a competitive tender process, the University of Newcastle was contracted to evaluate the impact of the Chronic Care Service Enhancements Program, including the impact of the enhancements to 48 Hour Follow Up. The evaluation of the 48 Hour Follow Up program had three components.

Component A: Evidence for the Effectiveness of Telephone Follow Up in reducing Unplanned Hospital Readmission: A systematic review of the literature was conducted to identify best-practice follow up for individuals with chronic diseases. This review aimed to:

1. Identify best practices for interventions that utilise telephone follow up and other components for individuals with chronic disease in order to prevent hospital readmissions, with an emphasis on best practice for Aboriginal people wherever evidence is available
2. Make evidence-based recommendations for future development of 48 Hour Follow Up.

A summary of key findings of the literature review is presented on pages 19-20 of this report. A copy of the literature review can be obtained from the NSW Ministry of Health.

Component B: Evaluation of the Implementation of 48 Hour Follow Up: A document review and surveys and interviews with staff were conducted to describe the implementation of 48 Hour Follow Up to date. The aims of this component were to:

1. Describe how 48 Hour Follow Up has been implemented across LHDs, with a focus on how enhancement funding has been utilised
2. Identify achievements and challenges in the implementation of 48 Hour Follow Up.

Component C: Evaluation of Reach and Impact: An examination of the program monitoring data was conducted to identify the proportion of eligible patients who receive 48 Hour Follow Up, and assess the impact of the 48 Hour Follow Up on health outcomes. The aims of this component were to determine:

1. The proportion of eligible patients who receive 48 Hour Follow Up
2. The socio-demographic, disease and health service factors which predict whether someone receives 48 Hour Follow Up
3. Whether patients who receive 48 Hour Follow Up have lower rates of unplanned hospital readmission (primary outcome) and other adverse events (e.g. mortality and unplanned presentation to ED) within 28 days.

The purpose of this report is to present the key findings from each of these components, and provide a set of recommendations which draw together these key findings.

COMPONENT A: EVIDENCE FOR THE EFFECTIVENESS OF TELEPHONE FOLLOW UP IN REDUCING UNPLANNED HOSPITAL READMISSION

AIMS

To conduct a systematic review of the literature to:

1. Identify best practices for interventions that utilise telephone follow up for individuals with chronic disease in order to prevent hospital readmissions, with an emphasis on best practice for Aboriginal people wherever evidence is available
2. Make evidence-based recommendations for future development of 48 Hour Follow Up. It is intended that the findings of the review be used to assist in strategic decision making and to inform enhancements to 48 Hour Follow Up.

SUMMARY OF KEY FINDINGS

- A total of 47 intervention studies utilising telephone follow up for individuals with chronic disease in order to prevent hospital readmissions were identified.
- No studies included Aboriginal and Torres Strait Islander patients.
- The majority of studies (46 of 47 studies) examined the effectiveness of telephone follow up combined with other non-telephone follow up interventions. This included:
    - 19 studies that examined the effectiveness of telephone follow up combined with pre- and post-discharge interventions
    - 12 studies that examined the effectiveness of telephone follow up combined with pre- and post-discharge interventions and telemedicine
    - 11 studies that examined the effectiveness of telephone follow up combined with post-discharge interventions
    - Four studies that examined the effectiveness of telephone follow up combined with pre-discharge interventions.
- Telephone follow up was most commonly provided by a nurse or other person with clinical expertise (e.g. pharmacist) (43 of 47 studies).
- Varying numbers of telephone calls were provided as part of follow up (range 1-17). The number of calls made was not reported in 17 of 47 studies.

- Of the 47 interventions, 23 had significant effects on readmission rates, 23 had no effect on readmission rates, and one study did not conduct formal statistical tests of intervention effectiveness.
    - Effective interventions used the following methods: assessing the effectiveness of telephone follow up only (n=1); pre-discharge patient education and telephone follow up (n=3); pre-discharge planning and telephone follow up (n=1); and telephone follow up, multi-disciplinary care and clinic follow up (n=1).
    - Studies less likely to be effective included pre-discharge patient education, telephone follow up, and primary care or specialist follow up (6/7 ineffective); and telephone follow up, telemedicine and post-discharge interventions (3/3 ineffective).
    - There was equivocal evidence for the remaining interventions.

A copy of the full report that includes recommendations arising from the review can be obtained from the NSW Ministry of Health.

COMPONENT B: EVALUATION OF THE IMPLEMENTATION OF 48 HOUR FOLLOW UP

AIMS

The aims of Component B were to:

1. Describe how 48 Hour Follow Up has been implemented across LHDs, with a focus on how 48 Hour Follow Up enhancement funding has been utilised
2. Identify achievements and challenges in the implementation of 48 Hour Follow Up.

METHODS

OVERVIEW

In order to gather information about how 48 Hour Follow Up has been implemented, three separate activities were undertaken:

1. Surveys and in-depth telephone interviews with 48 Hour Follow Up Program Managers
2. In-depth telephone interviews with staff who implement 48 Hour Follow Up
3. Review of available documentation pertaining to 48 Hour Follow Up.

RECRUITMENT OF PROGRAM MANAGERS AND FOLLOW UP STAFF

Key contacts for each of the fifteen LHDs in NSW were identified by the Agency for Clinical Innovation (ACI) and provided to the evaluation team. Key contacts were sent an email from L/Prof Rob Sanson-Fisher outlining the purpose of the evaluation and asking for the contact details of the 48 Hour Follow Up Program Manager and an appropriate staff member involved in the implementation of 48 Hour Follow Up. If no response from the key contact was received within two days of sending the email, a follow up telephone call was made by a Research Assistant.

PROGRAM MANAGER SURVEYS

All Program Managers were asked to complete a six-page survey to provide details of receipt and use of 48 Hour Follow Up funding and program staffing. Program Managers were emailed the survey when their interview times were scheduled and asked to return the completed survey to the evaluation team via email before their scheduled interview times. A reminder email was sent two days prior to the scheduled interview time if the survey had not been returned. If the survey had not been returned one day prior to their interviews, Program Managers received reminder phone calls from the Research Assistant.

PROGRAM MANAGER AND IMPLEMENTATION STAFF MEMBER INTERVIEWS

All interviews took place via telephone. Interviews were conducted by a member of the evaluation team (Dr Jamie Bryant, Ms Natalie Dodd or Ms Amanda Jayakody). A note taker was present at each interview. A semi-structured interview guide was used to structure each interview. Additional questions were added based on previous interviews and survey answers. Each interview was audio-recorded with permission sought prior to the commencement of the interview.

DOCUMENT REVIEW

Prior to each interview, general internet searches were conducted to identify any material specific to implementation of 48 Hour Follow Up within each LHD. Any publicly available information relevant to Aboriginal chronic care and 48 Hour Follow Up within the LHD was collected and reviewed. At the end of each interview, participants were asked to email any documents pertaining to 48 Hour Follow Up within their LHD to the evaluation team. This included a request for annual reports, program brochures, diagrams that depicted the model being implemented, and any other materials mentioned during the interview.

DATA SYNTHESIS

A summary table was completed immediately following each interview. Notes and audio-recordings were used for reference. Completed summaries were sent by email to each interviewee. A request for any changes and/or approval of the summary was sought. If changes were made, the summary was re-sent for approval, and a finalised version of the summary was sent to each interviewee. If no reply was received the email was sent again. If there was again no reply a phone call was made to the interviewee seeking verbal approval of the summary. Some of the interviewees were contacted by phone after their interviews to clarify certain points.

DATA ANALYSIS

Survey data were analysed descriptively. Raw data from each interview were coded under themes aligning with the interview schedule. Additional themes that emerged during the interview process were also thematically coded. At the completion of interviews, each coded theme was exported to a centralised table or spreadsheet to allow for direct comparison of themes between LHDs. Where possible, interview data were triangulated with data obtained from the survey, general internet searches and documents supplied by the LHDs.

RESULTS

INTERVIEWS CONDUCTED

KEYPOINT: 40 staff members from 15 LHDs participated in interviews

A total of 30 interviews were conducted between 20/11/2013 and 21/02/2014. This included interviews with:

- One Director of Community Health
- Twenty-two Program Managers
- Seventeen implementation staff members.

The majority of interviews were conducted with a single interviewee, although some were conducted with multiple staff members. In total, 40 interviewees from all fifteen LHDs participated. All participants agreed to their interviews being audio-recorded. Duration of interviews ranged from 30 to 60 minutes. Surveys were sent to 15 Program Managers from each LHD, and nine Program Managers returned completed surveys.

OVERALL PERCEPTION OF 48 HOUR FOLLOW UP

KEYPOINT: “48 Hour Follow Up provides more than a call. It also provides social support and helps patients get referred to the right services.”

Overall, Program Managers and implementation staff had positive views about the benefits of 48 Hour Follow Up for Aboriginal patients with chronic disease. Individual staff within LHDs conveyed their pride in and dedication to the program. Staff were proactive in ongoing identification and implementation of strategies to improve the efficiency of program delivery. Many interviewees have used their initiative to develop networks with other local providers that can provide assistance with a range of services targeting chronic disease. Five LHDs reported that Aboriginal people who have received 48 Hour Follow Up appreciated the service. Five LHDs reported that eligible patients now expect their calls.

PROCESS AND CONTENT OF 48 HOUR FOLLOW UP WITHIN LHDS

Facilities providing 48 Hour Follow Up

KEYPOINT: Ten of 15 LHDs conduct 48 Hour Follow Up at every in-patient facility within the District.

Table 1 outlines the extent of implementation of 48 Hour Follow Up within each LHD. Ten LHDs are conducting regular 48 Hour Follow Up at all sites within their LHD. Five LHDs have implemented the program at limited sites across their LHDs. The five LHDs with partial 48 Hour Follow Up coverage indicated that strategies to increase 48 Hour Follow Up coverage to all sites within the LHDs had been identified and were to be implemented in the near future. At LHDs where 48 Hour Follow Up was not conducted at all sites a “whole of LHD” approach was identified as being necessary to prevent eligible patients at risk of readmission “slipping through the cracks”.

Table 1: Summary of sites conducting 48 Hour Follow Up by Local Health District

LHD	NUMBER of SITES with 48 HOUR FOLLOW UP	NUMBER of SITES without 48 HOUR FOLLOW UP
Western Sydney	2	4
Western NSW	40	Nil
Murrumbidgee	32	Nil
Hunter New England	28	Nil
South Western Sydney	3	3
Sydney	1	3
South Eastern Sydney	6	Nil
Northern Sydney	8	Nil
Central Coast	3	Nil
Mid North Coast	7	Nil
Northern NSW	4	4
Nepean/Blue Mountains	4	Nil
Southern NSW	12	Nil
Far West	2	Interviewee was unsure if other sites are conducting 48 Hour Follow Up
Illawarra/ Shoalhaven	8	Nil

NB: Some LHDs were in the process of instigating implementation at additional sites. The information within this table was correct at the time of interviews (20/11/2013-21/02/2014).

Program Models

KEYPOINT: There was significant variation in the models of 48 Hour Follow Up implemented across LHDs. However, four general models of implementation of 48 Hour Follow Up emerged:

1) Centralised model
2) Integrated Care / Shared Care model
3) Localised model
4) Mixed LHD / Aboriginal Community Controlled Health Service contracted model.

There was substantial variation in the models of 48 Hour Follow Up implemented across LHDs, but also many similarities. Program models can be broadly categorised into: 1) Centralised, 2) Integrated Care / Shared Care, 3) Localised and 4) Mixed LHD / Aboriginal Community Controlled Health Service contracted models.

1. *Centralised Model:* Four LHDs have implemented a centralised model. One LHD is in the process of implementing a centralised model. An overview of the centralised model is outlined in Figure 1. Features of the centralised model include:
    - Computer-generated call lists are accessed by staff at a centralised LHD call and referral centre, for example at Access and Referral Centres or call centre hubs.
    - 48 Hour Follow Up calls are made to eligible participants by a small number of staff. For example, one LHD has an Aboriginal Health Education Officer conducting calls for a cluster of different areas. In all other LHDs adopting this model, calls are made by an RN or a more senior clinical staff member.
    - The 48 Hour Follow Up staff role is limited to making the 48 Hour Follow Up phone call. The 48 Hour Follow Up staff do not participate in further engagement with the patient after the phone call ends and appropriate referrals are made (for example, home visits are not conducted as part of the centralised model).

- This model is often integrated into existing call centres that were reportedly established as part of other chronic disease management programs, such as the former Connecting Care program[1].
- Implementation of a Centralised model was viewed as an achievement by all LHDs implementing this model.

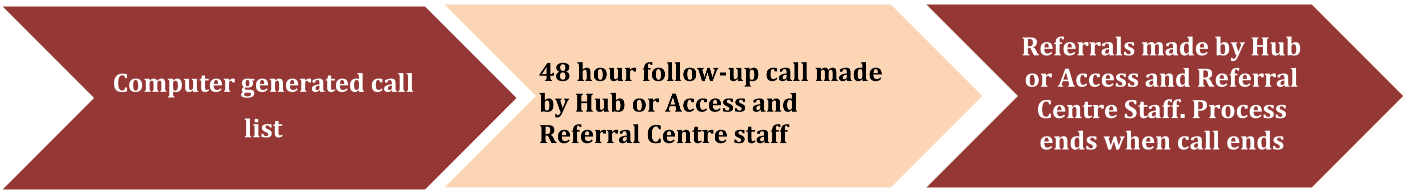

Figure 1: **Overview of Centralised Model**

2. *Integrated Care / Shared Care Model:* Three LHDs have implemented an integrated care or shared care model. An overview of the model is outlined in Figure 2. Features of this model include:
    - A high level of integration between staff and services involved in chronic care health service delivery, such as Connecting Care, Chronic Disease Management Programs, Aboriginal Community Controlled Health Services and other community providers.
    - An integrated approach to reduce potential overlap in care. Health care providers involved in an individual's chronic care management regularly communicate using an established framework. A plan of health care to be delivered is openly communicated to all parties involved. The most appropriate person is selected to make contact with eligible patients. This may be 48 Hour Follow Up staff, Aboriginal outreach workers or Aboriginal chronic care workers. Integrated models appear to have the benefits of cultural linkage between Aboriginal and mainstream services, less duplication of duties, and consistency in care delivery for the patient. An integrated model in one LHD has "facilitated the building of trust and engagement,

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[1] Connecting Care is no longer delivered as a discrete chronic disease management program. Rather, its principles have been integrated into routine chronic disease care in LHDs.

shared care planning, comprehensive health and social assessments and more effective care co-ordination".

