ACI NSW Agency for Clinical Innovation

Home Oxygen Discharge
A case study in innovation

Clinical Innovation Program

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Section 1

Introduction

This document outlines a case study, the Home Oxygen Discharge (HOD) program of Northern Sydney Local Health District (NSLHD), which was designed to improve access to, and use of, short-term oxygen therapy for patients discharged from hospitals within the district. Similar processes exist across the NSW health system, however, this document focuses solely on NSLHD.

The HOD program is effective due to its:

- well-designed, streamlined processes
- checkpoints to support patient care
- strong relationships across clinical team members, services and organisational boundaries.

The approach brings together clinicians, administrators and technicians across the Local Health District, BOC (gas suppliers) and EnableNSW to plan, coordinate and deliver short-term oxygen therapy for patients.

Together with the *ACI Implementation Guide*,[1] this case study can assist clinical leads and project teams improve the process of short-term oxygen therapy provision at a local site.

The challenge

Anecdotally, prescription and provision of home oxygen therapy is often a complex process. In NSLHD, clinicians reported that patients often experience delays in access to short-term oxygen therapy. Fifty per cent of the patients discharged had received their oxygen at home prior to, or at the time of, their arrival at home.[2] NSLHD staff raised concerns that delays in access to home oxygen were resulting in increased length of stay for many patients.

In the past, the process of planning, applying for and coordinating the delivery of short-term oxygen therapy for patients returning home has required navigating complex assessments and tracking systems. Roles and responsibilities of those involved were often not clear (Table 1). Patient satisfaction and experience of care were negatively affected by the patients' limited access to education and information about beginning home oxygen and the staff's varied understanding of the administrative tasks involved in arranging home oxygen prior to discharge. Redesign of the HOD program within NSLHD was required.

Table 1. Roles and responsibilities

Stakeholder	Responsibility
HOD program	Accepts and reviews home oxygen application, coordinates home oxygen booking and delivery (including coordination with patient), makes referrals to community services, supports funding application, follow up after discharge
Ward staff	Commences the application process with the patient, provides education, obtains test to support application, forwards application to HOD program
BOC	Supplies home oxygen equipment, confirms order and delivery date with HOD program, delivers to home, provides some education to patient on home oxygen use
EnableNSW	Reviews funding application, funds home oxygen for months two and three for short-term oxygen therapy, funds long-term oxygen therapy as appropriate
Patient	Participates in application process, education, follow-up
HealthShare	Bills and receives payments

The improvement

Redesign of the HOD process involved working together with local service partners to:

- clarify and streamline the **referral and application processes**
- identify a **central point of contact** within the LHD to facilitate the home oxygen processes
- clarify **roles and responsibilities** in home oxygen therapy referral, coordination and delivery
- develop resources to **inform and support staff**
- identify and put in place **checkpoints**, to ensure administrative tasks are completed and equipment is delivered as planned.

Table 2. HOD program objectives and key performance indicators

Objective	Key performance indicators (KPIs)
1. Within 6 months, patient safety and access to short-term oxygen therapy at home following discharge from NSLHD will be improved	• 95% of patients requiring short-term oxygen therapy at home will have access to information that is easily understood and answers their questions • 95% of patients will have their oxygen concentrator and accessories delivered prior to or at the time they arrive home
2. Within 6 months, patients and staff engaged in the short-term oxygen therapy processes will have access to information regarding all short-term oxygen therapy options and processes	• 95% of staff engaged in the short-term oxygen therapy processes have access to clearly articulated workflows, eligibility and application forms • 95% of short-term oxygen therapy delivery date confirmations are received by targeted service providers in an agreed timeframe and modality

Section 2

Making it happen

This section outlines aspects of the HOD program which have been central to ensuring timely access to home oxygen and a positive experience for patients. These elements can be adapted by other Health Districts which are targeting similar areas for improvement.

