

Results Pending Unit: Improving Emergency Department Flow and Patient Satisfaction

Amy Hartman, B.S.N., R.N.

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Faculty Chair: Pamela Willson, Ph.D., A.P.R.N., F.N.P.-B.C., C.N.E., N.E.-B.C., F.A.A.N.P

Committee Member: Diana Dolan, Ph.D., R.N., C.N.M.L.

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Abstract

Introduction: Overcrowding and boarding patients in the emergency departments (ED) leads to unacceptable patient care and staff productivity. When there is poor patient flow through the ED the following negative outcomes occur: increased patient wait times, increased lengths of stay (LOS), and poor patient satisfaction scores which affects the units benchmark metrics. A Results Pending Unit is a physical space in the ED that includes a dedicated nurse where discharged patients can wait for test/lab results prior to leaving the ED (StudorGroup, 2019). The purpose of this study was to determine the impact of implementation of a Results Pending Unit (RPU) for patients waiting in the ED at a rural 125-bed facility with 16 ED beds would improve patient flow (wait times and lengths of stay), and patient satisfaction with ED experience.

Methods: A pre-implementation and post-implementation comparison study was undertaken to evaluate the ED workflow and patient satisfaction ratings after implementation of the RPU. Two weeks after the opening of the RPU, data from administrative computer-generated reports was analyzed to evaluate ED patient flow by wait times and lengths of stay. Press Ganey surveys were evaluated for the month of October to determine if the RPU improved patient satisfaction scores.

Results: Outcomes of workflow and patient satisfaction were analyzed post-implementation of the RPU. With the implementation of the RPU, ED workflow was improved through decreased wait times and LOS. Patient satisfaction scores increased for Overall impression of the ED but did not show an improvement in the Arrival portion of the survey post-implementation of the RPU.

Conclusion: The goal of meeting the national average wait time and length of stay was obtained by implementing an RPU. While not a direct measure, the facility patient satisfaction goal for

“Overall Assessment” increased by 3.1%. The patient satisfaction goal for “Arrival” did not show improvement in the overall goal after implementation of the RPU.

Keywords: emergency department, wait time, length of stay, patient satisfaction

DEPARTMENT FLOW AND PATIENT SATISFACTION

Emergency departments are under constant pressure to provide quality care in a timely manner (Burgess, Hines, & Kynoch, 2018). As the demand for ED services continues to increase, hospitals can encounter periods where demand exceeds supply, which leads to extended wait times and ED lengths of stay. Holding patients in the ED for extended periods of time can be detrimental to their health and have a negative effect on their outcomes. Increased lengths of stay can increase the risk and occurrence of adverse events in patients awaiting treatment (Burgess et al., 2018). With the increase in demand for ED services, supply is limited in the department and leads to long wait times, increased ED lengths of stay, and poor patient satisfaction (Burgess et al., 2018).

Overcrowding in the ED is a global problem resulting in increased wait times, increased lengths of stay in the ED, and dissatisfied patients (Zhao & Peng, 2015). Healthcare organizations are constantly searching for ways to reduce these variables and improve patient care and outcomes. These challenges are related to increasing patient numbers and limited hospital resources (Jarvis, 2016). The purpose of this study was to measure the impact of moving ED patients to a Results Pending Unit (RPU) who are awaiting disposition (i.e. test results, transfer/discharge orders, or specialty procedures) for workflow and patient satisfaction. The metrics for workflow were wait times from arrival to intake, length of ED stay, and two items from the CAHP survey.

Literature Review

The review of the literature describes the theoretical framework that guided the implementation and evaluation of the Results Pending Unit (RPU). As well as the reported

evidence supporting ED patient flow and patient satisfaction with the implementation of a Results Pending Unit (RPU).

Theoretical Framework

Improving ED process is warranted for patients to receive quality care by allowing them to be seen quicker and decrease the amount of unnecessary time spent in the ED. Transferring patients to the RPU can be linked to a person-centered care (PCC) framework. Santana and colleagues (2017) reference the Institute of Medicine's 2001 seminal report *Crossing the Quality Chasm* and identifies person centered care as the foundation and high priority for healthcare quality and patient safety. The PCC framework is designed to include structure, process, and outcome (Santana et al., 2017). Figure 1 depicts the framework and defines actions necessary with each step for the framework to be successful. The restructure of the ED process to include the RPU will lead to improvements in patient safety, ED wait times, and ED lengths of stay. Communication and integrating care between patients and their healthcare staff can make the transition from ED to RPU free of errors. Improvement of patient outcomes leads to increased patient satisfaction scores.

