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Reducing Delirium and Functional Decline in Hospitalized Older Adults: Implementation of CoCare HELP

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Impact Statement: Delirium is associated with negative outcomes and high costs for patients, families, and hospital systems. The use of a reliable screening tool and evidence-based strategies such as CoCare: HELP demonstrates delirium prevention and functional decline in many geriatric hospitalized patients

8. Key Points

- Delirium in hospitalized older adults is associated with increased costs, increased length of stay, higher mortality rates, decreased cognitive and functional ability, and a higher likelihood of discharge to places other than home[1].
- Delirium is multifactorial; therefore, a multicomponent approach should be taken for prevention and treatment.
- Implementation of screening and preventative strategies, such as CoCare: HELP, will decrease delirium rate and prevent cognitive and functional decline, even at an adapted small-scale level.

Why does this matter?

An urban Midwestern hospital understands that delirium impacts the outcomes of the older hospitalized patient and is costly to patients, families, and the organization. A quality improvement project that includes a screening tool and CoCare HELP interventions has demonstrated a decrease in the rate of delirium in patients over 70 on two pilot units.

Abstract

Background: Delirium is a common disturbance in cognition among older adults in the hospital setting. It is associated with negative outcomes and high costs for patients, families, and hospital systems. Use of a reliable screening tool and evidence-based strategies such as CoCare: HELP demonstrates delirium prevention and functional decline in many geriatric hospitalized patients.

Objectives: This study examines the impact of implementing aspects of CoCare: HELP on two pilot units in an urban Midwestern hospital. Pre- and post-implementation measures of delirium rate, 30-day admission rate, length of stay, falls with injuries, safety attendant orders, restraint numbers, use of antipsychotics, and use of BEERS medications were tracked.

Methods: Mixed methods used to collect retrospective and prospective data for this quality improvement project. Quantitative data of adults 70 years and older from chart audits on two pilot units (n=25, n=25) established a baseline. Prospective data (n=106, n=123) collected after implementation and evaluated using SPSS to assess significance. Likert scales (n=23, n=9) used to assess impression and usability of assessment and interventions.

Results: Unit A delirium rate decreased from 32% to 9.75% (n=25, n=236), p=.004; Unit B rate decreased from 32% to 13.37% (n=25, n=187), p= .034. Two-sample Z tests of proportion showed statistical significance with $p < .05$. Descriptive statistics analyzed Pre and Post measurements.

Conclusions: Delirium rates decreased for both pilot units after implementation of bCAM screening and focus on patient orientation, sleep enhancement, mobility, and hearing

assistance. Other measurements varied in results. CoCare: HELP decreases delirium rate and full implementation is recommended.

Implications: This study supported four of the six CoCare preventative interventions along with the need for specific designated roles to coordinate, educate, and be a resource for units upon full implementation of CoCare HELP.

Keywords: Hospital Elder Life Program. Hospitalized older-adult delirium. Delirium Prevention. Delirium Assessment.

Introduction

Delirium is a sudden acute mental change characterized by rapid onset and fluctuating course of attention and affects more than 2.6 million older adults each year in the United States.[1,8] Delirium has been identified in up to 30% of hospitalized adults, however, a recent study estimated the rate of undetected delirium to be as high as 60%.[1,8] Along with its undesired prevalence, delirium negatively impacts patient and institutional outcomes including increased length of stay (LOS), higher mortality rates, declined cognitive and functional ability, and a higher likelihood of discharge to places other than home[1]. Economically, delirium is associated with additional healthcare costs estimated at more than $164 billion per year.[8] Nationally, delirium has become a key component of patient safety agendas along with evolving into an indicator of healthcare quality for older patients.[8] Studies support a multicomponent nonpharmacologic approach to prevent delirium as the most effective strategy.[1,2,3]

Delirium is multifactorial; therefore a multicomponent approach should be taken for prevention and treatment. Inouye's multifactorial model for delirium (Figure 1) further explains the need for a multicomponent approach.[4,7] The onset of delirium is related to the interaction of patient vulnerability (predisposing) factors and superimposed precipitating factors (noxious insults).[4] Inouye's model describes how solely addressing single factors will not likely prevent or treat delirium; the full spectrum of vulnerability and precipitating factors need to be considered for optimal management.[4,7]

The CoCare: Hospital Elder Life Program (HELP) is a bundle of evidence-based interventions targeting six risk factors for delirium: cognitive impairment, sleep deprivation, immobility, visual impairment, hearing impairment, and dehydration.[2,5,9,10] Over 20 published studies have demonstrated HELP's effectiveness for preventing delirium and falls, reducing

cognitive and functional decline, shortening LOS, and decreasing institutionalization rates.[4,5,6,7,10] HELP has also shown to save over $1000 per patient per hospitalization.[4,7] HELP has been implemented in over 200 hospitals worldwide; adaptations may be required due to resource constraints and availability of volunteers and skilled interdisciplinary geriatric professionals.[3]

