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Assessing the Effectiveness of the New Senior ED Program at Summa Akron City Hospital

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Honors Research Project

Submitted to

The Honors College

Honors Project Sponsor: Scott Wilber, M.D., MPH

Abstract

Objectives: To compare the outcomes of patients seen during a pilot Senior Emergency Department (ED) program to a historical cohort of geriatric patients receiving usual ED care.

Methods: We performed a retrospective cohort analysis of quality assurance data obtained to evaluate the implementation of a pilot Senior ED program at a 78,000 visit hospital ED. The historical cohort covered 1/23/2012 to 12/31/2012. The pilot Senior ED program was implemented from 1/1/2013 to 12/31/2013. Patients 65 years and older arriving between 8:30 am and 8:30 pm were triaged to a 15 bed Senior ED. Interventions included assessment by a nurse transitional care coordinator, care protocols, education, pharmacy review and call backs on discharged patients. Data are presented as means, proportions, differences, and analyzed for statistical significance using the t-test where $p < 0.05$ is considered significant.

Results: There were 12,503 eligible visits in 2012 and 13,627 eligible visits in 2013. The mean age was 78 years in both cohorts; 58% were female in 2012 and 53% in 2013. During the pilot Senior ED program length of stay was increased (2012: 287 minutes vs. 2013: 298 minutes), admissions were significantly decreased (54% vs. 49%, $p=0.000$), and observation patients increased (2.4% vs. 4.9%, $p=0.000$). During the pilot Senior ED program, discharges to home increased by 2.7% ($p=0.000$).

Conclusions: The pilot Senior ED program reduced inpatient admissions, increased observations, and increased discharges to home significantly showing the program's effectiveness in managing acutely ill senior patients.

Introduction

Emergency departments are a crucial part of healthcare in the United States of America (US) and serve as a "safety net" for many people. In a ten-year span, from 1997 to 2007,

emergency department (ED) visit rates have increased by 3.77% (Tang, Stein, Hsia, Maselli, & Gonzales, 2010). Not only have the visit rates of the emergency department increased but also the number of emergency departments increased. In 2000, there were 1770 qualified emergency departments in the US. In 2007, there were 2489 emergency departments, an increase of 40.6%. Both of these trends show an increase in emergency department visits and number of emergency departments as years pass (Tang, Stein, Hsia, Maselli, & Gonzales, 2010). Thus, having a better understanding of emergency department visits and interventions which may change ED patient care would be beneficial.

Furthermore, due to changes in healthcare in the US over the last decade, the emergency departments are now the major decision maker for about half of all hospital admissions. Inpatient care is responsible for about 1/3 of US healthcare spending. Emergency departments will increasingly be asked to participate in reducing the growth of hospital admissions (Morganti, Bauhoff, Blanchard, Abir, Iver, Smith, Vesely, Okeke, & Kellermann, 2013). Not only is the emergency department's role in the hospital growing, but also geriatric patients are one of the most likely groups to present to the ED (Greewald, Stern, Rosen, Clark, & Flomenbaum, 2013). Thus, developing changes in care processes for the older patient population may have significant impact in a myriad of hospital measures.

Patient demographics are also changing. Baby boomers are soon becoming the new seniors (65 years and older). By 2030, 61 million people in the US will be baby boomers ranging from 66 to 84 years old. On top of the baby boomer population, there will be 9 million people who are older than the baby boomers (born before 1946) (Knickman, & Snell, 2002). Close to 70 million people of the United States of America will be seniors by 2030. What does this mean? There will be economic consequences (Knickman, & Snell, 2002). According to a

scholarly article, patients that are at or above 65 years old cost more in terms of healthcare than patients who are not at those ages (Mendelson, & Schwartz, 1993). Thus, aging of a population increases the money spent on healthcare (Mendelson, & Schwartz, 1993). If the population of seniors are increasing and if healthcare for seniors cost more, the costs of healthcare will increase in the end. It is vital to act accordingly today to make adjustments in health care geared towards senior care as the senior population grows.

Nationally in 1992, there were 1,193,743 emergency department patients. Out of that many emergency department patients, close to 15% were senior patients (65 years or older). As many as 32% of seniors are admitted to the hospital (Strange, Chen, & Sanders, 1992). The elderly patient population in the emergency department is growing. It would be beneficial to senior patients' health if emergency departments take this into account (Strange, Chen, & Sanders, 1992).

Why do we need a special ED program for specifically the elderly? Senior patients visit the emergency department more than non-senior patients. A senior patient's usually stay at the emergency department is often longer than non-senior patients. Senior patients visit to the emergency department is more urgent than non-senior patients. Admission rates to the hospital for senior patients are greater than non-senior patients. These are just the few reasons why senior patients need a special ED program (McCusker, Karp, Cardin, Durand, & Morin, 2003). What makes senior patients different from non-senior patients? Reasons for this are declining health in the elderly like increase in frailty (Aminzadeh, & Dalziel, 2002). Frailty increase as one ages. Decrease in cognitive or physical ability also occurs with age (Fulop, Larbi, Witkowski, McElhaney, Loeb, Mitnitski, & Pawelec, 2010). These are all reasons why it is important for the elderly to have their own specialized senior ED.

How is the emergency department utilized for senior care? What determines why a senior is in the ED? The first determinant on presenting to the ED is need. Need includes prior utilization and evaluated health status of the patient (McCusker, Karp, Cardin, Durand, & Morin, 2003). Another determinant is predisposing factors, which are sociodemographic characteristics of the senior patient. Lastly, the next determinant can be enabling factors, which are things like income, availability of physicians in the area, etc. (McCusker, Karp, Cardin, Durand, & Morin, 2003).

