

Research-based quality improvement in the emergency department

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Background

- In Spain, no referral from GPs is required to attend ED, with no co-payment for patients
- Emergency Department (ED) utilization shows a continuous increase.
- Overcrowding is becoming a serious problem in ED.
- Length of stay (LOS) is a key measure of ED throughput and a marker of overcrowding.
- Excess LOS in the ED has been identified as a relevant indicator for measuring quality of care in the ED and has been linked to an increase in risk for patients.
- Despite the high use of ED, little is known regarding patients profiles and health care resources consumption.
- Assess key ED processes could help clarify the causes of patient care delays and prolonged LOS and contribute to develop strategies to improving patient flow within the ED and improve quality of care.

Aims

- This abstract describes the main results of a study conducted to analyse patients characteristics as well as to identify factors associated with LOS in the General Emergency Department in a University Hospital in Madrid, Spain.

Methods

- This study was conducted at the General ED of Hospital La Paz, a University urban tertiary care centre located in Madrid, Spain.
- Hospital La Paz catchment area covers 850.000 people.
- The ED sees over 104.000 patients a year and is staffed by 24 attending emergency physicians.
- Hospital La Paz ED consists of three levels of care:
 - I. Walk-in clinic (WIC)
 - II. Emergency Care Unit (ECU)
 - III. Acute Medical Care Ward (AMCW), with 24 beds.

Methods

- The source of information was a statistical representative sample obtained from all patients attending the General ED of Hospital La Paz from 3 years:
 - 2008 (33,7%)
 - 2010 (28,1%)
 - 2013 (38,2%)
- The sample selected patients from 4 months
 - August
 - February
 - May
 - November
- 3 days of the week
 - Sunday
 - Monday
 - Wednesday.
- Information was retrospectively extracted from medical records as well as from clinical administrative data bases.
- Analysis was conducted through multivariable linear regression considering LOS in the ED as dependent variable.

Results

- Data was obtained from 956 patients, being 54.2% female, and 3.3% functionally dependent.
 - WIC: 59.3%
 - ECU: 7.1%
 - AMCW: 33.4%
- Mean age was 55.7 and Charlson index was 1.5.
- Mean LOS was 552.5 minutes and median was 315.0 minutes
- A hospital admission was indicated for 19.8% of all patients.
- The most relevant use of clinical resources was:
 - blood test (60.5%)
 - diagnostic imaging (46.9%)
 - consultation with specialists (32.5%)
 - urinalysis (10.0%)

Results

- No significant differences in LOS were obtained by:
 - Daily number of patients attending the ED
 - Daily number of hospital admissions
 - Year, month, day of the week
 - Age, sex or Charlson index
- Variables showing a significant effect on LOS were:
 - Patient dependency status
 - Level of care (AMCW)
 - Blood tests, diagnostic imaging, urinalysis, consultation with specialists
 - Type of discharge from the ED (hospital admission)
 - Afternoon-evening-night admission to the ED (<8:00 >15:00)
- An interaction was found between hospital admission and level of care, as patients admitted to the AMCW who were eventually hospitalized have lower LOS than patients who were discharged from the ED.

Limits

- This study is taking place in a single hospital
- No information from primary care or other care settings was collected (before-after the ED visit)
- No socio-economic information was collected

Bottom line

- **Patient's characteristics** (*dependency*) as well as elements related with the **process of care**, including clinical decision-making (*requesting of both consulting and diagnostic services, and the process of care in the AMCW*) and management factors (*delivery of consulting services and reducing turn-around of diagnostic tests*) should be investigated to optimizing LOS in the ED.
- These data are being used to promote a local quality improvement process in La Paz ED, including reviewing the evidence of the use of diagnostic test in the ED as well as the implementation of clinical pathways.