High Users of the Healthcare System

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Background: The greatest opportunity to reduce healthcare spending is to focus efforts on the patients who cost the most. Ten percent of patients account for fifty percent of spending. It is unclear how much of this spending is avoidable.

Objective: To characterize encounters included in the top 10\textsuperscript{th} percentile of cost, and determine the factors contributing to high cost. The encounter cost defining this threshold was $28,000.

Study Design: A retrospective chart-review of patients admitted to the Ottawa Hospital in 2010.

Patient Population: We identified a random sample of 207 admissions who exceeded a total encounter cost of $28,000.

Outcomes: A single reviewer assessed using the chart review: the type of admission (complex medical, emergent surgery, elective surgery, trauma, cancer with chemo, social, or maternal), patient age, length of stay, any complications, any service delay, any disposition delay, whether clinical decision making was inefficient, whether hospitalization improved patient’s outcome, and whether patient’s health was worse after admission. We also obtained other data from the hospital data warehouse including: annual healthcare costs for that patient, elixhauser score, number of days in ICU, patient’s discharge disposition, and number of re-admissions / ER visits within following year.

Results: There was an equal representation of both genders and both campuses of the Ottawa Hospital. The average length of stay was 38 +/- 38 days. Average Elixhauser score was 6.89 +/- 6.56, and average cost was $49,059 +/- $45,228. The most common admitting service was general medicine (19%), followed by vascular surgery (12%), and general surgery and orthopaedics (at 11% each). 29% of admissions included an ICU stay (60 admissions), averaging 12 +/- 12 days. Approximately 48% of admissions were for complex medical reasons (100 admissions), while 14% were for each of elective and emergent surgeries (30 admissions each), and 12% due to trauma (24 admissions); the remaining 23 admissions were for other causes. 124 admissions included a complication during stay (60%), and 105 included a disposition delay (50.7%). Subgroup analysis showed asymmetric distribution of disposition delays (83.3% in the trauma group, 50-55% in the emergent surgery and complex medical group, 10% in the elective surgery group; \(p=0.0017\)). Other factors leading to increased cost included a service delay in 38.2% of admissions, and inefficient care in 12.6% of admissions. The majority of admissions provided a benefit to the patient (163 admissions, or 78.7%), however close to half did have significantly worse health following their admission (85 admissions, or 41.1%). Only 39 admissions were discharged directly home without supportive care (19%), and 29 admissions ended with in-hospital mortality (14%).
**Conclusions:** A majority of patients in the high cost group experienced complications and disposition delays. Hospital costs could be reduced by anticipating / avoiding medical complications, earlier planning of disposition (as is seen with elective admissions), and earlier identification of the significant proportion of patients whose health did not improve as a result of their expensive hospitalization.