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Improving Identification of Seniors at Risk Tool Adherence to Identify Emergency Department Readmissions in Older Adults

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Improving Identification of Seniors at Risk Tool Adherence to Identify Emergency Department Readmissions in Older Adults

UNIVERSITY OF SAN DIEGO
Hahn School of Nursing and Health Science
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DOCTOR OF NURSING PRACTICE PORTFOLIO

by

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A portfolio presented to the

FACULTY OF THE HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
UNIVERSITY OF SAN DIEGO

In partial fulfillment of the
requirements for the degree

DOCTOR OF NURSING PRACTICE

May 2021

Abstract

The purpose of this evidence-based project (EBP) is to improve the emergency department (E.D.) staff adherence in completing the Identifying Seniors at Risk (ISAR) screening tool. The specific aim is to improve electronic health record (EHR) data collection to enhance the identification of older adults that are frequent utilizers of the E.D. at a local community hospital in Southern California. Based upon the most recent *National Hospital Ambulatory Medical Care Survey*, patients ages 65 and older make up 32% of all E.D. admissions. These patients also represent 50% of the moderate to severely ill patients seen in the E.D. and make up a significant portion of acute care costs. The John Hopkins Evidenced Based practice model was used to conduct this EBP project. A 15-minute ISAR training module intervention was administered to each staff where the rationale for the ISAR tool was explained, and a case analysis quiz was then administered. Each staff member signed on and agreed to implement the new practice change regarding using the ISAR screening tool after they scored 80% on the correct usage of the ISAR screening tool. The data was analyzed using Excel and Intellectus Statistics software. Analysis between the pre-and post-intervention group revealed a 70% ISAR screening tool completion rate just short of the 80% goal, which was a significant improvement compared to the prior average of 30%. A Chi-square test verified this with a p=0.002. The findings from this EBP project will be utilized for a part 2 project to evaluate rates of identification of at-risk older adults arriving in the E.D.

Keywords: Geriatrics, Screening, Identifying Seniors at Risk tool (ISAR tool)

Improving ISAR Screening Tool Adherence to Identify E.D. Readmissions in Older

Adults

Background

The Emergency Department (ED) is the gateway to hospital admission and outpatient

care management. Per the most recent *National Hospital Ambulatory Medical Care Survey*,

patients ages 65 and older make up 32% of all E.D. admissions ("National Hospital Ambulatory

Medical Care Survey: 2017 Emergency Department Summary Tables," 2017). These patients

also represent 50% of the moderate to severely ill patients seen in the E.D. With the passage of

the *Affordable Care Act,* the *Hospital Readmissions Reduction Program's* purpose was to

address the issue of rising healthcare costs in the E.D./acute care settings (*Affordable Care Act*

(ACA) - HealthCare.Gov Glossary, 2016; *Characteristics of 30-Day All-Cause Hospital*

Readmissions, 2010-2016 #248, 2016). Average costs of failed hospital readmissions that CMS

will not pay cost hospitals on average $10,000 to $15,000, and that is not including additional

costs in managing hospital-acquired infections or injuries. This policy initiative has drawn

attention specifically to the older adult population.

The Centers for Medicare and Medicaid (CMS) older adults with Medicare health

insurance made up $799.4 billion in healthcare costs or 21% of the National Health Expenditure

and was an increase of 6.7% from the prior year (CMS.gov, 2020; *NHE Fact Sheet | CMS*,

2020). This trend is expected to be sustained well into the year 2028 due to accelerated growth

projections in the hospital, physician, clinical services driven by the older adult population.

This problem brings about a unique set of challenges in the coming decade that the nation

needs to address. Anticipated variables such as the currently disjointed United States (US)

national healthcare system, the projected increase in healthcare costs across the board but mainly

for the older adults aged 65 and older population, and the unknown challenges of providing care to a longer-lived aging older adult population is expected (Bureau, 2020; Medina et al., 2020; Ocampo-Chaparro et al., 2019.; Vespa et al., 2018).

The Canadian Medicare system conducted a study to help address the looming issues of increasing healthcare costs associated with an aging older adult population. *Canada's Minister of Health and Social Services of the Province of Quebec* and the *Montreal Regional Board for Health and Social Services* conducted a six-month prospective study with a cohort of 1673 patients aged 65 and older who were recently evaluated in the ED setting. The study conducted in 1999 developed the ISAR screening tool, which comprises six self-report questions on functional dependence that could be an acute status change or related to chronic disease processes, recent hospital admission, polypharmacy, memory, and vision impairment (McCusker et al., 1999). This tool has been utilized as a low cost, easy to implement screening tool to identify red-flag indicators of functional decline in an older adult that puts them at risk for hospital readmission.