The theory behind an RPU is to have ED beds more available for patients needing to be seen by moving stable, discharged patients to another unit to await test or lab results. By moving patients to an RPU, patients waiting in the lobby will be processed through in a faster time, thus reducing their wait time and length of stay in the actual ED. This movement will also assist in improving their satisfaction because patients will not be stagnant in the ED bed. Figure 2 gives a visible description of ED flow from registration to physician's decision to admit to inpatient or discharge home and held in results pending unit.

Definitions

To measure the impact of the RPU on workflow the following terms are defined: Results Pending Unit, length of stay, triage time, discharge time, and patient satisfaction score. *Results Pending Unit*

Pending Unit is a physical space in the ED that includes a dedicated nurse where discharged patients can wait for test/lab results prior to leaving the ED (StudorGroup, 2019).

Length of stay is defined as the time in minutes from the patient registering and being triaged by the nurse to discharge time from the ED.

Triage time is the time the patient presents to the ED reception desk and patient is entered into the electronic health system.

Discharge time is the time that the patient physically leaves the ED after the physician determines their disposition.

Patient satisfaction score is the score received on the ED Press Ganey survey for Section A (arrival) and Section H (overall assessment). Questions in Section A that are included for measuring this metric include “waiting time before staff noticed your arrival” and “waiting time before you were brought to the treatment room” (Press Ganey, 2004). Section H (overall assessment) includes the following questions that helped measure this metric: “overall rating of care received during your visit” and “likelihood of your recommending our Emergency Department to others” (Press Ganey, 2004).

Patient flow

Zhao and Peng (2015) described a direct correlation between long ED wait times, increased lengths of stay, and overcrowding of ED's. ED overcrowding leads to bottlenecks in the ED process and it becomes necessary to identify these areas to improve patient flow (Zhao & Peng, 2015). The study conducted by the researchers investigated factors that led to

bottlenecking in the ED and implemented different steps to reduce patient wait time (Zhao & Peng, 2015). With more people utilizing the ED, patients are not able to efficiently move through the ED process. Overcrowding leads to an influx of patients needing to be seen and not enough resources to effectively care for these patients in a reasonable time frame.

Boarding is another factor that leads to long wait times for patients. Schreyer and Martin (2017) found that boarding patients prevents other individuals from being seen. This leads to long wait times as patients waiting to be seen in the ED are waiting for beds to become available for patients needing to be moved to the inpatient side of the hospital or waiting to be discharged. This also leads to high lengths of stay because patients are not flowing through the ED due to circumstances such as inpatient bed availability or pending results prior to discharge from the ED. The ED becomes a bottleneck and patients are not able to be seen because beds are being used by individuals waiting for test results, lab results, or discharge paperwork and instructions. The study conducted by the researchers yielded results that sixteen more patients were treated and discharged by utilizing an RPU (Schreyer & Martin, 2017). The practice of boarding allows for longer wait times for those patients waiting to be seen by the ED. Also, patients are being held in the ED, thus prolonging movement of patients out of the ED and freeing beds for waiting patients. Overcrowding and patient boarding can be handled with a Results Pending Unit where patients can receive good clinical care while waiting for results (Schreyer & Martin, 2017).

Poor patient satisfaction

Patient satisfaction can be important to ensure both optimal patient care and outcomes and allowing the hospital to function at its best ability. When patients are faced with long ED wait times and stagnant ED treatments, patients can easily become dissatisfied and are likely to express this dissatisfaction on the Press Ganey survey (McCraw & Fuller, 2017). Patients that are

seen in a reasonable time frame and moved through the unit to a result pending area can lead to increased patient satisfaction scores. Frank (2017) discusses that negative experiences in the ED can lead to poor patient satisfaction scores. He further describes how developing a system, such as an RPU, can keep the ED care flowing, allowing patients to feel as though there is continuous care and treatments and they are not waiting for something to happen (Frank, 2017).

Hesse and colleagues (2017) found that patients boarded in the ED produce negative perceptions of quality of care by these patients. These poor perceptions lead to negative survey results when patients are presented with the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey post discharge. By moving ED patients to a Results Pending Unit while waiting for test or lab results, or transportation, patients' perceptions can improve as they will be receiving continued treatment.

Methods

Increase wait times and lengths of stay can negatively impact ED workflow and patient satisfaction. By implementing a Results Pending Unit, more patients can be seen in the ED, as non-critical and stable for discharge patients are moved to a unit to await test results, transfer/discharge orders, or specialty procedures. The RPU was developed and implemented to decrease wait times and lengths of stay, while improving patient satisfaction scores.