- One LHD adopting this model may also communicate health care plans in regular case management meetings or via electronic distribution of care plan commitments by individual health care providers.

Figure 2: **Overview of Integrated Care / Shared Care Model**

3. <u>*Localised Model*</u>*:* Six LHDs have adopted a localised model. An overview of the model is outlined in Figure 3. The approaches implemented varied among LHDs, depending on staff numbers, their skill level, and the patient information systems available. Smaller LHDs tended to have less formalised procedures, while larger sites have more standardised service delivery. The main features of this model include:

- Identification of eligible patients by an Aboriginal Health Education Officer or an Aboriginal Liaison Officer at each site (in one LHD, identification of eligible patients is automated via Community Health and Outpatient Care (CHOC), a patient information management system). A ward visit to introduce the program usually occurs. The in-person visit provides an introduction to the program and cultural brokerage, and as a result staff perceive there is a high level of patient engagement with the program.
- The 48 Hour Follow Up phone call is generally conducted by an Aboriginal Health Education Officer, an Aboriginal Liaison Officer or an RN. Many are well-known within the community, thus promoting trust in the program. The exception to this is in one LHD where an Aboriginal Health Education Officer or an Aboriginal Liaison Officer is responsible for identifying eligible patients, introducing the program and

referring to one of two Chronic Care Co-ordinators who conduct 48 Hour Follow Up phone calls.

- In two LHDs, an Aboriginal Health Education Officer or an Aboriginal Liaison Officer also often conducts home visits as a part of the 48 Hour Follow Up process. Home visits are also used as a strategy to make contact with eligible patients when phone contact has been unsuccessful.

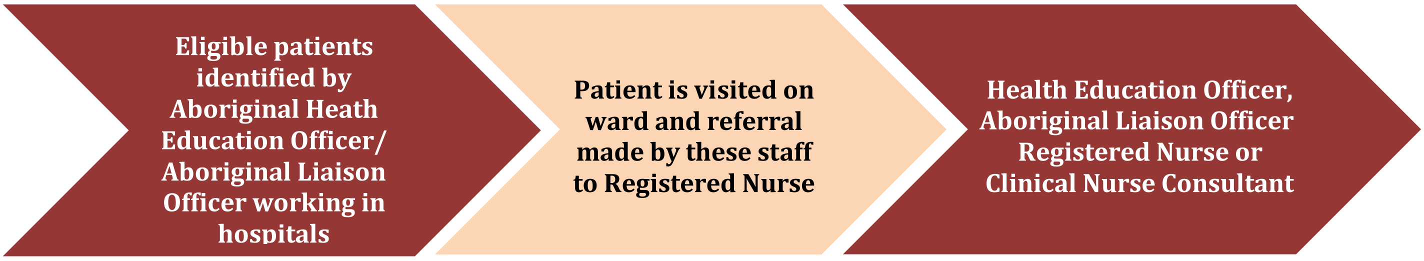

Figure 3: **Overview of Localised Model**

4. *Mixed LHD / Aboriginal Community Controlled Health Service contracted model:* One LHD has implemented a mixed LHD / Aboriginal Community Controlled Health Service contracted model. An overview of the model is outlined in Figure 4. Within this model, patients receive a ward visit by an Aboriginal Liaison Officer to be assessed for eligibility and introduced to the program. Patients who are currently case managed by the Aboriginal Community Controlled Health Service are referred by the Aboriginal Liaison Officer via fax to the Aboriginal Community Controlled Health Service for the follow up call to be made. This process was reported to occur in approximately 95% of cases. Patients not case managed by the Aboriginal Community Controlled Health Service will receive the 48 Hour Follow Up phone call from the LHD Aboriginal Liaison Officer. The Aboriginal Community Controlled Health Service reports details of the call back to the LHD, although it was reported that this does not always occur, and this has caused difficulty in providing data for program monitoring.

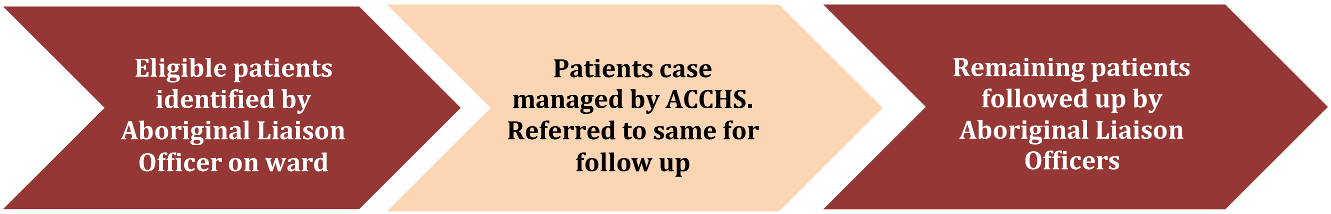

Figure 4: Overview of Mixed LHD / Aboriginal Community Controlled Health Service contracted model

Benefits and limitations of Program Models: The NSW Clinical Services Redesign Project(4) outlined a number of key factors specific to early detection and management of chronic disease among Aboriginal people and factors thought to contribute to the success of chronic disease management programs, including:

- Effective local partnerships and working groups
- Local multi-disciplinary teams or taskforces with clear roles and responsibilities
- Locally agreed evidence-based clinical protocols.

Some LHDs have achieved formalised partnerships with other local service providers using a variety of models and have a co-ordinated response to chronic disease management for Aboriginal people within their LHDs. Other LHDs had low levels of integration and communication with other community and chronic care services. Table 2 outlines some of the benefits and limitations described by interviewees for each of the four implemented models.

Table 2: Summary of benefits and limitations described by interviewees for each Program Model

Program Model	Benefits	Limitations
Centralised Model	– Standardised delivery occurs across the LHD. – Software systems are in place to rapidly identify eligible patients and generate call lists.	– Due to the centralised model, eligible patients may not be visited on the ward to have the program explained to them. Ward visits can promote trust and acceptability of the program.

Program Model	Benefits	Limitations
	– Staff members are often co-located with other teams delivering chronic care programs, meaning support for 48 Hour Follow Up staff is on hand.	– Calls are often not made by Aboriginal staff. If there is no ward visit by Aboriginal Health Education Officers/Aboriginal Liaison Officers and calls are not being made by Aboriginal staff, there is no Aboriginal person involved with 48 Hour Follow Up. This may affect trust and was identified in the Redesign Project 2010 as an essential element of chronic care for Aboriginal people.
Integrated Care / Shared Care Model	– The ability of multi-disciplinary staff to access 48 Hour Follow Up records promotes dissemination of knowledge across the team and a united approach to patient management, resulting in continuity of care. – Duplication of calls is mitigated by this model. The most appropriate person will conduct the 48 Hour Follow Up call. This may be a member of the 48 Hour Follow Up team or Connecting Care, or an Aboriginal Health Worker.	– It can be difficult to provide this model of care when staff turnover is high. – Two of the LHDs using this model have only one staff member each delivering the program. – Some communication difficulties between services have been identified.
Localised Model	– 48 Hour Follow Up staff may be well-known in the community and often have a history with the eligible patient. – Informal identification of potentially eligible patients may occur, allowing early	– There may be non-standardised delivery of the program. – The position accountable for 48 Hour Follow Up implementation may not have line management of the staff members responsible for conducting the 48 Hour Follow Up phone call. This creates difficulties in reporting and

Program Model	Benefits	Limitations
	intervention strategies (such as early referrals) by 48 Hour Follow Up staff. – Home visits are often a part of this model. This allows for additional follow up outside the 48 Hour Follow Up period, increasing the ability to identify and manage chronic disease issues early.	applying strategies that may improve the reach of 48 Hour Follow Up. – There is overlapping care pre- and post-discharge with other services and programs.
Mixed LHD/ Aboriginal Community Controlled Health Service Contracted Model	– Integrating the follow up call into an existing case management structure can reduce overlapping and fragmented care.	– The model adopted by one LHD means that the organisation conducting the majority of 48 Hour Follow Up calls does not have significant engagement with the LHD. Likewise, the LHD does not have any day-to-day management of the organisation making the calls (the Aboriginal Community Controlled Health Service). This can result in difficulty in managing data and monitoring program delivery. – In 2013 this model was piloted in another LHD. The pilot ceased within the year because although the Aboriginal Community Controlled Health Service was effective in conducting the 48 Hour Follow Up call, there were significant difficulties in providing patient information to an outside source.

Integration of 48 Hour Follow Up with Connecting Care and other existing services

KEYPOINT: Ten LHDs had integrated 48 Hour Follow Up with Connecting Care.

At the time of the interviews being conducted, ten LHDs had integration between 48 Hour Follow Up and the Connecting Care program. Integration between these two programs was characterised by the following:

1. In five LHDs, the manager of the 48 Hour Follow Up Program was the same position as the Connecting Care manager. Except for one LHD, the LHDs had both programs co-located, resulting in a high level of interaction and consultation among staff members working for either program. One LHD had software in place to electronically communicate and co-ordinate both programs.
2. In one LHD, both programs were part of the Chronic Disease Management Program.
3. In two LHDs, the same position was responsible for both 48 Hour Follow Up calls and Connecting Care calls at some sites.

Five LHDs had not integrated 48 Hour Follow Up with the Connecting Care program. However, the majority of sites within the LHD had a Connecting Care facility to refer to. The proportion of eligible 48 Hour Follow Up patients who were existing Connecting Care clients was estimated by interviewees to range from approximately one third to almost all (one LHD had a formal agreement with Connecting Care whereby all 48 Hour Follow Up patients were referred to Connecting Care; referrals to services were arranged by Connecting Care staff).

Building networks and/or creating partnerships with other Aboriginal service providers and mainstream-specific chronic care services such as Medicare Locals (now known as Primary Health Networks), Aboriginal Community Controlled Health Services, community-based Aboriginal organisations and community-based Aboriginal Hospital Liaison Officers were reported to have had significant benefits for eligible patients and staff by interviewees at six LHDs. These networks were reported to help provide consistency of care and allow sharing of ideas and skills among these services. However, closer links with General Practitioners was cited by two LHDs as an area needing improvement. General Practitioners were labelled as "gate-keepers" between the patient and prescribed treatments. Implementation staff have expressed frustration that there is little consistency or ability to communicate their findings and requests to patients' General Practitioners, meaning that services or affordable solutions may be (unintentionally) blocked at this level. Some interviewees felt that 48 Hour Follow Up does not work well without Aboriginal Community Controlled Health Service involvement, and is not well-suited to private General Practitioner practices (especially sole practitioners).

Perceived overlapping care: Varying forms of overlapping care were reported by three LHDs. Overlapping care was reported by staff in one LHD to result in patients receiving conflicting advice. Role delegation within the implementation team was identified as being beneficial. One LHD has commenced an "Excellence" program that requires nursing staff to contact all discharged patients within 24 hours post-discharge. The 48 Hour Follow Up implementation staff reported that they are starting to contact eligible patients to find that they have already been contacted by another party. Implementation staff voiced concerns that patients eligible for 48 Hour Follow Up will experience "call fatigue" and be increasingly resistant to the 48 Hour Follow Up call. In one LHD, both Connecting Care and 48 Hour Follow Up staff were reportedly visiting eligible patients in hospital. This resulted in many clients receiving overlapping care. Interviewees suggested that better coordination with staff from other chronic disease management programs could reduce duplication of effort.

Program Eligibility Criteria

KEYPOINT: There was significant variation in the eligibility criteria implemented among LHDs.

Eligibility criteria reported by each LHD are reported in Table 3. Some LHDs provided specific exclusion criteria. Most commonly, Aboriginal patients receiving haemodialysis for chronic renal failure were excluded. One LHD excludes all renal patients. Two LHDs exclude dialysed patients. The rationale provided by these LHDs for excluding dialysed patients was that these patients are already in contact with a specialist health care team three times per week.

Staff in some LHDs reported wanting to expand inclusion criteria to include other chronic diseases and people considered “at risk” of recurrent admissions, including:

- Aboriginal people with drug and alcohol issues (one LHD)
- Aboriginal people with mental health issues (two LHDs)
- Aboriginal people with osteoarthritis (two LHDs)
- Vulnerable Aboriginal patients with a history of multiple admissions in the absence of chronic disease (one LHD).

Inclusion of Emergency Department (ED) presentations in 48 Hour Follow Up criteria was identified by one LHD as a positive step that functioned as a safety net for patients not admitted to any other ward. One LHD reported wanting to reduce the scope of their follow up criteria. The same LHD has inclusion criteria that includes some planned surgical admissions and some maternity patients, and also provides an additional follow up phone call at 30 days post-discharge. Three LHDs reported that they found the guidelines for inclusion criteria ambiguous and had sought clarification from their managers/executives and the ACI on definitive criteria. One LHD stated that at one point they were told to follow every “at risk” patient and later were told that they were over-reporting.

Table 3: Inclusion criteria for 48 Hour Follow Up by LHD

Criteria	LHD 1[3]	LHD 2	LHD 3	LHD 4	LHD 5	LHD 6	LHD 7	LHD 8[1]	LHD 9	LHD 10	LHD 11	LHD 12[2]	LHD 13	LHD 14	LHD 15[4]
> 15 years		✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓
> 16 years	✓														
Chronic Obstructive Pulmonary Disease	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Asthma	✓		✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Cardiovascular disease	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Diabetes	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Renal disease	✓		✓		✓	✓	✓	✓			✓				✓
Renal disease – non dialysed only										✓		✓	✓	✓	
Hypertension				✓	✓					✓					
Cancer														✓	
Drug and Alcohol Issues				✓											
Emergency Department presentations				✓											
High risk of re-admission				✓										✓	
Chronic Disease or “at risk” of Chronic Disease				✓											✓
All Aboriginal patients regardless of ICD-10 coding		✓							✓					✓	✓

[1] LHD 8 follows up surgical and maternity patients if they have a chronic disease in the scope of the program

[2] LHD 12 specifically excludes patients presenting for: day treatment, intoxication, mental health complaint, maternity, surgical, ED presentation not resulting in ward admission

[3] LHD 1 excludes planned admissions

[4] LHD 15 follows up all Aboriginal patients at smaller sites only

Patient Identification and Eligibility

KEYPOINT: ICD-10 coding does not occur in real-time; therefore, identifying eligible patients is not a one-step process.

