Chapter 78
Monitoring Time Consumption in Complementary Diagnostic and Therapeutic Procedure Requests

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ABSTRACT

Over the years, information technologies and computer applications have been widespread amongst all fields, including healthcare. The main goal of these organizations is focused on providing quality health services to their patients, ensuring the provision of quality services. Therefore, decisions have to be made quickly and effectively. Thus, the increased use of information technologies in healthcare has been helping the decision-making process, improving the quality of their services. For an example, the insertion of Business Intelligence (BI) tools in healthcare environments has been recently used to improve healthcare delivery. It is based on the analysis of data in order to provide useful information. BI tools assist managers and health professionals through decision-making, since they allow the manipulation and analysis of data in order to extract knowledge. This work aims to study and analyze the time that physicians take to prescribe medical exams in Centro Hospitalar do Porto (CHP), though BI tools. The main concern is to identify the physicians who take more time than average to prescribe complementary means of diagnosis and treatment, making it possible to identify and understand the reason why it

occurs. To discover these outliners, a BI platform was developed using the Pentaho Community. This platform presents means to represent information through tables and graphs that facilitate the analysis of information and the knowledge extraction. This information will be useful to represent knowledge concerning not only the prescription system (auditing it) but also its users. The platform evaluates the time prescription, by specialty and physician, which can afterwards be applied in the decision-making process. This platform enables the identification of measures to unravel the time differences that some physicians exhibit, in order to, subsequently, improve the whole process of electronic medical prescription.

INTRODUCTION

The Electronic Health Record (EHR) is a Health Information System (HIS) that collects all the information of a patient from various information systems, including his medical history. The EHR covers several hospital departments and units, enabling an analysis of the clinical process. It should be noted that it is oriented to the patient and not the service unit or even the diseases to which they are subject, i.e., it stands with the firm intention of benefiting the patients (Duarte et al., 2011; Hasman, 1998).

The EHR is nothing more than a set of standardized documents used for the registration of medical procedures rendered to a given patient in a given hospital unit by health professionals. Essentially, it is a set of information compiled by health professionals, which corresponds to the full data record of a given patient, including all the existing information about him. Hereupon, it tracks the general state of the individual and allows the preparation of the same clinical history, chronologically, and it also enables remote and simultaneous access to any clinical process (Duarte et al., 2011; Hasman, 1998).

This HIS is seen as a set of registration annotations and use of clinical information for better delivery of healthcare services to the patient. This being the task of practically everyone who works in the hospital, they all contribute to a better delivery of services. The EHR integrates information from various sources, from other HIS or other applications based on Information and Communication Technologies (ICT) in all its aspects, in order to replace the part, improve and speed up the assistance to the patient to accelerate certain processes, prevent medical errors, and also ease the work of all health professionals (Duarte et al., 2011; Hasman, 1998).

Besides registration, consultation and research set of clinical information, resulting from the provision of healthcare to a given patient, the EHR system also allows the prescription of medicines and Complementary Diagnostic and Therapeutic Procedures (CDTP), called the Electronic Medical Prescription (EMP). The EMP is a procedure performed by the ICT through an application, the SAM – *Sistema de Apoio ao Médico* – (Support Medical System)[1].

The EMP reduces some existing problems by improving the legibility, which does not exist in handwritten requests – data security and confidentiality of data relating to patients – since access will be assuredly restricted. It also helps with revenue management and diagnostic tests (Ammenwerth et al., 2008).

The EHR integrates the data with other information systems via the internet: collects, processes and updates data; supports research and can return the information to patients in various ways. Finally, it also allows to obtain different types of reports with a variety of font types and sizes, and still images which simplifies and assists the perception of the diagnosis by health professionals (Duarte et al., 2011).

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