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Reducing Observation Unit Length of Stay Hours: A Quality Improvement Project

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by

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Abstract

An acute care observation unit provides care for patients admitted via Emergency Center (EC) or direct admission from a healthcare provider's office who do not yet require inpatient status. The goal length of stay (LOS) for these patients should be less than or equal to 24-48 hours. This project is being developed for a 22-bed observation unit in the Southeastern United States to decrease current LOS hours.

Currently, the goal LOS for this unit is 24 hours, not to exceed 48 hours, and for patients admitted with a chest pain diagnosis, no longer than 19 hours. A plan to expand current exclusion criteria will involve excluding the geriatric population over 80 years of age and patients with post-hospitalization placement issues from observation status. Expanded exclusion criteria will decrease LOS within the unit by increasing appropriate observation admissions. In addition, an after-hours discharge procedure will be implemented to allow for discharges after 1900 each day.

This project will be conducted over a 6-month trial period. Post completion of the 6-week trial period, monthly LOS hours, revenue, and patient satisfaction scores will be compared to the previous year. It is hypothesized that by expanding exclusion criteria and implementing the after-hours discharge process, LOS hours will decrease, and patient satisfaction will increase.

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CHAPTER I

Introduction

Teams serving an observation unit care for patients admitted either to a hospital from the Emergency Center (EC) or via direct admission from healthcare providers' offices that retain outpatient status. An observation patient is defined to have a length of stay (LOS) less than or equal to 24-48 hours. Prior to the 48-hour time mark, a healthcare provider determines if the patient is ready for discharge or if the patient meets the criteria to transfer to an inpatient unit. To minimize LOS for these patients, a set exclusion criterion, and a process to discharge after day healthcare provider presence must be developed to limit inappropriate admissions and delayed discharges. A project is in the developmental stages for a 540-bed hospital located in the Southeastern United States to assist in minimizing LOS in the observation unit, as currently the facility far exceeds its desired LOS goals.

Dedicated healthcare provider staff for observation units are often utilized to decrease LOS. With dedicated healthcare providers, patients have more focused continuous care. Within this unit, for 12 hours each day, there is one medical attending and one mid-level practitioner providing continual care. When test results are generated, or when a patient improves or declines, the physician staff can quickly reevaluate the patient and determine the proper disposition. Depending on the reevaluation the physician can either discharge the patient if improved or transfer to an inpatient status if the criteria are met for either status change. However, this method is only effective during the day, as there is little to no healthcare provider coverage at night.

Problem Statement

Inappropriate observation of patient admissions is the largest identified obstacle in reducing LOS hours. To address this issue exclusion criteria must be evaluated and extended to include other populations known to have longer LOS hours. Physician coverage must also be addressed to improve LOS. When tests result after the day physician's shift the patient must wait until the next morning discharge. By developing a process for these situations' patients could be discharged throughout the night; thus, decreasing their overall LOS. It is hypothesized that by addressing these issues by implementing expanded exclusion criteria and developing a process for night shift discharge within the observation unit the average LOS will decrease.

Significance

Observation units must reduce LOS. Inappropriate observation admissions can lead to lost reimbursements, decreased hospital-wide throughput, increased utilized resources, and potentially unnecessary patient expenditures. Observation status patients are only allowed reimbursements for certain testing, medications, and procedures to be completed.

Not only do inappropriate observation admissions cause financial burdens for the hospital, but they can also cost the patient. Hockenberry et al. (2013) recognized the out-of-pocket cost for patients, "Medicare patients who stay 25-48 hours had additional out-of-pocket costs ranging from $170 to $470, for stays of 48-72 hours range was $310-$860, and for stays greater than 72 hours this range was $455-$1,260" (p. 905). This out-of-pocket cost could be lessened if the patient meets the requirements for inpatient admission. For inpatient admissions, patients usually only need to fulfill their deductible.

Observation patients should be lower acuity individuals with minimal testing and treatments required prior to discharge. Having a set exclusion criterion helps to limit the occurrences of inappropriate observation admissions. Currently, the observation unit at this facility has admission exclusion criteria that include pregnancy, pediatrics (under 18 years of age), psychiatric diagnosis, and peritoneal dialysis patients. Chest pain patients have a target LOS of only 19 hours set by Chest Pain Accreditation guidelines, and all other observation patients' goal LOS is 24 hours and not to exceed 48 hours. By broadening the exclusion criteria, an increase in proper admissions should occur, thus reducing the LOS. It is important to decide on certain patient populations that have prolonged LOS hours. Identifying these patients can add further exclusion criteria to avoid inappropriate admissions in the future. Admitting healthcare providers will be able to distinguish which patients should not be in the unit with more ease with the set exclusion criteria. With these patients being excluded from the daily observation census the average LOS hours should decrease.

Currently, when the dedicated 12-hour healthcare provider staff leave for the day the patients within the unit are turned over to a hospitalist responsible for patients throughout the hospital and incoming new admissions. These physicians are not familiar with the observation patients and are not equipped with the knowledge needed to discharge the patient during the night. If lab or other test results occur after the 1900 hour the patient must wait until the next morning for discharge. LOS could be drastically reduced if daytime healthcare provider staff compose discharge instructions so nighttime physicians can complete discharge orders.

Theoretical Framework

The primary goal of an observation unit is to provide treatment to improve the patients' health and to return them to their original living state. These goals are most in line with Virginia Henderson's need theory. Henderson's theory focuses on helping the patient to be as independent as possible. Within this theory, there are 14 identified components identified to be necessary to provide effective nursing care. Ahtisham and Jacoline (2015) outlined the 14 components which include:

1. Breathe normally.
2. Eat and drink adequately.
3. Eliminate body wastes.
4. Move and maintain desirable postures.
5. Sleep and rest.
6. Select suitable clothes-dress and undress.
7. Maintain body temperature within normal range by adjusting clothing and modifying environment.
8. Keep the body clean and well-groomed and protect the integument.
9. Avoid dangers in the environment and avoid injuring others.
10. Communicate with others in expressing emotions, needs, fears, or opinions.
11. Worship according to one's faith.
12. Work in such a way that there is a sense of accomplishment.
13. Play or participate in various forms of recreation.
14. Learn, discover, or satisfy the curiosity that leads to normal development and health and use the available health facilities.

Individuals that receive care from an observation unit should be low acuity and only require minimal resources to achieve their optimal independence. Ahtisham and Jacoline (2015) stated "Henderson viewed the nursing process as an application of the logical approach to the solution of the problem" (p. 448). The dedicated nursing, healthcare provider, case management, physical therapy, and occupational therapy allow for a more consistent plan of care to be generated for the patient. All team members are centralized within the unit and able to collaborate easily by involving the patient in their plan of care. This allows the team to understand the patients' needs and provide the appropriate support needed to encourage their highest level of health and function. Supporting the patient and guiding care, along with Henderson's need theory, provides effective patient care and progression. When the patients' plan of care goals is met in a timely manner the LOS for the patient will also decrease.

Definition of Terms

Articles for this project were found by using the EBSCOHost Research Databases by searching key terms. Key terms for this search included observation unit, length of stay reduction, observation patients, protocol-driven discharge, decrease the length of stay, emergency center observation, emergency center discharge, and observation criteria.

For this project, the length of stay (LOS) is defined as the time the patient spends within the observation unit. This time begins when the patient first enters the unit and ends when the patient is discharged. If the patient is determined to need inpatient transfer the LOS is not calculated as an observation patient.

CHAPTER II

Literature Review

Benefits of on Observation Unit

The concept of an observation unit is still a relatively new idea in the realm of healthcare. Patients housed within observation units do not meet certain criteria to be considered inpatient. However, these patients still need more of a workup than an emergency center (EC) visit can provide. Since there are similarities between both EC patients and inpatients both populations must be considered when discussing an observation unit. There are factors that extend both EC and inpatient admission stays, and all of these can influence the LOS within an observation unit.