The LHDs used a range of systems to identify eligible patients, including patient information management systems (Community Health Information Management Enterprise (CHIME) (n=6); Cerner (n=4)), other processes such as ward visits, paper admission lists and clinician referrals (n=3) or a combination of these systems (n=2). Few LHDs have streamlined processes to identify eligible patients. It was reported that significant time can be spent each day exploring patient records in various data bases to create an eligible call list. Most LHDs use a combination of systems which generally begins with generation of an i.Patient Manager (iPM) report. The iPM report collates a list of admitted patients who have identified themselves as Aboriginal or Torres Strait Islander. After this, individual patients may be visited on the ward to establish chronic disease diagnosis or have their electronic medical record reviewed using the CHIME, CHOC or Cerner systems. The LHDs reported that there is a 3 to 6 week delay in ICD-10 codes being applied to patient medical records, thus making timely and accurate judgements regarding 48 Hour Follow Up eligibility difficult.

Strategies implemented by LHDs to assist in identification of eligible patients include:

- Automated search of ICD-10 codes of past three admissions (one LHD)
- Inclusion of chronic disease management program criteria filter (one LHD)
- Automatic alert when an Aboriginal patient is discharged (six LHDs). It was not made clear in the interviews if further assessment of medical records was required.

One LHD reported significant time savings when they transitioned from manual identification to automated identification. Four LHDs found current guidelines ambiguous and were not certain that the criteria they use to establish eligibility were consistent with the central eligibility criteria. The need for clarification of eligibility criteria was suggested by these LHDs.

48 Hour Follow Up process

KEYPOINT: The methods used to conduct 48 Hour Follow Up varied greatly among LHDs. The biggest difference was the level of involvement of an Aboriginal staff member in implementing follow up in hospital, on the phone and at home visits.

There was significant variation among LHDs in how 48 Hour Follow Up was conducted. This included variation in:

- Whether there was face-to-face introduction of the program to patients in hospital
- Consent processes
- Resources provided to eligible patients
- Content and duration of follow up calls
- Whether home visits were conducted.

Each of these is discussed in detail below. Identification, data management, reporting and referrals are dealt with separately.

Face-to-face in-hospital visit: Nine LHDs routinely visited Aboriginal patients in the ward to identify presence of chronic disease and to introduce 48 Hour Follow Up. A further six LHDs reported that face-to-face in-hospital visits occurred sometimes. Visits were generally conducted by an Aboriginal Liaison Officer and/or an Aboriginal Health Education Officer. Barriers to provision of in-hospital introduction of 48 Hour Follow Up included inadequate staffing, high existing workloads and long distances between sites.

Consent processes: As follow up of patients reflects good clinical practice, consent to receive a 48 Hour Follow Up telephone call was generally via an informal process. Most consent was implied consent during the in-hospital visit. One LHD reported that they asked for verbal consent at the beginning of the 48 Hour Follow Up phone call. Nevertheless, five LHDs reported having more formal in-hospital consent procedures.

Resources provided to eligible patients: Resources to introduce 48 Hour Follow Up to inpatients, in the form of a pamphlet, were provided by seven LHDs. Two LHDs have developed their own pamphlets and posters with local Aboriginal artwork and may also include the Aboriginal flag to convey to eligible patients that the information is culturally specific and sensitive. One LHD provides a generic pamphlet that does not specifically address the program but gives details of the Aboriginal Health Services and contacts within the LHD. One LHD also provides other relevant pamphlets (e.g. about Medicare Local outreach programs, Get Healthy Service) to patients. Implementation staff in some LHDs felt that some of these pamphlets lacked cultural specificity and were hard to understand for some patients. One LHD simplified the wording on their pamphlet and included pictures to facilitate understanding. One LHD has utilised informal wording, “Just calling to have a yarn”, as well as including Aboriginal artwork to promote “user friendliness” and acceptability among the target audience. Staff at one LHD have simplified their non-contact letter to address this issue. Three LHDs have incorporated plain English pamphlets that include pictures and diagrams to facilitate understanding of the program.

Seven LHDs reported they provide eligible patients with other resources regarding their chronic disease or regarding services that they may be eligible for or have been referred to. In two LHDs these may be mailed out or given to the patient in the ward or during a home visit. These resources may be Aboriginal-specific or not and have generally been sourced by implementation staff by contacting services within their LHDs.

Call content: Five domains were covered by all LHDs in each follow up phone call. These are illustrated in Figure 5, and described below.

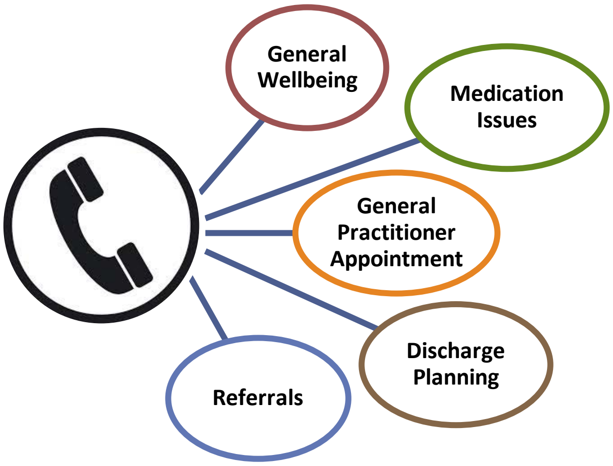

Figure 5: Domains of content covered by follow up calls

Typically, the following was covered as part of the telephone call:

- ***General Wellbeing:*** This domain includes enquiry regarding general health and coping ability at home. Some LHDs concentrated on other issues such as carer responsibilities under this domain.
- ***Medications:*** Patients were asked if they were discharged with medication. If not, they were asked if they had a script and if so, were they able to fill it. Patients were asked if they understood why they were taking particular medication and discussed the importance of complying with scripts, and the potential side-effects of medications. Offers of transport or other assistance to fill scripts were sometimes offered during the call.
- ***General Practitioner Appointment:*** All patients were encouraged to book follow up appointments with their General Practitioners. Implementation staff would facilitate all aspects of making the appointment and assisting with transport for the client.
- ***Referrals:*** Current services in place were reviewed and discussed. If a need for additional support was identified during the call, 48 Hour Follow Up staff initiated appropriate referral processes. Referrals included both Aboriginal-specific and mainstream services. Several LHDs had developed extensive networks with local services and had established referral pathways.

Services to which patients were referred included:

- Connecting Care
- Medicare Locals
- Care Coordination and Supplementary Services
- Aboriginal Community Controlled Health Services
- Chronic Disease Management Program
- Aged Care Assessment Team
- Transitional Aged Care Program
- ComPacks
- Home Care
- Aboriginal-specific Home Care/Respite
- Transport Services
- Chronic Care Program (CCP) or Aboriginal Hospital Liaison Officer (AHLO)
- Diabetes Program/Clinic
- Cardiac Rehabilitation
- Renal educator
- Exercise programs/groups
- Eye clinic
- Dental/oral health clinic
- Vascular clinic
- Aboriginal Cultural Resource Community Centre
- Community health nurse
- Housing
- Quick Response Unit
- General Practitioner
- Healthy eating programs/dieticians
- Community care access point (phone referral service)
- Community options
- Podiatry
- Psychology/mental health services
- Oncology services

Three LHDs reported, however, that there can be a significant lag time between referral and services being implemented.

- ***Discharge Planning:*** Patients were asked if they were discharged with a care plan or discharge summary. Patients were asked if they needed help interpreting these.

Some LHDs covered more extensive issues:

- ***Social/Family Issues:*** Information on social aspects of the patient's life is explored. It was highlighted that some eligible patients were also carers of their grandchildren, while some people had poor social support and were less likely to advocate for their needs. Social factors that might potentially increase the risk of readmission were identified. More scope to provide social and psychological support was identified as potential improvements by staff in two LHDs. It is noteworthy that only one LHD refers to psychology services.
- ***Transport Issues:*** Ten LHDs offer transport to General Practitioner appointments, and to attend pharmacies or other aspects of health care such as rehabilitation programs.
- ***Housing Issues:*** This was identified by four LHDs. The 48 Hour Follow Up staff could advocate for patients and link them to housing assistance.
- ***Home Visits:*** Home visits were offered in 11 of the 15 LHDs. Five LHDs reported providing home visits "some of the time". Three LHDs reported providing home visits "almost always". Two LHDs organised Aboriginal health workers and Aboriginal outreach workers via other services such as Aboriginal Community Controlled Health Service or Medicare Local.
- ***"Closing the Gap"*****:** Closing the Gap is a national strategy that aims to reduce Indigenous disadvantage with respect to life expectancy, child mortality, access to early childhood education, educational achievement and employment outcomes. A number of LHDs provided information about how eligible patients could be linked into services offered under the scheme, such as the Closing the Gap Pharmaceutical Benefits Scheme Co-payment Measure.

Two LHDs expressed an interest in incorporating health promotion and/or disease prevention education into follow up.

Call script: Seven LHDs reported using call scripts. In one LHD, a mini-assessment tool was developed and is used in conjunction with the 48 Hour Follow Up call script to allow evaluation of patient status and current unmet needs.

Duration of calls: Implementation staff members reported that calls can take from 10 to 40 minutes. Many of these staff members highlighted that in addition to the time taken to conduct the calls, time was spent ensuring appropriate referral services were put in place and documentation was completed. The LHD staff who also provide home visits as part of the 48 Hour Follow Up might spend extensive time driving to remote locations to conduct assessments and provide education.

Call attempts and non-contact procedures: All LHDs reported difficulties in contacting eligible patients post-discharge. Issues included incorrect details in medical records, phones disconnected, phones not answered, phones out of range, and patients not at their home addresses post-discharge (e.g. the patient may be in the care of family while recuperating). Smaller sites (reported by two LHDs) may conduct home visits or contact next of kin in the community if phone contact has been unsuccessful. Geographically, this is less feasible in some LHDs. Staff in one LHD felt that eligible patients may not answer the 48 Hour Follow Up calls as their numbers appear as private numbers. One LHD has addressed this issue by implementing an automated SMS messaging system to inform patients of an impending 48 Hour Follow Up call.

The LHDs have formalised procedures regarding action to be taken in the instance of non-contact of identified eligible patients within 48 hours. In general, up to three calls are made within 48 hours. If no contact can be made, two LHDs send a letter requesting the patient call a free 1800 number to participate in the program. Some LHDs continue call attempts for up to 7 days. Other LHDs may conduct a home visit if call attempts have been unsuccessful.

Timing of telephone calls: Providing an additional follow up call at a time period 1 week to 3 months post-discharge was highlighted by interviewees as a potential improvement to the program. Interviewees commented that it can take more than 48 hours for some problems to become apparent and that while early contact is important, an additional follow up call could also be valuable.

Training: Only two LHDs described formal training in preparation for conducting 48 Hour Follow Up phone calls. Other LHDs had less formal training processes. Some implementation staff brought transferable skills from prior education or employment to their current positions, which assisted them in conducting the follow up calls. Three LHDs identified more training as a necessity.

In two LHDs training in telephone-based health coaching was identified as a method by which Aboriginal Liaison Officers could better support program recipients. It was reported that, in some LHDs, Connecting Care call staff received this training, and it was considered appropriate that 48 Hour Follow Up staff receive this training also.

Training to deal with social and psychological issues was reported by two LHDs as potentially useful in equipping 48 Hour Follow Up implementation staff with skills to provide more holistic care to eligible patients.

*Ongoing promotion of 48 Hour Follow Up**:*** In three LHDs the promotion of the 48 Hour Follow Up among hospital staff, community health staff and the local Aboriginal community was reported to have improved the profile of 48 Hour Follow Up. Five LHDs have reported they attend events like National Aborigines and Islanders Day Observance Committee (NAIDOC) Day and One Deadly Step to promote the program within Aboriginal communities.

State-wide promotion of 48 Hour Follow Up was suggested by interviewees to improve knowledge and acceptance of the program. While many LHD staff are present at Aboriginal Community events, such as NAIDOC, to promote the program, a larger scale promotion may also improve knowledge across the broader community. Interviewees felt that state-wide promotion of the program could reach members of the Aboriginal community who are not aware of the importance (and subsequent benefits) of identifying as Aboriginal or Torres Strait Islander when they have dealings with health care providers.

WORKFORCE

KEYPOINT: Having a mix of Aboriginal-identified and clinical positions implementing 48 Hour Follow Up was considered valuable by a number of LHDs.

Employment of Aboriginal staff: Having Aboriginal staff involved in delivering 48 Hour Follow Up was reported to help address the mistrust, fear and shame that Aboriginal people with chronic disease may feel when seeking help regarding illness and health issues. Interviewees from six LHDs reported that Aboriginal staff opened the door to non-Aboriginal staff being accepted in the community. Two LHDs reported that having Aboriginal staff involved in delivery of the program allowed non-Aboriginal staff to learn more about Aboriginal culture in an informal way. Several LHDs reported that having Aboriginal staff in hospitals to introduce the program and Aboriginal staff in the community was reported to have fostered the program and created lasting ties between the LHD and the Aboriginal community. Cultural brokerage has been identified as an important aspect of delivery of care to Aboriginal people by relating "mainstream health beliefs to an Aboriginal framework making it possible for Aboriginal patients / clients of health services to understand what is being said and to assess the validity of the statements. They also make it possible for the non-Aboriginal health centre staff to communicate with Aboriginal people in language and concepts that they understand"(5).

