

# Prediction of Length of Hospital Stay in Preterm Infants a Case-Based Reasoning View

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**Abstract** The length of stay of preterm infants in a neonatology service has become an issue of a growing concern, namely considering, on the one hand, the mothers and infants health conditions and, on the other hand, the scarce healthcare facilities own resources. Thus, a pro-active strategy for problem solving has to be put in place, either to improve the quality-of-service provided or to reduce the inherent financial costs. Therefore, this work will focus on the development of a diagnosis decision support system in terms of a formal agenda built on a Logic Programming approach to knowledge representation and reasoning, complemented with a case-based problem solving methodology to computing, that caters for the handling of incomplete, unknown, or even contradictory information. The proposed model has been quite accurate in predicting the length of stay (overall accuracy of 84.9 %) and by reducing the computational time with values around 21.3 %.

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