A literature review was completed by van Galen et al. (2017) to determine if acute medical units or observation units were beneficial. This review was made of two parts, a literature review of 100 articles, and phone interviews of 106 Dutch hospitals. Literature reviews were primarily from the United Kingdom, Ireland, and Australia. Researchers developed a worksheet to complete after the discussion of each reviewed study. This worksheet identified the study design, description of the unit, the population, time, goals, approaches, primary endpoint, relevance, and quality of the study. It was found that there was no consistency in these types of units; each hospital that had one of these areas implemented and utilized them uniquely. Phone interviews determined that 93 of the 106 hospitals had an EC, and more than one-third had an observation area. The placement, number of beds, staffing, and patient populations were noted to differentiate each facility. This literature showed that these areas were beneficial in the reduction of LOS hours. The main objective for these areas van Galen et al. (2017) stated should be to “provide timely

high-quality care for the acutely ill patient, in a suitable environment to achieve this" (p. 29). It was stated that the placement of these areas should be close to the EC and areas that provide diagnostic testing. Each hospital must determine how large of a unit is needed, what education staff need, and what ratios are necessary to take proper care of these patients.

Observation units were created to help hospitals appropriately care for patients that need additional medical treatment past the extent of an EC visit. Hospitals are in grave danger of losing funds if observation patients are not cared for in a timely and efficient manner. Plamann et al. (2018) produced an article focused on creating an observation unit and how it positively affects both patients and the facility. These researchers conducted a literature review of 46 articles within 10 years. They also acknowledged the fact that all observation units are unique. The importance of having a designated area to treat patients is primarily due to financial reasons but also is known to decrease LOS and increase patient satisfaction. There is a very fine line between the criteria for an observation patient and that of an inpatient. If the patient is inappropriately admitted the insurance can deny payment or cost the patient a large out-of-pocket bill.

Based on the literature reviewed, an observation unit was created to positively impact a Minnesota hospital that saw a large increase in observation patients. When observation patients are treated throughout the hospital and not in a dedicated area, care can often be delayed, and the patients get lost in the shuffle. This hospital opened a 14-bed observation unit away from the EC. Researchers determined there was no preference from the literature pertaining to if the unit was in the EC or in its own area. The team implementing the unit was multidisciplinary to gain perspective from all healthcare team

members. The unit was staffed with one nurse for every four patients, hospitalist physician coverage 8 AM to 5:30 PM each day, and an advanced practice registered nurse (APRN) after 5:30 PM. This staffing model allowed patients to receive continued treatment around the clock. This hospital noted results that surpassed the initial goals. Over the course of 1 year, the hospital reported a decrease in LOS hours from 40 down to 26 hours. Due to this decrease in LOS hours, the facility reported a decrease in cost for both the hospital and the patients receiving care. Total savings are estimated on average to be $379.20 per patient. An increase in patient satisfaction scores also occurred, mostly due to continuous physician coverage and being able to talk to physicians more than once a shift. The largest limitation the researchers noted was the EC physicians' lack of participation in referring patients to the unit initially.

The problem with long LOS hours is an issue worldwide. Ohn et al. (2017) conducted research in Korea about how to reduce the LOS hours within an EC. In the Korean hospital, this research was conducted and an observation unit was opened in August 2015 with 20 beds. This unit was enlarged in July 2016 to house 28 patients. Exclusion criteria for this unit included patients that were hemodynamically unstable and palliative cancer patients. In this facility, patients could remain in this unit for less than or equal to 72 hours. After the 72 hours, patients were either discharged or moved to specialty inpatient units. The unit is fully operational 24 hours a day and 7 days a week and is staffed with two hospitalist physicians 8 AM to 9 PM daily. In this study, 19,450 visits from January 2014 to September 2016 were reviewed. This allowed for LOS prior to the opening of this unit and after to be analyzed. Of these patients, it was found that 22% of patients admitted into the observation unit were discharged from the unit instead

of transferring to a specialty inpatient unit. Researchers found that after the implementation of the observation unit the LOS began decreasing along with the amount of time it took for patients to be admitted from the EC to an inpatient unit. It was found that the overall LOS decreased by 1 day by having the unit and being staffed by the hospitalists. It was found that by utilizing this unit, the LOS hours decreased without seeing an increase in mortality or readmissions.

Having the two physicians staffed for 13 hours shifts each day the patients can be cared for in a very timely manner. Researchers indicated that dedicated physician staff caring for patients at the beginning of their acute illness often showed noted improvement in their conditions. By providing this care for the patients there are often improved outcomes and decreased LOS. Researchers also stated the importance of the beds within this area having a quick turnover time. This allows for more patients to be placed in a timely manner and decreases the backup of patients in the EC. It was stated that a limitation of this research was that other factors that could affect the LOS were not able to be considered.

Cardiovascular disease is a prevalent issue worldwide that causes many deaths and hospitalizations each year. Often patients presenting with complaints related to cardiovascular disease require a longer hospital visit than just an EC visit. Observation units are helpful in the treatment of these patients allowing additional time and care to improve their condition well enough for discharge. Cirillo et al. (2021) looked at the use of what they called a short-stay unit and its effects on the overall patient outcomes and the benefits for the facility. A retrospective observational study was used at the State University of Campinas hospital between January 2007 and December 2018. The short-

stay unit opened at this facility in April 2011. This unit is open 24 hours a day, 7 days a week, and the population was chosen at the discretion of the EC physician's clinical judgment. Within this unit, the patients receive the same treatment as they would as an inpatient and are managed by the same cardiology physicians. This study assessed both EC and inpatient indicators. EC indicators included the number of visits, average daily census, and occupancy rate. Inpatient indicators researched were the number of hospital admission, EC admissions, direct admissions, short-stay unit admissions, mortality rates, LOS hours, and financial profits. Data was used in several statistical analyses to determine the outcome. It was found that there were no changes noted after the implementation of the unit on the number of EC visits. However, there was a significant decrease in the occupancy rate. There was also a significant increase noted in inpatient admissions from the EC. The number of cardiology elective admissions decreased along with the mortality rates of these patients after opening the unit. Upon further investigation of the patient population, it was determined that patients with a higher acuity level admitted to the inpatient units, or the intensive care unit (ICU) were mostly men with congenital heart disease. The unit was noted to have a higher discharge rate than inpatient or ICU areas. Fifty-seven percent of the short-stay unit patients were discharged home whereas the inpatient cardiology units only discharged 35% home. Of the cardiac patients admitted to the short-stay unit, 43% had to be transferred to an inpatient unit for additional treatment and were discharged.

This study did not collect any data that suggested financial gain. Researchers recognized that this type of study lacks causality. By looking at only past records many aspects of personalized patient care are lost and unaccounted for. Also, all data was

gathered from one facility, which can reduce the generalizability of the information. A reduction in the LOS hours for the cardiology patients was noted when placed in the short-stay unit in comparison to an inpatient unit. There was also a decrease in the number of elective admissions with the use of the unit.

What Populations Have Longer Lengths of Stays

Chaou et al. (2017) conducted research to be able to appropriately predict how long certain patients remain in the EC prior to discharge. This study was conducted using data gathered from Linko Chang-Gung Memorial Hospital EC throughout the year 2013, totaling 106,206 patients. The LOS began once the patients were registered after arrival and ended whenever the EC physicians made the decision to discharge. Researchers used a multivariate analysis with an accelerated failure time model to generate results. From the results, the team discovered that LOS was increased in populations of increased age, higher acuity level, patients transferred from another facility, patients receiving X-ray, CT, or laboratory testing, specialty consultation, observation patients, patients in critical condition, and patients that arrived during the dayshift. Reports indicated that patients over the age of 80 had longer stays than younger populations. This increase in elderly patients' LOS was stated to be consistent after eliminating the effects of all other factors noted to delay discharge times. When comparing both patient populations over 80 years of age and between 60-80 years of age to patients less than 20 years of age, significant differences were noted. From this research study, it was found that both elderly patients and high acuity patients were the two populations that were associated with increased LOS within this EC. With data being generated from only one hospital EC these findings may not be true for different locations.

