Impact of a new Emergency Department on Process Quality Indicators

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The Saint John Area

- 2 hospitals;
  - Saint John Regional Hospital- 24/7
  - St Josephs Urgent Care- 8am – 9pm /7days

- Safety net for patients without family doctors or those who can’t get into seeing them.
The Old Emergency Department

- Initially built in 1982 to see 25,000
- 2010 approx 55,000 pts/annum
- Inefficient processes and lay out
- Long wait times, high LWBS, long LOS.

A NEW ED?...

- First suggested in 2006 by coroner
  - Elderly lady died waiting 13 hours in waiting room with a bowel condition.
Quality Indicators

- Most commonly used to assess global performance of the ED;
  - Wait times
  - LWBS rates
- Both shown to have association with increased morbidity and mortality
Question

- What was the impact of a New Emergency Department and Improved Flow Initiatives on the Global performance of the ED at the SJRH?
- What was the impact of the new ED on wait times and LWBS totals at our sister hospital St Josephs emergency department?
Hypotheses

- Waiting times and LWBS rates are reduced as a result of flow initiatives and the building of a new emergency department.
- Wait times and LWBS rates at St Josephs ED are impacted by the new ED opening at SJRH?
Literature Review on LWBS and waiting times at emergency departments

- UK, Australia, USA, Canada, Ireland, Italy, Nigeria and Taiwan
- More adult/mixed ED papers than pediatric
- LWBS Percentages vary between 0.85% and 15% across North America
- Adverse events have been shown with long wait times and people who LWBS
Literature Review

- Characteristics of patients who LWBS (17)
- Hospital and ED factors affecting LWBS (7)
- Patient reasons for LWBS (7)
- Patients suggestions for improvements to reduce LWBS (2)
- Interventions undertaken to reduce LWBS (4)
Interventions into improving LWBS

- Studies in literature looking at interventions to reduce LWBS
- Interventions included –
  - CQI process intervention (17) - Vancouver BC
  - Accelerated Triage and Treatment Protocol (3) – Fort Hood Texas
  - Rapid Entry and Accelerated Care at Triage (2) – San Diego
  - Licensed Nurse vs Unlicensed Assistive Personnel perform Triage (4) – Fort Lewis Washington

All showed significant improvements in their LWBS rates.
Our Intervention...

- New Emergency Department
- Improved Flow Initiatives
The New Emergency Department…
Opening day May 13th 2011

- Bigger, Brighter and most definitely cleaner!
New ED

- 40 separate private rooms compared with 27 previously.
- Includes dedicated Trauma (5 Beds), Acute (18 beds), Rapid Assessment Zone (8-20 beds; varies with staffing).
Flow Initiatives

- Flow Nurse
- Streaming of patients - Trauma, Acute and RAZ
- Differentiation of doctor roles
  - Charge
    - Trauma/Acute vs RAZ
- Part-time NP initiative
Methods

- Retrospective Database Analysis
- Data retrieved from hospital administration systems for 2010-11.
- Data Retrieved included; Wait times per triage category, LWBS rates.
- 3 months of data analyzed for both hospitals before and after opening of new Emergency Department (Feb-Apr & Jul-Sep)
  - excluding 2 month transition period and
  - matched with data from same calendar months in 2010
- Analysis performed using ANOVA and student T test (MS Excel and Graphpad Prism)
Saint John Regional Hospital
(Emergency Department)
Overview

- Saint John Regional Hospital ED 2011
  - 49,974 visits
  - 3,456 LWBS
  - LWBS Rate 6.62%
Results

- Trend to reduction in wait times from 2010-2011,
- No significant change between matched triage group.
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Results

- Significant reduction in monthly LWBS rates from
  - spring 2010 (11.99%; 95% CI 7.59-16.39%) to
  - summer/fall 2011 (7.32%; 6.47-8.17%; p=0.0036)
Results

- Reduction in mean daily LWBS totals from
  - 11.98 (10.61-13.36) patients to
  - 8.87 (8.06-9.67) patients; p<0.0001) after the intervention
Results

- ED Registrations and LWBS 2011
St. Joseph’s Hospital (Urgent Care)
Overview

- St. Joseph’s Hospital UCC 2011
  - 40922 visits
  - 1262 LWBS
  - LWBS Rate 3.08%
Results

- No significant change in monthly LWBS totals from
  - 94 (95%CI 59-128) patients/month in spring 2010 to
  - 85 (22-148; p=0.44) in summer/fall 2011
Results

- No significant change in wait times from 2010-2011,
- No significant change between matched triage group.
Discussion

- Waiting times only trended towards improvement
- Interventions associated with improved LWBS rates/absolute nos, but already a trend downwards
- Changes at the SJRH had no significant effect at St Joseph’s Hospital on their wait times or LWBS rates.
Limitations

- Unable to assess which improvement or change made the greatest impact on LWBS rates.
  - More beds
  - More privacy
  - Streaming
  - Additional nurse practitioner
  - Improved management of bed placement with the flow nurse
  - More pleasant waiting room?

- Already progressive trend to reduction of waiting times prior to the intervention
- May have simply continued trending downwards whether new initiative implemented or not
Conclusions

- Waiting times and LWBS rates are reduced as a result of flow initiatives and the building of a new emergency department.
  - Wait times – trend to reduction
  - LWBS rates and no.s decreased
- Wait times and LWBS rates at St Josephs ED are impacted by the new ED opening at SJRH?
  - No significant Impact shown.
Conclusions

- FUTURE DIRECTIONS
- Need to look at length of stay to assess impact of new ED increased bed numbers.


Weiss, S.J., Ernst, A.A., Derlet, R., King, R., Bair, A., & Nick, T., (2005). Relationship between the National ED Overcrowding Scale and the number of patients who leave without being seen in an academic ED. American Journal of Emergency Medicine, 23(3), 288-294

Pham, J. C., Ho, G. K., Hill, P. M., McCarthy, M. L. and Pronovost, P. J. (2009), National Study of Patient, Visit, and Hospital Characteristics Associated With Leaving an Emergency Department Without Being Seen: Predicting LWBS. Academic Emergency Medicine, 16: 949–955.

Renee Y. Hsia, Steven M. Asch, Robert E. Weiss, David Zingmond, Li-Jung Liang, Weijuan Han, Heather McCreath, Benjamin C. Sun. Hospital Determinants of Emergency Department Left Without Being Seen Rates. Annals of Emergency Medicine, Volume 58, Issue 1, Pages 24-32.e3

Patients leaving the ED without being seen by a physician: Is same-day follow-up indicated? The American Journal of Emergency Medicine, Volume 13, Issue 2, Pages 136-141

Karen J McNamara
Questions?

Our Boss

His Boss!