Clinical positions: The addition of an RN in the implementation of 48 Hour Follow Up was reported by implementation staff in two LHDs to be beneficial to both staff and eligible patients, as an RN is better able to provide in-depth clinical support to patients. Staff in two LHDs considered that combining an RN position with an Aboriginal Health Worker or Aboriginal Chronic Care Worker is a useful approach. This staff mix was thought to facilitate ongoing informal health education for Aboriginal Health Workers, especially in LHDs where Aboriginal Health Workers accompanied RNs on home visits.

WORKFORCE CHALLENGES

KEYPOINT: There is a need to address recruitment to Aboriginal-identified and clinical positions, recruitment and retention of staff, and systems to ensure backfill of positions.

A number of challenges related to recruiting, retaining and management of 48 Hour Follow Up staff were reported.

*Limited staff resources**:*** Two LHDs have as few as one staff member responsible for delivery of 48 Hour Follow Up. This may include lengthy phone consultations and home visits. One LHD delivers 48 Hour Follow Up at only some sites. This LHD attempted to increase service delivery to all sites but found the workload was more than their staff could feasibly manage. The LHD decided to focus on the two sites that service areas with the highest Aboriginal populations. Six LHDs felt they could deliver the program more effectively with more implementation staff. Two LHDs believed an RN would be a valuable team member, as such a position would be able to educate the non-clinical Aboriginal health workers involved in 48 Hour Follow Up delivery and improve the health literacy of Aboriginal patients eligible for the program. Two LHDs believed a chronic-care-specific Aboriginal Health Worker would be the most appropriate addition to their 48 Hour Follow Up Program staff.

Inability to fill Aboriginal-identified positions: Some interviewees perceived that there is a paucity of qualified Aboriginal staff, especially RNs. Some LHDs reported that Aboriginal-identified RN positions have been advertised up to four times with no suitable candidate recruited. Two LHDs have had difficulties recruiting and one LHD has reportedly had difficulty retaining Aboriginal Health Workers for 48 Hour Follow Up positions.

Staff engagement: Six LHDs reported initial or ongoing difficulties engaging hospital staff in the program. It was reported that Aboriginal Liaison Officers were often tasked to perform 48 Hour Follow Up in addition to their usual duties, with no additional resources provided. Three LHDs have worked hard to raise the profile of the program among hospital staff by, for example, PowerPoint presentations, and attending nurse handovers to educate staff about 48 Hour Follow Up. In two LHDs executive sponsorship was highlighted to be necessary for effective LHD-wide implementation, and high rates of managerial change were reported to have adversely affected 48 Hour Follow Up Program implementation.

Retaining staff: Interviewees from one LHD reported that qualified staff can be lost to other services. Interviewees from two LHDs felt that this can impact on program awareness and that it has been a challenge for some LHDs to maintain staff awareness of the program. One LHD has included 48 Hour Follow Up education into orientation programs to mitigate this issue.

Backfill of positions: Routine backfill of implementation staff member/s does not occur at seven LHDs. As a result, follow up is not delivered in these LHDs when implementation staff are on leave.

Line management of implementation staff: Four LHDs reported that the manager accountable for the performance of 48 Hour Follow Up was not a direct manager of the staff tasked with implementation. In one LHD, the majority of 48 Hour Follow Up calls (~95%) are made by the Aboriginal Community Controlled Health Service, over which the LHD has no direct line management. While it was not implied that line management arrangements should change, this was indicated as a significant barrier to delivering 48 Hour Follow Up effectively.

DATA MANAGEMENT

KEYPOINT: There were some discrepancies between patients identified as eligible for 48 Hour Follow Up by LHDs in real time, and patients considered eligible based on central eligibility criteria.

Access to patient records: Several LHDs reported frustration that 48 Hour Follow Up staff worked on a different computer platform to in-hospital staff (platforms used are described in Table 4). This "siloing" of information was perceived as a barrier to holistic care, with in-hospital staff not knowing what is occurring for the patient in the community health setting and vice versa. In three LHDs interviewees felt that improved data management and data sharing between community data bases and in-patient data bases would encourage a more holistic approach to management of eligible patients. One LHD (smaller site) reported that they do not upload discharge summaries, making it difficult for implementation staff to ascertain a clear clinical picture.

Data Discrepancies: The central eligibility criteria for 48 Hour Follow Up was developed by ACI in partnership with Aboriginal staff in LHDs and is based on ICD-10 codes for chronic diseases. Seven LHDs reported data discrepancies between the patients identified as eligible by LHDs in real time, and patients considered eligible for 48 Hour Follow Up by ACI based on central eligibility criteria. Three reasons were provided to explain this:

1. Four LHDs reported following up all Aboriginal patients regardless of ICD-10 coding.
2. Five LHDs reported that the central eligibility criteria cannot be implemented in real time as ICD-10 coding does not occur until 3-6 weeks after admission.
3. Two LHDs perceived that inter-hospital transfers are considered by the ACI to be a discharge requiring Follow Up, even though they remain an inpatient. These LHDs reported regularly transferring patients from one facility to another. The patient is likely to be followed up after final discharge, resulting in perceived under-reporting. According to the central eligibility criteria, inter-hospital transfers are not considered to be a discharge requiring Follow Up.

REPORTING

KEYPOINT: It is common for multiple systems to be used in the recording and reporting of 48 Hour Follow Up data.

Data systems

Several data systems were used in the recording and reporting of 48 Hour Follow Up data. These are summarised in Table 4. The majority of LHDs (n=6) predominantly used the CHIME software system.

Table 4: LHD data and reporting summary

LHD	Main system used to record data	Centrally collated data provided by ACI staff	Other reporting
LHD 1	Community Health Applications	Clinical Nurse Consultant reports data back to frontline staff.	Data reported to Chief Executive and chronic care managers. Monthly chronic care meetings. Also quarterly Closing the Gap meetings.
LHD 2	Community Health Information management enterprise (CHIME)	Not reported	Not reported
LHD 3	ACI spreadsheet and personal diary	Not reported	Quarterly report containing chronic disease management program data sent to ACI via the Chief Executive.
LHD 4	ACI spreadsheet	Not reported	Director of Aboriginal Services
LHD 5	Currently EXCEL[1], introducing CHIME	Received six-monthly benchmark reports in the past, which was considered	Not reported

LHD	Main system used to record data	Centrally collated data provided by ACI staff	Other reporting
		beneficial. This has not occurred for 1 year.	
LHD 6	Daily running sheet, collated monthly in ACI spreadsheet.	Back to Aboriginal Health Workers.	Not reported
LHD 7	Spreadsheet at individual sites. Forwarded to Clinical Nurse Consultant to collate.	Used to disseminate 12-monthly report; has not been received for some time.	Monthly statistics sent to Executive
LHD 8	CHOC	Used to disseminate ACI KPI comparative data, which was useful. This has not occurred for some time.	Not reported
LHD 9	CHIME as well as internal spreadsheet	Does not currently report to the ACI.	None mentioned by interviewee(s)
LHD 10	ACI spreadsheet	Not reported	Aboriginal General Meeting (monthly)
LHD 11	CHIME	None submitted yet	None submitted yet
LHD 12	CHIME	Staff can access site and LHD data using SMaRT Viewer.	None mentioned by interviewee(s)
LHD 14	CHIME as well as internal spreadsheet	Compiles internal reports using internal and ACI data. This can be provided to any staff member involved in the process.	Compiles internal reports using internal and ACI data. These can be provided to any staff member involved in the process.

LHD	Main system used to record data	Centrally collated data provided by ACI staff	Other reporting
LHD 15	Ferret system automatically collects data from all but three sites.	Has developed an internal reporting (traffic light) system that sends data to the Chief Executive and follow up staff.	Director of Aboriginal Health, Director of Primary Health Care and the Chief Executive.

[1] *We were unable to clarify with interviewees whether the ACI spreadsheet or an internal excel spreadsheet is used.*

NB: Data correct as at time of interviews 20/11/13-21/02/14

<u>Dissemination of 48 Hour Follow Up data from ACI to LHDs</u>: Dissemination of centrally collated data to frontline staff was intermittent across the state. Three LHDs reported that the ACI used to send LHD KPI comparative data, a practice which was beneficial for frontline staff and managers. Upstream reporting (Aboriginal Health Managers, Directors and Executives) of 48 Hour Follow Up performance was reported to occur in six LHDs.

<u>Activities not reported in current monitoring approach:</u> ACI provides reports to LHDs on the proportion of eligible patients followed up within 48 hours. Interviewees reported that there are several aspects of 48 Hour Follow Up that are not acknowledged in the monitoring and reporting approach. These include:

- ***Time taken to conduct follow up:*** Five LHDs indicated that the actual time taken to conduct the entire 48 Hour Follow Up process is not acknowledged or reported. Some LHDs spent 4-6 hours per patient ensuring that all aspects of the program are implemented. Other LHDs' engagement with eligible patients is limited to a single phone call. A mechanism to record and report actual time spent per eligible patient was suggested to allow a clearer picture of the entire process to emerge.
- ***Patients followed up outside 48 hours:*** Implementation and management staff suggested that an option within the ACI report to indicate when 48 Hour Follow Up calls are made outside the 48 hour period would also be useful. One of the common themes across LHDs was that Aboriginal people are often not contactable by mobile phone (e.g.

the phone is out of range or battery), and may also not be contactable by landline (e.g. if the patient does not return home immediately post-discharge, but stays with extended family for care and support). Some remote sites state that it takes patients 24-48 hours just to return home, making contact within 48 hours highly unlikely. Three LHDs describe procedures (both formal and informal) that involve calls being made up to 8 days post-discharge in an attempt to establish contact and provide eligible patients with 48 Hour Follow Up. It was suggested that there be an option within the ACI reporting spreadsheet to indicate additional data: how many call attempts were made (that went unanswered); follow up that occurred outside of the 48 hour time frame; and home visits.

- ***Improved health outcomes:***
    - The program is perceived as having delivered real health outcomes. Three LHDs shared examples of individuals in their areas who have had clear improvement in their health as a result of enrolment into the program. Seven LHDs reported they perceived the program had some benefits but did not have data to support their claims. It was also noted that due to the nature of chronic disease, measuring real health outcomes will take time.
    - Two LHDs reported to have collected data to demonstrate decreasing admissions, ED presentations and bed days. One LHD has collected data from Lismore Base Hospital but has yet to publish their findings. One LHD stated that an analysis conducted 18 months ago "showed that the readmission rate of patients that received 48 Hour Follow Up was less than that which occurred in the broader Aboriginal population across the LHD".
- ***Improved access to care:***
    - Interviewees felt that 48 Hour Follow Up can help reduce barriers to care. Three LHDs reported that simple things like assistance with making appointments and filling scripts were perceived to make a difference to eligible patients' lives and health outcomes.

- In two LHDs interviewees felt that the assistance provided by 48 Hour Follow Up has helped Aboriginal people gain health literacy and promoted confidence in navigating the health system.
- Staff working in two LHDs felt the program had increased participation in rehabilitation programs.
- In one LHD the program has facilitated health education and promotion of services that eligible patients may not otherwise have known about, such as the Care Co-ordination and Supplementary Services Program and Medicare Local.

ENHANCEMENT FUNDING

KEYPOINT: Enhancement funding was used to recruit to a range of positions, from Aboriginal Health Workers to Health Service Managers. The majority of positions appointed after the enhancement funding were Aboriginal-identified positions.

In May 2012, additional enhancement funding was provided to each LHD to recruit a new dedicated chronic care position responsible for the coordination of 48 Hour Follow Up. In order to evaluate how funding had been used, data regarding current 48 Hour Follow Up staffing were collected during the interview process, by Program Managers surveys and via email or telephone contact.

There were some difficulties in quantifying exact staffing levels related to conducting 48 Hour Follow Up. Reasons for this included:

1. ***Multiple Roles:*** Individuals employed to conduct 48 Hour Follow Up within the LHDs often had multiple tasks ascribed to their position descriptions. It was common that 48 Hour Follow Up represented one quarter or one half of a position. The 48 Hour Follow Up managerial roles were often part of larger chronic disease management programs. As Aboriginal Liaison Officers / Aboriginal Hospital Liaison Officers will visit Aboriginal patients in hospital whether or not they have a chronic disease, in one LHD 48 Hour Follow Up is also only part of their larger role.

2. ***Lack of Data:*** Nine Program Manager surveys that specifically addressed allocation of enhancement funding were returned. One respondent provided information via email addressing enhancement funding allocation, rather than using the survey format. As five Program Manager surveys were not returned, it was difficult to define how enhancement funding was allocated in some instances.
3. ***Staff Knowledge:*** In three LHDs some staff members interviewed were new to their roles, with little knowledge of staffing prior to their employment (three LHDs). One interviewee worked as an implementation staff member in a localised model and had little knowledge of LHD-wide staffing levels.
4. ***Data Discrepancies:*** There was some difficulty reconciling the various forms of data received from three LHDs. Inconsistencies were found among staff interviews, Program Manager surveys, program model diagrams and email communications.
5. ***Differing Governance:*** Some staff involved in implementing 48 Hour Follow Up worked under different governance systems, and yet had some responsibility to conduct 48 Hour Follow Up. For example in two LHDs, some staff involved in conducting 48 Hour Follow Up were funded by other means such as Chronic Care funding.

Information received about enhancement funding by LHD is summarised in Table 5.

Table 5: Enhancement Funding Allocation

LHD	Position Title	FTE	Date Recruited	Aboriginal Identified Position
LHD 1	Aboriginal Health Worker	2 x 0.8	March 2013 June 2013	Yes Yes
LHD 2	Program Support Officer Aboriginal Health Education Officer	1 1	April 2012 September 2012	Yes Yes
LHD 4	Clinical Nurse Specialist (CNS2)	1	January 2013	No
LHD 5	Registered Nurse	1	In Process	Yes

LHD	Position Title	FTE	Date Recruited	Aboriginal Identified Position
LHD 6	Chronic Care Coordinator (Registered Nurse)	0.5	September 2013	No
LHD 7	Aboriginal Health Worker	1	December 2013	Yes
LHD 8	Aboriginal Health Worker	1	June 2013	Yes
LHD 9	Aboriginal Health Education Officer	2 x 0.5	Currently recruiting	Yes
LHD 10	Clinical Nurse Consultant	1	September 2013	No
LHD 11	Registered Nurse	1	January 2014	No (however, the successful candidate was an Aboriginal person)
LHD 14	Registered Nurse Chronic Care Project Officer (Health Services Manager)	0.4 0.6	October 2011 September 2013	No Yes
LHDs 3, 12, 13 and 15	Information not provided.			