Health System Assessment

This project was a continuation of the previous work completed by Doctor of Nursing practice students which analyzed pre-implementation data (falls, LOS, readmission rate, restraint use, BEERS drugs, and delirium rate) among three units within an urban Midwest hospital health system. Previous results showed a high rate of falls (0.89/1000-days), length-of-stay (6.1 days), readmission rate (12.6%), restraint use (19197 hours), BEERs drugs prescribed (15.4%), and delirium (30.2%).[11] This data guided the decision to pilot CoCare: HELP on two different designated units within the same hospital previously examined.

An assessment of the two pilot units was performed guided by the Burke-Litwin Causal Model[12] with strengths, weaknesses, opportunities, and threats analyzed. The health system had an Expert Implementation Team (EIT) working to achieve Age Friendly Health System designation, which aligns with CoCare HELP.[13] The organization was committed to reducing delirium and was supported by system leaders with unit staff expressing commitment to improving patient care. It was found that delirium screening was only being completed on ICU units; no non-ICU screening was available. Retrospective audits of adults aged 70 and older showed a delirium rate of 32% on each pilot unit, LOS of 7.3 days on unit A, 5.87 days on unit B; 6.15% antipsychotics prescribed on unit A, 6.28% prescribed on unit B; 35.21% BEERs medications on unit A, 38.96% on unit B. These measures demonstrated a need for delirium prevention, further supporting the implementation of CoCare: HELP.

Purpose

The assessment led to the clinical practice question: *How will the implementation of an evidence-based program prevent and reduce the incidence of delirium, 30-day admission rates, length of stay, falls with injuries, safety attendant orders, restraint numbers, use of antipsychotics, and use of BEERs criteria medications in those who are 70 years of age and older on two pilot units?* The purpose of this quality improvement (QI) project was to implement a smaller-scale intervention on two chosen pilot units, focusing on four of the six HELP strategies (orientation, sleep enhancement, mobility, hearing assistance) within the hospital that implemented CoCare: HELP. The goal was to prevent delirium and functional decline in the hospital's older adult population to demonstrate smaller-scale success for further support of a larger-scale implementation. The aims of this QI project were: (1) assess delirium prevalence in a cohort of non-ICU patients on two selected pilot units; (2) gather pre-implementation measures on selected pilot units; (3) implement a small-scale modified HELP program on pilot units without the assistance of volunteers; and (4) compare the pre-implementation measures with the post-implementation measures to guide the full implementation of CoCare: HELP in the future.

Methods

Mixed methods were used in this quality improvement project for evidence-based implementation. The setting was an urban hospital located in the Midwest. Two pilot units were selected for small scale implementation. Participants were hospitalized patients greater than or equal to 70 years of age at risk for delirium, health system leadership, EIT members, and clinicians; university faculty, staff, and students; and users of the intervention from other health systems.

Intervention

The hospital system selected the Brief Confusion Assessment Method (bCAM) to assess delirium for its non-ICU population. The bCAM is designed to improve delirium screening in the non-critically ill patients.[14] It is adapted from the Confusion Assessment Method (CAM), which is widely regarded as one of the most effective screening tools for delirium in the hospital setting.[15,16] The bCAM can be completed in less than two minutes and is designed to asses four features: (1) altered mental status or fluctuating course, (2) inattention, (3) altered level of consciousness, and (4) disorganized thinking (Figure 2).[17] For the screen to be positive, the first and second features must be present along with the third and/or fourth.[17] When the screening is completed by non-physician staff, the bCAM is 78% sensitive and 97% specific.[15]

With a shift to smaller scale approach, education on the bCAM was provided to the nurses on each pilot unit through voice-over PowerPoint presentations. Portions of the Hospital Elder Life Program (CoCare: HELP) were implemented to prevent delirium and assess functional decline.[6] Due to the absence of volunteers and staff workload concerns, four direct evidence-based CoCare strategies were applied to basic nursing care. The nursing strategies focused on patient orientation, sleep enhancement, mobility, and hearing assistance.

Approach

This project contained a two-phase implementation plan, consisting of short-term and long-term stages.

During stage one, the DNP students performed chart review audits to calculate the baseline delirium rates on the two pilot units. BCAM education was provided to the pilot units pre-implementation and interventions were scaled down to allow staff to perform aspects of the HELP program without the presence of volunteers. Registered nurse (RN) champions were identified to promote implementation strategies on the units.