Study Design

Baseline data was collected from administrative reports generated through the electronic health system. The data was extracted into an Excel worksheet dissected into number of patients seen each day of an eight-month period. Within the monthly worksheets, wait times and lengths of stay were calculated to provide a baseline number pre-implementation of the Results Pending Unit. Wait times and lengths of stay were analyzed over a two-week period after implementation

of the RPU. Patient satisfaction scores were collected and analyzed from Press Ganey (PressGaney, n.d.) surveys received from this time period.

This study used a quantitative method to measure the current ED wait times, lengths of stay and patient satisfaction scores as evidenced by the Press Ganey scores. The Director of ED provided reports from January 2019 through August 2019. These reports displayed how many patients were seen each day in the month and how long they waited in the ED prior to discharging.

Table 1 displays how many patients were seen each month for an eight-month time period and the number of hours spent in the ED from registration to discharge.

Sample and setting

This research was conducted at a rural city/county owned hospital with sixteen ED beds. The hospital is in a small town in Texas and is classified as a medium volume facility by Medicare standards, with a volume of 20,000 to 39,999 patients seen annually. The sample included patients discharged from the ED awaiting results from tests, imaging, and labs, as well as patients waiting for transportation to their place of residence.

Data Collection

Two data collection instruments were used at each measurement time. ED wait times and lengths of stay data was collected from an administrative data report generated from the electronic medical records of patients. The data from these reports lists the ED registration date and time and discharge date and time, which is the time the patient left the ED. The lengths of stay for ED patients was also generated through these reports.

The patient satisfaction score Tally Sheets were obtained from Press Ganey surveys sent out to patients monthly, who were seen in the ED. The research for this measure is based on two

sections of the survey. Sections A (Arrival) and H (Overall Assessment) were evaluated from October 2018 until June 2019. The ED goal for Arrival is 85.0% and currently based on the survey results, the ED is at 84.4%. Likewise, the ED goal for Overall Assessment is 87.4% and currently this ED is at 85.8%.

Intervention

Through planning with the Chief Nursing Officer (CNO), the Director of the ED, ED physicians and staff, and the researcher, a Results Pending Unit was determined to be an effective way to improve ED patient flow and patient satisfaction. The unit will be open from 1100 through 2300, which was proven to be the busiest time for the ED based on hospital data that included a breakdown of number of patients per hour in a 24-hour time period. It will be staffed with licensed vocational nurses (LVN) and open seven days a week. The ED staff was provided education based on purpose of change, current data on wait times, lengths of stay, and patient satisfaction scores, and projected results after implementation of the unit.

The Results Pending Unit will go live on October 15, 2019. Four LVN's were hired to staff the unit. The charge nurse will make the determination on which patients will be moved to the RPU. After two weeks of implementation, hospital reports will be collected to see ED wait times and lengths of stay and compared to pre-implementation reports. Satisfaction survey responses will be evaluated to determine patient satisfaction after the implementation of RPU.

Data Analysis

Results regarding the wait times and lengths of stay time were analyzed after two weeks of implementation of the RPU. Administrative data reports were again generated to calculate wait date and time, discharge date and time, and length of stay for the patients admitted to the

RPU over the two weeks of evaluation. Patient satisfaction scores were analyzed from the Press Ganey surveys mailed out at the end of October 2019 to determine if the implementation of the RPU improved the ED satisfaction scores.

Results

Outcomes of workflow were collected and analyzed over a two-week period. Based on the results, overall ED wait time and ED lengths of stay decreased when compared to pre-implementation of the RPU. Figure 3 depicts the time (in hours) pre-implementation and post-implementation of the RPU. The total hours of ED LOS from October 1-14, 2019 was 63.75 hours. The RPU was implemented on October 15, 2019, and the ED LOS from October 15-31, 2019 decreased to 40.46 hours.

The implementation of the RPU also resulted in a decreased wait time for ED patients. Prior to the implementation (October 1-14, 2019), the ED wait time was 10.87 hours. After implementation of the RPU (October 15-31, 2019), the ED wait time decreased to 5.16 hours. Table 2 describes the total number of patients seen in the ED in the month of October and the total LOS hours. When compared to Table 1, LOS hours were greatly decreased post-implementation of the RPU.