The Summa Akron City Hospital Emergency Department has been providing acute care for decades. On January 23, 2012, a newly constructed ED opened adjacent to the long standing ED. The new pilot Senior ED program was implemented in January 1, 2013. The pilot-program used a protocol that has 4 assessments for senior patients that visited the emergency department. The first assessment is a medical assessment. During the medical assessment, data are obtained pertaining to the reason for the ED visit, the patient's medication history, and assessment of the skin (Summa Akron City Hospital Senior ED Program Notes by Dr. Wilber). Next, a cognitive-assessment is performed which tests consciousness, content (memory), acute change, and delirium of the patient. The third assessment is a functional assessment, which tests the mobility of the patient. A social assessment obtains information regarding the living arrangement, steps, and assistance available to the patient. These 4 assessments are intended to obtain accurate and important information from the senior ED patient in order to effectively treat and manage the patient. Interventions included assessment by a registered nurse (RN) transitional care coordinator, care protocols, education, pharmacy review and call backs on discharged patients (Summa Akron City Hospital Senior ED Program Notes by Dr. Wilber). Press Ganey data was used to measure patient satisfaction for both the cohort and pilot elderly groups. Press Ganey

Associates is a well known company established by a research methodologist. In the United States of America, 1400 organizations use Press Ganey Associates for various measurement reasons like patient satisfaction data and quality in healthcare (Urden, 2002). Using pilot tests, client feedback, and focus groups, Press Ganey Associates assure validity of the tests (Urden, 2002).

The objective of this project is to compare the outcomes of patients seen during a pilot Senior Emergency Department (ED) program to a historical cohort of geriatric patients receiving usual ED care. The hypothesis is the senior ED program will improve ED quality for senior patients and reduce hospital admissions.

Materials and Methods

We performed a retrospective cohort analysis of quality assurance data obtained to evaluate the implementation of a pilot Senior ED program at a 78,000 visit hospital ED. The historical cohort data of Senior ED patients was implemented from January 23rd, 2012 to December 31st, 2012. On January 23, 2012, the current Summa Akron City Hospital Senior Emergency Department was opened and therefore was used as the starting point for the historical cohort. The pilot Senior ED program data were collected from January 1st, 2013 to December 31st, 2013. The criteria to be a senior patient for both the historical cohort and the pilot study was the patient had to be 65 years or older and had to have arrived to the ED between 8:30 am and 8:30 pm. These hours indicate when the Summa Akron City Hospital receives most of their senior patients. Only the patients for the pilot study were triaged to a 15 bed Senior ED. After their ED visits, a random sample of discharged patients are mailed patient satisfaction surveys using Press Ganey which is standard hospital protocol. The responses to the survey are in Likert

scale, but the Press Ganey company assigning each category 25 points converts the scale to a 100 point scale.

For part one of the data using Plato 55 program (a program used by Emergency Department staff showing all the current and past ED patients status), data for 235,139 visits were extracted by month to a Microsoft Excel file which were age, sex, chief complaint, chief complaint 2, date in, date out, length of stay (minutes), and disposition of the patient. The 235,139 visits included patients from other hospitals as well. Thus, hospital campus (Summa Akron City Hospital) was selected for when extracting the data. Year, month, day, hour, and minute of “date in” of each patient were extracted in separate columns. All the patients by month, from January 23, 2012 to December 31, 2013, were merged into one file. Pivot tables were created. Only patients that were 65 years old or older, were in the ED between 8:30 am to 8:30 pm, and at the Summa Akron City Hospital campus were considered for this study so these parameters were inserted into the “Report Filter” field. To find all the patient’s between 8:30 am to 8:30 pm, “time since midnight” column was made where the $(\text{hour} * 60) + \text{minute}$ was found for each patient which is the minutes since midnight. Patients that were between 510 minutes and 1230 minutes in the pivot tables were specified as it is the time between 8:30 am to 8:30 pm. The column labels of the pivot tables were “year” and “month”. For part one data, the row label of the pivot table was “disposition”. The “count of disposition” was found and in the values field of the pivot table. “Hospital, inpatient”, “Hospital, outpatient”, “Alive, discharge to home”, and “Inpatient and outpatient” disposition counts were found for each month in the study period and divided by the “grand total” of “count of disposition” of the month where the disposition counts for each category was found. The reason why we did this is to be able to compare the percentage of the disposition category amongst other months since other months have different total visits.

Graphs for each category were made of the percentage of disposition category from the grand total. These graphs had the dates by months on the x-axis and had the percentage of disposition from the grand total on the y-axis. Next, another pivot table was made which had no row labels and average length of stay (minutes) in the values field instead. This pivot table found the average length of stay in minutes for each month and was graphed. The average length of stay in minutes is the average time a patient stayed at the E.D.

For part two of the data using Press Ganey, data for 235,139 visits were extracted by month to a Microsoft Excel file which were hospital campus, age, sex, chief complaint, chief complaint 2, date in, date out, length of stay (minutes), and disposition of the patient. Year, month, day, hour, and minute of “date in” of each patient were extracted in separate columns. All the patients by month, from January 23, 2012 to December 31, 2013, were merged into one file. Pivot tables were created. Only patients that were 65 years old or older, were in the ED between 8:30 am to 8:30 pm, and at the Summa Akron City Hospital campus were considered for this study so these parameters were inserted into the “Report Filter” field. To find all the patient’s between 8:30 am to 8:30 pm, “time since midnight” column was made where the $(\text{hour} * 60) + \text{minute}$ was found for each patient which is the minutes since midnight. Patients that were between 510 minutes and 1230 minutes in the pivot tables were specified as it is the time between 8:30 am to 8:30 pm. The column labels of the pivot tables were “year” and “month”. These data were found which became the x-axis of several figures: “Average of Information about Home Care”, “Average of Staff Cared About you as Person”, “Average of Std. Overall”, “Average of Doctors Concern for Comfort”, “Average of Likelihood of Recommending”, and “Average if Likelihood of using E.R. Again”. The data were found from patient satisfaction surveys.

For part three of the data, foley catheters and physical therapy data were extracted from Summa Akron City Hospital Emergency Department patient data. This was analyzed from the patient quality data from 2012 and 2013 with the same patient parameters as part one and part two data.

Data are presented as means, proportions, differences, and analyzed for statistical significance using the two-sample proportion test where $p < 0.05$ is considered significant.

