CAN BEING WATCHED INCREASE INDEPENDENCE?

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INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a prevalent debilitating long-term condition. It is the second most common cause of emergency admission to hospital in the UK and remains one of the most costly conditions to treat through acute care.

Tele-health monitoring offers potential to reduce the rates of re-hospitalisation and emergency department visits and improve quality of life for people with COPD. However, the current evidence base to support technology adoption and implementation is limited and the resource implications for implementing tele-health in practice can be very high. Early evidence from a pilot study suggests that tele-health monitoring can be used in a preventative capacity for patients diagnosed with early stage COPD following discharge from hospital, reduces their need for additional health service support, increases their independence and reduces responsibility for care givers.

BACKGROUND

Chronic Obstructive Pulmonary Disease (COPD) is the fifth biggest killer disease in the UK [1]. It is also the second most common cause of emergency admission to hospital and one of the most costly in-patient conditions [2], accounting for £587m of the £1.08bn spent on hospital admissions for lung disease by the National Health Service (NHS) in England and Wales [3]. The current prevalence of COPD in the UK is around 1.5% of the population (approximately 900,000 people), with the condition now being of equivalent incidence in both men and women [4]. The National Institute for Health and Clinical Excellence (NICE) [5] estimates the direct cost of COPD at more than £982 million per year when accounting for indirect costs.

Primarily a smoking related disease, COPD is a long term condition that affects one in six smokers aged over 45 years and is characterized by a chronic, progressive decline in lung function. In the early stages of the disease patients are largely free of symptoms, but as the disease progresses patients may become house-bound, socially isolated and depressed. Patients with COPD thus experience poor quality of life with impaired emotional, social and physical functioning [6]. Exacerbations in symptoms (characterized by increased airway inflammation and significant deterioration in lung function) occur with increasing frequency and often require hospital management.

CARE DELIVERY MODEL

In 2002, a Cochrane review [5] concluded that a 'hospital at home' approach was a safe and effective option for certain patients with COPD with this recommendation being included within subsequent NICE Guidelines. The NHS Modernisation Agency [7] also proposed that in the future, patients with chronic diseases should no longer occupy acute beds, but rather be treated in a community setting, or supported at home. A key message from the National COPD Patient survey [8] was the need to prioritize personalized COPD planning and self management. Furthermore, in their 2004 annual report [9], the Foundation for Assistive Technology UK (FAST) suggested that chronic disease services needed to be redesigned around patients with a focus on prevention, assessment and self-management.

Tele-health monitoring is defined as the remote exchange of physiological data between a patient at home and medical staff to assist in diagnosis and monitoring. It includes (amongst other things) a home unit to measure and monitor temperature, blood pressure or other vital signs for clinical review at a remote location (for example, a hospital site) using phone lines or wireless technology [10]. The use of community based medical monitoring technology offers real potential for people with long-term conditions in that it removes the physical location aspect of health care, potentially reducing service users' dependence on hospital admissions and improving their independence. However, some evidence suggests that patients may not be in favour of tele-health monitoring, with some academics suggesting that individuals may find surveillance technologies a threat to their privacy, or be anxious about engaging with new forms of technology. [11]

We are currently undertaking a pilot study in one region covered by one Primary Care Trust, in the North of England. It covers a population of 225,000 with a high incidence of COPD which can be traced to both its coal mining history and the relatively high levels of smoking by the population [12]. It is ranked as one of the most deprived local authorities in the Index of Multiple Deprivation [13] and the high levels of deprivation are associated with poor diet and other adverse lifestyle factors, with smoking being one such factor [14]. The PCT has been recognised as one of the best in the country at detecting COPD by the Eastern Region Public Health Observatory and has been placed in the top 10 for the detection of COPD against all other Primary Care Trusts in England [15].

New service developments have been put in place within the PCT to provide optimal management for people with COPD following hospital discharge. A new Community Discharge Service was introduced in May 2009, to manage people with early stage COPD for up to eight weeks following hospital discharge to encourage self-management by patients including education, medication management and lifestyle changes. Following this, in May 2010, the PCT introduced a tele-health monitoring Community COPD Service, which runs alongside the standard community discharge service. Using the technology, which is personalised to each patient's condition, patients are enabled to monitor their own signs and symptoms, with alerts being provided to community clinicians should any recorded data fall outside expected parameters or if the patient fails to input data on a daily basis. Thus, potentially reducing the number of patient home visits that the community discharge team are required to make.