Outcomes of patient satisfaction were derived from results gathered from Press Ganey surveys submitted to ED patients. The sections analyzed included the Overall section and the Arrival section. Within the Arrival section, data was gathered from the following questions: waiting time before noticed arrival, waiting time to treatment area, and waiting time to see doctor.

Prior to the implementation of the RPU, the ED's goal for Overall assessment was 87.4% and the score from Press Ganey surveys was 85.8%. Post-implementation the satisfaction score

increased to 88.9%. The Arrival goal was 85.0% pre-implementation and patient satisfaction score was 84.4%. Results analyzed post-implementation did not see an increase in patient satisfaction. With the surveys received during the implementation period, the satisfaction score was 84.0%.

Discussion

Overcrowding in ED's and ineffective ED process leads to increased wait times, increased lengths of stay, and poor patient satisfaction scores. Implementing an RPU provided the ED with a solution to help improve these variables and patient outcomes. The results gathered from the administrative reports showed a decreased in ED wait times and LOS, resulting in an improved ED workflow. However, the Press Ganey patient satisfaction scores did not show improvement in one of the areas researched as expected. While the Overall satisfaction score of the ED did increase and meet the ED goal, the Arrival section did not improve when compared to pre-implementation of the RPU.

According to Medicare.gov (n.d.), the national average for time spent in the ED before leaving is 143 minutes. Based on information reported to Medicare, the facility researched is currently at 158 minutes, well above the national average. With the implementation of the RPU, the length of stay will decrease closer to the national average.

Conclusion

The RPU is an innovative way to improve patient flow and patient satisfaction in the ED. With the implementation of this unit, ED wait times and lengths of stay will be reduced, changing the way hospitals function. Patient satisfaction was expected to improve, however the results of Press Ganey surveys did not reflect improvement in the Arrival section of the survey.

However, as the RPU continues to function and the process is improved, patients will begin to see the benefits of this unit.

Improved patient flow and satisfaction can prove to have organizational benefits in both patient outcomes and financial outcomes. Decreasing wait times and lengths of stay can allow ED's to service more patients leading to increased revenue. Improved satisfaction can lead to more individuals utilizing this facility. The RPU will have great benefits to this organization.

References

- Burgess, L., Hines, S., & Kynoch, K. (2018). Association between emergency department length of stay and patient outcomes: A systematic review protocol. *JBIR Database of Systematic Reviews and Implementation Reports*. Doi: 10.11124/JBISRIR-2017-003568
- Jarvis, P. R. E. (2016). Improving emergency department patient flow. *Clinical and Experimental Emergency Medicine*, 3, 63-68. <http://dx.doi.org/10.15441/ceem.16.127>
- Zhao, Y. & Peng, Q. (2015). Bottleneck detection for improvement of emergency department efficiency. *Business Process Management Journal*, 21, 564-585.
- Santana, M. J., Manalili, K., Jolley, R. J., Zelinsky, S., Quan, H., & Lu, M. (2017). How to practice person-centred care: A conceptual framework. *Health Expectations*, 21, 429-440. DOI: 10.1111/hex.12640
- Hesse, C., Assid, P. A., Jackson, P., Schmitz, J., & Stigdon, T. (2017). Emergency department throughput. *Institute for Quality, Safety, & Injury Prevention*. Retrieved from <https://www.ena.org/docs/default-source/resource-library/practice-resources/topics-brief>
Doi: 10.1108/BPMJ-06-2014-0060
- Schreyer, K. E. & Martin, R. (2017). The economics of an admissions holding unit. *Western Journal of Emergency Medicine*, 18, 553-558. Doi: 10.5811/westjem.2017.4.32740
- McCraw, R. J. & Fuller, B. (2017). Three strategies to improve the patient experience in the emergency department. *Becker's Hospital Review*. Retrieved from <https://www.beckerhospitalreview.com/patient-engagement-three-strategies-to-improve-the-patient-experience-in-the-emergency-department.html/>
- Frank, J. (2017). Improving patient satisfaction begins the emergency department. *Becker's Hospital Review*. Retrieved from

<https://www.beckerhospitalreview.com/patient-engagement/improving-patient-satisfaction-begins-in-the-emergency-department.html>

Medicare.gov. (n.d.). *Hospital Compare*. Retrieved from

<https://medicare.gov/hospitalcompare>

Press Ganey. (n.d.). Emergency department survey. *NewYork-Presbyterian Healthcare System*.