Results

In summary, there were 12,503 eligible visits in 2012 and 13,627 eligible visits in 2013. The mean age was 78 years in both cohorts; 58% were female in 2012 and 53% in 2013. During the pilot Senior ED program, figure 5 reports the length of stay increased from 287 minutes in 2012 to 298 minutes in 2013. Figure 1 reports admissions decreased significantly from 54% in 2012 to 49% in 2013 (two-sample test of proportion t-test: $p = 0.000$). Figure 2 reports the observation of patients increased from 2.4% in 2012 to 4.9% in 2013 (two-sample test of proportion t-test: $p = 0.000$). According to figure 3, There was a significant increase by 2.7% (two-sample test of proportion t-test: $p = 0.000$) in discharges to home in the pilot Senior ED program. Figures 6, 7, 8, 9, 10, and 11, all show a positive trend line indicating an increase in patient satisfaction as the pilot program rolled out.

Notes for Graphs: The **green lines** in the graphs indicate approximately the separation of the two cohort groups. The group to the left of the line is the historical cohort (patient data from January 23, 2012 to December 31, 2012). The group to the right of the line is the Senior ED pilot program cohort (patient data from January 01, 2013 to December 31, 2013). The dates for the graphs span from January 23, 2012 to December 31, 2013. The **red line** is the line of best fit with the **blue line** being the actual data.

PART ONE

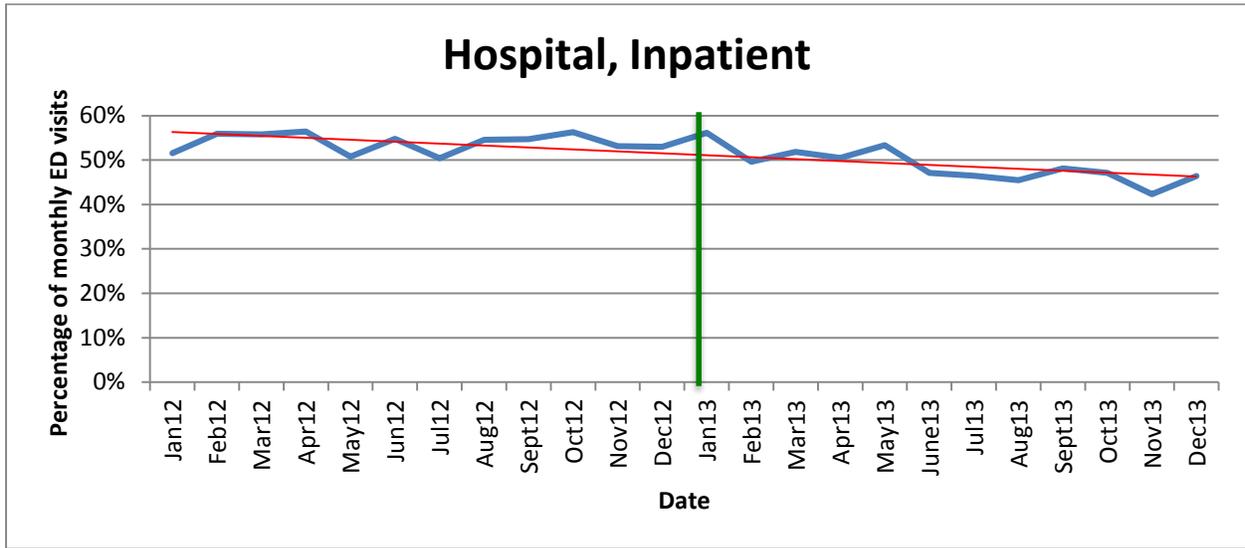


Figure 1. This graph illustrates the percentage of emergency department visits by the elderly (65 years or older) patients that were admitted to the hospital. There was a decline in elderly patient admissions as the pilot program was rolled out.

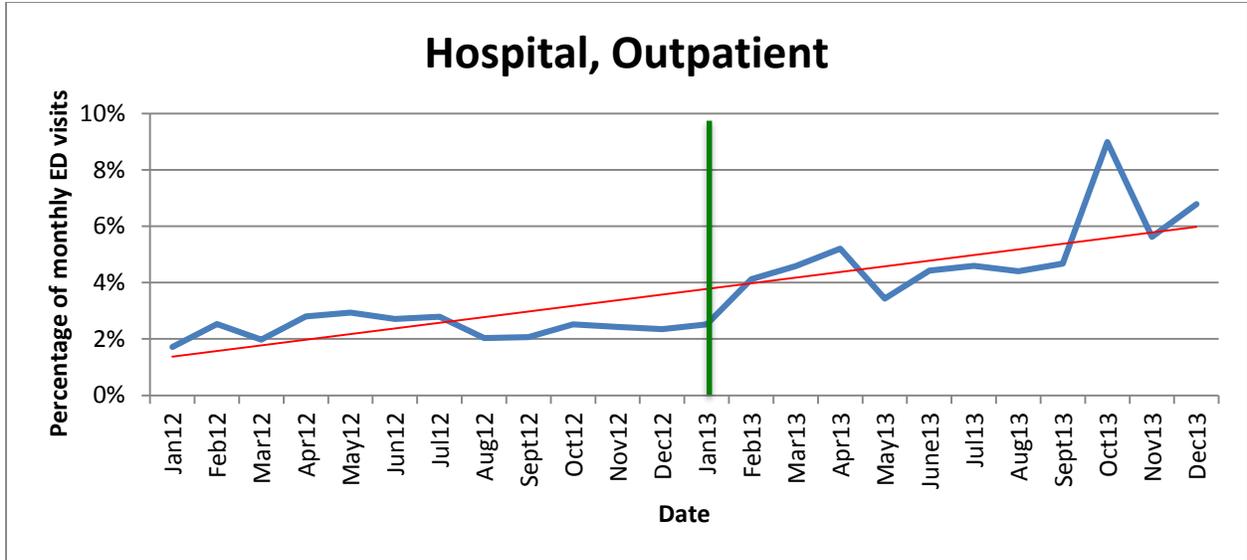


Figure 2. This graph illustrates the percentage of emergency department visits by the elderly (65 years or older) patients that were not admitted to the hospital which is also called observation. There was an increase in elderly outpatients as the pilot program was rolled out.

