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 = 1st hour volume x100%
Total daily volume

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
- Leveled off our volumes throughout the day.

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