Stage two, designed for longer-term implementation includes EIT members, geriatric specialty physicians, nursing senior leadership team, operations, and finance as key stakeholders. A neighboring university has plans to offer coursework that will supply and educate nursing student volunteers to the hospital system.[11] Possible recommendations for full deployment include adding two units per month for ten months. This will allow for full deployment by May 2024. Performance measures to track include LOS, readmission rate, falls, falls with injury, and use of safety attendants at the bedside.

The HELP program relies on volunteers, an elder life nurse specialist (ELNS), and an elder life specialist (ELS), as well as a supply of volunteers to carry out the assessments and interventions laid out by the program. The hospital system was seeking approval for the hiring of the ELNS and ELS positions at the beginning of the project implementation and was unable to provide the volunteers needed. The authors agreed to find and engage champions and take on the role of the ELNS and ELS while streamlining the interventions to allow existing staff to focus on orientation, sensory impairment, sleep enhancement, and mobility to attempt to decrease delirium on two pilot units.

Measures

The Ultra-Brief Confusion Assessment Method (UB-CAM) was used to audit charts (N=25, N=25) to establish the baseline delirium rate. UBCAM has a sensitivity of 93% and specificity of 95% for detection of delirium.[11] The bCAM is 78% sensitive and 97% specific and was used to audit charts post-implementation.[15] The system-based measures were average length of stay, readmission rate, and safety attendant orders. Patient outcome-based measures were falls, falls with injury, restraint hours, restraint numbers, BEERs meds, and anti-psychotic meds. The data was compared to the pre-implementation data obtained. A 2-sample Z-test of proportions

was run to assess for statistical significance of delirium rate ($p<.05$). Post implementation surveys were conducted on each unit using a Likert scale to assess staff impressions of the screening tool and interventions.

Data Collection

Chart audits, interviews, and surveys provided retrospective and prospective data on the organization, pilot units, and various stakeholders. The organization provided retrospective financial, patient data, and prospective patient data. The Preferred Reporting Items for Systematic Reviews and Meta Analysis (PRISMA) guided the systematic review on champion engagement strategies.[18-26] (Table 1). Post implementation data of bCAM positivity rate and patient data were compiled through the dates of 10/18/22 through 12/31/22 and compare to data obtained previously 10/1/21 through 4/30/22 (Table 2).

Analysis

Using a mixed methods design, qualitative data were compared pre-implementation measures with post implementation on the two pilot units. Findings were displayed with charts and graphs. Data were analyzed using SPSS and significance was determined if a p value was <0.05. Qualitative data were obtained and analyzed by staff surveys using a Likert scale.

Ethical Considerations

Internal Review Board non-human research determination was obtained from both the university and the organization. This was determined to be a quality improvement project by both entities. Identifiable data were stored on a health system drive and de-identified prior to analysis.

Results

Unit A delirium rate decreased from 32% to 9.75% (n=25, n=236). A Two-sample Z test of proportions was statistically calculated for delirium rate using SPSS: Pearson Chi-squared was 10.696 but assumptions were not met; Fisher's exact test was used with a p value of .004. This was statistically significant. Descriptive data are shown in tables (see table 2). Average length of stay increased from 7.3 to 8.79 days. Fall rate decreased from 0.13 to .097. Readmission rate decreased from 0.48 to 0. There was a decrease in total antipsychotics prescribed from 6.15% to 3.42%. There was an increase in total number of BEERS medications prescribed 35.21% to 57.79% with the highest increase in benzodiazepines. Hours of restraint use decreased from 936.44 to 341.47 and number of patients restrained decreased from 28 to 2. Orders for safety attendants decreased from 10 to 5.23. Likert scales were completed by RNs to qualitatively analyze themes (see Figure 3). Comments included: "I didn't see interventions come up for positive screening. It would be helpful to have a pop up that guides care when patients are positive like the sepsis screening. I was unaware of interventions; didn't have training on bCAM, just told about it," and "no training involved, just told us to do it."

Unit B delirium rate decreased from 32% to 13.37% (n=25, n=187). A two-sample Z test of proportions was statistically calculated for delirium rate using SPSS: Pearson Chi-squared was 5.824 but assumptions were not met; Fisher's exact test was used with a p value of .034. This was statistically significant. Descriptive data are shown in tables (see table 2). Average length of stay decreased from 5.87 to 5.44 days. Fall rate increased from 0.15 to 0.23. Readmission rate decreased from 0.53 to 0. There was an increase in total antipsychotics prescribed from 6.28% to 7.34%. There was an increase in total number of BEERS medications prescribed 38.96% to 53.67% with the highest increase in benzodiazepines. Hours of restraint use decreased from

954.09 to 116.34 and number of patients restrained decreased from 26 to 7. Orders for safety attendants increased from 0 to 3. Nine Likert scales were completed by staff RNs (Figure 3).