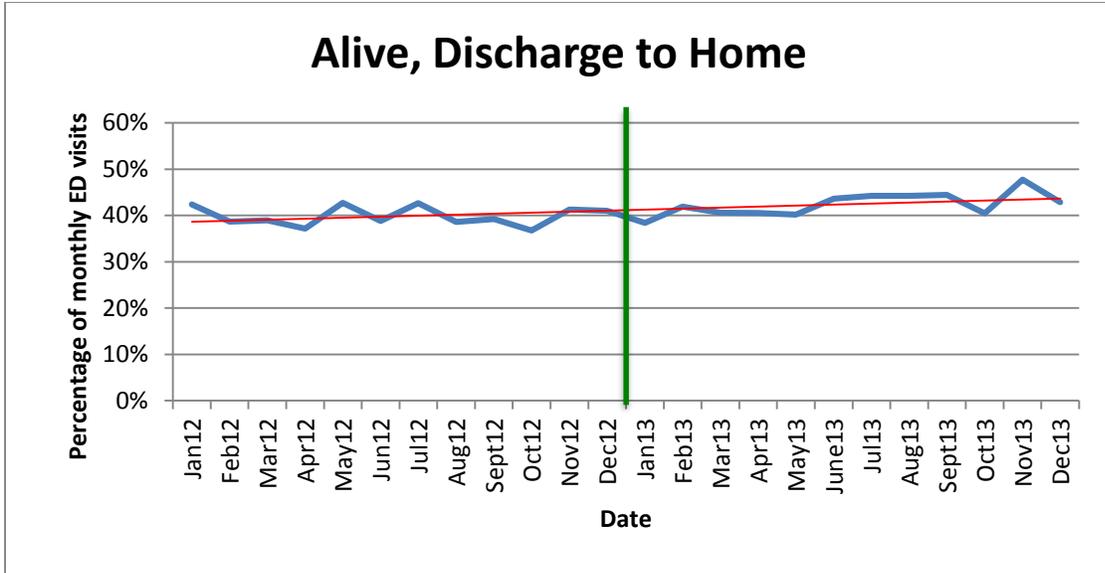


Figure 3. This graph illustrates the percentage of emergency department visits by the elderly (65 years or older) patients that were discharged to home from the hospital and were alive. There was an increase in elderly patient discharge to home as the pilot program was rolled out.

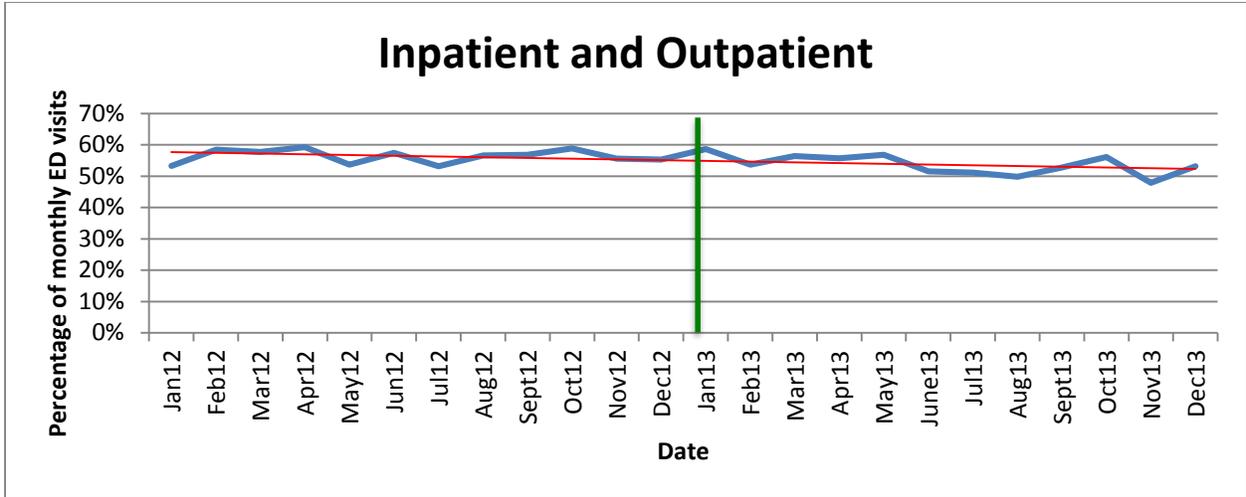


Figure 4. This graph illustrates the percentage of emergency department visits by the elderly (65 years or older) patients with inpatient and outpatient combined. There was a decline in elderly inpatients and outpatients as the pilot program was rolled out.

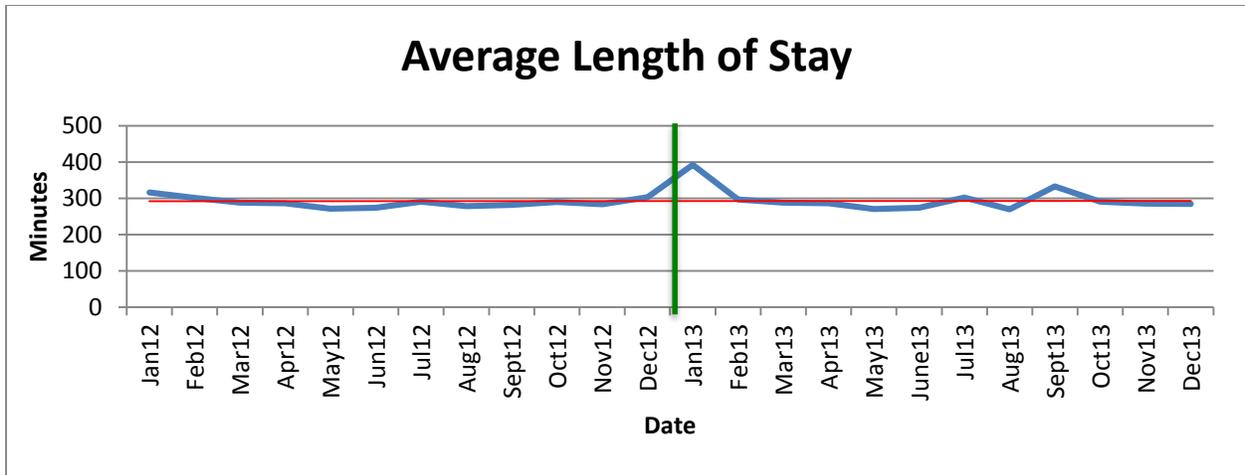


Figure 5. This graph illustrates the percentage of emergency department visits by the elderly (65 years or older) patients with their average length of stay. There was a slight increase in elderly patient minutes stayed at the hospital as the pilot program was rolled out.