The Two-Midnight Rule can be very difficult to adhere to within the hospital system. Relias Media (2017b), a director of a healthcare consulting firm, gave some insight as to some of the reasons adherence is so tough. As soon as the patients are admitted as an observation the clock begins counting down until the time disposition should occur. The issue with meeting this time is often out of the physicians' hands. After ordering tests or procedures the waiting game begins for staff and the patient. The patients must wait their turn to have the testing completed and then must wait for the results to be reported to the physician. Pell pointed out that for the most part many tests ordered are only performed during business hours. Therefore, if patients arrive after these areas are closed for the night or weekend, they must wait for them to open back up. This could be hours if not days before the testing occurs. Long wait times for these procedures affect the chest pain and syncope patients that make up most observation patients. Due to this long wait, she points out that the ideal procedure would be to discharge these patients after negative cardiac enzymes to follow up with outpatient testing. However, this process is hard to get physicians to follow because of the fear of a bad outcome if the patient is released prior to these tests being completed. The importance of case managers reviewing patients' charts throughout their stay to determine if they met the criteria for inpatient admission was stressed by Pell.

The other long observation stay identified in this article was for patients awaiting skilled nursing facility placement. From the Medicare requirements, a patient that needs placement in a skilled nursing facility must have a total of a 3-day hospital stay. The patients during this time do not meet the criteria for inpatient admission, however, due to this requirement, they cannot be discharged before the Two-Midnight Rule. Mark

Clemens, RN, another consultant, added that if patients are in need of inpatient admission the physicians must provide strong documentation of why the patient requires a stay greater than two midnights. He suggests that a process be put into place within hospitals to review short inpatient stays for proper documentation to ensure that they were not inappropriately admitted as inpatients instead of observation.

The type of admission and the patient's total LOS hours can greatly impact how much the patient is required to pay. Hockenberry et al. (2013) acknowledged this issue in their research study. Medicare has many requirements that must be made for payments to be approved for hospital reimbursement. For example, they noted that Medicare will not pay for observation stays less than 8 hours. In their study, they reported that observation units have evidence-based data proving that there are both financial and clinical benefits. This study focused on both the patient and hospital factors that contributed to longer LOS visits. Patients were grouped into timed sections based on the total hours of observation, the groups included 8-24 hours, 25-48 hours, 49-72 hours, and greater than 73 hours. Analysis of patient factors affecting LOS included age, race, social income, insurance, primary clinical condition, and disposition location. The hospital factors evaluated were teaching status, location, ownership, bed capacity, CAH status, market, competitiveness, and the number of patients treated in the observation unit in comparison with observation patients being treated in inpatient units. Within this study, 962 hospitals participated and reported 696,732 patients admitted as observation. Of this total it was found that 30.9% were discharged in the 25-48 hour group, 4.6% were discharged between 49-72 hours, and 4.2% exceeded 73-hour LOS. The groups that had LOS times greater than or equal to 49 were noted to be primarily composed of older, female patients that were awaiting

discharge to a skilled nursing facility. There were additional factors noted to affect the patient's LOS. They found that private insurance coverage had lower LOS in comparison to uninsured or Medicaid patients. Patients from lower social income areas tended to have longer LOS. For-profit hospitals usually have shorter stays.

A diagnosis such as fluid and electrolyte disorder, abdominal pain, and spondylosis all were seen to have LOS greater than 48 hours. It was also found that diagnoses with proven protocols such as chest pain, syncope, and cardiac dysrhythmias had shorter LOS hours and were most likely discharged prior to the 48-hour mark. With the use of a protocol-driven observation unit, physicians can treat patients easier and the number of unnecessary tests and procedures is eliminated, decreasing financial burdens for all. Protocols are proven safe treatment guidelines that benefit not only the hospital but patients as well.

The type of admission can influence many factors of the patient's hospitalization. Casalino et al. (2019) performed a retrospective study in three hospitals over the course of 4 years, January 1, 2010 to December 31, 2013. A database of discharged patient's age, sex, ethnicity, ED or elective admission, stay in the observation unit, LOS, admission type, primary diagnosis, and disposition destination was evaluated. Factors studied to determine if they played a role in the longer LOS hours were age, care type, acuity, disease-related groups, and discharge destination. From this study, it was determined that the patient acuity and the destination post discharge both increased the LOS hours for these patients. Researchers reported that elderly patients tend to have a long LOS within the hospital setting. Limitations to this study were identified to be that other factors that influence the LOS and revenue most likely exist. Also, it was not

investigated that the type of patient could not match the sample. From this study, it was determined that elderly patients over the age of 75, medical admissions, and the need for post hospitalization placement all increased the LOS hours and decreased revenue received by the facility.

Factors that Increase the Length of Stay

Many of the same process implementations to reduce the EC LOS can also reduce observation unit LOSs. Probus and Smith (2020) produced a study with the goal of reducing the throughput times in an EC. By decreasing the LOS in both the EC and an observation unit, both patient satisfaction and hospital reimbursements may both be positively affected. In this study, the goal was to reduce the LOS by greater than or equal to 50% and to reduce the time it took for the patient to see a provider. Some implementations that were observed were treating lower acuity patients in another area outside of the EC, a nurse in charge of patient movement, an area for both inpatient and discharge areas, and promptly moving inpatients to open bed assignments. These implementations were initiated with the help of an investigator being present in the department 12 hours a day post staff education.

The hospital used in this study was a Kentucky 24-bed hospital in a medically underserved region. There was a total of 276 records evaluated in this study, 122 within the first 10 days of May 2018, and 143 during the same time in 2019. Researchers indicated that the subjects in both groups had similar age and gender populations. The sample in 2019 was post improvement initiations. From these subjects, the average LOS was evaluated and compared to previous and post implementation. It was found that the LOS hours decreased by 67%, the disposition to departure time was reduced by 70%, the

time it took for nurses to receive orders decreased by 92%, diagnostic tests were resulted 63% faster, disposition decisions were determined and written 90% quicker, and the actual departure from the unit decreased 70%. From the independent sample t tests, it was determined that there was a significant difference between the LOS for the pre-intervention group in comparison to the post-intervention group. It was found that the average LOS decreased from 391 minutes down to 130 minutes. It was also determined that the disposition to departure times was significantly different. The pre-intervention group's average time was 92 minutes and improved to 28 minutes postintervention. Many of the delays noted were due to transportation issues or ambulance times to transfer the patient. Limitations of this study included patient volume being higher than previous times, changes in physician staff, and the investigator being present during high volume times. Some of the noted improvements to the average LOS could have been due to staff being aware they were being observed throughout the day. The leading issue these researchers determined to affect the delay of discharge was awaiting the arrival of ambulance transport.

Lean Management and Six Sigma have been used in many ways within the hospital system to make many improvements. Allaudeen et al. (2017) researched to determine if using Lean Management implementations could reduce the LOS for patients in the EC being admitted. This is a problem for observation units as well. If the patients are not discharged from the unit, they are transferred to an inpatient unit. The process of moving these patients out of the observation unit can be long. When inpatients remain in the observation unit this causes additional resources to be utilized by these patients and away from the observation patients, causing delays in care and longer LOS hours. For

this study researchers identified three issues that caused delays in patients being assigned and placed into inpatient areas. These issues included the inability to track delays, the amount of time to have inpatient orders generated, and the non-standardization of patient handoff. To decrease the amount of time to produce inpatient orders they implemented a two-part process. First, orders were placed for what type of bed the patient would need. This allowed the patient to be moved quickly and further orders could be generated on the floor by the physicians caring for the patients. This process implementation would also decrease orders that are unnecessarily ordered by the initial physician and could also decrease the LOS.