Retrieved from [https://www.montefiorenyack.org/sites/default/files/pdf/5361ER0101-04%20\(8155%20-%20Draft,%20Tr.pdf](https://www.montefiorenyack.org/sites/default/files/pdf/5361ER0101-04%20(8155%20-%20Draft,%20Tr.pdf)

Tables

Number of ED Patients	Month (2019)	Length of Stay in Hours
2890	January	153.89
2781	February	137.14
2875	March	160.87
2779	April	147.53
2787	May	149.57
2733	June	140.22
2796	July	148.62
2641	August	139.77

Table 1. Number of Patients Admitted to the Emergency Department by Month and Length of Stay in Hours

Month (2019)	Number of Patients	Length of Stay (in hours)	Wait Times (in hours)
October 1-14 (pre-implementenation)	1,282	63.75	10.87
October 15-31 (post-implementenation)	1,453	40.46	5.16
Total	2,735	104.21	16.03

Table 2. Wait Times and Lengths of Stay were Analyzed over a Two-week Period after Implementation of the RPU.

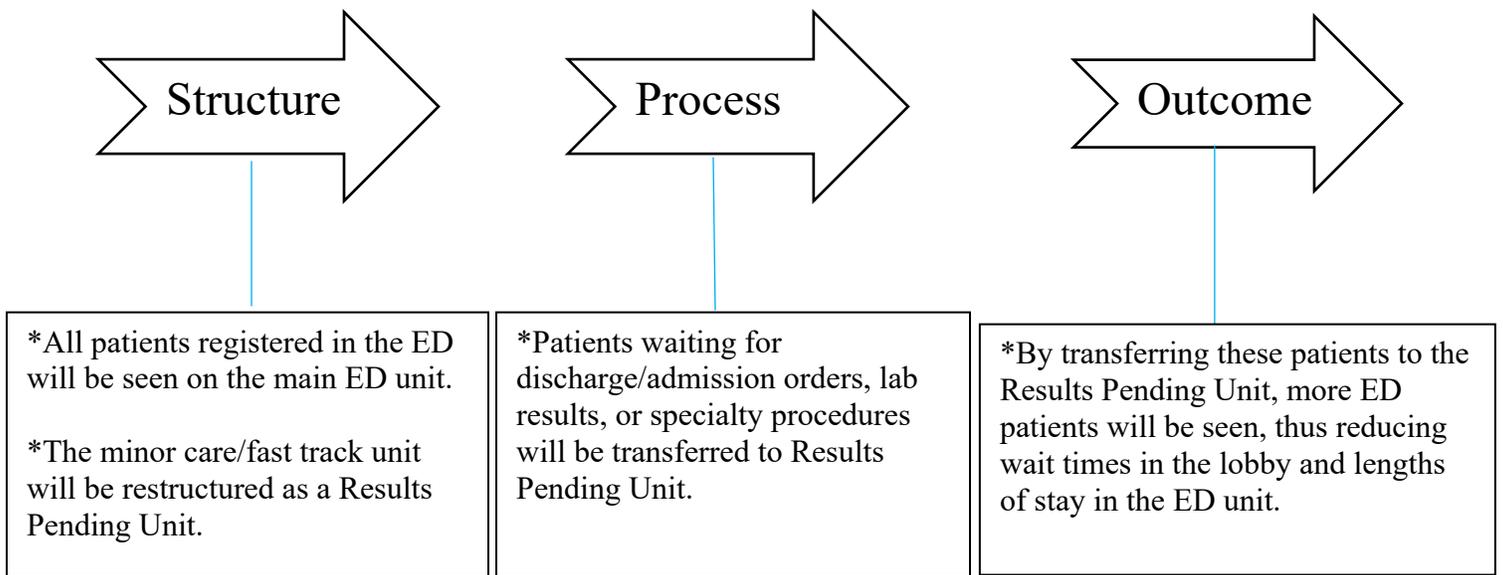


Figure 1. Framework for Patient-centered Care (Santana et al., 2017)