PART TWO

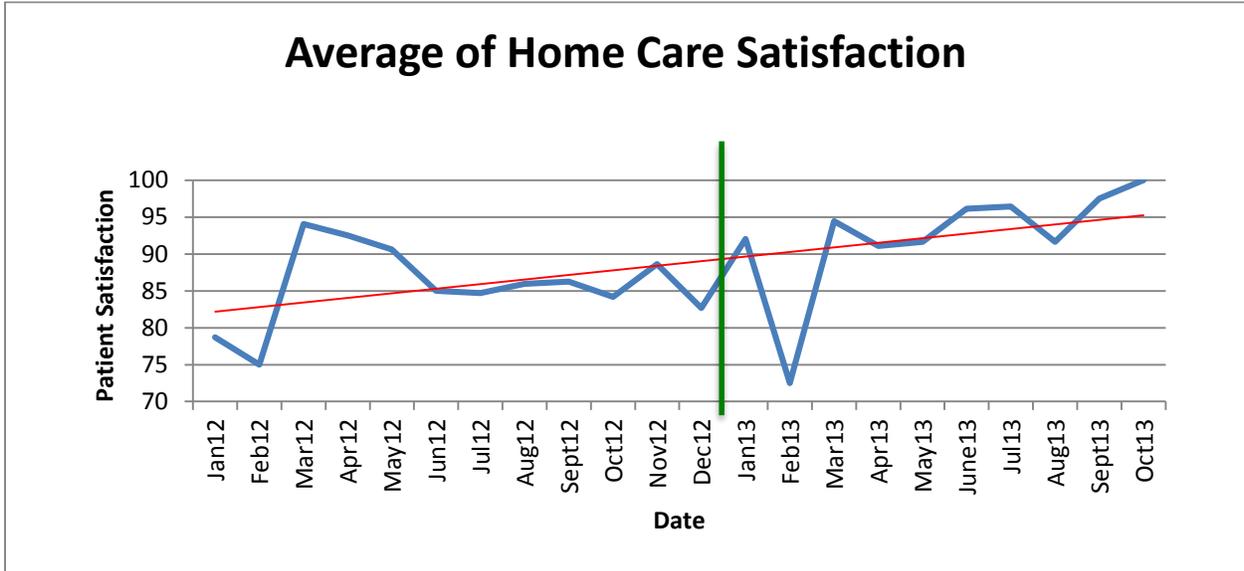


Figure 6. This graph illustrates the average patient satisfaction percentage by the elderly (65 years or older) patients about their home care. There was an increase in elderly patient satisfaction as the pilot program was rolled out. This new Senior ED program has an effect on the home care the patients in the cohorts receive.

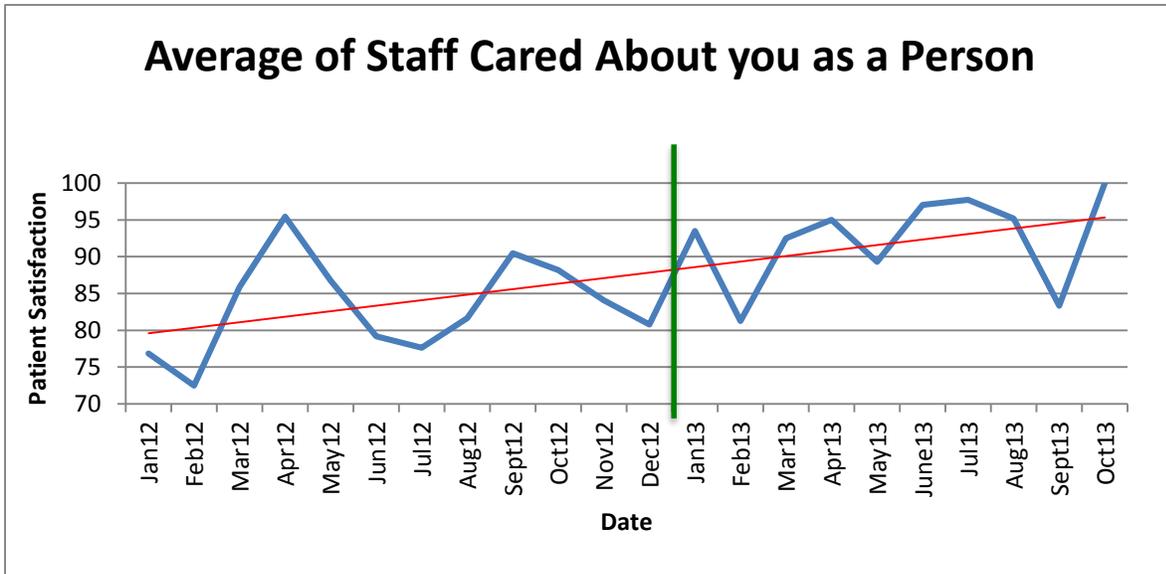


Figure 7. This graph illustrates the average patient satisfaction percentage by the elderly (65 years or older) patients about how much the patients thought the staff in the emergency department cared about them as a person. There was an increase in elderly patient satisfaction as the pilot program was rolled out.