Discussion

Delirium rate decreased in both units significantly while strengthening overall unit awareness of delirium and its impact on patients and system. Unit A saw decreases in fall rate, readmission rate, total antipsychotic use, hours retrained, number of patients restrained, and orders for safety attendants after implementation; however, there were increases in LOS and BEERS medications. Unit B saw decreases in LOS, readmission rate, hours of restraints, number of restrained patients, and number of orders for safety attendants; however, there were increases in fall rate, total antipsychotic use, and BEERS medications. While results of this smaller scale implementation are not generalizable, similar hospital systems can interpret these results to determine if CoCare HELP® would be beneficial along with potential modifications of the program due to financial constraints.

Limitations

Limitations for this project included barriers to education, implementation, and data. Originally, education regarding delirium and proper bCAM screening was planned to be dispersed to RNs through the organization's required education module system. The timing overlapped with annual compliance training and the system did not allow new education to be uploaded and required for RNs during that time. The delirium and bCAM education module was dispersed via email and posted to the unit's shared website. There was no way to determine if RNs viewed the education or verified their competence on using the bCAM for delirium screening. Chart audits suggested that RNs were charting bCAM screening tool as required, but

not always using it when a patient's status changed. This likely contributed to user error and under screening of patients.

There was a significant difference in pre- and post- implementation delirium rates. One explanation for this could be that the increased awareness of delirium prevention throughout the unit and preventative strategies did decrease rate. It should be noted that pre-implementation audits completed were over a limited time frame of one month and chosen at random; the post-implementation audits were completed on all of the patients 70 years and older during the implementation timeframe of three months. Since there was no standardized screening tool in place, pre-implementation audits were completed using a different screening method. Pre-implementation data were over six months while post-implementation data were over three months; descriptive data may not be accurately depicted due to differences in collection timeframes.

Sustainability

Sustainability of this project requires a strong focus on required education for proper delirium screening and prevention to unit staff. To ensure sustainability when implementing the full CoCare: HELP program, it will be vital to coordinate with the collaborating university for volunteers. This project supports the need for designated paid positions to function as a resource for staff, families, and volunteers once full implementation of CoCare: Help begins. Expectations remain to save hospitals money while improving on patient and system outcomes.

Through word of mouth, people offered suggestions for moving forward including 'delirium precautions,' a delirium order set, and changes to medication orders. Results reported to EIT included suggestions for designated roles to coordinate, manage, and educate for full

system CoCare HELP implementation. Plans to start a university course to provide volunteers is tentatively scheduled for fall 2023, along with hiring paid CoCare positions.

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Tables

Table 1: Champion Engagement Strategies

	Champion Engagement Strategy	Mapping Strategy on CFIR Framework
1	**Build a coalition**	Inner Setting
2	**Asses for readiness; identify barriers/facilitators**	Process, Inner Setting
3	**Create a learning collaborative**	Inner/Outer Settings
4	**Recruit, designate, and train leadership**	Inner setting, process
5	**Identify and prepare champions (units)**	Process
6	**Develop educational materials**	Inner/Outer Setting, Planning
7	**Conduct educational meetings**	Inner Setting, Intervention, Process
8	**Facilitation**	Process, Intervention
9	**Provide supervision (clinical)**	Process, Intervention
10	**Ongoing consultation (clinical)**	Process, Intervention
11	**Promote adaptability (clinical)**	Intervention
12	**Audit & feedback**	Process, Inner Setting
13	**Purposefully re-examine the implementation**	Process, Intervention

