

HOSPITAL AT HOME: OPTIMISING DISEASE MANAGEMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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INTRODUCTION

Chronic obstructive pulmonary disease is estimated to affect 300 million people worldwide and is the fourth leading cause of chronic morbidity and mortality, both nationally and internationally. Patients with moderate to severe chronic obstructive pulmonary disease, frequently have multi-morbidity, require complex care, and may have repeated and lengthy hospital stays. Increasing numbers of patients with complex long-term conditions are labelled the healthcare challenge of the 21st Century. Alternative models of care have been explored over the last two decades to address the growing numbers of chronically ill patients with complex health states, and the ability of the health system to manage this. Hospital at home is healthcare which would normally be provided in hospital environments, but instead is delivered to people in their own homes. In 2014 the New Zealand National Health Committee undertook a strategic overview of respiratory disease in New Zealand to prioritise a pathway of care for chronic obstructive pulmonary disease patients, and to identify the most appropriate and effective interventions for the New Zealand population with chronic obstructive pulmonary disease. Amongst other interventions this report explored the concept of 'Hospital at Home' and found only Canterbury District Health Board was currently utilising this model of care. This paper reviews a selection of the national and international literature regarding hospital at home as a potential option for the successful management of people with moderate to severe chronic obstructive pulmonary disease in New Zealand.

Background

Chronic Obstructive Pulmonary Disease (COPD) is a major health problem around the world (National Health Committee, 2014). COPD is defined as airflow obstruction that is not fully reversible, is usually progressive and involves an inflammatory lung response. Chronic bronchitis, (bronchiole narrowing and increased mucous and inflammation), and emphysema, (destruction and enlargement of alveoli), caused by smoking are the most common conditions resulting in COPD in New Zealand (National Health Committee, 2014). Internationally and in New Zealand COPD is the fourth leading cause of chronic morbidity and mortality. Because it is often associated with other chronic conditions, people with COPD may require complex care and have frequent hospitalisations (Corsello & Tinkelman, 2008).

Hospital at home has been proposed as an alternative model of care for clients diagnosed with COPD. It is a programme which is being used internationally, particularly for clients with COPD, which has high hospital admissions, but may be better managed in the community (Toofany, 2008). This commentary explores some of the issues and research around the hospital at home model of care to provide a platform for discussion and to provide evidence for further exploration of this framework of care for patients/clients with moderate to severe COPD in New Zealand.

Chronic obstructive Pulmonary Disease

New Zealand (NZ) has high hospital admission rates for COPD compared to other countries in the Organisation for Economic Co-operation and Development (OECD) (Milne & Beasley, 2015). In 2012, the Southern District Health Board (SDHB) had 963 COPD admissions of 352 people causing a budget impact of NZ\$4.6 million (Milne & Beasley, 2015). Hospital admission rates for Māori, Pacific Islanders, men and women from low socioeconomic areas, the elderly and those from rural areas have disproportionate hospital admission rates and NZ Māori have twice the COPD hospitalisation rates of non-Māori (Milne & Beasley, 2015). The World Health Organisation has suggested strategies to improve the burden of COPD internationally. These suggestions include better surveillance to map the magnitude of the disease and analyse determinants, and primary prevention to reduce risk factors such as smoking, poor nutrition, lower respiratory infections and air pollution. Secondary and tertiary prevention strategies such as identifying cost effective interventions, improving accessibility and upgrading standards of care considered as integral to improved health outcomes for COPD (World Health Organisation, 2002).

In 2014, the National Health Committee used both the Australasian COPD-X guidelines and the UK National Institute for Health and Care Excellence (NICE) COPD guidelines to inform a strategic review of respiratory disease in NZ. The goal of the National Health Committee was to prioritise an evidence-based pathway of care for people with COPD (National Health Committee, 2014). The mandate was also to identify the most appropriate and effective interventions for the NZ COPD population. Similar to other western countries the report found that over half of people with COPD had co-morbidities meaning their care requirements were complex. The report states that people with moderate to severe and end stage COPD comprise 6% of the COPD population, but utilise half of all the costs for this condition (National Health Committee, 2014). The largest costs sustained are attributed to hospital care, including emergency department visits (National Health Committee, 2014).