The ISAR tool has been in use in multiple countries and various E.D. settings. It has proven itself to be an effective, low-cost general ED screening tool to use in the older adults population who are at risk of adverse outcomes after a recent E.D. visit (Buurman et al., 2011; Edmans et al., 2013; Galvin et al., 2017; McCusker et al., 1999; Yao et al., 2015). Presently in the Local Southern California region, state and national legislation and local county initiatives have provided funding and incentives for hospitals and local communities to address the growing needs of the older adult population. The initiation of the usage of this tool in this local San Diego community hospital is one such attempt.

Purpose

The purpos*e* of this evidence-based project (EBP) is to improve the emergency department (E.D.) staff adherence in completing the Identifying Seniors at Risk (ISAR) screening tool. The specific aim is to strengthen staff electronic health record (EHR) data collection to identify older adults that are frequent utilizers in the E.D. at a local community hospital in Southern California. The secondary goal of this project is to be able to conduct a more extensive data analysis of the ISAR data to identify and propose EBP interventions to reduce high-risk older adults identified by the screening tool from having future ED readmissions.

Evidence for the Problem

In 2020 a chart review performed onsite by the department director found that since the initiation of the new EHR system in March 2018, the ISAR tool completion rate by staff averaged below 30%. The trend was concerning as the hospital was attempting to meet county and local mandates associated with funding initiatives to address high geriatric utilization of E.D. services. If trends continued, there were concerns by the hospital in losing county funding, certification, not meeting internal project improvement metrics and an overall reduction in funding allocation.

A staff nurse proposed an evidence-based project (EBP) to help the department meet the hospital and local county mandate as a geriatric certified E.D. and hospital.
A multi-part project was proposed, which included applying an EBP intervention to improve staff compliance with completing the ISAR tool. The second stage EBP project would then analyze the data from the improved data collection from the first project to evaluate identified high-risk individuals and propose interventions based upon EBP strategies to address and or prevent readmissions in the older adult population.

Figure 1

The John Hopkins Nursing Evidenced Based Practice Model
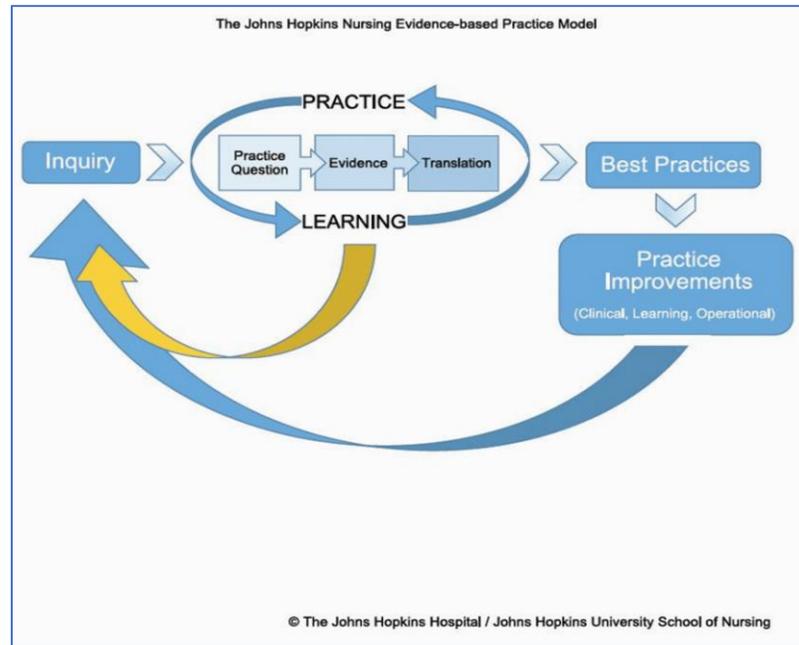
Note. Image provided by the Johns Hopkins Hospital / Johns Hopkins University School of Nursing (Dang et al., 2018)

The John Hopkins Nursing Evidence-Based Practice Model (JHNEBPM) was chosen for this project due to the originating project initiator being a beside staff nurse and the ease in incorporating multi-departmental coordination needs (Figure 1). JHNEBPM focuses on three interrelated components of inquiry, practice, and learning to empower bedside nurses to appraise, translate evidence, and implement practice changes (Dang et al., 2018). JHNEBPM also allowed for interdepartmental collaboration between information technologies and hospital administration, which was crucial to this project's success.

