Hospital readmission prediction in pediatric hospitals has received little attention. Studies have focused on the readmission frequency analysis stratified by disease and demographic/geographic characteristics but there are no predictive modeling approaches, which may be useful to identify preventable readmissions that constitute a major portion of the cost attributed to readmissions. Objective. To assess the all-cause readmission predictive performance achieved by machine learning techniques in the emergency department of a pediatric hospital in Santiago, Chile. Materials. An all-cause admissions dataset has been collected along six consecutive years in a pediatric hospital in Santiago, Chile. The variables collected are the same used for the determination of the child's treatment administrative cost. Methods. Retrospective predictive analysis of 30-day readmission was formulated as a binary classification problem. We report classification results achieved