- **Relationships with partners**
- **Central point of contact**
- **Checkpoints**
- **Clear processes and accountabilities**
- **Building local engagement and capability**

Relationships with partners

Before implementing the HOD program, NSLHD reviewed existing practices, processes and outcomes of delivering home oxygen therapies. This review identified opportunities to work more closely with the local service partners who are delivering the program:

- The project team worked with the LHD, HealthShare, BOC and EnableNSW to understand the application, billing/payment and communication processes within and across service boundaries. This identified gaps and duplication of effort in the system and communication processes.
- The partners agreed on new processes and systems to improve timeliness of services and improve costs:
    - The home oxygen ordering process was separated from the EnableNSW funding application, so home oxygen could be ordered before patient eligibility for EnableNSW funding was known, improving timeliness of delivery.
    - The gas provider, BOC, agreed to introduce itemised, patient-level invoices, to increase the ease of payment (because the LHD could allocate individual patient invoices against ward cost-centres); enable tracking of short-term oxygen therapy payments by the LHD (and the transfer to EnableNSW funding); and, improve the timeliness of payment to BOC by HealthShare.

Central point of contact

For the NSLHD HOD program, a central point of contact was seen as essential for improving home oxygen therapy for patients, internal staff, suppliers and external service providers.

A central point of contact for home oxygen discharge was identified, namely, the NSLHD Health Contact Centre (HCC). Internal processes for referral, ordering and funding applications were designed around this centre.

This central point of contact:

- provides clinical staff across the LHD with consistent information, options for home oxygen therapies, key contacts, application processes and resources for patient education. The HOD program staff have a thorough understanding of the processes and systems for making referrals, funding applications and financial management processes for home oxygen
- provides a single point of contact for patients
- allows identification of any additional needs for patients, making referrals to services as required (for example, to support their use of oxygen at home)
- communicates directly with the gas supplier (BOC) on behalf of the patient and ward, completing administrative tasks, forwarding referrals, confirming orders, checking delivery and organising billing and payments
- allows for a number of checkpoints to be built into the system of care.

Checkpoints

Checkpoints are parts of the process or system that are specifically designed to check on progress, or to act as safeguards for previous steps. These checkpoints represent a key point of difference and are central to the success of the HOD program, which has a strong focus on the patients' outcomes and experiences of post-discharge care.

Checkpoints may occur at:

- the point of referral, when referrals are checked for completeness before being forwarded to BOC
- the receipt and forwarding of home oxygen booking confirmation
- the 48-hour follow-up, when patients are contacted to ensure the home oxygen has been delivered and that they understand its use.

EnableNSW funding application and communication processes are also checked by the HOD process, with patients returning applications to the HOD health contact centre for any final corrections or adjustments before the applications are submitted to EnableNSW. Finally, billing and invoice checks ensure the LHD is not paying any ongoing costs once EnableNSW funding for home oxygen is approved (see Appendix).

Clear processes and accountabilities

Inconsistent processes and a lack of clarity on requirements for referring, ordering and delivering home oxygen were limiting patients' timely access to home oxygen therapies. Following the review of current practices, NSLHD focused on process redesign to improve care.

Processes were clarified by:

- identifying the two different patient groups, respiratory patients and palliative patients, which allowed the development of two different pathways:
    - Respiratory – the pathway for respiratory patients is shown in Figure A
    - Palliative – the pathway for palliative patients is similar to the respiratory pathway, however, much less complex as it does not include funding applications. NSLHD funds the cost of home oxygen for palliative care patients, noting the positive impact this can have on palliative patients and their carers, and the potential for cost savings [a]
- confirming referral processes. Ward staff now make referrals to the HOD program, which acts as the conduit of information between the ward and the gas supplier, and local LHD practices have been redesigned to:
    - identify correct referral forms
    - include processes for referrals to be forwarded to the HOD program
    - agree timeframes (KPIs) for next-day oxygen delivery [b]
    - install feedback loops (for example, for receipt of referral and confirmation of order)
- developing processes for communication between and across practitioners, patients, services and organisations
- agreeing on accountabilities in the HOD program across clinicians, patients, services and local providers. This involved clarifying responsibilities, and developing key performance indicators
- developing an intranet page to help LHD staff understand processes and procedures for home oxygen therapies, make referrals, submit applications and provide consistent information and education
- trialling new processes with a small, engaged and active group; testing and refining as necessary prior to wider implementation.

[a] Home oxygen costs $1.23 per day compared to $1902 for one respiratory acute bed day (Flowinfo, NSW Health, 2014–15).

[b] All referrals must be received by the HOD program by 1 pm for oxygen to be delivered the next day.

Building local engagement and capability

From the beginning of the project, the redesign of the HOD process engaged clinicians, administrators and service partners to review local practices and knowledge, identify areas for improvement and what had been achieved elsewhere, and then commence the design work.