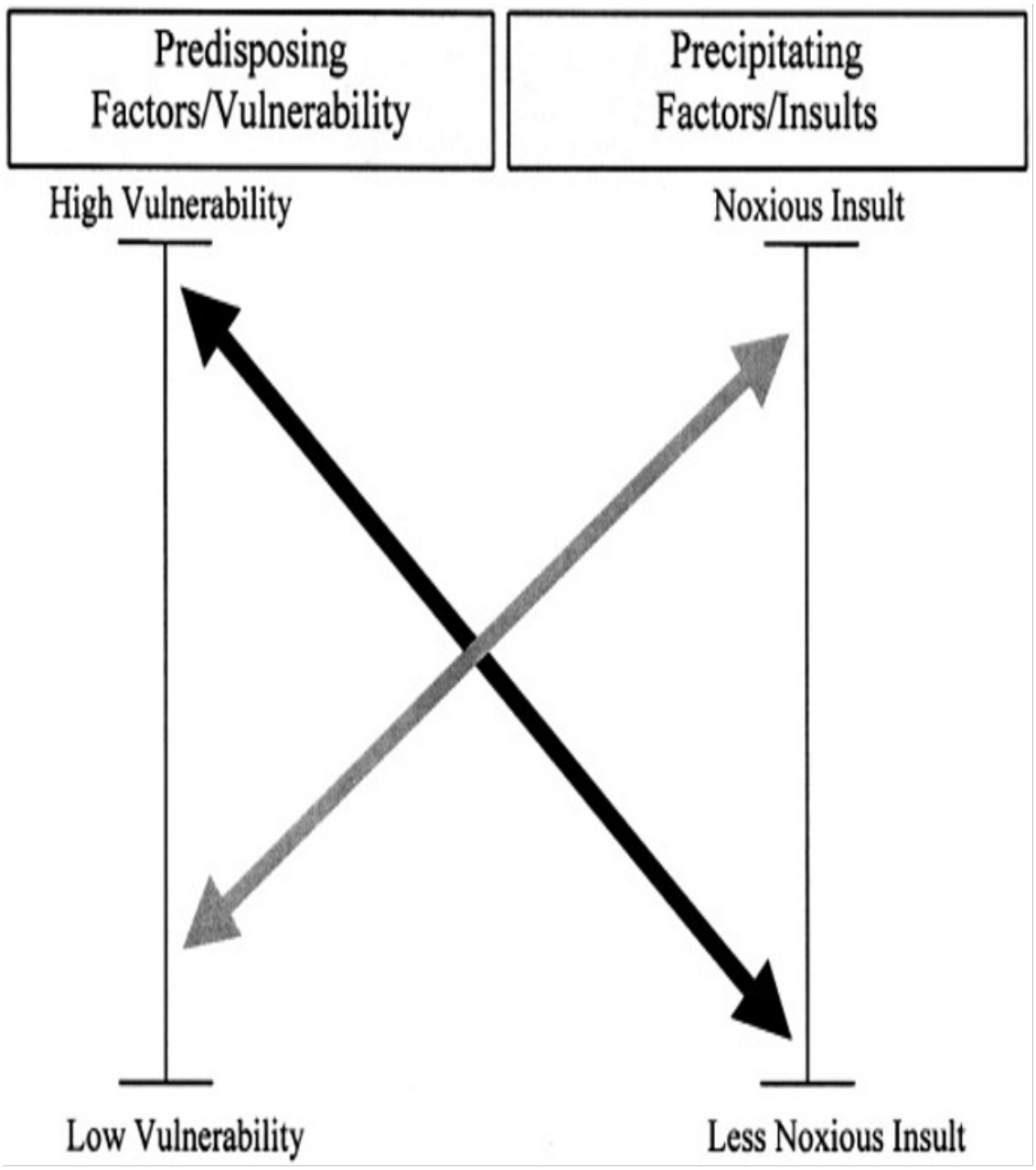
Table 2: Measures and Outcomes for Units A and B

Measures	Unit A	Unit A Post	Increase or Decrease	Unit B	Unit B Post	Increase or Decrease
Delirium Rate	32%	9.75%	Decrease	32%	13.37%	Decrease
Ave. Length of Stay (days)	7.3	8.79	Increase	5.87	5.44	Decrease
Fall Rate	.13	.097	Decrease	.15	.23	Increase
Readmission Rate	.48	0	Decrease	.53	0	Decrease
Total Antipsychotics	6.15%	3.52%	Decrease	6.28%	7.34%	Increase
BEERS Medications	35.21%	57.79%	Increase	38.96%	53.67%	Increase
Hours of Restraint Use	936.44	341.47	Decrease	954.09	116.34	Decrease
Number of Patients Restrained	28	2	Decrease	26	7	Decrease
Safety Attendant Orders	10	5.23	Decrease	0	3	Increase

To establish a baseline delirium rate for each pilot unit, a manual chart audit was performed by the current DNP students. 25 chart audits were completed for the pre-implementation data (charts chosen at random) and all charts were audited for the post implementation time frame using the bCAM charting completed by RNs. Unit A Post Implementation chart audits 70+ N= 236. Unit B Post Implementation chart audits 70+ N= 187.

