

Integrated Care Systems for Asthma or Chronic Obstructive Pulmonary Disease (COPD) Patients

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Abstract

Asthma and Chronic Obstructive Pulmonary Disease (COPD) are life - threatening, non-curable and long - term caring health conditions. Increasing health complexity of patients of these long - term caring conditions requires finding new models of care.

A model of care, which was adapted in many countries for about 15 years, for several long - term caring conditions (including asthma and chronic obstructive pulmonary disease), was integrated healthcare systems.

Integrated care systems are structured care systems, which foster coordination and sharing information within and between healthcare organization and providers and also assist the implementation of the guidelines. Vital role play patient's self-care efforts.

An extended review of the literature about the implementation of integrated healthcare systems for asthma or Chronic Obstructive Pulmonary Disease (COPD) patients around the world was conducted.

Integrated healthcare care systems seemed to have positive effects on the quality of care of asthma or Chronic Obstructive Pulmonary Disease (COPD) patients. Quality of life was significantly improved.

Integrated care systems for asthma or Chronic Obstructive Pulmonary Disease (COPD) patients have widely varying components, procedures and structure. These were differences in interventions, outcomes measured, study design and setting.

Better understanding of these differences will be helpful for establishing better - oriented, well defined and structured integrated care systems for asthma and Chronic Obstructive Pulmonary Disease (COPD) patients.

Keywords: Integrated Care Systems, Asthma, Chronic Obstructive Pulmonary Disease (COPD)

JEL classifications: I1, I10, I31

Introduction

Chronic conditions account for more than 50% of the global disease burden, and this figure is projected to rise. Among the most common chronic diseases worldwide are asthma and chronic obstructive pulmonary diseases (Vita-Finzi, 2005). Chronic obstructive pulmonary disease (COPD) generates a significant burden on healthcare systems worldwide (Bania et al, 2016, Guarascio et al, 2013, WHOa, 2012) More than 3 million people died of COPD in 2012, which is equal to 6% of all deaths globally at that year (WHO, 2015). In USA, COPD is the third most common cause of death in USA. The worldwide prevalence of the disease was estimated to be 11,7 % in 2010 (Adeloye et al, 2015), whereas in Greece is estimated to be 8.4% (Bania et al, 2016).

Chronic obstructive pulmonary disease (COPD) is a complex inflammatory disease involving many different types of cell in the lung parenchyma. It is characterized by slow progressive development of airflow limitation, which is reversible to only a limited degree (Carvounis et al, 2012). It has extrapulmonary effects (conditions) that can contribute to its morbidity. Extrapulmonary conditions can be divided into systemic manifestations, such as peripheral muscle dysfunction and common comorbidities, e.g. lung cancer (ZuWallack & Nici, 2010). The COPD patient has, on average, 3.7 other chronic medical conditions compared with 1.8 for patients with other chronic illness (Sin et al, 2006).

Furthermore, Van Manen et al (2002) found that the risk of depression in patients with severe COPD is 2.5 times more than those with mild or moderate COPD, while the number of patients with COPD is presenting with depression increases and increasing disease severity.

Asthma is one of the major noncommunicable diseases. It is a chronic disease of the air passages of the lungs, which inflames and narrows them. Some 235 million people currently suffer from asthma. It should also be mentioned, that is a common disease among children (WHOC, 2013).

The goal of delivering high-quality care is not unique to COPD, but certain issues, for example these comorbidities or depression, faced by patients with COPD do create specific challenges (Han et al, 2016). The need to reduce the burden derived from these issues has prompted the development of new management strategies for COPD (Garcia-Aymerich et al, 2007).

Patients therefore have complex ongoing medical care needs, often involving multiple therapies as well as a responsibility to self-manage their health condition. Public health services across the EU and beyond are under increasing pressure to deliver integrated care pathways that optimize the quality and timeliness of medical intervention and reduce costs brought about by prolonged hospitalization (CORDIS, 2016).

Integrated Health Care Systems

The World Health Organization (WHO) defines integrated care as "a concept bringing together inputs, delivery, management and organisation of services related to diagnosis, treatment, care, rehabilitation and health promotion" (WHO, 2008). An alternative definition by Mur-Veemann et al. (2003) is "an organisational process of coordination that seeks to achieve seamless and continuous care, tailored to the patient's needs and based on a holistic view of the patient". These two definitions (ZuWallack & Nici, 2010) are complementary in that the WHO definition is system centered, stressing the coordination of services, while the Mur et al. definition focuses on the patient and the tailoring of care to individual patient needs. ZuWallack and Nici (2010) commented that Wouters and Wanderhoven considered integrated care in the context of a complex adaptive system, which is "a collection of individual agents with freedom to act in ways that are not always totally predictable, and whose actions are interconnected so that the action of one part changes the context of the other". Finally, the ATS workshop on the Integrated Care of the COPD Patient defined the integrated care systems as (Nici & ZuWallack, 2012) "a continuum of patient-centered services organized

as a care delivery value chain for patients with chronic conditions with the goal of achieving the optimal daily functioning and health status for the individual patient and to achieve and maintain the individual's independence and functioning in the community".

According to the ATS workshop on the Integrated Care of the COPD Patient, prominent goal of integrated care is improved access and decreased fragmentation of care, thereby increasing efficiency and quality of care and resulting in better outcomes and greater user satisfaction (Nici & ZuWallack, 2012).