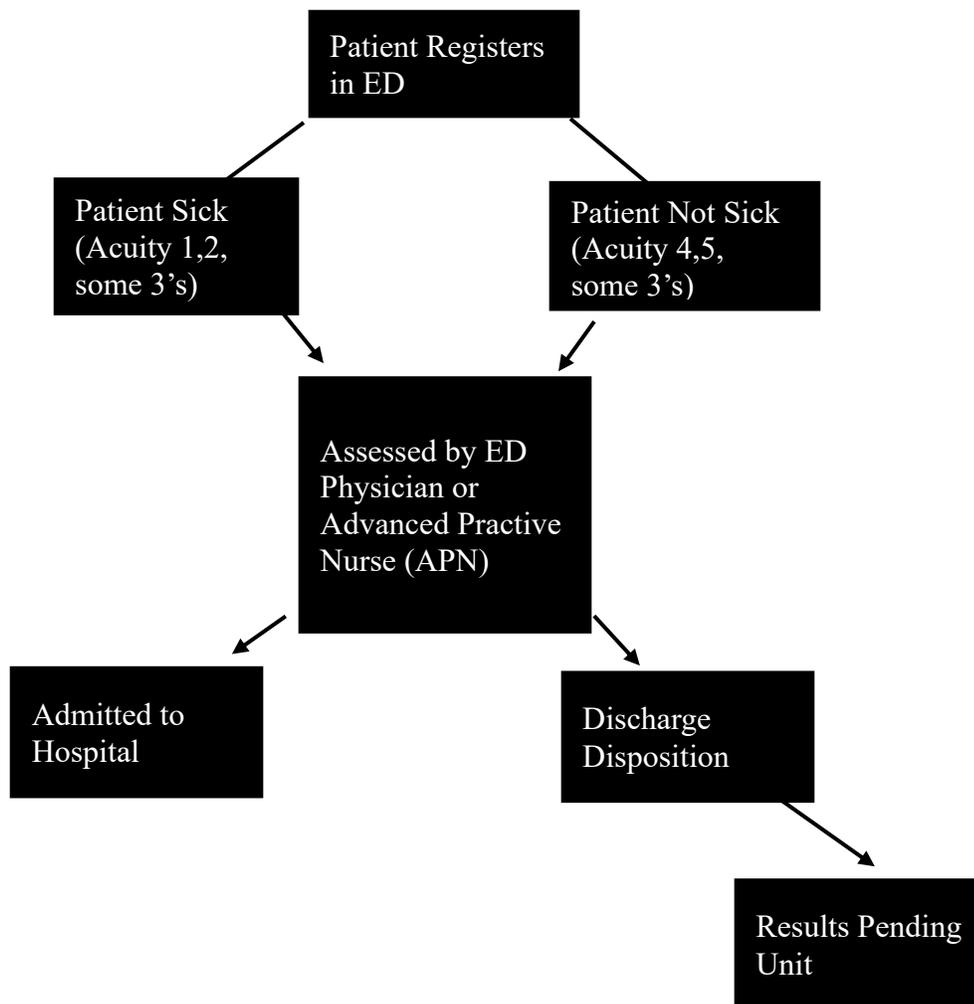


Figure 2. Emergency Department workflow illustration. Acuity levels range from 1 (most urgent) to 5 (least urgent).

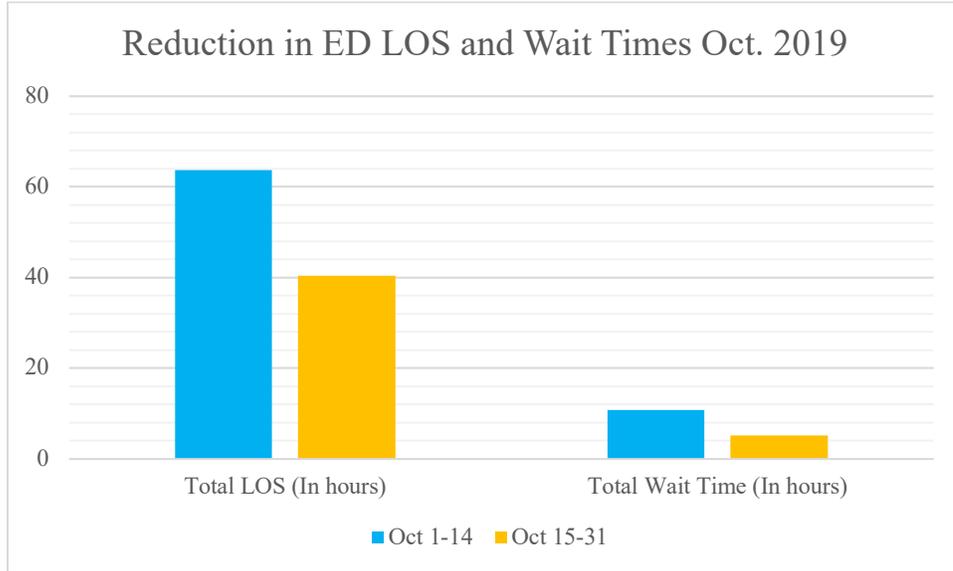


Figure 3. Emergency Department Lengths of Stay and Wait times Reduced Post-Implementation of RPU.