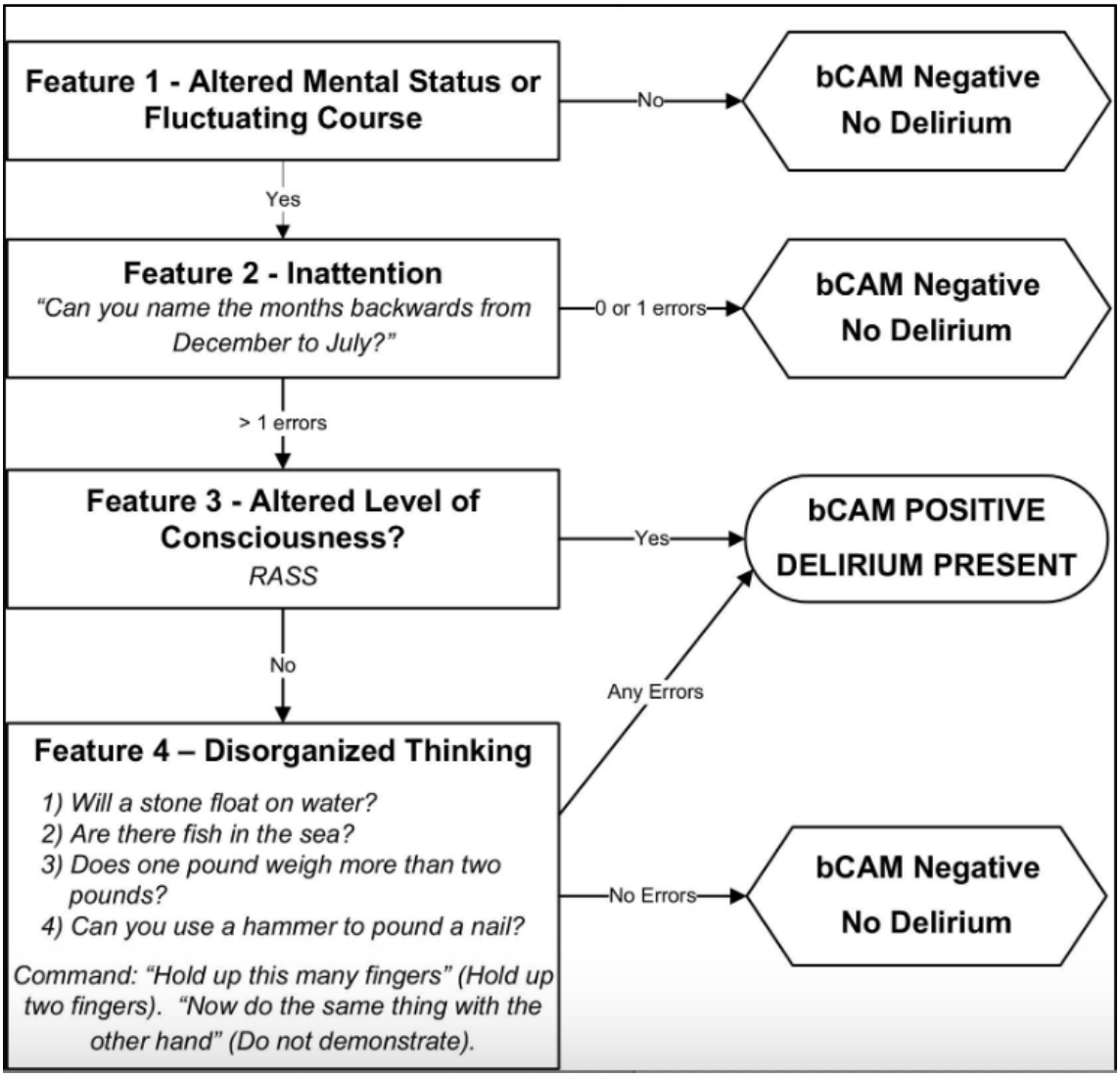
Figures

Figure 1: Inouye Multifactorial Model of Delirium



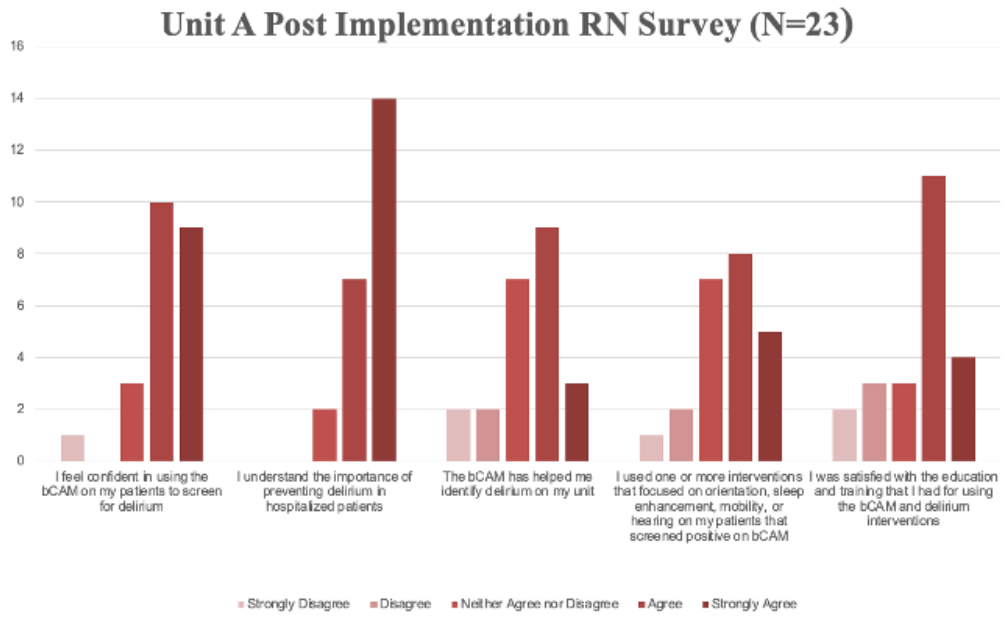
Ultimately, improved care for patients with delirium could occur by identifying predisposing factors and risks and enacting evidence-based interventions.