Secondly, the researchers created a standardized report handoff sheet that the nursing staff faxed to the unit for the receiving nurse to read. After 10 minutes a phone conversation would take place to determine if there was any additional information needed prior to transporting the patient to the unit. This could be completed quickly by the primary nurse and could reduce the amount of time having to give a verbal report prior to transferring the patient out of the unit. This study was completed in a veterans' facility located in Palo Alto, California in February 2013. The pre intervention time was determined to be 1 year prior, and post intervention to be from March 2013 to February 2016. A difference-in-difference analysis was completed to determine any pre-intervention differences. Researchers determined that using Lean management and a multidisciplinary partnership helped to produce positive results. During this study, the team met together each day to discuss all patients admitted in the past 24 hours and to determine if there were any delays and the reasons behind the delays. This allowed the team to identify in real-time issues that hindered the transfer of patients and address them

quickly. They found that the EC LOS for admitted patients decreased by 2.3 hours or 26.4% during this study. This decrease occurred even though admissions during this time increased by 14%. They noted their success was due mostly to what they believed to be multidisciplinary involvement. By having members from multiple teams, input can be gathered from these areas and used to create the best process and give each other insight into issues faced each day. Limitations to this study were the use of a single facility and only using the veteran population.

Dada and Sule (2019) produced a study to determine factors that prolong the observation of patients' LOS. Within this study one factor examined was the use of a "clinical decision unit (CDU)," a separate area used to house the observation patients. When there is not a dedicated area to treat observation patients in the ED or in a separate unit, these patients are scattered throughout the hospital with all other inpatient admissions. The researchers used a retrospective analysis of data gathered from electronic medical records of 2,981 patients within a CDU, and 1,248 observation patients distributed throughout the hospital during 2017. This study was executed in quarterly phases. Phase 1 data were collected with no interventions as a baseline, CDU patients were cared for by ED staff and scattered patient care was provided by hospitalists within their area. During phase 2 a designated case manager was assigned to the patients housed within the CDU. In addition to the case manager in phase 3, a physician advisor was assigned to this area to review patient records and work with a case manager to attempt to accelerate disposition. Lastly, in phase 4, instead of the patients' electronic records being reviewed, personal physician rounding and personal communication with the case

manager were implemented. Data was gathered throughout these phases and descriptive statistics were calculated.

From the data collected there were both significant and insignificant findings determined by the study to influence the overall LOS for observation patients. It was found that the number of discharges for both inpatient and observation had no significant effect on the LOS for observation patients. For observation patients, the time of year and the day of the week of hospitalization were insignificant in LOS. However, it was found that the time of day the patient was admitted did influence the LOS. Patients who arrived between the hours of 2000 and 0559 were found to have shorter LOS. Researchers considered this difference to be due to physician evaluation. The patients who were admitted throughout the night were rounded on first by physician staff, beginning their daily plan of care earlier. The implementation of physician rounding a determined number of times throughout their shift could improve the LOS for all observation patients. There was also no significant difference reported on the effect of having a dedicated physician advisor, a case manager, or medical students. There was a significant difference noted in LOS for patients assigned to the designated CDU area than the patients spread throughout the hospital. Another identified factor that affected the LOS was post discharge placement needs. The patients that were discharged home had shorter LOS in comparison to the patients that required skilled nursing facility placement. The researchers noted two significant limitations to their study. They identified that more patients scattered throughout the hospital needed both inpatient admission and discharge to a skilled nursing facility. This indicated that more acute patients were placed in the hospital setting rather than in the CDU. With the implementation of the phase, this study

confirmed that the CDU was effective in decreasing LOS hours. However, the patient populations within these two settings may have been skewed.

Many successful interventions in the reduction of LOS in an EC can be helpful in an observation unit as well. Within an observation unit, the total LOS goal is between 24-48 hours. Burke et al. (2017) produced a study that looked at the effects of an evaluation and referral model at the Royal Brisane and Women's Hospital. This study was conducted in a prospective observational approach comparing pre and post implementation data. Pre-implementation data was collected between February 4, 2012 to August 4, 2012, and compared to post implementation data collected between February 4, 2013 to August 4, 2013.

This model was designed to require evaluation and referral within a 2-hour period to reach the goal of 4-hour LOS in the EC patients. This assessment was based on a team with an attendant overseeing the decision-making process. At the 2-hour mark, the team reviewed all results and reevaluated the patient. Then, the patients were divided into one of two groups: a hot or cold group. If the decision to admit occurred, then the referral to inpatient medicine was completed, and if believed right for discharge that process was started. Post implementation of the timed reevaluation this hospital has seen a decrease in the LOS hours for the EC patients. Having set evaluations of the patients with a team discussion helps to identify the patient's plan of care earlier and choose the appropriate disposition in a more timely and efficient manner.

Pre-Admission Screening

Relias Media (2017a) is a nurse manager of a 16-bed observation unit in Rockford, Illinois. It was found that with the implementation of this observation unit

there was a significant reduction in the overall LOS for observation patients within this unit compared to observation patients in inpatient areas. Relias Media (2017a) reported that on average each observation patient contributed $587 of revenue to the hospital. The patients within these units are charged less, but the difference in the less testing, nursing time, and medications are positive toward the hospital overall. The use of standardized protocols is used in this facility which does not allow for a lot of additional tests to be added by the physician. The nursing staff and case managers in this observation unit are educated on the requirements of inpatient admissions. Relias Media (2017a) reports that physicians rely on case managers and nursing staff to help determine appropriate admissions into the observation unit. This not only helps reduce the number of inappropriate observation admissions, but it also facilitates patients being transitioned to inpatient status when warranted. The nurses and case managers can discuss the patient's plan of care with the physicians and make suggestions for inpatient admission. It was reported that in 2015 a total of 18.4% of the patients treated in the outpatient unit met inpatient criteria and were transferred. This hospital also looks for patients that are admitted as inpatients incorrectly and transitions them to the observation unit.

When admitting a patient into the hospital, the admitting provider must make the determination if that patient meets inpatient or observation status. If the patient is admitted under an inappropriate category, insurance can refuse to reimburse for services provided. This determination at the time of admission is crucial to not only the hospital but the patient who may be left owing for their care. Fulchiero et al. (2020) addressed this issue, reporting many times the criteria for appropriate admissions are not fully understood by the admitting physician. In a Mid-Atlantic suburban children's hospital,

these researchers implemented a process to help decrease inappropriate observation admissions. They began this implementation by creating a use-review (UR) physician advisor position. The responsibilities of this role included providing physicians with education, providing guidance for correct assignments, and being a liaison to facilitate change of status when physicians were hesitant when approached by UR managers. When first executing this process, the UR team would review all observation admissions once a day to determine if they in fact met observation criteria or if they needed to be transitioned to an inpatient. Later this role evolved into reviewing these admissions twice a day, continuing education, dealing with payer denials, and determining which denials to appeal.

The overall goal for this project was to improve appropriate inpatient admissions from 75.6% up to 90% within 2 years. Along with this improvement they also sought to decrease the number of observation patients that had LOSs over 48 hours. During their study, a total of 4,347 patients were investigated. They saw an increase from 75.6% to 82.7% in appropriate inpatient admissions, and patients remaining in an observation status over 48 hours decreased from 6% down to 3%. Researchers did not reach their goal of 90% during this time frame, however the changes seen were positive. The most notable of these changes was the decrease in the observation patients' LOS over 48 hours was reduced by one-half. It is also worth noting that the feedback the researchers generated from this project was very positive from the physicians that were educated to understand the criteria of inpatient versus observation status more clearly.