Project Plan and Process

This project is a pilot project for a potential multi-project initiative (Figures 2 and 3). In this pilot project, the approval by the E.D. director, CNO, Medical Director, and Quality

improvement was obtained through permission from the E.D. director heading the initiative in

June 2020. The student acquired an IRB waiver from the university in August 2020. By

September 2020, the Information Technologies department at the hospital had updated the EHR

system and optimized E.D. staff access to the screening tool for ease of use. They also generated

a particular report function to help obtain ISAR screening tool completion results and track staff

who completed the screenings.

In November 2020, after the E.D. director approved the training materials, training was

initiated for both day and night shift nursing staff. The month of November 2020 was utilized as

a wash-out month for data collection, and post-intervention data collection was then initiated at

the start of December 2020. In early February 2021, post-intervention data was collected. At the

beginning of March 2020, the pre-and post-intervention data was analyzed, and the preliminary

findings were presented to the E.D. director. Subsequent poster presentations regarding the

project were conducted virtually at nursing conferences throughout April 2020.

Figure 2

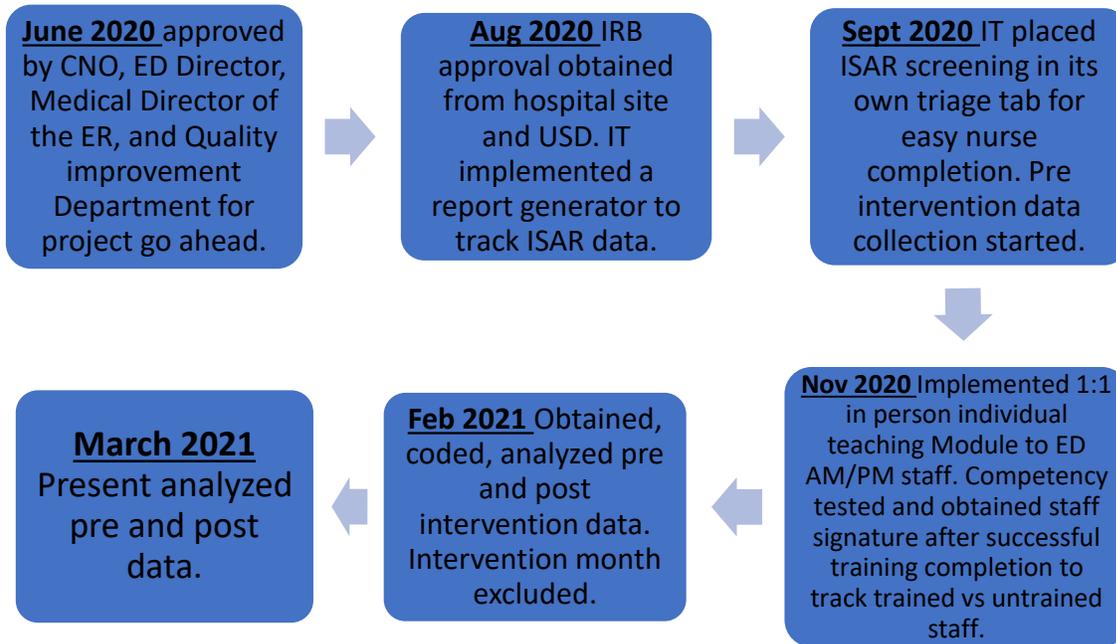*Timeline of Project Implementation and Steps*

June 2020 approved by CNO, ED Director, Medical Director of the ER, and Quality improvement Department for project go ahead.	**Aug 2020** IRB approval obtained from hospital site and USD. IT implemented a report generator to track ISAR data.	**Sept 2020** IT placed ISAR screening in its own triage tab for easy nurse completion. Pre intervention data collection started.

March 2021 Present analyzed pre and post data.	**Feb 2021** Obtained, coded, analyzed pre and post intervention data. Intervention month excluded.	**Nov 2020** Implemented 1:1 in person individual teaching Module to ED AM/PM staff. Competency tested and obtained staff signature after successful training completion to track trained vs untrained staff.