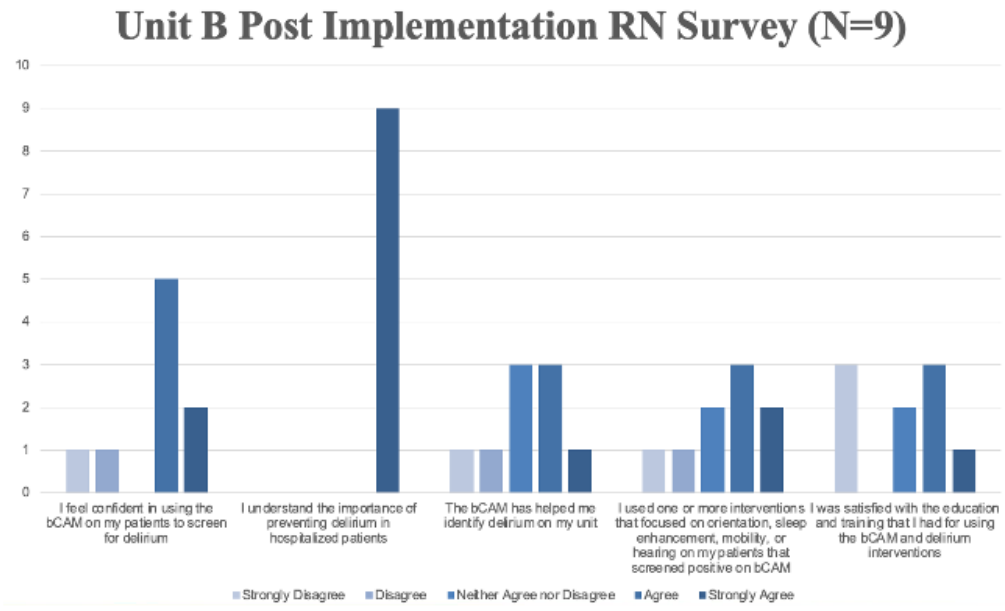
Figure 2. b-CAM: a brief cognitive screen with 4 features.



The bCAM is a valid and reliable instrument with four features selected by the health system for routine assessment on non-ICU units. To be considered delirious, a patient must be positive for features one and two, and well as three and/or four.[17]

Figure 3: Post Implementation RN staff Survey





Reducing Delirium & Functional Decline in Hospitalized Older Adults: *Implementation of CoCare HELP®*