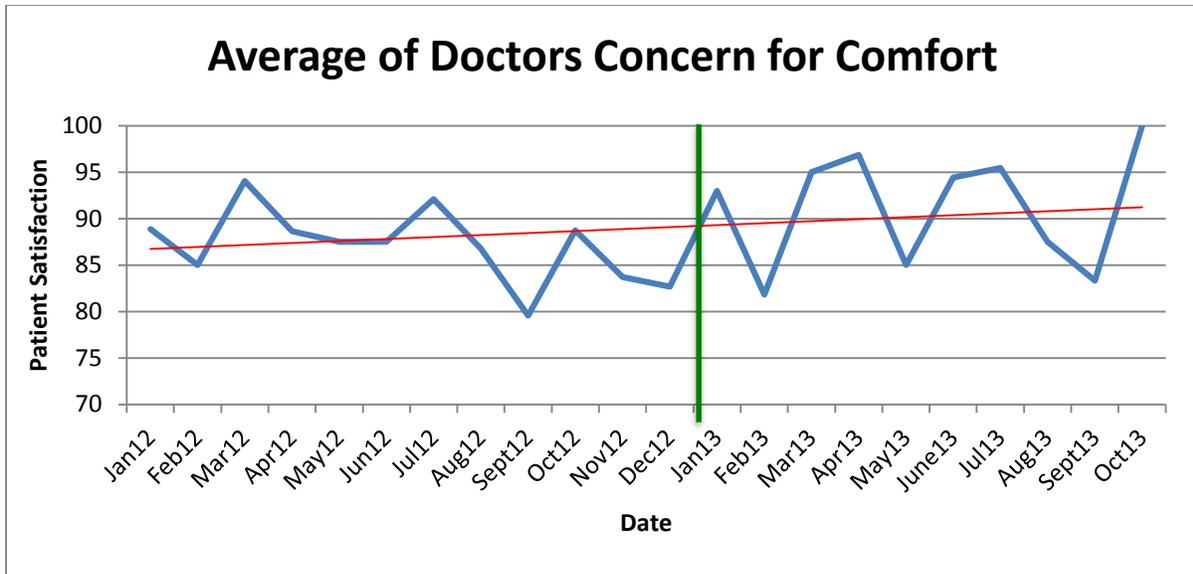


Figure 8. This graph illustrates the average patient satisfaction percentage by the elderly (65 years or older) patients about the doctors concern for comfort. There was an increase in elderly patient satisfaction as the pilot program was rolled out.

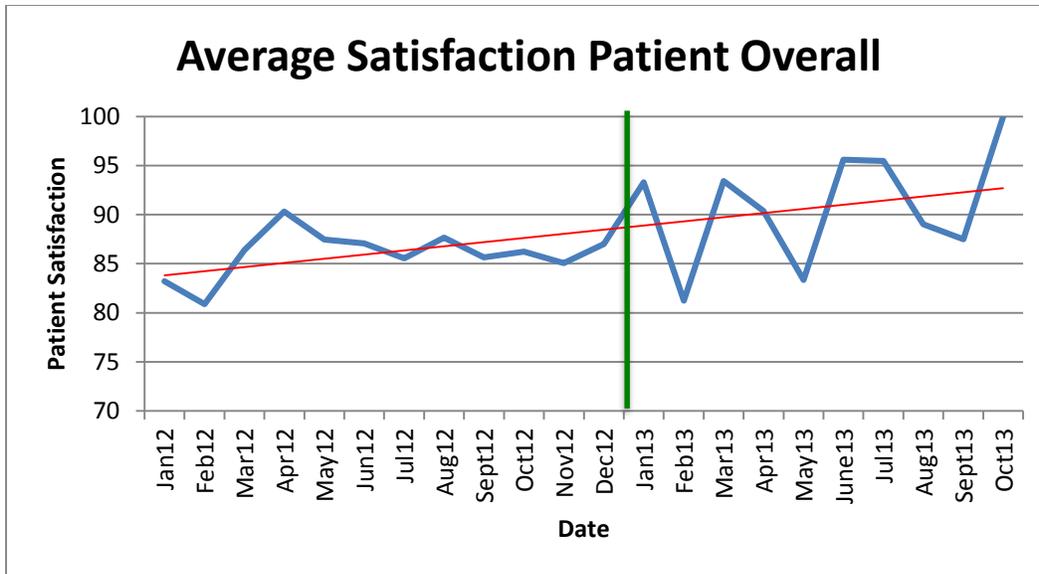


Figure 9. This graph illustrates the average patient satisfaction percentage by the elderly (65 years or older) patients about their overall standard of care at the emergency department. There was an increase in elderly patient satisfaction as the pilot program was rolled out.

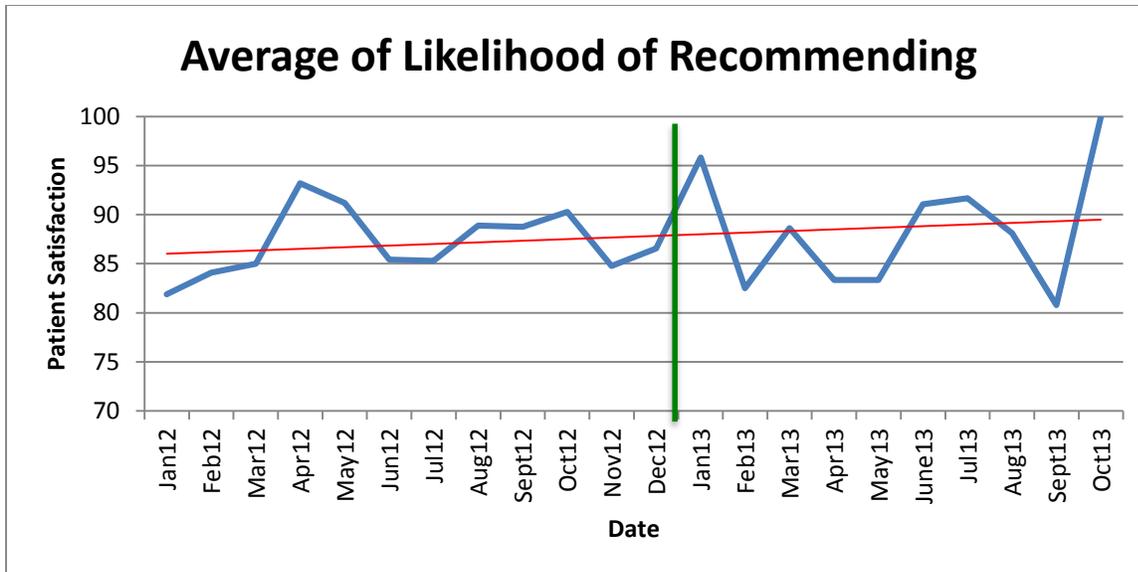


Figure 10. This graph illustrates the average patient satisfaction percentage by the elderly (65 years or older) patients about their likelihood of recommending their care at the Emergency Department. There was an increase in elderly patient satisfaction as the pilot program was rolled out.