Given the introduction of the new tele-health service, service commissioners and providers at the PCT identified this as an opportune time to investigate the impact of tele-health technology compared to the standard community discharge service. Consequently a pragmatic randomized controlled trial (RCT) has been developed.

This presentation will report on findings from some pilot work that has been undertaken prior to commencing the full RCT. This work includes qualitative work conducted with patients who have received, refused or abandoned the tele-health system. In this presentation we will present initial data from the pilot which clearly demonstrates service users' opinions on the impact of the tele-health monitoring on their quality of life. As part of this we intend to present brief video case studies of users describing their views of the system and how it has impacted upon their life, and the lives of their caregivers. Furthermore, we will explore health care professionals' opinions of the tele-health service, the impact that this service has had on traditional modes of healthcare delivery and explore how their attitudes towards this service have changed over time. In addition, we will present quantitative data which illustrates the impact of the tele-health supported service on the use of health care resources, including hospital admissions.

REFERENCES

[1]   Report of The National Chronic Obstructive Pulmonary Disease Audit 2008: Clinical audit of COPD exacerbations admitted to acute NHS units across the UK[http://www.rcplondon.ac.uk/clinical-standards/ceeu/Current-work/ncrop/Documents/ Report-of-The-National-COPD-Audit-2008-clinical-audit -of-COPD-exacerbations-admitted-to-acute-NHS-un its-across-the-UK.pdf]

[2]   Meldrum R, Rawbone A, Curran D, Fishwick, D: The role of occupation in the development of chronic obstructive pulmonary disease. *Occup Environ Med* 2005, 62:212-214.

[3]   Invisible lives: Chronic Obstructive Pulmonary Disease (COPD) finding the missing millions [http://www.lunguk.org/Resources/British Lung Foundation/Migrated Resources/Documents/I/Invisible Lives report.pdf]

[4]   Lung report III – Casting a Shadow over the Nation's Health [http://www.lunguk.org/Resources/British Lung Foundation/Migrated Resources/Documents/L/Lung_Report_III_WEB.pdf]

[5]   Chronic obstructive pulmonary disease. Management of chronic obstructive pulmonary disease in adults in primary and secondary care [http://www.nice .org.uk/nicemedia/pdf/CG012_niceguideline.pdf]

[6]   Florence Sueng Kim H, Kunik ME, Molinari VA, Hillman SL, LaLani S, Orengo, CA, Petersen NJ, Nahas Z, Goodnight-White S: Functional Impairment in COPD Patients: The Impact of Anxiety and Depression. Psychosomatics 2000, 41:465–471.

[7]   Learning Distillation of Chronic Disease Management Programmes in the UK [http://www.natpact.nhs .uk/uploads/Matrix%20CDM%20Evaluation%20Report.doc]

[8]   Patient Survey [http://www.rcplondon.ac.uk/clinical-standards/ceeu/Current-work/ncrop/Documents/Report-of-The-National-COPD-Audit-2008-Patient-Survey.pdf]

[9]   Assistive Technology Forum News Bulletin March 2004 [http://www.fastuk.org/pagedocuments/File /atforum/past bulletin word docs/AT Forum bulletin Mar04.doc]

[10] Telecare: Using Information and Communication Technology to Support Independent Living by Older, Disabled and Vulnerable People [http://www. telecare.org.uk/shared_asp_files/GFSR.asp?NodeID= 46395]

[11] Essen, A: The two facets of electronic care surveillance: An exploration of the views of older people who live with monitoring devices. *Social Science and Medicine*. 2008, 67; 128-136.

[12] Barnsley PCT's Healthy Breathing Campaign short-listed [http://www.drfosterintelligence.co.uk/ne ws Publications/article95.asp]

[13] Indices of Deprivation 2007 [http://www.com munities.gov.uk/documents/communities/xls/57650 4.xls]

[14] Joint Strategic Needs Assessment Technical Document 2009 [http://www.barnsley.gov.uk/m ultimedia-library/Documents/Finance %26 Property - Financial %26 Business Support Services/Cen tralResearchTeam/Draft 1 Barnsley JSNA Report 20080328.pdf]

[15] Barnsley detecting chronic diseases [http://ww w.barnsley.nhs.uk/default.aspx?locid=02tnew010&L ang=EN&htm]