Figure 3

Intervention Process and Timeline

November 2020 Intervention and data wash out period

- 3-month pre intervention data collection
- 3-month ISAR completion rate average is obtained for comparison with post intervention.

Pre intervention data collection

- All Day shift staff educated 1:1 and verified teaching with a post test. (exceptions are staff on LOAs)
- All Night shift staff educated in the same way day shift was.

- HIPPA compliant and cleaned data collected, data points categorized, pivot table used to verify correct categorization.
- Intellectus statistics data analysis tool utilized to analyze chi value.

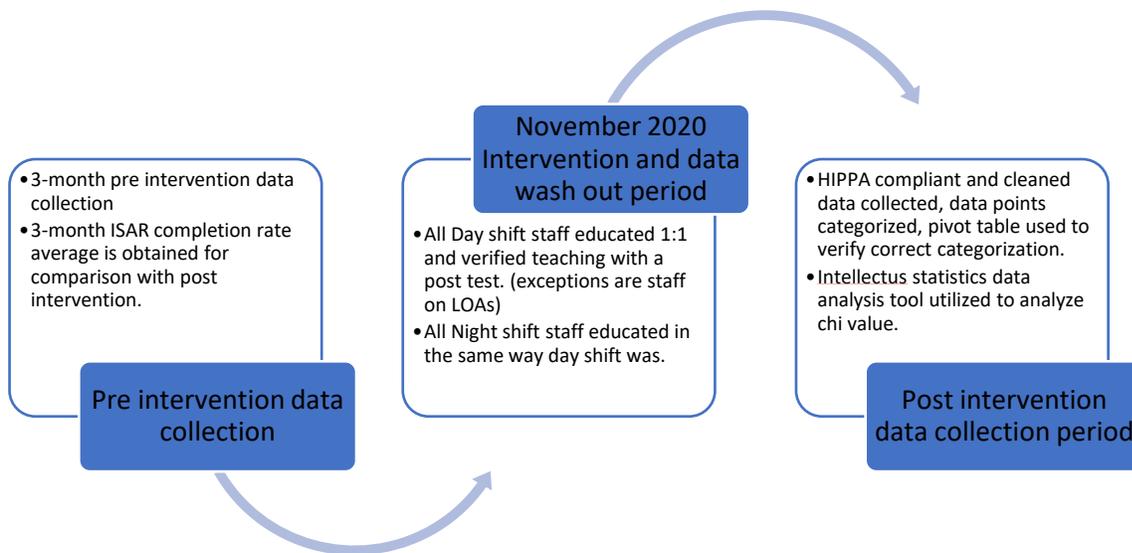**Post intervention data collection period**

Figure 3 Data collection and division of pre-and post-data collection process table.

Evidence-Based Project Intervention

A comprehensive literature review was conducted electronically through CINAHL, Cochrane Database, PubMed, CMS, and the CDC. Keywords used in the search included *ISAR tool, ISAR, older adults, frailty, risk factors for hospital readmission, E.D. screening, E.D. readmission, and ISAR tool utilization, nursing education. Melnyk's* Hierarchy of Evidence was used to select the studies on their strength of evidence and excluded studies that were older than five years except for US census reports, national fiscal snapshots and reports, and the founding study conducted in 1999 that produced the ISAR screening tool (Melnyk, 2019). Additional supporting literature for this project's background and purpose was obtained from the Agency for Healthcare Research and Quality, the Department of Health and Human Services, and the U.S. Census Bureau.

Based upon the Literature review, the ISAR screening tool is a standardized, reliable, inexpensive screening tool that can help healthcare providers evaluating older adults reduce preventable readmission to the ED when planning ED discharge risks (Asomaning & Loftus, 2014; Edmans et al., 2013; Galvin et al., 2017; McCusker et al., 1999; Yao et al., 2015). Literature does state that the ISAR tool is not be relied upon as a sole determining factor or indicator in whether an older adult is at high risk for adverse outcomes. Multiple factors must be considered regarding individual patient situations and contexts. Provider clinical judgment, situational context, the patient's functional status, and external social support are contributing factors that play a significant role in patient health outcomes (Galvin et al., 2017; Yao et al., 2015).