Chronic care (Nici & ZuWallack, 2012, Adams et al, 2007) integrates services and therapies across settings and providers and tailors therapy to the individual needs of the patient. The chronic care model has six key components: (1) self-management support, (2) clinical information systems, (3) delivery system redesign, (4) decision support guidelines, (5) healthcare organization, and (6) community resources.

Self-Management Support

A key element of integrated care is self-management, which has three components: behavioral support, education and motivational support (Nici & ZuWallack, 2012).

A continuum self-management program helps COPD patients to perform given self-health behaviours (Bourbeau et al, 2004). Bourbeau et al (2004), also, commented that it is important to work at improving confidence in patient's ability to follow a self-care regimen by increasing self-efficacy. Self-efficacy refers to the person's confidence in his or her capability to execute particular behaviours (Monnikhof et al, 2003).

Higher levels of self-efficacy will lead to positive behaviours, such as improved adherence with prescribed therapy (including regular exercise) and the adoption of a healthy lifestyle (including smoking cessation and increased physical activity (ZuWallack & Nici, 2012, Monnikhof et al, 2003).

Education of COPD or asthma focuses on promoting those skills necessary to maintain health and ameliorate the effects of the respiratory disease and its multi-morbidity (Nici & ZuWallack, 2012) and is consisted of sufficient coping behaviour, compliance with inhaled medication, attention to changes in the severity of the disease, adequate inhalation technique, and self-adjustment of the medication in case of exacerbations (Worth & Dhein, 2004).

Self-management focuses on the exacerbation and interventions aimed at reducing the frequency of exacerbations and reducing their severity through early recognition and appropriate treatment (Nici & ZuWallack, 2012).

Collaborative self-management is especially useful in early recognition and treatment of the COPD exacerbation, thereby reducing subsequent morbidity and healthcare utilization (ZuWallack & Nici, 2012).

Clinical Information Systems

Health information technology is believed to be critical for efficient implementation of the chronic care models (Young et al, 2007). The IOM defines (Young et al, 2007) "health information and data" as, "electronic storage and immediate access to diagnoses, allergies, lab test results, medications, clinical notes, demographics."

An electronic medical record (EMR) is a digital version of the traditional paper-based medical record for an individual (Erie St. Clair LHIN, 2012).

Data from several studies in COPD suggest that access to an EMR, improved communication/connectivity, and decision support are important in improving outcomes for patients with COPD (Nici & ZuWallack, 2012). A recent example IC using programme is "Welcome" which is facilitated by a cloud based Decision Support System. It is based on vest providing continuous monitoring of a large number of sensors, wearable sensors for measuring blood trends and inhaler devices for measuring and evaluating the medical adherence of the patients. IC is also part of the "project integrates", program taken place in Barcelona (Alonso, 2014). An open ICT platform supporting organizational interoperability and collaborative tools across healthcare tiers is needed as a key enabler of the program implementation (Cordis, 2012).

Delivery System Redesign

Many healthcare systems (perhaps all) continue to be a loose array of physician groups, hospitals, and other healthcare professionals and organizations that often operate in isolation, providing care without the benefit of complete information (Nici & ZuWallack, 2012). Healthcare systems have long been characterized by a lack of cohesion between these two levels, and even today, no optimal model has emerged to bridge the gap (Bolíbar et al, 2009). Cohen and Bailey (1997) defined a multidisciplinary team as 'a collection of individuals who are independent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems and who manage their relationships across organisational boundaries.

Integrated care improves access to care and reduces fragmentation of care through partnering, communication and coordination among healthcare professionals, patients and their families (ZuWallack & Nici, 2012).

Additionally, integrated care model for COPD may reduce some of these inefficiencies. On one level, integrated care means giving the right patient the right therapy at the right time (ZuWallack & Nici, 2012).

Decision Support Guidelines

Decision support includes (1) embedding evidence-based clinical practice guidelines into daily clinical practice, (Campbell et al, 1998) (2) sharing evidence-based guidelines and information with patients to encourage their participation, (3) using proven provider education methods, and (4) integrating specialist expertise and primary care (Wagner et al, 2008).

Community Resources

Community resources complement traditional medical care of the chronically ill patient and can reduce the burden and stress of illness (Nici & ZuWallack, 2012).

Results - Discussion

The acute care model for treatment of patients with COPD or asthma clearly has sub-optimal outcomes. The integrated care approach is ideally suited to the management of chronic diseases, such as COPD (ZuWallack & Nici, 2012). In a systematic review, Lemmens et al (2008) concluded that implementation of integrated healthcare systems for COPD or asthma patients significantly reduces the number of hospitalizations and improves their quality of lives. Furthermore, a recent randomised control trial in implementing integrated healthcare system for frail COPD patients showed less emergency room visits, healthier lifestyle, improved self-management and higher health-related quality of life (Hernández et al, 2015). Casas et al (2008) showed less hospitalisation due to COPD exacerbations.

Although literature shows positive results in implementing integrated healthcare system, further high - quality research must be conducted. Most of studies and systems refer to mild to severe COPD patients. Expanding the referral base to include patients with less severe disease will allow more proactive care, and initiating pulmonary rehabilitation at the time of the exacerbation will bring in the services of an already present interdisciplinary team (ZuWallack & Nici, 2012).

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