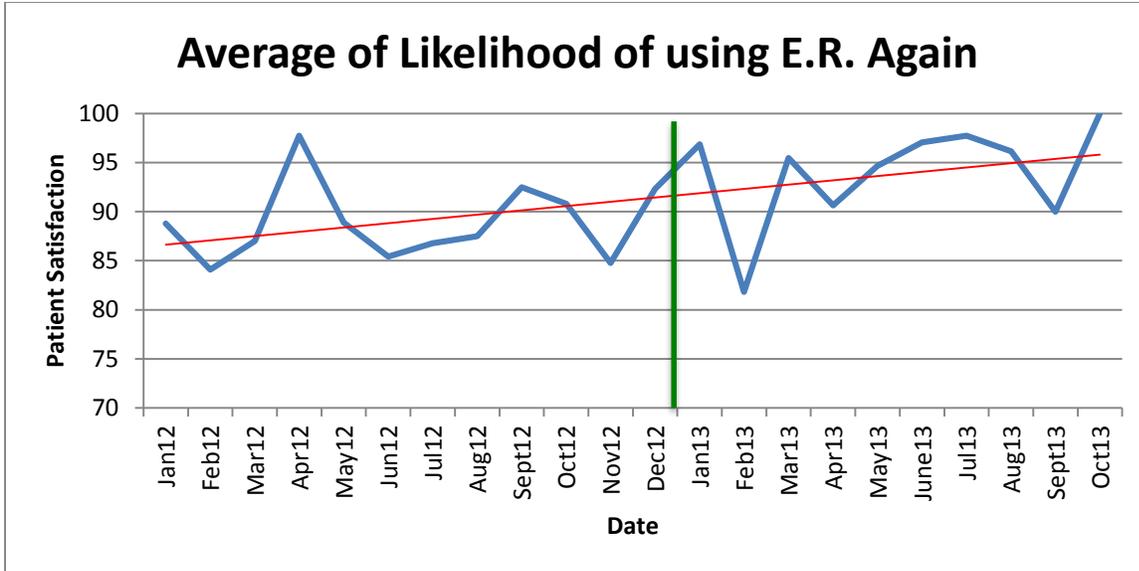


Figure 11. This graph illustrates the average patient satisfaction percentage by the elderly (65 years or older) patients about their likelihood of using the ER (Emergency Department) again. There was an increase in elderly patient satisfaction as the pilot program was rolled out.

PART THREE

	2012	2013
Foley Catheter	273/2260 = 12.08%	234/2286 = 10.24%
Physical Therapy	0/2260 = 0.00%	11/2286 = 0.48%

Table 1. This table illustrates the number of patients with foley catheters and/or physical therapy administered to them. The 2012 data is the historical cohort. The 2013 data is the Senior ED pilot program. From 2012 to 2013, there is an increase in physical therapy administration and a decrease in foley catheter administration. The importance of foley catheter and physical therapy is they are focused areas for senior ED.

Discussion

What do the results mean about this Senior ED project? As expected, Figure 1 shows inpatient admissions significantly decreased, and Figure 2 shows the observation patients significantly increased when the Senior ED program was implemented. However, the length of stay increased from 2012 to 2013 as shown by Figure 5 but was not significant. This was most likely due to the length of stay in January 2013 was abnormally high maybe due to snowy, cold weather conditions in January 2013. Snowy, cold weather could affect the length of stay due to unpleasant road conditions. Why is it beneficial for observation patients to increase and inpatients to decrease? Outpatients allow for less inpatients in the ED which is helpful for the ED to not overcrowd. Overcrowding means treatment areas are not meeting the demands for the amount of patients. For example, there may not be enough adequate rooms to treat the patients. As a result, hallways in the ED might be used to treat patients which is not adequate care. A staggering 90% of ED's in large hospitals claim they are close to or above their treating capacity.

Furthermore, overcrowding has detrimental effects on patient healthcare. For example, delays in patient diagnoses, treatment, and care could occur as well as a decrease in the quality of care administered. Overcrowding affects those patients the most with time sensitive or unexpected emergencies (Trzeciak, & Rivers, 2003). Thus, decreasing overcrowding in an ED is imperative especially for a fast paced environment like the ED. Also, the less amount of time one spent hospitalized correlates with the increased patient and physician satisfaction (Gill, Mainous III, & Nsereko, 2000). This means the patient will be more likely to cooperate with the care they are receiving in order to improve their health in a shorter amount of time. In other words, the patient will more likely continue their care with their healthcare provider if they have less visits to the ED hospital (Gill, Mainous III, & Nsereko, 2000).

As seen in Figures 6, 7, 8, 9, 10, and 11, patient satisfaction data of the patients in our study have all shown a positive trend line from 2012 to 2013. There was variability in the patient satisfaction data from month to month which was most likely due to the inconsistency of the Press Ganey Survey system (Zusman, 2012). But, the pilot Senior ED program has increased the overall satisfaction of the senior patients. Our patient satisfaction data includes information about home care, how much the staff cared about the patient, standard overall care, doctors concern for comfort, likelihood of recommending the care, and the likelihood of using the E.R. again. What is the importance of increased patient satisfaction for a Senior ED program? Increased patient satisfaction improves the rapport between the physician and patient (Stiffler, & Wilber, 2015). Also, the patient is more likely to stay on track with their medical treatments (Stiffler, & Wilber, 2015).