An EBP based nursing educations strategy that focused on: high-quality individualized teaching on a one on one objective-based method, incorporating interactive case scenario

teaching style and case scenario testing, was utilized to educate and inform staff on ISAR

screening tool use and purpose (Asomaning & Loftus, 2014; Horntvedt et al., 2018).

The Doctor of Nursing Practice (DNP) student collected staff EHR performance data to

target nonadherence. Next, the DNP student provided a one-on-one 15-minute ISAR training

module intervention to each staff member. During the brief intervention, the rationale for the use

of the ISAR tool was explained. Then, a case analysis quiz was given, and each staff member. A

score of 100% on the correct usage of the ISAR screening tool was mandated. After completing

the brief intervention, each staff member signed on and agreed to implement the new practice

change regarding the use of the ISAR screening tool (Asomaning & Loftus, 2014; Horntvedt et

al., 2018).

The training educator also notes that with focused one-on-one staff education training, the

educator identified significant knowledge gaps and staff attitudes in how the staff was to

administer the screening questionnaire. Common question trends were identified, such as: how

the questionnaire to be issued to an altered mental status patient, why the screening tool was

being implemented and for what purpose, and whether the ISAR screening was a requirement

that needed to be performed by the E.D. triage nurse, the bedside nurse or no particular

responsible nurse.

With each subsequent teaching, the educator utilized the JHNEBPM to improve upon the

earlier teaching initiatives to address education gaps and staff questions, refine the testing

material to verify staff comprehension in conducting the questionnaire correctly, and address

understanding of when patients met screening tool usage criteria.

Results and Evaluation

A sample size of 1,167 records were split between Group 1 Pre and Group 2 Post with further division into Completed ISAR SCORE Yes or No were compared against each other. Please refer to Table 1 below in the Chi-Square results for group distribution. The goal was to improve the ISAR SCORE Yes group to at least 80% overall in the entire department. A 70% screening tool completion rate was achieved, a 40% increase compared to the baseline average in the Group 1 Pre-intervention group (Figure 4).

Figure 4

Pre and Post Intervention Group Comparison of ISAR Screening Tool Completion Rates
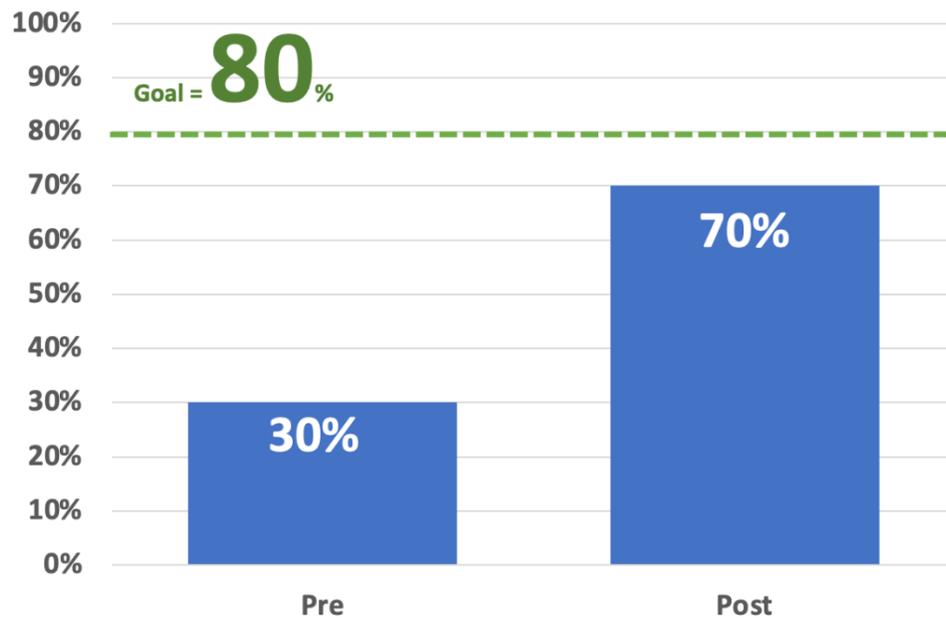
This table demonstrates the total patients who qualified and should have a completed ISAR score before group 1 (Pre) and after group 2 (Post) staff teaching intervention.

Chi-square Test of Independence

A Chi-square Test of Independence was conducted using the IntellectusStatistics Software to examine whether Group 1 Pre group 2 Post and ISAR SCORE Yes or No were independent. There were 2 levels in Group 1 Pre group 2 Post and ISAR SCORE Yes or No.