The Two-Midnight Rule was put into effect in October 2013 by the Centers for Medicare and Medicaid Services. Patients requiring less than a two-midnight stay in the

hospital are placed in observation and patients that stay longer than two-midnights meet inpatient status. Wright et al. (2018) stated “on average, Medicare pays hospitals $5,142 for a short-stay hospitalization and $1,741 for an observation stay” (p. 166). This is a large difference in the amount of funds the hospital receives between short-stay inpatients and observation patients. If auditors deem a patient not to have met the inpatient criteria, the payment claim may be denied. Therefore, it is very important to make sure that patients receive appropriate admission orders and placement.

Wright et al. (2018) used data collected by Medicare from nearly 2.8 million stays between 2008 to 2010 on the total number of hours patients remained under observation status. After obtaining this data the “calculated crude 30-day rate of mortality, readmissions, and return ED visits stratified by observation stay length. Finally, we calculated direct standardized rates, adjusting factors that were available in the claims data, and that we hypothesized a priori were likely to be associated with our outcomes of interest or the likelihood of experiencing a long observation stay” (p. 167). Of the entire observation population studied, 7% had stayed longer than 48 hours. From this information gathered the researchers did report an increase in LOS hours for elderly patients. For patients with LOSs lasting more than 120 hours there was an increase in 30-day mortality rates, readmission rates, and return ED visit rates. Data gathered from these researchers only focused on the admission status and LOS hours for these patients. Without clinical data, the determination that these patients were appropriately admitted could not be determined. From their findings, this group of researchers recommended that the observation or inpatient status be applied at the end of the patient’s hospital stay. By determining this status based on how many hours the patient spent in the hospital would

take the guesswork away from the admitting physicians. However, researchers did not take into account that often bed assignments mixing inpatient and observation patients would increase hours for observation patients to receive treatment, creating longer stays for these patients.

The Use of Protocols to Reduce Length of Stay

Within some facilities where observation units are utilized, the EC houses the area for patients to be treated until discharge. Sun et al. (2013) used a randomized clinical trial in five different EC locations between March 1, 2010 and October 21, 2011, to determine if an observation syncopal protocol would decrease hospital admissions and LOS. By conducting this study with different locations, the patient population is diverse and can be generalized and easily replicated. EC physicians used outline criteria to determine if the patients were low, intermediate, or high risk. High-risk patients were admitted as an inpatient, low risk were discharged, and intermediate patients were admitted based on the physician's clinical judgment. In this study, high-risk individuals were noted to be the elderly population, and there were no differences noted due to gender. A total of 287 patients were categorized as appropriate within the intermediate risk group, and of these individuals, 1,254 were utilized. The deemed intermediate patients that participated in this study were randomly assigned to a group in which the observation protocol was utilized or a group that received a regular inpatient hospital admission. In this study, the patients were only allowed to stay within the unit for a maximum of 24 hours. If findings indicated they met inpatient status, or if the results would not be completed prior to the 24-hour mark, patients were transferred to an inpatient unit. The treatment that patients

received in each group was identical, and the corruption of the trial was limited due to the groups being in separate areas.

Concluded from this study, the syncope observation protocol not only reduced inpatient hospital admissions by 77% but there was also a reduction of 18 hours in the LOS in these facilities. Within this sample, there were no differences noted in the 30-day and 6-month evaluations of patients who had a serious diagnosis post hospital visit. There were also no noted differences in patient satisfaction between the inpatient and observation patients. Many constraints of this study were eliminated by using the computerized random assignment to groups. Limitations of this study were identified by the researchers. Sun et al. (2013) stated that one limitation was at least half of the eligible patients were excluded from the study by the physician's clinical judgment. Another limitation was that cost analyses did not include the patients' costs. Researchers also noted that there was an unevenness between the two groups with abnormal ECG results. This was deemed to be from the small sample size of the study. Overall, the utilization of the syncope observation yielded decreased inpatient admissions and reduced LOS hours with no negative impact on the patients' outcomes. Within this study, the elderly population was noted to be at higher risk and was not good candidates for the observation status.

With the use of the syncope protocol, a reduction in the LOS hours was observed, however, observation units are filled with patients with multiple diagnoses. Southerland et al. (2018) produced a study in which the use of 36 observation protocols were used to reduce the LOS hours within an EC observation unit. Protocol-driven observation units have been determined to not only reduce the LOS, but they also decrease the number of

patients admitted as inpatients and save the hospital money. By using protocols, care can be delivered in a more efficient, consistent, and safe way. Of the 36 protocols, if a patient did not fit into a certain category there was also a general protocol to be used. This study was conducted as a retrospective chart review in a 20-bed observation unit located within an urban tertiary care hospital. A total of 984 charts were randomly reviewed from October 1, 2015 to June 31, 2017. The unit was staffed with an advanced practice provider 24 hours a day overseen by an EC physician, and the staff was cross-trained in care for observation and emergency patients. Utilizing this type of staffing allowed for simple procedures to be performed at the bedside and reduced the use of additional resources. Of these patients, 23.5% required inpatient hospital admission. Primarily this study focused on LOS hours but also evaluated the use of consultants and return EC visits within 72 hours and 30 days.

It was found that with the use of a protocol-driven observation area the geriatric population admissions decreased by 55%. With the use of the observation area, these patients are allowed more time to improve prior to inpatient admission. The most used protocols were chest pain, general, TIA, abdominal pain, and cellulitis. Of the 984 patients in this study, 681 had one or more consultations, and 225 had two or more. It was determined that patients requiring at least one consultation had more admissions and longer stays. However, with the use of co-managing, the specialty physicians were able to help in the care of these patients without taking over full care. With the use of protocols, many patients were able to be treated in the observation unit without having to be admitted as an inpatient.

Earl and Wang (2015) looked at the importance of using a protocol-driven model for decreasing observation LOSs. They conducted a quality improvement project to determine the effectiveness of protocol versus non-protocol observation units. In this study, data was gathered from a non-protocol observation unit from November 1, 2012 until October 30, 2013. After this data was gathered the implementation of utilizing EC physicians and advanced practice providers with the use of protocols was completed. Data for the protocol-driven unit was collected from November 1, 2013 to October 30, 2014. A total of 6,266 patients were seen during the baseline data collection. This population was treated in the observation unit with no set protocols and the average LOS in hours was seen to be 45.58±39.12. During the protocol-driven trial phase, a total of 6,452 patients were seen with an average LOS of 30.60±17.67 hours. This difference was found to be significantly different. With the use of protocols, there is less room for the physicians to have to clinically decide how to treat the patient. When patients are admitted with a certain diagnosis a protocol for that diagnosis is followed. Patients receive the same testing and depending on the results the patient is either discharged or transferred to inpatient status.

Researchers identified the common diagnoses placed within the unit were chest pain, dyspnea/shortness of breath, end-stage renal disease on dialysis, syncope, and asthma/chronic obstructive pulmonary disease exacerbation. When reviewing patients in these two groups with these diagnoses, there was a significant difference noted in LOS. It was found that the protocol-driven patients were dispositioned faster than the non-protocol group. This study reported no significant difference related to the age or sex of the patients within each sample.

CHAPTER III

Needs Assessment

Target Population

The target population for this project is hospital administration and the healthcare providers that work within the observation unit. These healthcare providers and hospital administration have set goals for LOS that they are striving to obtain. By implementing these changes, it is hoped that the appropriate patients will be admitted with a process for later discharges resulting in shorter observation LOS.

The patients admitted as observation to this unit are the secondary target population. Patients that meet the requirements of observation status are those of low acuity. Observation patients should be discharged from the facility or transferred to inpatient status prior to meeting the 48-hour LOS. Primary diagnoses commonly treated within the unit include chest pain, congestive heart failure exacerbation, transient ischemic attack, syncope, and gastrointestinal bleeding. This project aims to reduce the total LOS for these identified observation patients.

