An evaluation of electronic management plans on emergency department use and cost of care.

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Background: Individualised care planning, care coordination and information sharing between health service providers have been shown to be effective case management strategies in the care of people who frequently attend emergency departments (EDs)[1]. Research shows that while these interventions improve psychosocial outcomes, few studies have evaluated its impact on ED resource utilisation[2]. At the study site structured management plans have been implemented for people who "frequently attend" the ED using pre-determined criteria. In 2012 the management plans were integrated into normal workflow processes by uploading PDF files into the clinical information system. This simple information sharing intervention within the ED has meant that those people who have a plan are positively identified on arrival and a consistent approach to their management and discharge is adopted.

Aims: To evaluate the effectiveness of electronic management plans on ED service use and cost of care among people who frequently attend the ED.

Outcome measures: Emergency department service use, inpatient admissions and total cost of care. Outcomes were measured over a six month period prior to and following each individual being placed on a management plan.

Setting and sample: A major metropolitan teaching hospital and tertiary referral service with an annual census of 65,000 visits and an admission rate of over 40%. The sample included all patients on the ED management plan registry by 30 September 2013. Those who died in the 6-month follow-up period were excluded.

Methods: A retrospective observational cohort design was used. Attendance and hospital admission data was extracted from the Inpatient Management System (iPM). For each episode of care procedure codes and weighted costs were extracted from clinical costing data.

Results: Sixty patients were included in the evaluation. These patients were on average 43 years of age, 70% male and 85% English speaking. There was a decrease in the median number of ED presentations from 6 during the 6-month period prior to each patient being placed on the registry, to a median of 2 during the 6-month post CM plan period ($p=0.021$). Additionally we observed a reduction in the number of inpatient admissions, by an average 1.8 admissions per person ($p<0.001$).This change in service use translated to a reduction in average costs of approximately $990 per patient ($p=0.005$).

Conclusion: The use of electronic ED management plans was associated with a reduction in attendances, hospital admissions and the cost of ED care. The intervention is currently applied at a single patient level and results of this study may not be generalized to other ED settings. Additionally, the dataset is not linked to

[1] Kumar GS & Klein R. (2012). Effectiveness of case management strategies in reducing emergency department visits in frequent user patient populations: A Systematic Review. *Journal of Emergency Medicine*. 44 (3) 717-729.

[2] Soril LJ., Leggett LE., Lorenzetti DL., Noseworthy TW., Clement FM. (2015). Reducing frequent visits to the emergency department: A systematic review of interventions. PLOS ONE. DOI:10.137/journal.pone.123660.

other health services so we were unable to account for attendance at other EDs. Further work is required to prospectively test the effect of the intervention in multiple settings.

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