Assumptions

The assumption of adequate cell size was assessed, which requires all cells to have expected values greater than zero and 80% of cells to have expected values of at least five (McHugh, 2013). All cells had expected values greater than zero, indicating the first condition was met. A total of 100.00% of the cells had expected frequencies of at least five, indicating the second condition was met.

Results

The chi-square test results were significant based on an alpha value of 0.05, $\chi^2(1) = 9.66$, $p = .002$, suggesting that Group 1 Pre group 2 Post and ISAR SCORE Yes or No are related to one another. The following level combinations had observed values that were greater than their expected values: Group 1 Pre group 2 Post (2): ISAR_SCORE Y N (Yes) and Group 1 Pre group 2 Post (1): ISAR SCORE Y N (No). The following level combinations had observed values that were less than their expected values: Group 1 Pre group 2 Post (1): ISAR SCORE Y N (Yes) and Group 1 Pre group 2 Post (2): ISAR SCORE Y N (No). Table 1 presents the results of the Chi-square test.

Table 1

Observed and Expected Frequencies

Group 1 Pre group 2 Post	ISAR SCORE Yes No		χ^2	*df*	*p*
	Yes	No			
1	344[369.23]	220[194.77]	9.66	1	.002
2	420[394.77]	183[208.23]			

Note. Values formatted as Observed [Expected]. Filtered By: Triage nurse trained Y N 2 (Y)

Evaluation

Comparison between the pre-and post-intervention group total of n=1167 demonstrated a 70% ISAR screening tool completion rate just short of the intended 80% goal, which is a significant improvement from the prior average of 30% and below screening tool completion rate. This is significant for immediate and drastic improvement of staff compliance after just one high-quality, individualized staff training.
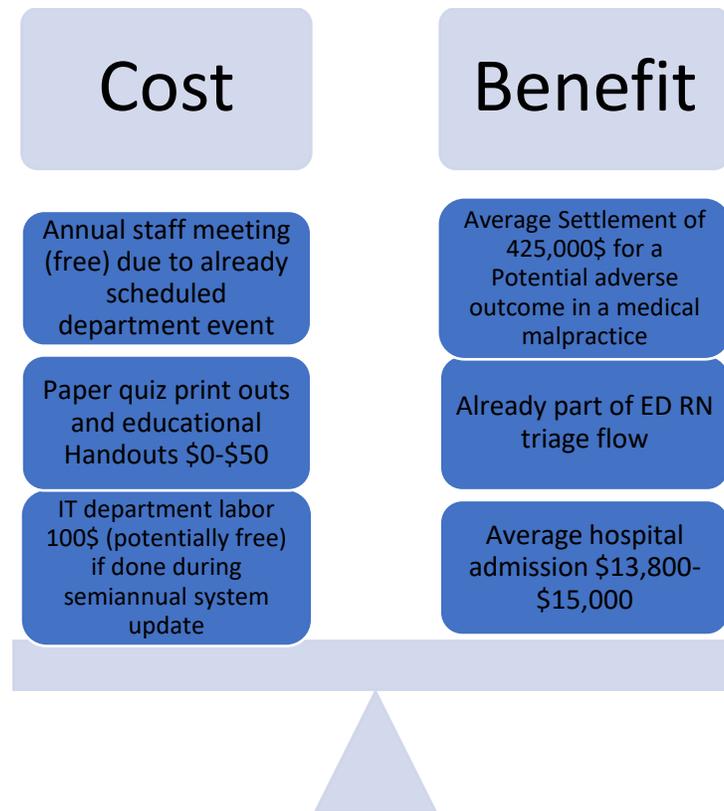
Factors contributing to the failure to reach the 80% goal were primarily attributed to the COVID-19 pandemic affecting the implementation of the project as staff who were trained but were no longer present during the post-intervention data collection was conducted. Additional variables are the inclusion of registry staff who worked during a census surge during the post-intervention data collection period who were not trained and therefore, potentially affected the post-data collection results. Additionally, factors related to a minority of staff who were non-compliant with completing the screening tool also likely contributed to the failure to reach 80% ISAR screening tool completion. Finally, patients who presented to the ED as unstable or had life-threatening conditions; could have affected staff from documenting a score due to staff prioritizing their time to document vital information over the non-critical items in the chart. The following factors were considered regarding why the benchmark goal of 80% of all patients age 65 and older having an ISAR score was not achieved.