As well as reviewing the current pathway for COPD the National Health Committee reviewed new opportunities for COPD care and investigated telehealth, emerging technology and primary and secondary integrated models of care utilising respiratory personnel in the home – a hospital at home model of care (National Health Committee, 2014). An integrated care model with access to respiratory physicians was found to be currently utilised only at the Canterbury District Health Board (CDHB). The hospital at home model of care was found to be most useful for the moderate to severe COPD population. Programmes such as the CDHB respiratory service have developed in Christchurch are usually based on an integrated model of care working between primary and secondary care (Wigens, 2016). This programme identifies patients most at risk of hospital admission and utilises registered nurses and care assistants to provide a programme of support. The patients have access to a respiratory physician and acute action plans are developed, along with referral to pulmonary rehabilitation and discussions around advanced care plans (Wigens, 2016).

Following international trends Primary Health Care (PHC) could be an integral part of hospital at home care if it was to be utilised in New Zealand (Corsello & Tinkleman, 2008). Until the 1990s the NZ health system had a fragmented primary health care system with the General Practitioner (GP) as the lead, and often-sole provider of primary care (National Health Committee, 2007). At the end of the last century, increasing long-term conditions and the ageing population meant that current model of healthcare was predicted to be unsustainable in future years (National Health Committee, 2007). In 2007 the National Health Committee suggested that an American model of care, the Chronic Care Model (Wagner, 1998), be integrated into NZ, PHC programmes. The model proposed a redesign of PHC and suggested that primary healthcare organisations identify people with complex and multi-morbid chronic conditions. The aim of the model has been to improve the management of patient care

through regular assessments of both physical and psychosocial status (Wagner, 1998). This model is now utilised in PHC worldwide and provides sustainable integrated care as multi-disciplinary teams work proactively with patients to improve management of their condition in a long-term relationship. This model seeks to empower patients to self-manage their conditions and thus prevent hospital admissions (Coleman, Austin, Brach & Wagner, 2013).

From the beginning of this century, the USA health organisations Kaiser Permanente and Veterans Health began to develop large integrated care delivery systems based on the Chronic Care Model (National Health Committee, 2007). These health systems advanced the concept of the medical home to help co-ordinate and navigate healthcare for those with complex long-term conditions. In the UK, the Virtual ward utilises community matrons who employ hospital at home principles to work collaboratively with the patient and provide options for integrated care (Ross, Curry & Goodwin, 2011; Toofany, 2008). Shared personal health information is integral to the success of the medical home and a central database of health information, which, works seamlessly between the patient and their primary and secondary health organisations, is vital. Action plans, which caregivers and patients have access to, are important tools. These action plans ensure patients know what to do when exacerbations of their condition occur and their care wishes are communicated to health professionals. Care plans are created in collaboration with the primary healthcare multi-disciplinary team and, due to the integrated health information database, are visible to all people involved in the person's healthcare with the patient having ownership of their own care plan (Jalota & Jain, 2016).

For healthcare providers, organisations and people with COPD the goal is to improve the pathway of care and their quality of life (Corsello & Tinkleman, 2008). Utilising evidence-based guidelines suggests that enhancing people's access to healthcare and providing integrated care from a multi-disciplinary team provides patient centred and effective care. Applying Wagner's (1998) Chronic Care Model in PHC may help to align treatment methods and goals and improve care co-ordination for people with complex long-term conditions (Coleman, Austin, Brach & Wagner, 2013). COPD in particular is a chronic disease where integrated and collaborative care is vital as self-management, ongoing home monitoring and early intervention can significantly improve health outcomes (Corsello & Tinkelman, 2008). A hospital at home model of care, utilising an integrated multi-disciplinary healthcare team seeks to work collaboratively with the patient to mutually agree treatment and provide a pathway of care in an environment suited to the persons' needs.