Local teams developed and agreed on local roles and responsibilities, and collaboratively developed accessible tools, information, resources and training. Tools, resources and information about roles and responsibilities are published on the home oxygen intranet page.

Staff are now able to readily access information, track the process and access tools for home oxygen therapy.

Training and education programs will be ongoing, to capture new staff, provide refresher content to existing staff, and to maintain relationships.

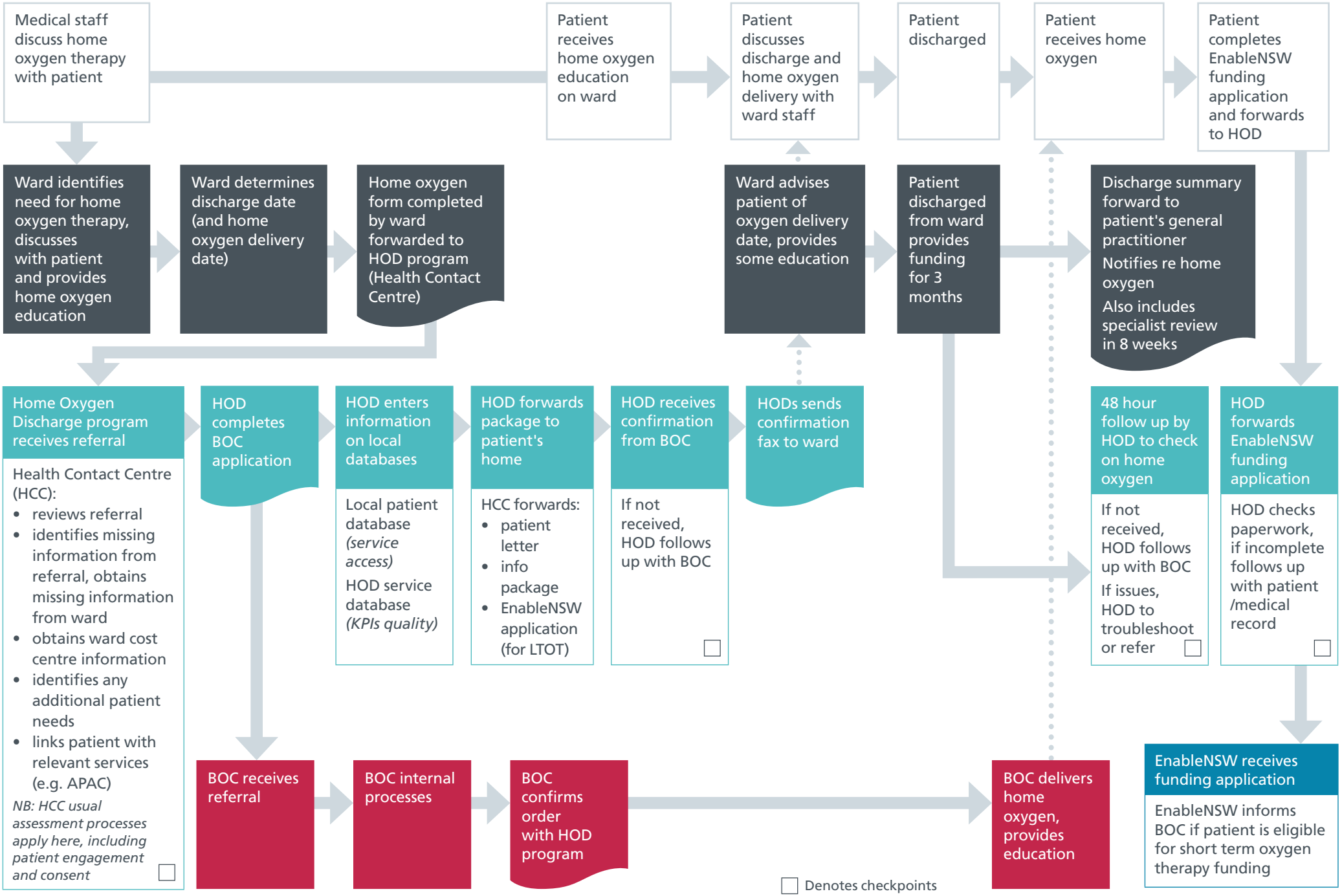

Figure A. Home Oxygen Delivery Program (as of July 2016)

Section 3

Outcomes

This project has succeeded due to its focus on patient experience and outcome; this is essential for services working to create meaningful and positive change.