Cost Benefits Analysis for Sustainability of Project

The sustainability of this project is very feasible but will require continued intermittent monitoring and nursing leadership from the project improvement team. So long as this is part of routine department audits and a continued education learning module is assigned to staff at regular intervals, this part 1 project should be autonomous. The ISAR screening questionnaire improvement project has already demonstrated its low cost in resource allocation. Nurses were able to seamlessly incorporate the screening tool with the current bedside triage questionnaires, and it has shown significant improvement in valuable ISAR data collection post-training intervention (McCusker et al., 1999).

Estimated savings at this time have a positive outlook as expenditures are currently close to zero if they are incorporated with department practices such as semiannual department meetings, new employee training, and semiannual I.T. department EHR updates (Figure 5). Suppose this intervention allows the hospital to use the ISAR tool data to prevent an at-risk older adult from having a hospital or E.D. readmission. In that case, the project will have achieved its secondary intended purpose in preventing at least one hospital readmission. The average estimated cost of hospital readmission being $15,000 (*Characteristics of 30-Day All-Cause Hospital Readmissions, 2010-2016 #248*, 2016). Although not generalizable, this project can be replicated in other E.D. settings

An expected non-fiscal expenditure is the anticipated need for continued education, particularly for new staff. Fiscal implications at this time at not able to be fully calculated until part 2 of the project is conducted. Still, the end goal is to reduce current overall E.D. readmissions, which in turn will translate into a reduction of hospital costs.

Figure 5

Cost Benefit

Cost	Benefit
Annual staff meeting (free) due to already scheduled department event	Average Settlement of 425,000$ for a Potential adverse outcome in a medical malpractice
Paper quiz print outs and educational Handouts $0-$50	Already part of ED RN triage flow
IT department labor 100$ (potentially free) if done during semiannual system update	Average hospital admission $13,800-$15,000

Implication for Practice

The implications of the project's findings and the existing literature suggest that with the improved data collection from this low-cost, systematic, standardized ISAR screening system, hospitals will have the opportunity to use this information to help customize appropriate discharge plans for high-risk patients (McCusker et al., 1999). This project has the potential of improving the hospital's ability to target needed resources to patients who need it and thus potentially be a cost-saving measure as appropriate resources are not wasted in areas where they are not required.

In theory, this means that the ISAR screening tool can help hospital case management, providers, and hospital management by providing an additional data point risk factors to consider when determining if an at-risk older adult is ready for discharge (Buurman et al., 2011; Galvin et al., 2017; Yao et al., 2015)

Conclusion

Clinical practice implications learned from this project is that to improve ED screening to identify at-risk older adults who are frequent users of acute care setting resources, well-educated staff is required. Motivators for staff to implement screening include educating staff on the goals of screening patients. Staff also demonstrate increased willingness once rationale for the new screening is implemented, and compliance is improved.

The goal of reaching 80% ISAR screening tool was not met, however, due to confounding factors outside of the project's control such as the COVID-19 pandemic, staff non-compliance, loss of trained staff, and the presence of temporary registry staff. Staff education and compliance performance indicate that there is still room for improvement which can be addressed by further education, motivational department strategies, and remediation strategies.

Overall, it suggests that with regular primary low-cost staff education, the impact of improving older adult screening tool usage in the ED setting has great potential. The ISAR screening tool data can help the hospital better address resource allocations to reduce adverse health outcomes in the local older adult population. With this project, the improved data collection for the hospital will be utilized in the acute care setting for planning in patient management in the acute care setting and be able to provide recommendations to the local community if they identify concerning trends in this vulnerable population. The second part of

this project will look at collected data from this current project to help determine if there are any

current trends in the local older adult population that further EBP interventions can address.

References

Affordable Care Act (ACA)—HealthCare.gov Glossary. (2016). HealthCare.Gov. Retrieved May

    1, 2019, from https://www.healthcare.gov/glossary/affordable-care-act/

Asomaning, N., & Loftus, C. (2014). Identification of Seniors at Risk (ISAR) Screening Tool in

    the Emergency Department: Implementation Using the Plan-Do-Study-Act Model and

    Validation Results. *Journal of Emergency Nursing*, *40*(4), 357-364.e1.

    https://doi.org/10.1016/j.jen.2013.08.014

Bureau, U. C. (2020). *Demographic Turning Points for the United States*. The United States

    Census Bureau. Retrieved May 2, 2021, from

    https://www.census.gov/library/publications/2020/demo/p25-1144.html

Buurman, B. M., van den Berg, W., Korevaar, J. C., Milisen, K., de Haan, R. J., & de Rooij, S.

