

## Chapter 39

# Improving Quality of Services in Maternity Care Triage System

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### ABSTRACT

*The main objectives in triage are to improve the quality of care and reduce the risks associated to the waiting time in emergency care. Thus, an efficient triage is a good way to avoid some future problems and how much quicker it is, more the patient can benefit. The most common triage system is the Manchester Triage System that is a reliable system focused in the emergency department of a hospital. However, its use is more suitable for more widespread medical emergencies and not for specialized cases, like Gynecological and Obstetrics emergencies. To overcome these limitations, an alternative pre-triage system, integrated into an intelligent decision support system, was developed in order to better characterize the patient and correctly defined her as urgent or not. This system allows the increase of patient's safety, especially women who need immediate care. This paper includes the workflow that describes the decision process in real time in the emergency department, when women are submitted to triage and identify points of evolution.*

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## 1. INTRODUCTION

When a patient is admitted at a medical emergency department, he is submitted to a process of triage in order to determine the priority of treatment based on their clinical status. The priority of attendance is determined taking into account the clinical condition of the patient. To this end, in the hospital might be used several types of sorting systems. The most commonly used are those classification systems with five levels of severity, the Emergency Severity Index (ESI) (Murray, Bullard, & Grafstein, 2004) and the Canadian Triage and Acuity Scale (CTAS) (Beveridge R., 1999) (Cabral et al., 2013). However, these systems are efficient when it comes to emergency situations in general, revealing little flexibility to specific cases.

In the case of the Hospital de Santo Antonio(HSA), where the triage system used is the Manchester Triage System (MTS) since 2000 (Cabral et al., 2013), it was found that for women who seek emergency care for Gynecological and/or Obstetrics (GO) the system in question is not the correct one, due to the generality of the questions used in triage.

In 2010, this type of care was transferred to the Maternidade Julio Dinis (MJD) and a new system of triage specific for GO was developed with the aim of identifying urgent cases that with the MST would be classified as non-urgent, for lack of specific evaluation (Cabral et al., 2013). As quoted in the article (Cabral et al., 2013), today in the MJD Medical Emergency Department (ED), women seeking care for GO (pregnant, postpartum, non-postpartum, maybe pregnant, for Voluntary Interruption of Pregnancy (VIP) or for Cardiotocography (CTG)) pass through the triage system implemented. This Intelligent Decision Support System (IDSS) distinguishes urgent (URG) and non-urgent (ARGO) patients. This distinction is made using knowledge discovery and data mining/text techniques to predict the level of urgency and help choose the best decision for each situation. Thus, this system uses the different patient data collected by means of a questionnaire at the end of triage. This model was developed based on empirical and scientific expertise of physicians and nurses to make the first version of decision models.

Currently, when a patient goes to the MJD and is routed to the triage (usually done by nurses) it is evaluated the priority of care. The result can be URG (urgent cases) or ARGO (urgent appointments). In the URG case, the patient is answered in a few seconds/minutes, while in an ARGO case, an urgent appointment is marked.

It should be noted that this system is implemented in MJD since 2010, and during this period has been met approximately 66730 patients: 18773 in 2010, 18348 in 2011, 12445 in 2012 and 17164 patients in 2013 This system is now also supported by Agency for Integration, Diffusion and Archive of Medical Information (AIDA) and are therefore guaranteed to be interoperable with support System Nursing Practice (SSPN a.k.a SAPE), Support Medical System (SMS a.k.a SAM) and other clinical support systems that are implemented in MJD. Thus, this system of pre-triage is available online and so inserted into the set of existing eHealth system at Centro Hospitalar do Porto (CHP). It is also noted that this pre-triage system is the first phase of construction of a system of specific triage priorities for specific cases as gynecologists obstetrician cases as is currently required by the Directorate General of Health (DGS) (“Triagem Obstétrica- modelo de Triagem,” 2013).

Thus the focus of this article includes a description of the decision support system that sustains the triage service implemented in MJD and presents the possible improvements.

Beyond the introduction, this paper includes six sections. The second one is related to the background knowledge and introduces the MJD, the MTS and the OTAS and its technological foundations. The

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