NB: Data correct as at time of interviews 20/11/13-21/02/14

Three LHDs expressed concern as to how the program would be funded if enhancement funding were to run out. One LHD suggested that 48 Hour Follow Up budget transparency could help Program Mangers shape the future direction of the program.

COMPONENT C: EVALUATION OF REACH AND IMPACT OF 48 HOUR FOLLOW UP

AIMS

The three aims of this component of the evaluation were to determine:

1. The proportion of eligible patients who receive 48 Hour Follow Up
2. The socio-demographic, disease and health service factors that predict whether someone receives 48 Hour Follow Up
3. Whether patients who receive 48 Hour Follow Up have lower rates of unplanned hospital readmission (primary outcome) and other adverse events (e.g. mortality and unplanned presentation to ED) within 28 days.

METHODS

STUDY DESIGN

A retrospective cohort was obtained through audit of medical records and administrative data linkage.

STUDY POPULATION

The study population is patients eligible to receive 48 Hour Follow Up in the period May 2009 to December 2014. Although there are central eligibility criteria for 48 Hour Follow Up, the implementation review (Component B) identified that LHDs may not be able to apply these criteria in real time, and that LHDs have therefore adopted a range of eligibility criteria and processes to identify eligible patients. For the purpose of this analysis, we adopted an inclusive definition of the study population, including both:

1. Patients who were identified by LHD staff in real time as eligible for 48 Hour Follow Up (noting that this may include patients who did not meet the central eligibility criteria); AND

2. Patients who met the central eligibility criteria for 48 Hour Follow Up, i.e. hospital separations from NSW public hospitals where the patient was an Aboriginal person, aged 15 years and older, and admitted with a chronic disease (cardiovascular disease, diabetes, and chronic renal and respiratory disease based on ICD-10 coding) as either the principal or additional diagnosis.

HEALTH OUTCOMES

The health outcomes of interest were unplanned hospital readmissions, unplanned ED presentations and mortality within 28 days of discharge from hospital. These were defined as follows:

Primary outcome:

- ***28-day unplanned hospital readmission:*** An unplanned admission to an acute facility in a NSW public hospital within 28 days of the index hospital separation. Readmissions that resulted in death were included. Admissions with a cancer code in any diagnosis field, transfers from other facilities, and admissions for chemotherapy, mental health and dialysis were excluded from analysis.

Secondary outcomes*:*

- ***28-day unplanned ED presentation:*** An unplanned visit to a public ED in NSW for which an eligible patient has presented within 28 days of the index hospital separation.
- ***28-day mortality:*** Death of an eligible patient from any cause within 28 days of the index hospital separation.
- ***Adverse events:*** An adverse event was an aggregate indicator of deaths, unplanned ED visits and unplanned hospital readmissions as described above.

DATA SOURCES

Data were obtained from the 48 Hour Follow Up Program Register, a public health register comprising data from the following five sources:

1. ***48 Hour Follow Up Program Dataset:*** This dataset contains information on patients who were identified by LHDs as eligible to receive 48 Hour Follow Up, and includes unique

patient identifier, admission and separation dates, LHD of admission, whether the patient received 48 Hour Follow Up (followed up within 48 hours, followed up outside 48 hours, or not followed up), and reasons why patients were not followed up.

2. ***NSW Admitted Patient Data Collection (APDC):*** This dataset includes records for all hospital separations (discharges, transfers and deaths) from all NSW public and private hospitals and day procedure centres. Separation records include a range of demographic data items (e.g. date of birth, residential address, language spoken at home and country of birth), administrative items (e.g. admission and separation dates) and health information (e.g. reason for admission, significant comorbidities and complications, and procedures performed during the admission).
3. ***NSW Registry of Births, Deaths and Marriages (RBDM) Death Registrations:*** This dataset holds information on all deaths registered in NSW.
4. ***Chronic Disease Management Program (CDMP) Minimum Dataset:*** This dataset holds information on CDMP participants, including demographic, health and program information, including participation in Healthways (a telephone health coaching service offered to a subset of CDMP participants). Data were used to identify patients who were enrolled in CDMP or Healthways at the time of their hospital separations, as participation in CDMP and Healthways was identified as a potential confounder of the impact of 48 Hour Follow Up.
5. ***NSW Emergency Department Data Collection (EDDC):*** This dataset holds information about presentations to the EDs of public hospitals in NSW. During the study period, the proportion of all ED presentations in NSW that were captured in the EDDC increased from ~80% to ~95%.[2]

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[2] http://www.bhi.nsw.gov.au/publications/hospital_quarterly_nsw/technical_supplements_of_hospital_quarterly

DATA LINKAGE CLEANING AND DETERMINING ELIGIBLE RECORDS

The data sources were linked by the Centre for Health Record Linkage using probabilistic record linkage methods. A number of quality checks were then applied to each of these datasets, and the two populations of eligible separations were created:

1. Separations for which the patient was identified as eligible for 48 Hour Follow Up by LHD staff in real time (i.e. admissions recorded in the 48 Hour Follow Up Program Dataset) (referred to as the *LHD Eligible Dataset*)
2. Separations recorded in the 48 Hour Follow Up dataset (as above), plus additional separations where the patient met the 48 Hour Follow Up eligibility criteria but was not identified by LHD staff as eligible (i.e. eligible separations recorded in the APDC) (referred to as the *LHD+APDC Dataset*).

GENERAL STATISTICAL METHODOLOGY

Aim 1: The reach of the program was defined as the proportion of eligible separations that were followed up either within or outside 48 hours, examined and presented by LHD, model of care and year (from 2009 to 2014). Differences in the reach of the program between LHDs, models of care and trends over time were investigated using logistic regression models. We modelled the potential clustering of outcomes within sites by including LHD (or alternatively, model of care) as a fixed effect, and Generalised Estimating Equations (GEEs) were used to account for potential correlations from repeated measures from the same person. The odds of follow up (95% CIs) and p-values are presented. In 2012, additional funding was provided by the Ministry of Health to LHDs to enhance the delivery of 48 Hour Follow Up. For the purpose of the analysis, the start date of enhancement funding was identified as 1st December 2012.

Aim 2: Patient characteristics associated with being **identified as eligible** for 48 Hour Follow Up by LHD staff were assessed using logistic regression models (using GEE to account for potential clustering). Adjusted odds (95% CIs) along with adjusted p-values are presented. The characteristics associated with **receiving** 48 Hour Follow Up were also investigated using the same techniques.

Aim 3: Rates of unplanned hospital readmission, mortality and unplanned presentation to ED within 28 days, and at least one of these adverse events, among patients who received 48 Hour Follow Up were compared with eligible patients who did not receive the program, using logistic regression models. The outcomes were dichotomous indicators of whether the index separation was followed by an unplanned hospital readmission, an unplanned ED presentation, death or at least one of these outcomes within 28 days. The main variable of interest was whether or not the index separation received 48 Hour Follow Up. Potentially confounding variables were identified by comparing the characteristics of those who either received or did not receive follow up, using similar logistic regression models, and included year of admission, gender, marital status, financial class, mode of separation, clinical code set, Index of Relative Socio-Economic Disadvantage (IRSD) quintile, residence state, age, episode length of stay, number of previous admissions, number of additional diagnoses, and the Charlson Comorbidity Index. Clustering from repeated admissions from the same patient was accounted for by using GEEs with an exchangeable correlation structure, and robust Hubert-White standard errors were used. Statistical significance for the primary and secondary outcome analysis was set at the 5% level.

RESULTS

Results are presented for patients identified as eligible by LHD staff or through central eligibility criteria (i.e. the LHD+APDC dataset), and for patients followed up within or outside 48 hours, unless otherwise specified.

SUMMARY OF EXCLUSIONS AND ELIGIBILITY

The linked dataset had 407,729 hospital separation records for Aboriginal patients aged 15 years or older who attended a public hospital in NSW between May 2009 and December 2014, of which 350,954 were deemed ineligible as they did not meet the eligibility criteria for 48 Hour Follow Up. A further 7,054 records were excluded due to duplicate Project Person Number (PPN) and admission date, PPN and separation date, or because the index separation was followed by a readmission within 48 hours (these separations were excluded as patients who were readmitted within 48 hours would be unlikely to receive follow up). The final number of eligible separations (n=49,721) came from 18,659 patients and 15 LHDs. The mean number of records per patient was 2.6 (SD=4.5) and the maximum was 227. Detailed data on eligible separations are given in Table 6.

For the LHD Eligible Dataset, there were 12,629 eligible separations during the study period (data not shown). The discrepancy in eligible separations between the LHD Eligible Dataset and the LHD+APDC Dataset (n=49,721) is likely to be due to the fact that LHDs have developed their own processes for identifying eligible patients because the central criteria cannot be applied by LHDs in real time.

Table 6: Summary of hospital separations eligible for 48 Hour Follow Up (n=49,721)

Variable	Descriptor	N (%)
Local Health District	LHD 1	4137 (8.3%)
	LHD 2	1778 (3.6%)
	LHD 3	603 (1.2%)
	LHD 4	720 (1.4%)
	LHD 5	3252 (6.5%)
	LHD 6	3105 (6.2%)
	LHD 7	3904 (7.9%)
	LHD 8	2118 (4.3%)
	LHD 9	1448 (2.9%)
	LHD 10	2583 (5.2%)
	LHD 11	1409 (2.8%)
	LHD 12	11822 (24%)

	LHD 13	1704 (3.4%)
	LHD 14	2768 (5.6%)
	LHD 15	8346 (17%)
	Missing	0
	Other	24 (0.0%)
Year	2009	6939 (14%)
	2010	6960 (14%)
	2011	7705 (15%)
	2012	9809 (20%)
	2013	12238 (25%)
	2014	6070 (12%)
	Missing	0
Reason not followed up	Declined follow up	138 (3.6%)
	Not contactable	2083 (54%)
	Deceased	94 (2.4%)
	Transferred to another facility	265 (6.9%)
	Not known	1257 (33%)
	Missing/not applicable	45884
Aboriginal status	Not Aboriginal	3 (0.01%)
	Aboriginal	49718 (99.99%)
Primary diagnosis	Not chronic disease	7031 (14%)
	Chronic disease	42690 (86%)

Mode of separation recode	Discharge by Hospital	45292 (95%)
	Discharge on Leave	78 (0.2%)
	Discharge Own Risk	2034 (4.2%)
	Transfer to Nursing Home	20 (0.0%)
	Transfer to Public Psychiatric Hospital	5 (0.0%)
	Transfer to other Hospital	376 (0.8%)
	Death with Autopsy	15 (0.0%)
	Death without Autopsy	78 (0.2%)
	Transfer to Other Accommodation	8 (0.0%)
	Type Change Separation	1 (0.0%)
	Missing	1814
Facility type	Public Hospital, Privately Managed under Contract	187 (0.4%)
	Private Day Procedure Centre	3 (0.0%)
	Public Hospital, Recognised (Non-Psych), NSW	44806 (94%)
	Public Multi-Purpose Service, Admitting Entity	2903 (6.1%)
	Private Hospital, Admitting Entity	5 (0.0%)
	Mental Health, Public Psychiatric Hospital	2 (0.0%)
	Public Residential Aged Care Facility (Nursing Home)	2 (0.0%)
	Other (missing)	1813
Peer group	A (Principal referral)	14041 (29%)
	B (Major hospital)	15870 (33%)
	C (District group)	12333 (26%)

	D (Community acute)	3247 (6.8%)
	F (Multipurpose, sub-acute and other ungrouped services)	2271 (4.8%)
	Missing	1959
Follow Up delivery	Followed up within 48 hours	6230 (49%)
	Followed up outside 48 hours	2239 (18%)
	Not followed up	4314 (34%)
	Missing	36938

AIM 1: THE PROPORTION OF ELIGIBLE PATIENTS THAT WERE FOLLOWED-UP

Overall, of the 49,721 eligible separations, 8,469 patients (17.0%; 95% CI = 16.7, 17.4) were followed up. Of the 12,629 eligible separations identified by LHD staff in real time (LHD Eligible Dataset), 8,280 patients (65.6%; 95% CI = 64.7, 66.4) were followed up.[3]

Summaries by LHD, year and enhancement period

Summaries of the proportion of eligible separations followed up by LHD, year and funding period (pre- and post-enhancement funding) are given in Table 7.

Variation in follow up by LHD: Rates of follow up varied significantly by LHD. In one LHD, eligible patients were 2.43 (95% CI = 2.22, 2.66) times more likely to be followed up compared

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[3] Since the LHD dataset was cleaned independently of the APDC+LHD dataset, there are discrepancies in the number followed up (i.e. there are more followed up in the APDC+LHD than LHD). A number of the original LHD dataset observations that were recorded as followed up were excluded from the APDC + LHD dataset due to missing admission /separation dates or duplicated record. That is, when merged with the APDC dataset, these records were no longer considered eligible.

to the rate of follow up among all eligible patients in NSW. Conversely, in another LHD, eligible patients had a one in five (OR = 0.17; 95% CI = 0.12, 0.24) chance of being followed up compared to the rate of follow up among all eligible patients in NSW.

Secular trends in rates of follow up: The odds of follow up increased significantly by year ($p < 0.0001$), with 2014 having odds 12.03 (95% CI = 9.52, 15.21) times higher than 2009.

Impact of enhancement funding period on rates of follow up: There was a statistically significant decrease ($p < 0.0001$) in the odds of follow up post-enhancement funding after adjusting for the yearly trend (OR = 0.68; 95% CI = 0.57, 0.80).

Table 7: Proportion of eligible patients who received 48 Hour Follow Up, by LHD, enhancement period and year

Odds ratios are from the logistic regression GEE model and are adjusted for all variables given in the table. Effect coding is used for LHD and referent coding for all other variables.