    E. (2011). Risk for poor outcomes in older patients discharged from an emergency

    department: Feasibility of four screening instruments. *European Journal of Emergency

    Medicine*, *18*(4), 215–220. https://doi.org/10.1097/MEJ.0b013e328344597e

Characteristics of 30-Day All-Cause Hospital Readmissions, 2010-2016 #248. (2016). Retrieved

    March 11, 2020, from https://www.hcup-us.ahrq.gov/reports/statbriefs/sb248-Hospital-

    Readmissions-2010-2016.jsp

CMS.gov. (2020). *National Health Expenditure Projections 2019-2028*.

    https://www.cms.gov/files/document/nhe-projections-2019-2028-forecast-summary.pdf

Dang, D., Dearholt, S., Sigma Theta Tau International, & Johns Hopkins University (Eds.).

    (2018). *Johns Hopkins nursing evidence-based practice: Model and guidelines* (Third

    edition). Sigma Theta Tau International.

Edmans, J., Bradshaw, L., Gladman, J. R. F., Franklin, M., Berdunov, V., Elliott, R., & Conroy,

   S. P. (2013). The Identification of Seniors at Risk (ISAR) score to predict clinical

   outcomes and health service costs in older people discharged from UK acute medical

   units. *Age and Ageing*, *42*(6), 747–753. https://doi.org/10.1093/ageing/aft054

Galvin, R., Gilleit, Y., Wallace, E., Cousins, G., Bolmer, M., Rainer, T., Smith, S. M., & Fahey,

   T. (2017). Adverse outcomes in older adults attending emergency departments: A

   systematic review and meta-analysis of the Identification of Seniors at Risk (ISAR)

   screening tool. *Age and Ageing*, *46*(2), 179–186. https://doi.org/10.1093/ageing/afw233

Horntvedt, M.-E. T., Nordsteien, A., Fermann, T., & Severinsson, E. (2018). Strategies for

   teaching evidence-based practice in nursing education: A thematic literature review.

   BMC Medical Education, *18*. https://doi.org/10.1186/s12909-018-1278-z

Intellectus Statistics. (2019). Intellectus Statistics [Online computer software]. Retrieved

   from http://analyze.intellectusstatistics.com/

McCusker, J., Bellavance, F., Cardin, S., Trépanier, S., Verdon, J., & Ardman, O. (1999).

   Detection of older people at increased risk of adverse health outcomes after an

   emergency visit: The ISAR screening tool. *Journal of the American Geriatrics Society*,

   47(10), 1229–1237. https://doi.org/10.1111/j.1532-5415.1999.tb05204.x

Medina, lauren, Sabo, S., & Vespa, J. (2020). Living Longer: Historical and Projected Life

   Expectancy in the United States, 1960 to 2060. *Census.Gov*, 27.

National Hospital Ambulatory Medical Care Survey: 2017 Emergency Department Summary

   Tables. (2017). *National Hospital Ambulatory Medical Care Survey*, 37.

NHE Fact Sheet | CMS. (2020, December 16). Cms.Gov. https://www.cms.gov/Research-

    Statistics-Data-and-Systems/Statistics-Trends-and-

    Reports/NationalHealthExpendData/NHE-Fact-Sheet

Ocampo-Chaparro, J. M., Reyes-Ortiz, C. A., Castro-Flórez, X., & Gómez, F. (2019). Frailty in

    older adults and their association with social determinants of Health. The SABE

    Colombia Study. *Colombia Médica : CM*, *50*(2), 89–101.

    https://doi.org/10.25100/cm.v50i2.4121

Vespa, J., Medina, L., & Armstrong, D. M. (2018). Population Estimates and Projections. *U.S.*

    Department of Commerce U.S. Census Bureau, 15.

Yao, J.-L., Fang, J., Lou, Q.-Q., & Anderson, R. M. (2015). A systematic review of the

    identification of seniors at risk (ISAR) tool for the prediction of adverse outcome in

    elderly patients seen in the emergency department. *International Journal of Clinical and*

    Experimental Medicine, *8*(4), 4778–4786.