Determining preventability of pediatric readmissions using fault tree analysis

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BACKGROUND: Previous studies attempting to distinguish preventable from nonpreventable readmissions reported challenges in completing reviews efficiently and consistently.

OBJECTIVES: (1) Examine the efficiency and reliability of a Web-based fault tree tool designed to guide physicians through chart reviews to a determination about preventability. (2) Investigate root causes of general pediatrics readmissions and identify the percent that are preventable.

DESIGN/SETTING/PATIENTS: General pediatricians from The Children's Hospital of Philadelphia used a Web-based fault tree tool to classify root causes of all general pediatrics 15-day readmissions in 2014.

INTERVENTION/MEASUREMENTS: The tool guided reviewers through a logical progression of questions, which resulted in 1 of 18 root causes of readmission, 8 of which were considered potentially preventable. Twenty percent of cases were cross-checked to measure inter-rater reliability.

RESULTS: Of the 7252 discharges, 248 were readmitted, for an all-cause general pediatrics 15-day readmission rate of 3.4%. Of those readmissions, 15 (6.0%) were deemed potentially preventable, corresponding to 0.2% of total discharges. The most common cause of potentially preventable readmissions was premature discharge. For the 50 cross-checked cases, both reviews resulted in the same root cause for 44 (86%) of files (? = 0.79; 95% confidence interval: 0.60-0.98). Completing 1 review using the tool took approximately 20 minutes.

CONCLUSION: The Web-based fault tree tool helped physicians to identify root causes of hospital readmissions and classify them as either preventable or not preventable in an efficient and consistent way. It also confirmed that only a small percentage of general pediatrics 15-day readmissions are potentially preventable.

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