		Eligible patients N = 49721			
		N (%)			
Variable	**Category**	**Not followed up (n=41252)**	**Followed up (n=8469)**	**OR (95% CI)**	**P-value**
LHD	NSW LHD average			ref	<.0001
	LHD 1	3385 (82%)	752 (18%)	1.55 (1.38,1.73)	
	LHD 2	1436 (81%)	342 (19%)	1.76 (1.52,2.05)	
	LHD 3	559 (93%)	44 (7.3%)	0.47 (0.34,0.65)	
	LHD 4	654 (91%)	66 (9.2%)	0.63 (0.48,0.84)	
	LHD 5	2662 (82%)	590 (18%)	1.37 (1.20,1.56)	
	LHD 6	2806 (90%)	299 (9.6%)	0.76 (0.65,0.88)	
	LHD 7	3232 (83%)	672 (17%)	1.51 (1.34,1.71)	
	LHD 8	1573 (74%)	545 (26%)	2.16 (1.88,2.48)	

		Eligible patients N = 49721			
		N (%)			
Variable	**Category**	**Not followed up (n=41252)**	**Followed up (n=8469)**	**OR (95% CI)**	**P-value**
	LHD 9	1268 (88%)	180 (12%)	1.14 (0.93,1.39)	
	LHD 10	2395 (93%)	188 (7.3%)	0.51 (0.43,0.61)	
	LHD 11	1371 (97%)	38 (2.7%)	0.17 (0.12,0.24)	
	LHD 12	8789 (74%)	3033 (26%)	2.43 (2.22,2.66)	
	LHD 13	1560 (92%)	144 (8.5%)	0.70 (0.58,0.84)	
	LHD 14	2386 (86%)	382 (14%)	1.13 (0.98,1.30)	
	LHD 15	7159 (86%)	1187 (14%)	1.08 (0.97,1.19)	
	Other	17 (71%)	7 (29%)	1.80 (0.78,4.19)	
Period	After enhancement funding	14957 (78%)	4241 (22%)	0.68 (0.57,0.80)	<.0001
	Prior to enhancement funding	26295 (86%)	4228 (14%)	ref	
Year	2009	6784 (98%)	155 (2.2%)	ref	<.0001
	2010	6268 (90%)	692 (9.9%)	4.12 (3.54,4.80)	
	2011	6259 (81%)	1446 (19%)	8.11 (6.94,9.48)	
	2012	7732 (79%)	2077 (21%)	9.93 (8.50,11.61)	
	2013	9222 (75%)	3016 (25%)	16.70 (13.31,20.95)	
	2014	4987 (82%)	1083 (18%)	12.03 (9.52,15.21)	

Summaries by the four models of care

<u>Variation by model of care</u>: Descriptive statistics and estimated odds ratios for the four models of care are given in Table 8. After adjusting for period and year effects, we found significant variation in rates of follow up between the models of care ($p < 0.0001$): the integrated and localised models of care had lower odds of follow up than centralised care (OR = 0.82; 95% CI = 0.76, 0.89 and OR = 0.7; 95% CI = 0.65, 0.74, respectively) (Table 8).

Table 8: Proportion of eligible patients who received 48 Hour Follow Up by model of care

Odds ratios are from the logistic regression GEE model and are adjusted for period and year.

		Eligible patients N = 49721			
		N (%)			
Variable	**Category**	**Not followed up (N = 41, 252)**	**Followed up (N = 8,469)**	**OR (95% CI)**	**P-value**
Model of care	Centralised (five LHDs)	16377 (80%)	3983 (20%)	ref	<.0001
	Integrated (three LHDs)	6701 (83%)	1408 (17%)	0.82 (0.76,0.89)	
	Localised (six LHDs)	17598 (85%)	3027 (15%)	0.70 (0.65,0.74)	
	Other	17 (71%)	7 (29%)	1.09 (0.44,2.68)	
	Mixed LHD (one LHD)	559 (93%)	44 (7.3%)	0.28 (0.20,0.40)	

AIM 2: FACTORS ASSOCIATED WITH RECEIVING 48 HOUR FOLLOW UP

There are two steps in the follow up process. First, an eligible patient must be identified as such by LHDs; and second, follow up must be provided. We explored the characteristics of patients who are most likely to be missed at each of these steps.

Characteristics of patients who met the central eligibility criteria and who were identified as eligible for Follow Up by LHD staff versus those who were not identified by LHD staff

For patients who met the central eligibility criteria, we investigated characteristics that were associated with being identified by LHD staff as eligible for follow up (versus not being identified by LHD staff). This allows investigation of the characteristics of eligible patients who are most likely to be missed by current LHD identification processes. The results for these analyses are given in Table 9 (by LHD, impact of enhancement funding and year), Table 10 (by model of care) and Table 11 (by patient characteristics). The results are summarised below:

- ***LHD:*** We observed variation in the likelihood of being identified by LHD staff depending on the LHD ($p < 0.0001$), with the odds of identification in one LHD being 3.58 (95% CI = 2.91, 4.41) times higher than the odds for all LHDs combined (See Table 9).
- ***Period of enhancement funding:*** After adjusting for the yearly trend, odds of being identified as eligible decreased by ~25% (OR = 0.74; 95% CI = 0.64, 0.85), following the provision of enhancement funding ($p < 0.0001$) (See Table 9).
- ***Year****:* Relative to 2009 the odds of being identified as eligible increased each year of the study period ($p < 0.0001$). In 2010 the odds were 2.9 times higher (95% CI = 2.58, 3.22); in 2011 the odds were 4.8 times higher (95% CI = 4.25, 5.43); in 2012 the odds were 5.6 times higher (95% CI = 4.97, 6.37); in 2013 the odds were 9.5 times higher (95% CI = 7.86, 11.43); and in 2014 the odds were 5.8 times higher (95% CI = 4.81, 7.07) (See Table 9).
- ***Model of care:*** The model of care made a significant difference to the odds of being identified as eligible ($p < 0.0001$). Under integrated care the odds of being identified as eligible were 1.9 times higher than centralised care (95% CI = 1.01, 1.18). Localised and mixed care both had lower odds of identifying eligible patients compared to centralised care. Relative to centralised care, mixed care had the lowest odds, that is 0.49 times (95% CI = 0.38, 0.62) (See Table 10).
- ***Marital status:*** Marital status had a significant association with being identified as eligible ($p = 0.0063$). Individuals who identified as being single had higher odds (OR =

1.11; 95% CI = 1.03, 1.20) of being identified as eligible compared to those who were married/de facto (See Table 11).

- ***IRSD:*** Those in a higher quintile index of social disadvantage (i.e. more disadvantaged) had higher odds of being identified as eligible compared to the 1st quintile (i.e. the least disadvantaged) ($p < 0.0001$), with the 3rd quintile having the highest odds of being eligible (OR = 1.91; 95% CI = 1.73, 2.12) (See Table 11).
- ***Charlson Comorbidity Index:*** Those with a higher Charlson Comorbidity Index had 30% lower odds of being identified as eligible (OR = 0.7, 95% CI = 0.68, 0.72, $p < 0.0001$).
- ***Age:*** There was a statistically significant age effect (OR = 0.995; 95% CI = 0.99, 1.00, p = 0.0006), but this effect was small (0.05% reduction in the odds of Follow Up for each additional year or 2.5% for each additional 5 years) (See Table 11).
- ***Length of stay:*** Patients with lengths of stay longer than 1 day had 16% (95% CI = 11%, 22%) increased odds of being identified as eligible compared to patients with lengths of stay of 1 day or less ($p < 0.0001$).
- ***Number of additional diagnoses:*** Patients with 2 or more diagnoses had 20% (95% CI = 15%, 25%) lower odds of being identified as eligible compared to patients with less than 2 diagnoses ($p < 0.0001$).

Table 9: The proportion of eligible patients identified as being eligible for Follow Up by LHD staff, by LHD, enhancement period and year

Odds ratios are from the logistic regression GEE model and are adjusted for all variables given in the table. Effect coding is used for LHD, and referent coding for all other variables.

		Eligible patients N = 49,721			
		N (%)			
Variable	**Category**	**Not identified as eligible by LHD staff (n=36938)**	**Identified as eligible by LHD staff (n=12783)**	**OR (95% CI)**	**P-value**
LHD	NSW LHD average			ref	<.0001
	LHD 1	3183 (77%)	954 (23%)	1.12 (1.02,1.24)	
	LHD 2	1351 (76%)	427 (24%)	1.24 (1.09,1.41)	
	LHD 3	486 (81%)	117 (19%)	0.73 (0.58,0.93)	
	LHD 4	413 (57%)	307 (43%)	3.58 (2.91,4.41)	
	LHD 5	2045 (63%)	1207 (37%)	2.00 (1.79,2.24)	
	LHD 6	2688 (87%)	417 (13%)	0.65 (0.58,0.74)	
	LHD 7	3052 (78%)	852 (22%)	1.13 (1.02,1.25)	
	LHD 8	1205 (57%)	913 (43%)	2.81 (2.47,3.20)	
	LHD 9	1248 (86%)	200 (14%)	0.68 (0.57,0.82)	
	LHD 10	2291 (89%)	292 (11%)	0.39 (0.33,0.47)	
	LHD 11	1342 (95%)	67 (4.8%)	0.18 (0.14,0.25)	
	LHD 12	7236 (61%)	4586 (39%)	2.50 (2.35,2.66)	
	LHD 13	1473 (86%)	231 (14%)	0.69 (0.60,0.81)	

		Eligible patients N = 49,721			
		N (%)			
Variable	**Category**	**Not identified as eligible by LHD staff (n=36938)**	**Identified as eligible by LHD staff (n=12783)**	**OR (95% CI)**	**P-value**
	LHD 14	2275 (82%)	493 (18%)	0.86 (0.76,0.97)	
	LHD 15	6650 (80%)	1696 (20%)	0.91 (0.84,0.98)	
	Other		24 (100%)	Not included due to zero counts	
Period	Enhancement funding	12964 (68%)	6234 (32%)	0.74 (0.64,0.85)	<.0001
	Prior to enhancement funding	23974 (79%)	6549 (21%)	ref	
Year	2009	6515 (94%)	424 (6.1%)	ref	<.0001
	2010	5700 (82%)	1260 (18%)	2.88 (2.58,3.22)	
	2011	5559 (72%)	2146 (28%)	4.80 (4.25,5.43)	
	2012	6872 (70%)	2937 (30%)	5.63 (4.97,6.37)	
	2013	7800 (64%)	4438 (36%)	9.48 (7.86,11.43)	
	2014	4492 (74%)	1578 (26%)	5.83 (4.81,7.07)	

Table 10: The proportion of eligible patients identified as being eligible for Follow Up by model of care

Odds ratios are from the logistic regression GEE model and are adjusted for period and year.

		Eligible patients (N=49721)			
		N (%)			
Variable	Category	Not identified as eligible by LHD staff (n=36938)	Identified as eligible by LHD staff (n=12783)	OR (95% CI)	P-value
Model of care	Centralised (five LHDs)	14495 (71%)	5865 (29%)	ref	<.0001
	Integrated (three LHDs)	5641 (70%)	2468 (30%)	1.09 (1.01,1.18)	
	Localised (six LHDs)	16316 (79%)	4309 (21%)	0.65 (0.62,0.69)	
	Mixed LHD (one LHD)	486 (81%)	117 (19%)	0.49 (0.38,0.62)	
	Other		24 (100%)	Not included due to zero counts	

Table 11: Factors associated with being identified as eligible for Follow Up by LHD staff, adjusting for model of care and year

Odds ratios are from the logistic regression GEE model and are adjusted for all variables given in the table together with model of care and year. Note that reported frequencies are calculated from the available data from all the eligible patients (N=49721), the odds ratio estimates from the sample are restricted to those with complete patient characteristic data (N=47803) and are adjusted for model of care.

		N (%)			
Variable	**Category**	**Not identified as eligible by LHD staff (n=36938)**	**Identified as eligible by LHD staff (n=12783)**	**OR (95% CI)**	**P-value**
Gender	Male	16889 (75%)	5694 (25%)	ref	0.4690
	Female	20049 (75%)	6861 (25%)	1.02 (0.96,1.09)	
Marital status	Married/de facto	14177 (77%)	4145 (23%)	ref	0.0063
	Single	12237 (75%)	4092 (25%)	1.11 (1.03,1.20)	
	Widowed	4838 (80%)	1224 (20%)	1.08 (0.96,1.21)	
	Divorced/separated	5235 (78%)	1451 (22%)	1.03 (0.94,1.14)	
	Not known	420 (88%)	58 (12%)	0.71 (0.52,0.96)	
IRSD quintile	1st quintile - least disadvantaged	6695 (82%)	1490 (18%)	ref	<.0001
	2nd quintile	7060 (76%)	2213 (24%)	1.53 (1.38,1.69)	

		N (%)			
Variable	**Category**	**Not identified as eligible by LHD staff (n=36938)**	**Identified as eligible by LHD staff (n=12783)**	**OR (95% CI)**	**P-value**
	3rd quintile	7803 (72%)	3045 (28%)	1.91 (1.73,2.12)	
	4th quintile	7420 (79%)	1953 (21%)	1.27 (1.15,1.41)	
	5th quintile - most disadvantaged	7960 (78%)	2195 (22%)	1.61 (1.44,1.78)	
Participation in CDMP	Did not participate	35996 (74%)	12370 (26%)	ref	0.4337
	Participated	942 (70%)	413 (30%)	1.08 (0.88,1.33)	
Participation in Healthways component	Did not participate	36920 (74%)	12766 (26%)	ref	0.0885
	Participated	18 (51%)	17 (49%)	2.17 (0.89,5.30)	
Length of stay	1 day or less	14153 (77%)	4228 (23%)	ref	<.0001
	More than 1 day	22785 (77%)	6742 (23%)	1.16 (1.11,1.22)	
No of previous admissions	None	13245 (71%)	5414 (29%)	ref	0.2133
	1 or more	23693 (76%)	7369 (24%)	0.97 (0.92,1.02)	

		N (%)			
Variable	**Category**	**Not identified as eligible by LHD staff (n=36938)**	**Identified as eligible by LHD staff (n=12783)**	**OR (95% CI)**	**P-value**
No of additional diagnoses	Less than 2	9199 (63%)	5445 (37%)	ref	<.0001
	2 or more	27739 (79%)	7338 (21%)	0.80 (0.75,0.85)	
Age	mean (SD)	55 (16)	52 (19)	1.00 (0.99,1.00)	0.0006
Charlson Comorbidity Index	mean (SD)	2 (1)	1 (1)	0.70 (0.68,0.72)	<.0001

Characteristics of patients who received 48 Hour Follow Up versus those who did not receive 48 Hour Follow Up

We extended the models from Aim 1 (which investigated variation in follow up by LHD, enhancement period, year and model of care) to investigate the association between patient characteristics and receiving 48 Hour Follow Up (See Table 12).