Defining hospital at home for COPD

Hospital at home was originally developed in France in 1961 as an alternative to hospital care for terminally ill patients, and began to be utilised in the United Kingdom in 1978 (Toofany, 2008). From its inception, there has been criticism around the cost effectiveness and patient satisfaction with the scheme (Toofany, 2008). Ideally, hospital at home should provide equally good healthcare to the care received by an inpatient, and this care should be at least cost equivalent and acceptable to patients and their caregivers (Toofany, 2008). Although financially superior in the short term, the longer treatment time of hospital at home often negates any cost savings. Toofany (2008) suggests that health outcomes for patients receiving hospital at home care were similar to those receiving hospital based care.

A study of hospital at home completed by Ricauda et al., (2008) evaluated hospital readmission rates and mortality after six months for elderly people with COPD. There were 52 people assigned to a medical ward and 52 people allocated to a hospital at home service. Ricauda's et al., (2008) findings noted that acute hospital admissions

were particularly hazardous for the elderly with more risk of iatrogenic illness, functional decline and an increased risk of falls and confusion. The hospital at home programme emphasised education regarding smoking cessation, nutrition and the management of daily activities. Energy conservation, education regarding pharmaceuticals and early recognition of exacerbations of their condition were also included in the care plan for hospital at home care. The result of this focus on self-management was that hospital at home care was associated with a reduction in hospital readmissions and subsequently a reduction in the cost of care. Hospital at home patients were cared for approximately twice as long as patients in the hospital, but none of these patients were consequently admitted to hospital or to long-term residential care. The study concluded that this programme was cost effective and significantly reduced the burden on acute hospital beds in the long term (Ricauda, et al., 2008)

In NZ, an integrated long-term condition service by CDHB brings together hospital and community services to provide care for COPD patients in a primary healthcare setting and strives to keep people at home managing their own health conditions with support. Along with support at home, patients with COPD enrolled in the Canterbury Community Rehabilitation Enablement and Support (CREST) scheme are identified individually with a 'blue card'. The individualised management plan identifies their ideal oxygen saturation levels as well as usual medications and other important information regarding their care wishes. These people also have telephone access to a respiratory doctor. The goal of CREST is to improve the patient journey, reduce length of hospital stay, prevent readmissions and delay admission to rest homes for over 65year olds. This six-week programme initially provides daily visits and is staffed by healthcare assistants with Registered Nurse (RN) oversight, respiratory physicians and allied health care professionals. It cares for up to 90 patients at one time (Wigens, 2016).

Primary healthcare for optimising management of COPD in NZ

The National Health Committee (2014) proposed an ideal pathway for people with COPD. Early detection is important to ensure timely treatment can begin and smoking cessation is instigated promptly. Pulmonary rehabilitation referral is an important link in providing education and information on advanced care planning and medications, in addition to teaching breathing techniques and coping strategies. The National Health Committee (2014) confirmed that people should ideally be cared for in primary healthcare organisations rather than in secondary care. In the last two decades, there have been many models of care proposed for the management of long term conditions in which primary health care has been highlighted as the preferred principle health organisation. Hospital at home for people with COPD is another model of care in which primary health care is fundamental (National Health Committee, 2007).

A recent Otago study highlighted some of the issues in long-term conditions care in the NZ, PHC context (Stokes, Tumilty, Doolan-Noble & Gauld, 2017). Multi-morbidity, is defined as having two or more chronic conditions, and may be difficult to manage in primary care where the disease management model is for single disease care (Stokes, Tumilty, Doolan-Noble & Gauld, 2017). This qualitative study revealed that GPs and Practice Nurses (PN) struggled to give people with multi-morbidity satisfactory care due to time constraints and clinical decision-making processes (Stokes, Tumilty, Doolan-Noble & Gauld, 2017). The disadvantage of optimising management of COPD in the primary healthcare setting is that the NZ model of PHC is fee based. Due to financial constraints, people will often utilise one 15-minute GP appointment for all their problems leaving many important issues and patient education unable to be completed (Carryer, Snell, Perry, Hunt & Blakey (2008). Care Plus, which is the funding stream for long-term conditions in NZ, only partially addresses this issue. People who qualify for Care Plus are funded for four appointments per year at a reduced rate and they are often unwilling to see the GP or PN in between these times. Historically there is fragmentation between primary and secondary care due to the lack of a shared information

system (Stokes, Tumilty, Doolan-Noble & Gauld, 2017).

