More Timely Care: Effect of Online Queuing System vs. Change in Hours of Operation on Hourly Arrival Volumes

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More Timely Care: Effect of online queuing system vs change in hours of operation on hourly arrival volumes

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Background

**Problem:** Large volumes in the first hour after opening leading to catch-up workflow throughout the rest of the day.

**Setting:** Children’s Mercy Kansas City Urgent Care, 3 suburban pediatric urgent care centers in a Metro area of 2.15 million people that see over 90,000 patients a year

Objectives

**Primary Outcome Measure**
- Decrease weekend first hour arrival volumes

**Balancing Measure**
- Leveling out hourly arrival volumes

**Process Measure**
- Percent uptake of online queuing system use

Methods

**Data Source:** Arrival volume by hour from our electronic medical record

**Population:** All patients seen & discharged on Saturdays & Sundays

“Excludes "Left Against Medical Advice", "Medical Screen", or "Left Before Seen"

**Interventions**
#1 Sept 13, 2017: Implementation of an online queuing system
#2 Jan 6, 2018: Shift weekend hours 12p-10p → 10a-8p

**Timeline:** Sept 12, 2016 (1 year prior to intervention #1) to May 31, 2018 (6 months after intervention #2)

**Analysis:** 1st hour arrival volume by weekend = \( \frac{1^{st} \text{ hour volume}}{\text{Total daily volume}} \times 100\% \)

Results

**Figure 1.** 1st Hour arrival volume as a percentage of total daily volume for each weekend

**Figure 2.** Hourly arrival volumes

**Figure 3.** Percent online queue usage

Discussion

**Outcome Measure**
- Online queuing system decreased the % first hour arrival volumes & the weekend hours shift decreased it further
  
  Pre #1 1st Hour Arrival Volume 22.7%
  Post #1 1st Hour Arrival Volume 19.9%
  Post #2 1st Hour Arrival Volume 14.3%

**Balancing Measure**
- Online queuing system did not level out hourly arrival volumes. The change in hours of operation did show a tightening of the hourly arrival volumes.
  
  Pre #1 (Sept – Dec 2016) Hourly volumes 5%-23%
  Post #1 (Sept – Dec 2017) Hourly volumes 5%-20%
  Pre #2 (Jan – May 2017) Hourly volumes 6%-22%
  Post #2 (Jan – May 2018) Hourly volumes 8%-14%

Conclusion

**Online Queuing System Intervention:**
- Minimally decreased our first hour arrival volumes
- Widely popular with the patient families discerned from standard patient satisfaction surveys.

**Hours of Operation Intervention:**
- Decreased our first hour arrival volumes
- Levelled off our volumes throughout the day.

**Future Directions**
- Maintenance of decreased first hour arrival volumes > 1 year
- Evaluate hourly arrival volumes during the week