A Home-Care PDA-Based Program for the Management of COPD Patients

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Abstract. This paper proposes a PDA-based system, SERVANDO, for the home-care management of patients with COPD. In addition to making the supervision of such patients easier, the system permits the collection and structuring of large quantities of information on the evolution of COPD, allowing the application of data-mining techniques, which could open up new lines of research on this disease.

Keywords. nursing informatics, home care, COPD

COPD (Chronic Obstructive Pulmonary Disease) has become a major cause of morbidity and mortality on a global scale [1]. Patients with this disease suffer regular, seasonal exacerbations which require emergency care and habitually overload hospitals and health centers [2]. It is in this context where home-care is practical, allowing customized patient care, providing early treatment for possible complications and avoiding more serious damage to health which could be life-threatening for patients. SERVANDO approaches COPD supervision in two ways. As a welfare tool, it allows a nurse visiting a group of patients to perform a series of medical tests to keep the disease under control. In this regard, the system will help to monitor the evolution of the disease and supervise a proper therapeutic treatment. On the other hand, as a research tool, the system seeks to obtain new objective indicators on the progress of the disease from the monitoring of physiological signals. SERVANDO captures a significant set of data from each patient, including data obtained from the physical examination of the subject (exploration of chest, head and neck), vital signs (blood pressure, temperature and breathing rate), tests on coughs, dyspnea and fever, data on the patient’s daily evolution (fever episodes, coughing, sputum, dyspnea or chest tightness), management of the patient’s therapy, quality of life tests, and the monitoring of physiological signals, all of which will be captured with digital sensors equipped with Bluetooth communication (ECG meter, spirometer, and pulse oxymeter). Once all data have been captured and stored in the local memory of the PDA, they are physically transferred to a data warehouse, where personal data is deleted and information is structured in a way that simplifies the design and implementation of data-mining techniques, thus obtaining new relevant information for the accurate interpretation of the patient’s status and progress, making it possible to anticipate the onset of an exacerbation episode.


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