Wagner (1998) suggests that long-term condition management should be delivered by multi-disciplinary teams with clear roles, good communication and a willingness to work together to provide patient centred care. Utilising a case management model of care for people with moderate to severe COPD, within a hospital at home framework that is based in PHC with secondary care support, may be a successful model of care for those with moderate to severe COPD (Askerud & Conder, 2016; Coleman, Austin, Brach & Wagner, 2013).

COPD patients' perspective on hospital at home care

Research by Williams, Hardinge, Ryan and Farmer (2014) found that readmissions to hospital for COPD occur in one in three people. This research, working on the understanding that early detection of COPD exacerbations is crucial, attempted to understand the reasons why people did not seek help for their exacerbation early. The researchers recruited 44 people with COPD in the UK and found that people often delay seeking medical help, as they preferred to manage their exacerbations alone first. Despite the fact that this delay sometimes meant an ED visit, the research found that people were mostly confident to manage exacerbations at home and would seek help if this did not work. The research concluded that there was a need to acknowledge the patient's own expertise in COPD and that the patient may be the best predictor of their own health and exacerbation status (Williams, Hardinge, Ryan & Farmer, 2014).

In a similar study Lowey, Norton, Quinn and Quill (2014) also found that people with end stage COPD had an overwhelming desire to avoid hospital, which caused them to delay seeking care in fear of receiving a serious diagnosis. These researchers interviewed 20 participants who had multiple hospital admissions for COPD and found that the participants viewed a hospital admission as a setback. While COPD patients often felt that they had no control over the progression of their disease, they could control when they sought help for their symptoms and would frequently wait until their health status was unbearable before seeking help. This research found that home based palliative care meant they could manage their symptoms, retain functional ability and self-manage their conditions with support if required (Lowey, Norton, Quinn, & Quill, 2014).

Moving the burden of care to family members was a frequently voiced concern regarding hospital at home care (Leff et al., 2008). Australian research by Leff et al., (2008) looked at the stress experienced by family members and compared them to family members whose loved ones were receiving traditional care in hospital. This study looked at 214 patients who required acute hospital admission for respiratory conditions who either were admitted to a hospital at home programme, or had an acute hospital admission. The stress of family members of both groups were compared together and it was found that family members of those who were looked after at home experienced lower stress. Fear of death, overall stress as a caregiver, loss of companionship and the logistics of hospital visiting were measured. The results suggested that the carers and families of those looked after in hospital experienced greater stress than those cared for at home (Leff et al., 2008).

CONCLUSION

Increasing numbers of COPD presentations to hospital emergency departments mean that worldwide strategies have been developed to try to reduce the burden on our healthcare system. Wagner's (1998) Chronic Care Model suggests primary healthcare organisations develop their long-term conditions programmes to work collaboratively with people in their own homes and communities. PHC organisations have capacity for early diagnosis of COPD, smoking cessation programmes and the ability to refer to pulmonary rehabilitation to provide support and education for these people. Historically, successful hospital at home models of care involve multi-disciplinary teams caring for people with COPD in their own homes using a case management model of care. Providing medications for exacerbations and developing acute and long-term care plans can give people with COPD knowledge and control over their health and allow them to improve the management of their condition. Integrated information databases between primary and secondary healthcare institutions ensure that care institutions can provide seamless care. With support and education, people with COPD and their carers may be able to care for themselves more effectively at home avoiding hospital admissions and the resulting risks and stress of hospital care. International studies, and our own successful CDHB respiratory service suggest that hospital at home is an important model of care and additional research could be undertaken in New Zealand to further develop this as an alternative model of care for people with moderate to end stage COPD.

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