The HOD process is now considered to be patient-centric: patients are engaged in the decision to refer for home oxygen, provided with information and education about short-term oxygen therapies and informed about the application processes for short- and long-term oxygen therapies. Additionally, the HOD process has checkpoints built in to ensure processes of care are completed and communicated with the patient and members of the clinical team. This results in the patient obtaining access to home oxygen education and equipment in a timely manner.

more than 80%

of all patients receive home oxygen on or before discharge

all staff have access to home oxygen discharge forms and information via intranet

97%

of patients receive home oxygen on or before discharge when referral is made the day before discharge

82%

of patients receive written information about home oxygen therapy

Patients are more informed about home oxygen therapies and equipment is delivered on time. LHD staff report improved clarity around roles and responsibilities for care; an intranet site outlines processes and forms for home oxygen; a central point of contact provides further support and information; and feedback loops built into the HOD pathway confirm successful processes of care, and remind staff when further actions are required.

Section 4

Lessons for implementation

The project team at NSLHD was small, enthusiastic and active. Correctly identifying the key members of this start-up group (such as respiratory Clinical Nurse Consultant [CNC], discharge planner, designated Health Contact Centre staff) was seen as central to the success of this project. The project was conducted in accordance with the ACI redesign process, with diagnostic work undertaken to understand the problem before progressing to the solution design phase, implementation and sustainability. As momentum, interest and opportunity for change grew, the project expanded to include all staff on the respiratory unit and, later, more broadly across hospitals.

Sustainability

Strong positive relationships between the Local Health District and BOC have enabled agreement on local KPIs for referral processes, delivery time frames and billing and payment arrangements. Building sustainable processes of care for home oxygen therapies has involved minimising duplication of effort and/or documentation.

Sustainability in this context may mean starting small. It may mean commencing work with one ward only (for example, the respiratory ward) or building relationships with key partners. Starting small may involve retaining some existing processes or tools (for example, a referral form) while introducing a change in practice (such as installing checkpoints throughout the process) to ensure patients receive services in a timely manner.

Importantly, building sustainability into the system depends on staff, and supporting staff to implement processes of care. The NSLHD HOD program has the distinct advantage of working within NSLHD's Health Contact Centre (service access and care coordination hub). This immediately provides the HOD program with a number of supports, including established service access and care coordination tools, processes, protocols, strong local service relationships and staffing resources.

Appendix

Financial processes

The HOD processes also have inbuilt checkpoints for billing and payment arrangements.

Monthly tasks	BOC	HOD program
	Forward individual patient invoices to HOD program	Match individual patient invoices against HOD patient database: • Check cost centres, palliative/non-palliative patient, day service commences • Check EnableNSW funding status against each patient • Check patient details on powerchart electronic medical record (eMR); if patient is deceased, equipment may need to be picked up, no further payments received. If patient is due to have finished short-term oxygen therapy, contact BOC to check equipment has been returned • Identify any additional days invoiced (e.g. if equipment has been returned early), negotiate credit back to LHD, with BOC • If credits from BOC to HOD program negotiated, BOC forwards statement of credit to LHD (HOD program) for unused days • HOD program forwards credit note together with invoice to HealthShare to pay balance • Raise purchase order to HealthShare
	Forward statement summarising all invoices to HOD program	Match individual patient invoices against statement: • Identify any missing/additional patients • Clarify any differences with BOC
	Forward additional invoices for same day delivery cost (+$84.69) to HOD program	• Check against expected
		• Identify patients who are one-month post-discharge (via HOD patient database) • Check that EnableNSW have patient funding application • If not, obtain completed paperwork (this may require some work with the patient) and forward to EnableNSW
		• Identify patients who are 2–3 months post discharge • Check in on palliative care patients to determine plan (may need to return equipment, may require further home oxygen) • Three months after discharge, respiratory patients who are not eligible for long-term oxygen therapy should return their equipment. For those who are eligible for long-term therapy, transfer their account to EnableNSW

References

1. NSW Agency for Clinical Innovation. *Implementation Guide. Putting a model into practice.* 2015 [Cited Feb 2016]. Available at: http://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0007/291742/Clinical_Innovation_Program_Implementation_Guide.pdf

2. NSW Agency for Clinical Innovation. *Formative Evaluation of the Northern Sydney Local Health District Short Term Oxygen Therapy Program.* 2015. NSW Agency for Clinical Innovation; Chatswood.