Target Setting

This project will be based in a 22-bed observation unit located within a 540-bed hospital located in the Southeastern United States. The facility serves as primary medical coverage for three neighboring counties and provides excellent patient care. Hospital staff members are dedicated to improving patients' health and satisfaction. Inpatient medicine provides medical coverage for most of the patients within this unit. A dedicated medical attendant and a mid-level practitioner provide care for these patients for 12 hours each

day, 7 days a week. Throughout the night hours inpatient medical staff provide coverage when needed but do not conduct daily rounds.

Sponsors and Stakeholders

The dedicated observation unit manager will serve as the project manager. The medical director of the inpatient medical group will be recognized as the project sponsor. Identified stakeholders include the observation patients, the Chief Nursing Officer, divisional directors of the unit and the emergency center (EC), clinical observation unit staff, case management, and inpatient medical staff. The throughput of patients is extremely important within the hospital setting. Therefore, the average patient LOS is crucial in increasing throughput. Reducing observation LOS also affects external stakeholders such as insurers that the facility looks to for reimbursement.

SWOT Analysis

Prior to the implementation of the LOS reduction model a SWOT analysis was completed. The observation unit is the internal environment and the hospital itself is the external environment within this analysis. Internal analysis of the unit outlines the strengths and weaknesses of the area itself, while external analysis focuses on opportunities and threats to the hospital. Detailed internal and external analyses are included in Figure 1.

Figure 1

SWOT Analysis of RTU Observation Criteria Expansion

Strengths	**Weaknesses**
• Dedicated 12-hour physician staff • Staffing grid • Staff knowledge of identifying excluded patients • Physician and staff communication • Expediting labs and testing • Advocating for discharge or inpatient conversion • Dedicated charge nurse 24 hours a day 7 days a week. • Dedicated free admission and discharge nurse Monday-Thursday 10 hours each day.	• No night shift physician coverage • Physician resistance • Multiple physician groups housing patients in the unit • New nursing and physician staff
Opportunities	**Threats**
• Appropriate patient placement • Less Emergency Center holds • Increased financial revenue • Lessened strain on ancillary departments • Decreased LOS hours	• Inappropriate patient placement • Overflow of inpatients

Internal Environment

There are many strengths identified within the observation unit. The unit itself has a dedicated physician staff for 12 hours a day, 7 days a week. This often allows for the same physicians to care for the patient until disposition. With physicians based on the unit, they are readily accessible to nursing staff, thus encouraging open communication, and allowing for easier patient advocation. Physicians can interact more frequently with

the patients and receive timely updates, allowing more comfort and confidence in their disposition decisions. With this greater comfort level dispositions are made quicker, and patients' LOS is decreased.

Another strength in this unit is the observation that patients take priority over many other inpatient areas for testing and labs. The unit is staffed with both registered nurses and cardiac care associates, both can perform phlebotomy services and complete electrocardiograms. This competency allows for bloodwork and bedside testing to be completed faster while utilizing less resources. Along with this advantage, patients are also prioritized as the first patients each day to have stress and other diagnostic tests completed. This priority allows for results to be obtained quicker and for a disposition decision to be reached earlier.

Possibly the greatest strength identified is the staff. Monday through Thursday the unit is staffed with a charge and admissions/discharge nurse. With a nurse dedicated to performing admissions and discharges, this improves the primary care nurses' efficiency and discharge times. One responsibility of the charge nurse is to evaluate patients prior to their admission into the unit and speak with physicians to assure the inclusion criteria is met. Appropriate patient placement can be achieved by completing this evaluation. Staff within the unit are all familiar with the quick turnaround of patients and how to advocate for appropriate discharges in a timely manner.

With dedicated physicians 12 hours of the day, there is movement seen in the late morning and early afternoon hours. However, throughout the night patients do not have follow-up unless issues arise. If test results come in after the day physicians leave, the patient must wait until the morning for disposition. There is great potential for the

introduction of a clinical pathway or protocol for disposition to be completed throughout the night, allowing discharges to occur in real time instead of waiting for the oncoming staff to arrive. When results are completed, the nursing staff could evaluate the patient for either discharge or inpatient conversion depending on the protocol.

Physician resistance to appropriate observation admissions is another weakness in this process. Many times physicians admit patients with observation status, even when it is unlikely the patient will be discharged within 48 hours. Once the admission order is entered it is not easy to encourage some physicians to convert the patient to inpatient status. This issue must be addressed by educating the physicians on the importance of appropriate observation admissions for throughput and reimbursement purposes.

External Environment

Extending and implementing the observation admission criteria will promote more appropriate patient placements. This placement will allow patients to be dispositioned in an appropriate time frame, decreasing the LOS and number of utilized resources. With these positive changes, the hospital will be able to see an increase in revenue and a decreased burden of holds in the EC.

Utilizing the observation unit with patients will reduce the use of other departmental resources as well. While in the unit most labs and bedside testing are completed by nursing staff. This decreases strain on both phlebotomy and respiratory staff. By decreasing the strain on these departments, resources are more readily available throughout the hospital. When labs and bedside testing are completed more efficiently for inpatients, they can be cared for and dispositioned sooner, therefore increasing revenue and decreasing LOS throughout the organization.

Available Resources

The project sponsor and manager will work with an information technology specialist to develop an after-hours discharge process. A small healthcare provider group will be asked to identify concerns and suggestions for this process. Once this process is fully developed, prior to leaving for the day, healthcare provider staff will identify patients only awaiting results that will generate during the night. Discharge instructions will be generated by the day healthcare provider and held until results are reviewed. The nursing staff will notify the covering provider that results are available for review. The patient can then be discharged/dispositioned if the covering provider determines criteria is met.

Nursing education is the primary support required for this project. Within this facility, there is a dedicated clinical education team 24 hours a day. By teaming with the education department, all nursing staff can be educated during unit education rounds within a couple of weeks. Healthcare providers typically work 7 days and then are off for 7 days. Prior to the beginning of their first shift, staff meetings are held to update staff on any issues or changes. During this time education will be provided to these individuals.

Desired and Expected Outcomes

The LOS reduction model includes enhancing the exemption criteria, educating healthcare providers and nursing staff about inappropriate admissions, and developing a process to discharge patients after 1900. The new expanded exemption criteria will include individuals with post hospitalization placement issues, and the elderly over the age of 80 years old. Both identified populations have been reported in the literature review as having longer LOS hours. By implementing this LOS reduction model, the

LOS hours for patients cared for within the observation unit should decrease. This reduction of hours will be more in line with the target LOS goals set for this unit.

Outcomes for this project will be determined by comparing pre implementation LOS hours to post implementation. Reports stating LOS hours within the unit are generated daily, weekly, monthly, and yearly. Average LOS hours will be collected for 6 months post-implementation and compared to LOS hours 6 months prior to implementation. This will allow several groups of healthcare providers to rotate through the unit to gather more generalizable data.

Team Members

Several team members will be utilized throughout this project. The project manager will be the manager of the observation unit. Responsibilities of the project manager will include assisting with education, gathering pre and post implementation LOS hours, and working with technology services to design a computer-based process for healthcare providers to use for discharge after hours. The designated unit charge nurses will be utilized as review champions to ensure proper admissions to the unit. If patients are targeted to the unit inappropriately, the charge nurse will speak with the admitting physician to determine if the patient meets unit admission criteria.

The project sponsor will be the chief physician of the inpatient medicine group. Responsibilities for this individual include assisting in the development of the after-hours discharge process, and education of the healthcare provider team. Inpatient medicine healthcare providers will be provided with education primarily from the hospital's dedicated education team. This education will include the expansion of the exclusion

criteria, charge nurse review guidelines, and how to complete patient discharge after hours.