In Table 1, the physical therapy practice in the Senior ED program increased and the foley catheter practice decreased. This shows ED senior care improvement because the medical

practice of administering physical therapy is faster for those in need and foley catheters are administered less. Foley catheters are helpful in urinary retention and measuring urinary output of patients (Munasinghe, Yazdani, Siddique, & Hafeez, 2001). They are minor interventions (Munasinghe, Yazdani, Siddique, & Hafeez, 2001). But, one of the most common infections is urinary tract infection (Foxman, 2002). Physical therapy is very important to improve the health of the elderly especially in the case of fractures in the body due to falls (Karinkanta, Piirtola, Sievanen, Uusi-Rasi, & Kannus, 2010).

Limitations: This project was being conducted as part of a quality improvement project. The approach and measurements for improvement differ from those required for measuring for accountability or clinical research (Solberg, Mosser, & McDonald, 1997). Hypotheses can be adjusted, consistent bias can be accepted, and small tests of change are sequentially conducted until the process is improved. Also, there are limitations in using the Press Ganey data. Press Ganey claim that their sample size in drawing conclusions about data they are analyzing requires at least 30 survey responses. Two individuals at a hospital found out that Press Ganey still sends conclusions on patient responses with a sample size of 8 to 10. Also, Press Ganey surveys are not sent to emergency patients that are admitted to the hospital. Patients that are admitted to the hospital are the ones going through the most care and are thus at a better state of answering patient satisfaction since they have seen more. Furthermore, some claim Press Ganey surveys to be flawed and biased giving out higher scores. A possible solution to Press Ganey implications is switching over to Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) for patient satisfaction data as numerous hospitals are (Zusman, 2012). Plato 55 program limitations could be the accuracy at which patient data is entered and extracted. The last

limitation could be this was a retrospective project; there was no research team to intervene to make sure program ran as needed.

In conclusion, the pilot Senior ED program reduced inpatient admissions, increased observations, and increased discharges to home significantly showing the program's effectiveness in managing acutely ill senior patients.

References

- Aminzadeh, F., & Dalziel, W.B. (2002). Older Adults in the Emergency Department: A Systematic Review of Patterns of Use, Adverse Outcomes, and Effectiveness of Interventions. *Annals of Emergency Medicine, 39*(3), 238-247.
- Foxman, B. (2002). Epidemiology of urinary tract infections: incidence, morbidity, and economic costs. *The American Journal of Medicine, 113*(1), 5-13.
- Fulop, T., Larbi, A., Witkowski, J.M., McElhaney, J., Loeb, M., Mitnitski, A., & Pawlec, G. (2010). Aging, frailty and age-related diseases. *Biogerontology, 11*(5), 546-563.
- Gill, J.M., Mainous, A.G., & Nsereko, M. (2000). The Effect of Continuity of Care on Emergency Department Use. *Archives of Family Medicine, 9*(4), 333-338.
- Greenwald P.W., M.E. Stern, T. Rosen, S. Clark, and N. Flomenbaum. (2013). Trends in short-stay hospitalizations for older adults from 1990 to 2010: implications for geriatric emergency care. *The American Journal of Emergency Medicine, 32*: 311-314.
- Karinkanta, S., Piirtola, M., Sievanen, H., Uusi-Rasi, K., & Kannus, P. (2010). Physical therapy approaches to reduce fall and fracture risk among older adults. *Nature Reviews Endocrinology, 6*(7), 396-407.
- Knickman, J.R., & Snell, E.K. (2002). The 2030 Problem: Caring for Aging Baby Boomers. *Health Services Research, 37*(2), 849-884.
- McCusker, J., Karp, I., Cardin, S., Durand, P., & Morin, J. (2003). Determinants of Emergency Department Visits by Older Adults: A Systematic Review. *Academic Emergency Medicine, 10*(12), 1362-1370.
- Mendelson, D.N., & Schwartz, W.B. (1993). The effects of aging and population growth on health care costs. *Health Affairs, 12*(1), 119-125.

Morganti, K. G., S. Bauhoff, J.C. Blanchard, M. Abir, N. Iyer, A.C. Smith, J.V. Vesely, E.N.

Okeke, and A.L. Kellermann. (2013). The evolving role of emergency departments in the United States. *RAND Corporation*. viii-ix.

Munasinghe, R.L., Yazdani, H., Siddique, M., and Hafeez, W. (2001). Appropriateness of Use of Indwelling Urinary Catheters in Patients Admitted to the Medical Service. *Infection Control and Hospital Epidemiology*, 22(10), 647-649.

Solberg L., G. Mosser, and S. McDonald. (1997). The three faces of performance measurement: improvement, accountability, and research. *The Joint Commission Journal on Quality and Patient Safety*, 23: 135-147.

Stiffler, K.A., & Wilber, S.T. (2015). Hallway Patients Reduce Overall Emergency Department Satisfaction. *The Journal of Emergency Medicine*, 49(2), 211-216.

Strange, G.R., Chen, E.H., & Sanders, A.B. (1992). Use of Emergency Departments by Elderly Patients: Projections From a Multicenter Data Base. *Annals of Emergency Medicine*, 21(7), 820-869.

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Tang, N., Stein, J., Hsia, R.Y., Maselli, J.H., & Gonzales, R. (2010). Trends and Characteristics of US Emergency Department Visits, 1997-2007. *The Journal of the American Medical Association*, 304(6), 664-670.

Trzeciak, S., & Rivers, E.P. (2003). Emergency department overcrowding in the United States: an emerging threat to patient safety and public health. *Emergency Medicine Journal*, 20(5), 402-405.

Urdern, L.D. (2002). Patient satisfaction measurement: current issues and implications. *Lippincott's Case Management*, 7(5), 194-200.

Zusman, E.E. (2012). HCAHPS Replaces Press Ganey Survey as Quality Measure for Patient Hospital Experience. *Neurosurgery*, 71(2), N21-N24.