A total of 8469 patients received 48 Hour Follow Up care between 2009 and 2014. The following factors were significantly ($p < 0.0001$) associated with receiving 48 Hour Follow Up (See Table 12):

- ***Index of social disadvantage*****:** Relative to the least socially disadvantaged quintile (1st quintile), all increasing quintiles of social disadvantage had higher odds of follow up (2nd quintile OR = 1.44; 95% CI = 1.30, 1.60; 3rd quintile OR = 1.37; 95% CI = 1.24, 1.52; 4th quintile OR = 1.09; 95% CI = 0.98, 1.21; 5th quintile OR = 1.38; 95% CI = 1.24, 1.54).
- ***Length of stay:*** Stays of longer than 1 day had higher odds of being followed up compared to stays of 1 day or less (OR = 1.28; 95% CI = 1.21, 1.35).
- ***Number of additional diagnoses*****:** Patients with 2 or more diagnoses had lower odds of being followed up compared to eligible patients with less than 2 diagnoses (OR = 0.80; 95% CI = 0.75, 0.86).
- ***Charlson Comorbidity Index (CCI):*** Increasing CCI had lower odds of follow up (OR = 0.72; 95% CI = 0.70, 0.75).

Table 12: Factors associated with receiving 48 Hour Follow Up, adjusting for model of care and year

Odds ratios are from the logistic regression GEE model and are adjusted for all variables given in the table together with model of care and year. *Note that reported frequencies are calculated from the available data from all the eligible patients (N=49721), the odds ratio estimates from the sample are restricted to those with complete patient characteristic data (N=47803).*

		N (%)			
Variable	**Category**	**Not followed up (n=41252)**	**Followed up (n=8469)**	**OR (95% CI)**	**P-value**
Gender	Male	18765 (83%)	3818 (17%)	ref	0.9040
	Female	22319 (83%)	4591 (17%)	1.00 (0.94,1.07)	
Marital status	Married/de facto	15448 (84%)	2874 (16%)	ref	0.1269
	Single	13710 (84%)	2619 (16%)	1.01 (0.93,1.09)	
	Widowed	5185 (86%)	877 (14%)	1.04 (0.92,1.17)	
	Divorced/separated	5672 (85%)	1014 (15%)	1.03 (0.93,1.14)	
	Not known	441 (92%)	37 (7.7%)	0.63 (0.44,0.90)	
IRSD quintile	1st quintile - least disadvantaged	7098 (87%)	1087 (13%)	ref	<.0001
	2nd quintile	7631 (82%)	1642 (18%)	1.44 (1.30,1.60)	
	3rd quintile	9039 (83%)	1809 (17%)	1.37 (1.24,1.52)	
	4th quintile	8016 (86%)	1357 (14%)	1.09 (0.98,1.21)	
	5th quintile - most disadvantaged	8671 (85%)	1484 (15%)	1.38 (1.24,1.54)	
Participation in CDMP	Did not participate	40206 (83%)	8160 (17%)	ref	0.1445
	Participated	1046 (77%)	309 (23%)	1.16 (0.95,1.40)	

		N (%)			
Variable	**Category**	**Not followed up (n=41252)**	**Followed up (n=8469)**	**OR (95% CI)**	**P-value**
Participation in the Healthways component	Did not participate	41230 (83%)	8456 (17%)	ref	0.1270
	Participated	22 (63%)	13 (37%)	1.91 (0.83,4.41)	
Length of stay	1 day or less	15652 (85%)	2729 (15%)	ref	<.0001
	More than 1 day	24835 (84%)	4692 (16%)	1.28 (1.21,1.35)	
No of previous admissions	None	15269 (82%)	3390 (18%)	ref	0.3259
	1 or more	25983 (84%)	5079 (16%)	0.97 (0.92,1.03)	
No of additional diagnoses	Less than 2	11118 (76%)	3526 (24%)	ref	<.0001
	2 or more	30134 (86%)	4943 (14%)	0.80 (0.75,0.86)	
Age	mean (SD)	55 (16)	53 (18)	1.00 (1.00,1.00)	0.9970
Charlson Comorbidity Index	mean (SD)	2 (1)	1 (2)	0.72 (0.70,0.75)	<.0001

AIM 3: IMPACT OF RECEIVING 48 HOUR FOLLOW UP

There were reductions across all measures of adverse events for those who received Follow Up (See Table 13). However, not all reductions were statistically significant. These are explained in detail below, and the results from confounder-adjusted regression models are given in Table 14. The impact on these outcomes was broadly similar when patients who were followed up outside 48 hours were considered to have not been followed up (data not shown).

Table 13: Summary of the number of hospital admissions that resulted in an adverse event by whether or not the patient received 48 Hour Follow Up

Variable	N	Not followed up	Followed up within or outside 48 hours
Unplanned readmission within 28 days	No~(n=46147)	38133 (92%)	8014 (95%)
	Yes~(n=3574)	3119 (7.6%)	455 (5.4%)
28 day mortality	No ~(n=49186)	40792 (99%)	8394 (99%)
	Yes~(n=535)	460 (1%)	75 (0.9%)
Unplanned presentation to ED within 28 days	No ~(n=38441)	31717 (77%)	6724 (79%)
	Yes~(n=11280)	9535 (23%)	1745 (21%)
At least 1 adverse event	No ~(n=37775)	31116 (75%)	6659 (79%)
	Yes~(n=11946)	10136 (25%)	1810 (21%)

<u>Unplanned hospital readmission within 28 days of discharge:</u> There were 3,574 records (7.2%, 95% CI = 7.0, 7.4) determined to be unplanned readmissions within 28 days. Multiple readmissions for the same index admission were not counted. There were 455 (5.4%) unplanned hospital readmissions among patients who received follow up, and 3119 (7.6%) unplanned readmissions among patients who did not receive follow up (See Table 13). After adjusting for potential confounding factors, the odds of 28-day unplanned readmission for those who received follow up was decreased by a factor of 0.84 (95% CI = 0.66, 1.06) compared

to those that did not receive follow up, but this was not statistically significant (p = 0.1352) (See Table 14).

<u>Unplanned ED presentation within 28 days of discharge:</u> There were 11,280 (22.7%, 95% CI = 22.3 – 23.0) records with unplanned presentation to ED within 28 days (See Table 13). Multiple presentations for the same index admission were not counted. There were 1,745 (21%) recorded 28-day unplanned ED presentations for those who received follow up *within or outside* 48 hours, and 9,535 (23%) for those who did not receive follow up. After adjusting for potential confounding variables, the odds of 28-day unplanned ED presentation for those who received follow up was decreased by a factor of 0.92 (95% CI = 0.85, 0.99) compared to those who did not receive follow up (See Table 14). This finding was statistically significant (p = 0.0312).

<u>Death within 28 days:</u> There were 535 (1.1%; 95% CI = 0.98, 1.2) records that had recorded deaths in the Registry of Births, Deaths and Marriages (RDBM) within 28 days of discharge. There were 75 (0.9%) recorded deaths for those who received follow up and 460 (1%) for those who did not receive follow up (See Table 13). After adjusting for potentially confounding variables, the odds of death within 28 days for those who received follow up decreased by a factor of 0.91 (95% CI = 0.69, 1.19) compared to those who did not receive follow up, but this was not statistically significant (p = 0.4760) (See Table 14).

<u>At least one adverse event:</u> There were 11,946 (24%; 95% CI = 23.6, 24.4) records with at least one adverse event. Of those who received follow up there were 1,810 (21%) recorded adverse events, and 10,136 (25%) for those who did not receive follow up (See Table 13). After adjusting for potentially confounding variables, the odds of an adverse event for those that received follow up was decreased by a factor of 0.91 (95% CI = 0.85, 0.98) compared to those who did not receive follow up (See Table 14). This finding was statistically significant (p = 0.0136).

Table 14: Characteristics of those who experienced an adverse event: Final adjusted model using variables associated with both Follow Up and the adverse event (n=49,721)

Odds ratios are from the logistic regression GEE model and are adjusted for all variables given in the table.

		Unplanned readmission within 28 days		28 day mortality		Unplanned presentation to ED within 28 days		At least 1 adverse event	
Variable	**Category**	**OR (95% CI)**	**P-value**	**OR (95% CI)**	**P-value**	**OR (95% CI)**	**P-value**	**OR (95% CI)**	**P-value**
Follow up	Not followed up	ref	0.1352	ref	0.4760	ref	0.0312	ref	0.0136
	Followed up within or outside 48 hours	0.84 (0.66,1.06)		0.91 (0.69,1.19)		0.92 (0.85,0.99)		0.91 (0.85,0.98)	
Care type	Centralised (five LHDs)					ref	<.0001	ref	<.0001
	Integrated (three LHDs)					1.00 (0.91,1.10)		1.02 (0.93,1.11)	
	Localised (six LHDs)					0.77 (0.72,0.83)		0.81 (0.76,0.87)	
	Mixed LHD (one LHD)					1.01 (0.76,1.33)		0.94 (0.72,1.24)	
Year	2009			ref	0.0003	ref	<.0001	ref	<.0001
	2010			1.19 (0.81,1.73)		1.10 (0.99,1.23)		1.06 (0.95,1.18)	
	2011			1.40 (0.96,2.05)		1.24 (1.11,1.38)		1.20 (1.08,1.33)	
	2012			1.50 (1.06,2.12)		1.29 (1.15,1.43)		1.22 (1.10,1.35)	
	2013			1.50		1.32 (1.19,1.46)		1.24 (1.12,1.37)	

		Unplanned readmission within 28 days		28 day mortality		Unplanned presentation to ED within 28 days		At least 1 adverse event	
Variable	**Category**	**OR (95% CI)**	**P-value**	**OR (95% CI)**	**P-value**	**OR (95% CI)**	**P-value**	**OR (95% CI)**	**P-value**
				(1.08,2.08)					
	2014			0.75 (0.50,1.12)		1.21 (1.07,1.36)		1.12 (1.00,1.26)	
IRSD quintile	1st quintile - least disadvantaged		.		.	ref	<.0001	ref	0.0005
	2nd quintile					0.91 (0.82,1.00)		0.92 (0.83,1.01)	
	3rd quintile					0.99 (0.89,1.09)		0.99 (0.91,1.09)	
	4th quintile					0.82 (0.74,0.90)		0.85 (0.77,0.94)	
	5th quintile - most disadvantaged					0.80 (0.72,0.89)		0.85 (0.77,0.94)	
Length of stay	1 day or less		.	ref	<.0001	ref	0.0007	ref	<.0001
	More than 1 day			1.93 (1.53,2.42)		1.11 (1.04,1.17)		1.13 (1.06,1.19)	
No of additional diagnoses	Less than 2	ref	0.2646	ref	0.1804	ref	0.0187	ref	0.0870
	2 or more	1.13 (0.91,1.40)		1.24 0.91,1.68)		1.09 (1.01,1.17)		1.06 (0.99,1.14)	
Charlson Comorbidity Index	Mean (SD)	1.11 (1.06,1.17)	<.0001	1.46 (1.40,1.53)	<.0001	1.08 (1.06,1.11)	<.0001	1.10 (1.08,1.13)	<.0001

KEY IMPLICATIONS

LIMITATIONS OF THE EVALUATION

The following recommendations should be considered in light of several limitations. These include the following issues.

Component A

- No studies of the effectiveness of telephone follow up for Aboriginal people were found as part of the literature review. Given what is known about the influence of a wide range of economic, cultural and social factors on the health of Aboriginal people, the generalisability of evidence from non-Aboriginal populations may therefore be limited, and these findings should be interpreted with appropriate caution.

Component B

- The implementation review was limited in scope, as it assessed only the perspectives of program implementation staff. The perspectives of other stakeholders, including patients, community health staff, and Aboriginal Community Controlled Health Services, were not sought. Interviewing additional stakeholders may have provided further insight into factors influencing implementation of 48 Hour Follow Up and the acceptability of the approach.

Component C

- The evaluation of reach and impact did not consider health outcomes other than mortality. Thus, while the evaluation provides data about achievement of the short and medium term goals of the 48 Hour Follow Up Program (i.e. follow up of patients and reduction in readmissions), it does not provide data about achievement of the longer term goal of improving health outcomes for Aboriginal people with chronic disease.
- As the evaluation did not use a randomised design, it is possible that findings are influenced by confounding factors that were not able to be measured using routinely collected data.

- It is likely that the data provided by LHDs do not capture the true extent of implementation of follow up. While LHDs were requested to provide patient lists for the purposes of this evaluation, these lists possibly did not cover all patients who received 48 hour follow up, as LHDs were not required to keep name-identified lists of 48 Hour Follow Up patients. The reporting only required them to report numbers of patients followed up, not patients' names. This was also reflected in Component B, where interviewees commented about difficulties in maintaining accurate records. This means that the reach of follow up is probably underestimated, and the impact might be underestimated due to contamination (i.e. people who received follow up but whose names were not recorded may have been allocated to the "comparison" group). Also, as record keeping practices probably differ in each LHD, this issue may affect some LHDs more than others.
- While there was no evidence of an effect of the 48 Hour Follow Up program on the primary outcome (unplanned readmissions) at the 5% significance level we did find suggestive evidence of an effect on the secondary outcomes. Due to the exploratory nature of these variables they must be treated with a degree of caution since there is an elevated risk of declaring spuriously positive associations. Nevertheless, the results are encouraging since the direction and magnitude of the effects are similar across all four outcomes.
- There is the possibility that a strong confounding variable (socioeconomic status) was measured with error (IRSD was used as a proxy for socio-economic status, and this measure is based on postcode alone). There are components of socio-economic status (income, for example) that are not completely adjusted for through IRSD alone. These factors may influence whether a person received follow-up, and also their health outcomes, and could therefore potentially bias results (residual confounding).