Monthly meetings will be held with all team members including the Chief Nursing Officer, divisional directors of the observation unit and EC, charge nurses, and case management. During these monthly meetings progress, weaknesses, and strengths will be discussed. From the meetings the team will be able to address issues as they occur and try to rectify them prior to the continuation of the project.

Cost/Benefit Analysis

This project has relatively low costs with possibly large benefits. Iota Communications reported an estimated average utility cost at $2.10 per square foot for commercial buildings (Iota Communications Inc., 2020). This unit on average spends $450,000 annually on operating expenses. With the anticipated decreased LOS there will be an estimated increased cost in cleaning services and linen used.

Currently, the unit is allotted $40,373 annually for linen. In previous years when the unit was not functioning as an inpatient COVID area, the linen cost was around $51,000. With this information, it is assumed that the linen cost will increase by around $10,000. In addition to the linen cost, an expected increase in housekeeping services will also occur. Annually the budget for housekeeping services is presently $4,299 for supplies. An estimated increase of around $1,000 is anticipated for housekeeping services.

Education will be provided to healthcare providers and nursing staff during regular working hours while the education team is scheduled to round in the unit. Computer-based discharge process will be developed with the internal information

technology staff. All discharge functions are already available to the healthcare provider staff to complete discharge instructions. When patients are to be discharged after hours, the orders will be completed and simply held unit night coverage to acknowledge the new results and release the instructions for discharge.

Benefits of reducing LOS hours within the observation unit can be substantial. Reducing the LOS increases hospital throughput, decreases utilized resources, allows for more patients to be treated, and thus increases the hospital revenue generated from these patients. Patient satisfaction should also increase due to the patients being dispositioned from the unit sooner, shorter EC wait times, and a decrease in patient transfers from inappropriate admissions. With the increase patient population to be served, the increased revenue from the unit with decreased LOS hours will justify the increased cost of both linen and housekeeping.

CHAPTER IV

Project Design

Goal

The overall goal of this project is to decrease the LOS hours within an observation unit. For this unit, LOS averages have remained around 29-30 hours per week. The overall goal LOS is no more than 48 hours but would prefer hours to be closer to a maximum of 24. In addition to the overall LOS goal, Chest Pain Accreditation established a goal of 19 hours for patients within the unit with the chief complaint of chest pain. By including the geriatric population over 80 years of age and patients with placement issues in the exclusion criteria, the hope is to decrease not only inappropriate observation unit admissions but also decrease the overall LOS.

In addition to the expansion of exclusion criteria, adding a process in which discharges can occur through the night should help decrease the LOS. Often the patients that have testing completed later during the day do not have results until after the 12-hour dedicated healthcare provider coverage has left for the day. When these results have not been generated, the day shift staff complete their shifts, and the patients are left waiting until the next morning for disposition. Initiating this process will allow for nursing staff to notify night coverage physicians for the discharge orders to be released and the patient to be dispositioned earlier.

The goal of this project is to decrease the overall LOS for patients in the dedicated observation unit. With the decrease in LOS hours within the unit, there will be several advantages for the hospital. The hospital should see an increase in EC throughput, decreased LOS hours, increased revenue, and increased patient satisfaction. Ensuring the

appropriate patients are admitted to the unit and implementing a process in which the patients can be discharged after 1900 each day should help decrease the LOS hours.

Objectives

There are several specific objectives for this project including the following.

- Development and education of new admission exclusion criteria by the end of 4 weeks
- Development of an after-hours discharge procedure by the end of 2 weeks
- Education of new after-hours discharge procedure by the end of 8 weeks
- Monitor LOS hours daily and generate weekly reports throughout the 6-month trial
- Monitor patient satisfaction scores monthly throughout the 6-month trial

Education of the new admission exclusion criteria will be completed by the corporate education team over 2 weeks. All observation unit nurses and healthcare provider staff will be educated during pre-shift huddles about the new exclusion criteria. This education will be provided in a brief presentation with handouts to disperse to staff for later reference needs. All staff will sign an attendance sheet after education to ensure all members have received the education within the 2 weeks prior to implantation.

After-hour discharge procedures will be developed by the facility's information technology team in conjunction with physician staff. Healthcare provider staff will be able to input discharge orders and instructions prior to the end of their shift with parameters that must be met for discharge. This function is already available in the software it will be unlocked for use and step-by-step instructions will be generated by the team for education purposes.

Education for the after-hours discharge procedures will be completed for all observation unit charge nurses and the healthcare provider staff. Unit charge nurses will be educated in one meeting by corporate education 2 weeks prior to implementation. The charge nurse staff will be responsible for notifying the night physician staff when results have been received and the patient meets discharge criteria set by the day shift provider. Healthcare provider staff will receive education on this process from the corporate education team as well during their monthly team huddle. All healthcare providers will receive this education within a 2-month timeframe, prior to working shifts in the observation unit. Healthcare providers will also be required to sign an attendance sheet after education to insure everyone received the information and tip sheets provided for future reference.

The project manager will be responsible for running both daily and weekly LOS reports. During monthly project meetings, LOS times will be reported to the sponsors and stakeholders to evaluate progress. Weekly LOS reports will be conveyed each week to the project sponsor during weekly meetings with the project manager throughout the project. It will also be the responsibility of the project manager to record monthly patient satisfaction scores. These scores will be presented along with the LOS reports during the monthly project meetings.

Plan and Material Development

This project will begin first with an education roll out prior to the beginning of post introduction data collection. The education department that serves the entire hospital will be giving the information for the upcoming exclusion expansion and night dispositions to educate nursing and health care provider staff. A brief presentation and a

reference handout will be generated by the education team member responsible for the observation unit 1 week prior to the education roll out. Once education is completed with the charge nurses and health care provider staff, the implementation of the review champions and new exclusion criteria guidelines will occur. It is projected for education to take no longer than 2 weeks during pre-shift huddles for nursing and healthcare provider staff.

The information technology team will develop the discharge and hold process prior to the go-live of this project. Healthcare provider staff will be educated within a 2-month timeframe prior to beginning their observation unit shifts on how to enter the discharge and hold orders by the education department. This education will be completed twice in monthly huddles to ensure all providers receive the appropriate information.

Charge nurses who also serve as review champions will be responsible for notifying the night coverage provider when the test results have been generated and the patient is appropriate for disposition. These review champions will be educated in a charge nurse staff meeting by the education team about where discharge parameters can be located on these patients in a brief presentation. If the patient is ready for discharge at that time, the night shift health care provider will simply release the discharge orders and nursing staff will complete the discharge. However, if the results do not meet discharge requirements the patient will need to be converted to inpatient status. The night coverage health care provider staff will then need to place orders for an appropriate transfer to an inpatient unit.

Timeline

This project will be conducted over 6 months beginning January 1, 2023. Data generated during this trial will be compared to data beginning on January 1, 2022. Hospital census throughout the year varies depending on several different aspects. To decrease the limitations of the study the same timeframe of the year will be used for comparison. Data will be gathered weekly and monthly to compare to the average LOS hours for the previous year.

Monthly meetings with sponsors and stakeholders will occur to discuss current LOS hours compared to previous hours. During these meetings, the team members will discuss possible issues and accomplishments with project implementation. These meetings will determine if changes need to be made throughout the project to enhance results. After the 6-month trial period, data will be analyzed and delivered to the hospital administration. It is hoped LOS hours will decrease significantly with the implementation of the expanded exclusion criteria and the ability to discharge after 1900 each day.

Budget

Since this unit is already functioning and operational, the yearly budget of around $450,000 will increase slightly. Due to increased patient turnover, it is anticipated the cost of linen and environmental service charges will increase, along with certain other supplies. Supplies such as phlebotomy, electrocardiograms, and other basic materials will be used more often with an increase in patients cared for in the unit. However, the increase in revenue with more units of service per hour should help off-set these cost increases.

