Telehealth Interventions for Management of Chronic Obstructive Lung Disease (COPD) and Asthma: A Critical Review

Laura Nimmon, Faculty of Education, Department of Language and Literacy, University of British Columbia, Vancouver, BC, Canada

Iraj Poureslami, Faculty of Medicine, Centre for Clinical Epidemiology and Evaluation, University of British Columbia, Vancouver, BC, Canada

Mark FitzGerald, UBC and VGH Divisions of Respiratory Medicine & The Lung Centre, Vancouver, BC, Canada

ABSTRACT

The authors systematically collated, classified, and evaluated the evidence of intervention studies from recent systematic reviews about the effects of telehealth interventions on COPD and asthma care. Eight electronic databases were searched. Eligible articles were those published between 2001 and 2011 in English. Eleven review articles are included. Asthma and COPD are better controlled when patients use interactive technological tools to monitor their chronic disease. The effects of telehealth interventions on emergency department attendance, specific quality of life, and mortality remained less certain. Only some reviews mentioned if the cost-effectiveness was systematically analyzed. Telehealth promises to be a highly effective intervention in managing chronic lung diseases while also potentially reducing some of the economic burdens of asthma and COPD. New directions in telehealth developments, implementations, and evaluations should be made, in which the exchange of health information should not be over simplified, but rather reflect the different socio-cultural practices of population groups and individuals.

Keywords: Asthma, Chronic Obstructive Lung Disease (COPD), Chronic Disease, Cost-Effectiveness, Systematic Review, Telehealth

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INTRODUCTION

Chronic disease management relates to the provision of comprehensive care and education to patients and their families, and a greater focus on the secondary prevention of disease from progressing following diagnoses (gov.on.ca, 2005). Chronic disease management can be enhanced by collaborative care practices, which is based on a partnership paradigm. This paradigm emphasizes that while professionals are experts about diseases, patients are experts about their own well-being. This concept holds the idea that patients can accept responsibility to manage their own chronic condition by encouraging them to solve their own problems with information received, but not ordered, from professionals (Bodenheimer et al., 2002). This, “patient-centered” approach reflects not only inter-professional collaboration, but also a realization that successful achievement of optimal well-being and effective management of chronic disease processes involve comprehensive models of care. These collaborations involve the active engagement of clinicians, patients, concerned family members, and communities.

Telehealth focuses on the use of remote information and communication technologies (ICTs) between care provider and patient for supporting the active care of people with chronic disease (McLean et al., 2010; 2011). Therefore, telehealth interventions build on the collaborative care model by providing a unique opportunity to bring health professionals and patients closer together, and insuring that the patient has timely access to relevant information resources necessary for them to engage fully in the health care process (Brennan & Starren, 2006). In many health care systems around the world, telehealth interventions are reported to be an integral part of a broader view of deinstitutionalization, which reflects a sophisticated societal orientation towards maintaining patients in their own social context (Canadian Home Care Association, 2008) and involve them in the management of their chronic condition. The purpose of this review article study was to investigate the feasibility of implementing telehealth interventions for the self-management of patients with either chronic obstructive lung disease (COPD) or asthma on the basis of previously published systematic reviews. In this paper we defined a systematic review as a high-level overview of primary research on a particular research question that tries to identify, select, synthesize and appraise all high quality research evidence relevant to that question in order to answer it (Cochrane, 1999). Our objective was to explore how telehealth interventions interact with the active care of a patients’ asthma or COPD. In doing this, we aimed to identify the effect of telehealth on timely access to health advice and information about medications, self-monitoring, medication compliance, emergency department visits, and hospital admission rates; along with the overall economic feasibility of integrating information technology programs into existing healthcare programs. Essentially, through the lens of telehealth, we sought to provide a more robust analysis of why such interventions might be an effective communication strategy (if any) between care providers and those who are suffering from COPD or asthma; both highly prevalent lung diseases in Canada and globally.

Background and Rationale

1. Prevalence of COPD: It is estimated that acute exacerbations of chronic-obstructive pulmonary disease account for the most frequent cause of medical visits, and hospital admissions among patients with COPD in Canada (FitzGerald et al., 2007). In addition, COPD is the fourth leading cause of death in Canada (Lung Association, 2005). Approximately 500,000 Canadians over the age of 35 have been diagnosed with COPD, and it is estimated that almost an equal number of middle-aged Canadians are unaware that they have COPD (Ernst et al., 2000). Beyond the obvious impact COPD has on patients and their families, the impact on the Canadian health care system is also significant. It has been found that the total cost for COPD in Canada was approximately $1.67 billion in 1998 (Chapman, Bourbeau & Rance, 2003;
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