

## Chapter 72

# Applied Business Intelligence in Surgery Waiting Lists Management

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### ABSTRACT

*With the advent of computer science in hospitals, Electronic Health Record comes up, with the aim of bringing the new information technologies to the hospital environment with the promise not only to replace the paper process, but also to improve and provide better patient care. The operationalization of the EHR in supporting evidence-based practice, complex and conscientious decision-making, and improving the quality of healthcare delivery has been supported by the Business Intelligence (BI) technology. Since the beginning of the 1990s, the Portuguese health system has been confronted with a chronic problem, waiting time for surgery, due to inability to respond to demand for surgical therapy. Therefore, using business intelligence and information, obtained with the construction of dashboards, can help, for example, allocating hospital resources and reducing waiting times.*

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## INTRODUCTION

Because of the infinite amount of information, the sources of information in health units are complex, varied, immense and distributed. These days, it becomes more and more valuable to ensure a significant homogeneity between medical, administrative and clinical systems, leading to the integration of the different hospital systems.

It is a reality that the waiting times in hospitals for surgical treatment are high and, in Portugal, most of the health complaints result from high waiting times (Portela et al., 2011).

Access to health care is highly influenced by the existence of waiting lists and the existence of waiting lists lead to conclude that there is an inability of the health system to satisfy the elementary human health needs and raise concerns both at efficiency and equity levels (Barros, 2008). Despite being possible to reduce waiting lists' average duration to minimum values, it's considered to be impossible the absence of waiting lists (Hurst & Siciliani, 2003).

In Portugal, a patient is submitted to a primary care consultation and, if needed, proceeds to a specialist consultation at the hospital. A document designated P1, currently electronically registered is issued by the physician allowing the patient to be placed on the waiting list for a specialty consultation. After that, in need for surgical intervention, it proceeds to the waiting list for surgery (Fernandes et al., 2010).

For hospital values, waiting time is focused on the waiting time since there is a need for a specialty consultation until it is performed, and from the moment it is decided to proceed to a surgical intervention until the agenda of it (Portela et al., 2011). It's important to emphasize that waiting lists for surgery tend to be more pronounced in countries that combine health insurance (Barros, 2008).

For the last decades, Portugal has suffered an increase in waiting lists, which may be due to aging of the population, the introduction of new technologies, leading to an increased demand for surgical interventions. Also the malfunctions in resources' distribution and the number of operating rooms available, for example, interfere directly with those waiting times (OPSS, 2003).

Over the last few years, information systems (IS) have been implemented with the aim of combating waiting lists for surgery and they intend to help in patients' management. SIGIC – Integrated System for the Management of Enrolled Patients for Surgery was implemented within Portuguese health care institutions in 2004 and led to a better planning and programming of the institution's activity, reducing waiting times through management. In addition, the acknowledgment of different situations through information systems and a more efficient management of resources, tend to create a greater response capacity of health institutions (Oliveira, 2012).

Electronic Health Record (EHR) has recently become one of the most crucial sources of clinical information, due to the expansion of Health Information Systems (HIS) (Oliveira, 2012; Peixoto et al., 2010). It is a computerized health record that contains all the clinical information concerning a patient, such as biometric information, old prescriptions, lab and imaging results, clinical diagnosis, etc. It aims to help systems to bring together all the information provided to a certain patient, providing a cross-sectional analysis of the patient's medical history in different services and different institutions and, new advanced mechanisms that integrate EHR with decision support systems begin to appear (Oliveira, 2012).

The quantity and quality of the information available in an EHR for health professionals can have a strong impact on their performance, since it guides their decision-making path. It is therefore fundamental that multiple information axes intersect in a related and coherent way (Martins, 2011).

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