The goal of this project is that the patient LOS hours will decrease by approximately 17%. By achieving a 17% decrease in LOS hours, the average LOS should decrease from currently around 29 hours down to an average of 24 hours. If this outcome occurs, the revenue of the unit will increase due to seeing more patients in less time and using fewer resources per patient.

With linen and housekeeping services being the largest expected cost increases an increased budget of $15,000 has been estimated to be needed. This will include the appropriate signage development for the unit to remind healthcare provider staff of the new processes. By adding this estimated cost increase to the current budget there is an anticipated operational budget of around $465,000.

Evaluation Plan

Team members are to meet each Monday briefly in an online meeting to discuss the past week's challenges, wins, and results. During these meetings, outstanding hurdles can be addressed to make improvements in real-time. Mondays were chosen so the healthcare provider staff for the past week can be present. This will inform these providers of the LOS hours for patients under their care and allow them to voice strengths and weaknesses concerning the project in the previous week. On the first Tuesday of each month project leaders will present findings to the hospital nursing administration including the observation unit's director, EC director, Chief Nursing Officer, and Chief Medical Officer. Findings to present to this group will not only be the LOS hours it will also include the patient satisfaction scores of the previous month. This project is concerned primarily with the LOS hours for the unit. However, it is hypothesized if the LOS hours decrease, a correlation will be seen with an increase in patient satisfaction.

CHAPTER V

Dissemination

Dissemination Activity

After the 6-month trial period, all data will be gathered and presented to the stakeholders and sponsors. This presentation will be led by the project manager and project sponsor. Data from pre implementation will be compared to post implementation for the 6-month trial. Weekly and monthly LOS averages, revenue, and patient satisfaction will be compared to the same timeframe as the previous year to decrease project limitations. For stakeholders unable to attend this presentation a recording will be made to disperse for later viewing.

Prior to this presentation the project sponsor and manager will review all data from both pre and post implementation timeframes. If the hypothesis is found to be true and the changes create an overall improvement in LOS hours, revenue, and patient satisfaction within the unit the recommendation to maintain this process as the standard will be proposed. However, if the 24-hour goal is not met, improvement strategies will be discussed for future processes.

Limitations

This project is being conducted in one observation unit within the southeastern United States. Therefore, the generalizability of the project is a limitation. The Institute for Health Metrics and Evaluation (IHME) (2016) reported the population in the facility's surrounding area to have a higher than national average in obesity, smoking, endocrine diseases, lung cancer, cerebrovascular disease, and ischemic heart disease. With this

higher than national average ranking, it is difficult to determine the generalizability of this project in other areas due to population differences.

Another limitation is the acuity of the current patient population in comparison to the previous year. Within this facility, many admissions are due to post-COVID health conditions that have caused an increase in cardiovascular issues. Hospital census is at maximum capacity with numerous patients holding in the EC. Overcrowding has made it difficult to transfer patients quickly once a disposition to inpatient has occurred. The inability to compare the acuity of the observation unit patients between the 2 years is a limitation of this project. In addition to this limitation, it is also an issue to not be able to compare the number of inpatients within the unit.

Implications for Nursing

Inevitably low patient satisfaction and decreased patient volumes can negatively affect bedside nursing staff. Decreased patient volumes make for less daily work for nursing staff. However, over time the decrease in the number of patients seen within a unit has a negative effect on revenue. Patient satisfaction scores and unit volumes are used throughout the facility to generate yearly performance evaluations for all hospital employees. It is the hope that with the use of evidence-based practices to expand the exclusion criteria for the observation unit there will be more appropriate patient admissions to occur. Appropriate patient placement should increase patient satisfaction scores as well as decrease the overall LOS hours for these patients. These positive changes will enhance evaluation scores for all hospital employees.

Another implication for nursing is the reduced number of needed resources per patient. Appropriate observation of patients requires less resources throughout their stay,

lessening the strain on nursing staff. Observation patients should be patients with lower acuity in comparison to inpatients. Within the unit currently, the nurse-to-patient ratio is around four patients for every nurse. Patient turnover in this area should be a rapid process, occurring within 24 to 48 hours of admission, causing multiple discharges and admissions daily. When higher acuity patients are housed in the unit, more resources and time are required from the primary nurse. Therefore, these inappropriate admissions have a negative impact on the true observation of patients' LOS and satisfaction.

Recommendations

From the literature review and evidence-based practice study, it is recommended for the observation unit to implement an expanded exclusion criteria and after-hours discharging process. With these implementations, there should be a positive impact on patient satisfaction and the LOS hours within the facility. These improvements will generate higher revenue, increase of the number of patients treated within the unit, increase patient throughput, and higher patient satisfaction rates.

Inappropriate admissions can cause an increase in patient dissatisfaction. The observation unit is unlike normal hospital units. This area is an old ICU space with limited shower access and privacy. For patients not exceeding a 48-hour stay, this area is adequate to meet the needs of both the patient and family. However, when patients are required to stay longer than two midnights the area is less suitable to meet their comfort needs. Ensuring the correct patient population is placed in this area will increase the satisfaction rates of these patients.

Also, allowing patients to be discharged or transferred to an inpatient area when results are generated will increase patient throughput and satisfaction. The delay in

waiting for the dayshift health care provider to return and review results prior to completing a discharge can be very dissatisfying for the patient and family. When these patients wait for hours with no new interventions being performed, they feel often they are wasting time and money. Allowing these patients to be discharged or to initiate continued inpatient care throughout the night will lower the overall LOS.

Conclusion

In conclusion, many positive outcomes can be generated from the implementation of this project. Expanding the exclusion criteria to include patients with post hospitalization placement issues, and elderly individuals over the age of 80 years old will generate a more appropriate observation population. With appropriate patients, the observation unit will be allowed to function as it was intended and generate faster patient dispositions. Shorter LOS hours will create increased revenue for the unit and hospital, increase patient throughput, decrease emergency center wait times, decrease ancillary department utilization, and increase patient satisfaction.

In addition to the benefits from the broadened exclusion criteria, there will also be benefits from implementing the after-hours discharge process. With the implementation of this process, discharges can occur more often in real time, allowing the patient to return to their normal life as soon as possible. After-hour discharges will continue to decrease the LOS and enhance all the benefits of this decrease. The utilization of after-hour discharges will increase patient satisfaction by completing the disposition process in a timelier manner. In addition to the increased patient satisfaction, there will also be an increase in patient volumes within the unit. Decreased LOS hours will increase the number of patients treated within the unit, causing an increase in revenue.

Stakeholder Feedback

The director of the observation unit was presented this quality improvement project to receive feedback. This stakeholder acknowledges the significance of this project and voiced her support. The LOS hours for this unit must decrease to increase patient volume, revenue, and patient satisfaction. Following the presentation strengths and weaknesses of the project were discussed.

It was agreed that 24-hour physician coverage is needed to decrease LOS hours within the unit. Implementing the after-hours discharge process will create quicker dispositions for patients. An identified challenge is having a physician dedicated to completing this process after hours. In the future, an additional night physician may need to be added.

With extended discharge capabilities, it was determined certain tests, such as magnetic resonance imaging (MRI), stress testing, and echocardiograms should also extend testing hours. Currently, these areas complete patient testing at 1400 Monday through Friday. If hours were extended to 1700 more testing could be completed for disposition.

During the stakeholder presentation, another challenge was presented. Recently the insurance guidelines have changed, requiring many patients to be admitted as observation for 2 days prior to being transitioned to inpatient status. This could present an obstacle for this project due to a possible increase in inappropriate observation admissions. An increase in observation admissions may require a re-evaluation of the current patient population and LOS hours.

The stakeholder is eager to implement this project soon. It was determined that expanding the exclusion criteria and implementing the after-hour discharge process will aid in decreasing the observation of patients' LOS. The facility will experience higher revenue, enhanced patient throughput, increased patient satisfaction, and more patients treated annually.

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