KEY IMPLICATIONS

Drawing on the findings of the three components on the evaluation, the following implications has been identified to inform the implementation and monitoring of the 48 Hour Follow Up Program.

COORDINATION AND INTEGRATION OF CARE

1. The 48 Hour Follow Up Program should form part of a coordinated approach to chronic disease management in NSW.

In some LHDs, 48 Hour Follow Up is one of a number of programs that are implemented to improve the management of chronic disease among Aboriginal patients. There is a need to ensure that delivery of 48 Hour Follow Up forms part of a coordinated and integrated approach to the secondary and tertiary prevention of chronic conditions in NSW. Such an approach would strengthen the quality and continuity of care for Aboriginal patients and improve the efficiency of service provision.

CRITERIA AND PROCESSES FOR IDENTIFYING PATIENTS ELIGIBLE FOR FOLLOW UP

2. The criteria used for identifying patients as eligible for follow up would benefit from further review and refinement.

The LHDs are unable to apply current program eligibility criteria in real time to determine the eligibility of patients to receive 48 Hour Follow Up (Component B). This is because ICD-10 coding occurs 3-6 weeks after admission to hospital. Consequently, LHDs use different criteria and processes to identify eligible patients. This has resulted in substantial discrepancies among LHDs, and means that many eligible patients are “missed” in the process of identification (Component C). There is therefore a need to review and refine the program eligibility criteria to introduce uniformity across LHDs, while maintaining the flexibility to account for local contexts. Such a review should be conducted in collaboration with LHDs to ensure the revised criteria reflect the information available in patient information management systems, **are feasible to implement in real time**, and are locally relevant. Revisions to the eligibility criteria should focus on maximising the likelihood that those most at risk of readmission are identified for follow up.

3. The use of automated systems to identify eligible patients could be strengthened.

Most LHDs identify eligible patients via an automated search of medical records held in electronic patient information systems. However, manual processes are still used in some LHDs, and few LHDs have streamlined processes to identify eligible patients. Therefore, to increase the efficiency of follow up, there is a need to implement new or enhance existing automated systems for the real-time identification of eligible patients. This might involve modifying automated patient identification systems set up for other chronic disease management programs to include the 48 Hour Follow Up Program. The introduction of automated systems may increase the number of patients identified as eligible for follow up, and therefore may increase the number of eligible patients who receive follow up. Given that greater medical complexity is a risk factor for unplanned readmission, increasing the identification of patients with multiple chronic diseases should be a priority. Implementation of an automated system would have particular benefits at smaller sites that currently rely on Aboriginal Liaison Officers to undertake identification of eligible patients.

IMPROVING PROCESSES OF FOLLOW UP

4. Standardised call scripts that incorporate evidence-based components should be developed and implemented.

Most LHDs do not currently utilise call scripts, and there is no quality control over the content delivered during follow up telephone calls (Component B). Thus, although it is known whether a telephone call occurred, it is unclear whether key areas of content were covered within the call. Given the variability in processes used to conduct follow up calls by LHDs, consideration should be given to the development and use of call scripts to facilitate the rapid assessment of patient status, and increase the likelihood that all relevant needs of patients are identified and addressed.

Given the lack of clear and specific evidence related to the effectiveness of telephone follow up for people with chronic disease, such evidence could be drawn from the broader literature on evidence-based strategies to improve self-management and adherence to medical care. Telephone follow up provided as part of effective interventions has tended to incorporate the following factors (Component A): education about disease; assessment of the patient's understanding of the medication prescribed; promotion of medication adherence, treatment adherence and self-management; assistance with scheduling follow up visits; and the assessment and provision of advice about new or ongoing clinical issues. There is evidence from one study that telephone follow up had differential effectiveness by chronic disease type (Component A). The potential benefit of tailoring some parts of call scripts to specific chronic diseases should therefore be considered. There is a need to ensure that call scripts support patients' participation in community-based support and rehabilitation programs and services (if clinically appropriate), such as the NSW Government Get Healthy Service.

5. Standardised staff training should be developed and implemented.

Standardised competency-based staff training should be implemented to support staff in developing appropriate skills to conduct follow up according to defined protocols, and to encourage program fidelity. Training in the core components of follow up could be delivered through online training modules to provide cost efficiencies and ensure that training is available to new staff. This could be supplemented by annual training and refresher workshops to provide ongoing skill development. However, given differences in the models of care implemented by LHDs (Component B), standardised training would need to be supplemented by LHD-specific training. There may be some value in supporting LHDs with common models of follow up to share training materials and agree on how core components of each model should be implemented. This will enable future evaluation to provide a clearer indication of model characteristics that may improve outcomes. To increase its effectiveness, the developed training program should: (i) have clear learning objectives(6); (ii) incorporate problem-based learning principles to increase engagement and sharing of personal experiences(6) (this may include the incorporation of role-plays to provide an opportunity for individuals to practise skills and receive feedback on performance); and (iii) include training in evidence-based communication skills, covering content such as strategies to improve patients' recall and comprehension of information.

6. The optimal mix of clinical and non-clinical staff, and Aboriginal-identified and non-identified positions, in conducting follow up should be considered by each LHD.

No studies identified as part of the literature review examined the effectiveness of non-clinical staff in conducting follow up (Component A). Instead, several studies reported value in having clinical staff who were able to address specific clinical issues, including medication, symptoms, and disease progression, as part of telephone follow up (Component A). The implementation review also identified the benefits of having clinical staff provide follow up, and the importance of Aboriginal staffing to ensuring cultural safety (Component B). An ideal model would see follow up being delivered by an Aboriginal person with clinical expertise. However, in light of workforce shortages (Component B), the optimal mix of clinical and non-clinical and Aboriginal-identified and non-identified positions working together to deliver follow up should be considered by each LHD, taking into account workforce availability. Strategies to attract and retain Aboriginal staff should be considered. Given the lack of suitably qualified staff, as noted by many LHDs, such strategies could include traineeships to build capacity of this workforce. Consideration should be given to backfilling positions to ensure consistent follow up of eligible patients.

7. Consider the implementation of a stepwise care approach for patients with more complex needs.

Ensuring that patients with comorbidities and/or complex health care needs receive enhanced support is common practice in the management of chronic disease in NSW. However, no evidence was found as part of the literature review to suggest that interventions providing a greater number of follow up telephone calls are more effective than those providing fewer (Component A). The provision of an additional follow up call at a time period 1 week to 3 months post-discharge was highlighted as a potential improvement to the 48 Hour Follow Up Program by staff (Component B). The utility of a stepwise approach to care, where individuals with complex needs receive additional telephone calls and/or are prioritised for referral for additional support (e.g. other chronic disease management programs) should be considered, especially considering individuals with a higher Charlson Comorbidity Index and multiple chronic diseases are at greatest risk of experiencing adverse events, and yet had the lowest rates of follow up (Component C). The implementation of such an approach should be rigorously evaluated to determine if a stepwise approach to care improves patient outcomes.

PERFORMANCE MONITORING, KEY PERFORMANCE INDICATORS AND QUALITY IMPROVEMENT PROCESSES

8. Systems to monitor the implementation of call scripts and overall adherence to follow up protocols should be developed and adopted.

Once standardised call scripts have been developed and implemented, LHDs should be encouraged to develop systems for the ongoing assessment of call quality, and fidelity to call scripts. This should form part of a coordinated approach to continuous quality improvement. This could involve monitoring a random selection of follow up telephone calls made by each staff member at least twice per year to enable evaluation against best-practice protocols. If specific areas of improvement are identified as part of this quality monitoring process, staff should be offered additional training targeted to these areas.

9. Setting benchmarks for, and providing feedback to, services implementing the 48 Hour Follow Up Program could be used to increase program reach.

Feedback about the performance of each LHD against KPIs was reported to be intermittent (Component B). As there is evidence that performance feedback leads to modest but important improvements in professional practice(7), a formal process for providing monthly or quarterly feedback and benchmarking data on rates of follow up to services implementing 48 Hour Follow Up should be implemented. Feedback is most effective when baseline performance is low, the source of feedback is a supervisor or colleague, feedback is provided more than once in both verbal and written formats, and when it includes both explicit targets and an action plan(7). Feedback should therefore include performance against agreed targets, changes in rates of follow up since the last reporting period, and performance compared to other services implementing the program that either: (i) are of a similar size; or (ii) use a similar model of follow up. Feedback should include explicit targets for future performance based on performance in the previous reporting period.

10. Communication and collaboration between LHDs should be encouraged and supported.

Consideration should be given to establishing a formal process to encourage communication and collaboration among LHDs. Such a process would facilitate the sharing of experiences, perceived success factors and program resources within and among LHDs.

FUNDING

11. Provision of central funding to LHDs could be used to implement specific strategies thought to be associated with increased rates of follow up, or improved program effectiveness.

The LHDs reported variability in use of enhancement funding (Component B). No significant differences in rates of follow up before and after provision of enhancement funding were identified (Component C). While recognising there is a need for flexibility in the way LHDs use program funding due to differences in models of implementation, there should be greater accountability about how funding is used. Provision of central funding should be used to implement strategies believed to improve the effectiveness and reach of follow up (discussed above in recommendations 1-10).

A BEST-PRACTICE MODEL OF FOLLOW UP

12. While local flexibility is needed, core components of follow up should include: (i) automated patient identification; (ii) a patient-centred approach to care delivery that includes comprehensive staff training and the use of evidence-based call scripts; and (iii) a quality monitoring and feedback system.

While the use of a centralised model resulted in higher rates of follow up compared to average, LHDs implementing similar models had varying rates of follow up. For example, LHDs implementing a centralised model had both the highest (26% of eligible patients) and the lowest (2.7% of eligible patients) rates of follow up. One LHD employed a localised model, but achieved the same rate of follow up (26%) as the highest LHD that used the centralised model. While these differences may in some cases reflect differences in timing of follow up in each LHD (and therefore the maturity of each follow up program), it is more likely that these differences reflect the multitude of interacting factors that influence follow up, rather than the overarching model used. Therefore, while the results of this evaluation do not provide clear evidence to promote one model over another, the following aspects of care are likely to be important to their effectiveness:

1. *Identification*. As ensuring appropriate identification of eligible patients is of paramount importance to the timely delivery of 48 Hour Follow Up, automated systems of identification are critical and should therefore be considered a core component of an effective model.
2. *A patient-centred and evidence-based approach to care delivery*. A patient-centred approach to care delivery that is responsive to individual patients' needs, values and preferences is associated with benefits in health behaviour, satisfaction, consultation processes, knowledge, patient-provider communication and health status (8, 9). The provision of comprehensive staff training and the use of evidence-based call scripts will help to facilitate the delivery of high-quality care and should therefore be considered a core component of an effective model.
3. *Feedback and monitoring.* Given evidence that performance feedback leads to modest but important improvements in professional practice(7), the provision of regular feedback to LHDs about performance against KPIs and other performance measures (e.g. call quality) should be considered a core component of an effective model.

13. Review and consider revising the requirement for follow up to be conducted within 48 hours.

The implementation review identified a number of challenges to conducting follow up within 48 hours (Component B). These challenges included incorrect details in medical records; phones disconnected, not answered or out of range; and the patient not being at the provided home address post-discharge (i.e. they may be in care of family while recuperating). Given there was no significant difference in the effectiveness of follow up when including those who received follow up outside the 48 hour timeframe (compared to only those who received follow up within 48 hours), the requirement for follow up to be completed within two working days requires further consideration.

14. Strengthen partnerships between hospital services delivering 48 Hour Follow Up and primary health services.

The LHDs are using four models to implement the 48 Hour Follow Up Program. Effective implementation of two of these models (the *Integrated Care / Shared Care model* and the *Mixed LHD / Aboriginal Community Controlled Health Service model*) requires strong collaborative partnerships between hospital services and primary health care services. Additionally, implementation staff in some LHDs felt that links with general practice were suboptimal. The LHDs should therefore explore opportunities to strengthen their relationships with the primary health care sector, especially Aboriginal Community Controlled Health Services and General Practitioner organisations.

REFERENCES

1. Centre for Epidemiology and Evidence. The health of Aboriginal people of NSW: Report of the Chief Health Office. Sydney: NSW Ministry of Health, 2012.
2. Centre for Aboriginal Health. Chronic Disease [Internet]. NSW Health; 2013 [cited 2015 September 9th]. Available from: http://www.health.nsw.gov.au/aboriginal/Pages/current-chronic-disease.aspx.
3. Australian Institute of Health and Welfare. The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples. Canberra: AIHW, 2015.
4. New South Wales Department of Health. Clinical Services Redesign Program: Chronic Care for Aboriginal People Model of Care. Sydney: New South Wales Government, 2010.
5. Ridoutt L, Pilbeam V. Final Report: Aboriginal Health Worker Profession Review. Human Capital Alliance and HK Training and Consultancy, 2010.
6. Bryan RL, Kreuter MW, Brownson RC. Integrating adult learning principles into training for public health practice. Health Promot Pract. 2009;10(4):557-63.
7. Ivers N, Jamtvedt G, Flottorp S, Young JM, Odgaard-Jensen J, French SD, et al. Audit and feedback: effects on professional practice and healthcare outcomes. Cochrane Database Syst Rev. 2012;6(6).
8. Stacey D, Légaré F, Col NF, Bennett CL, Barry MJ, Eden KB, et al. Decision aids for people facing health treatment or screening decisions. Cochrane Database Syst Rev. 2014;1(1).
9. Dwamena F, Holmes-Rovner M, Gaulden CM, Jorgenson S, Sadigh G, Sikorskii A, et al. Interventions for providers to promote a patient-centred approach in clinical consultations. Cochrane Database Syst Rev. 2012;12.