An Evidence-Based Intervention

DNP Project: Defense
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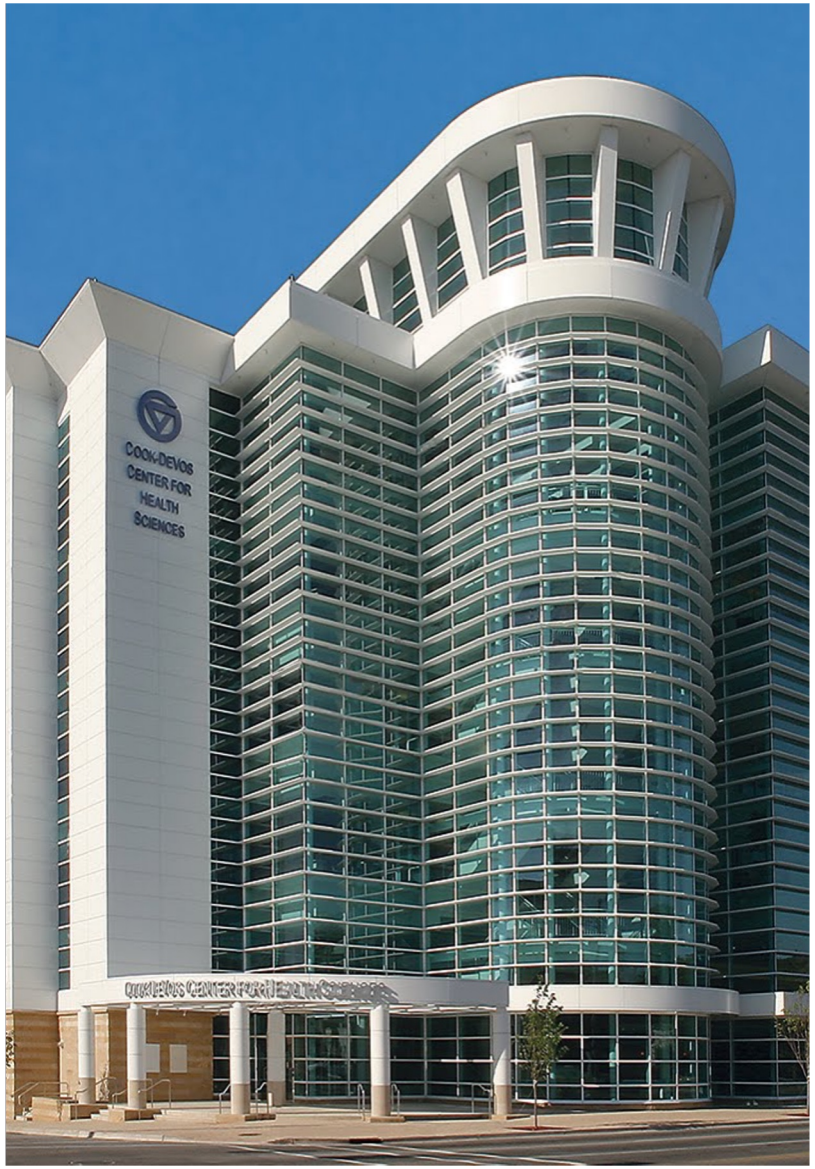
April 4, 2023



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Site Expert Implementation Team (EIT) Members:

- QI Department
- Several others

Objectives for Presentation

1. Analyze the problem (delirium) and present the solution (CoCare HELP) within context of organization and SWOT analysis
2. Review the CoCare HELP bundle of interventions
3. Display CoCare HELP alignment with "Age Friendly Health System" initiative
4. State the clinical problem
5. Report on implementation plan modifications
6. Defend results of project
7. Discuss sustainability and dissemination plan
8. Report on enactment of DNP Essentials

Introduction: The Problem

"An acute and usually reversible effect that results from a disease, intoxication of psychoactive substances, or outcome of toxin and stress buildup" (Ely et al., 2018)

- 2.6 million older adults affected per year
- $164 billion annually in excess Medicare expenditures (American Geriatric Society [AGS], 2019)
- Increased mortality
- Prolonged length of stay
- Higher cost per case (Schubert et al., 2018)
- Identification of delirium can be difficult
- Appropriate treatment varies case by case

Focus: Delirium Prevention

Introduction: The Solution

Hospital Elder Life Program (CoCare: HELP) is a bundle of evidence-based interventions that bring geriatric expertise to the forefront of patient care decisions to prevent delirium and functional decline (AGS, 2019)

CoCare HELP has a streamlined, stepwise approach, and aims to embed fundamental geriatrics principles into existing care structures (AGS, 2019)

- Targeted interventions
- Skilled interdisciplinary team
- ***Benefits:***
  - Reduced hospital costs over **$7 million** annually, over **$1000 per patient** hospitalization (AGS, 2019)
  - Reduced delirium over **30%** in hospitals deploying HELP (AGS, 2019)

Organizational Assessment

Prior DNP Project (2020-22)

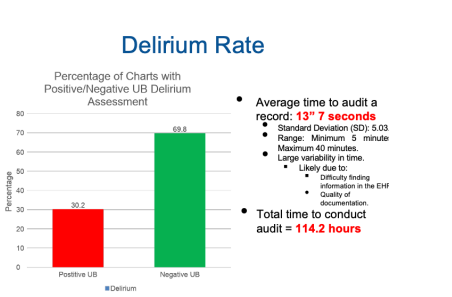
Baldwin, Hill and Finn: continued project entitled: Reducing delirium and functional decline within a hospital system through implementation of the American Geriatric Society (AGS) CoCare: Hospital Elder Life Program (HELP)) (Advisor: Dr. Spoelstra; Mentors: Drs. VanderKooi, Mandershied, Boettcher)

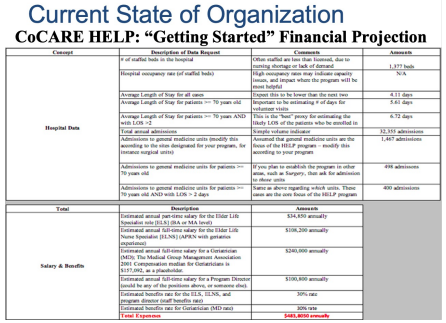
Purpose: To further analyze the pre-implementation of the HELP in order to optimize success of program administration

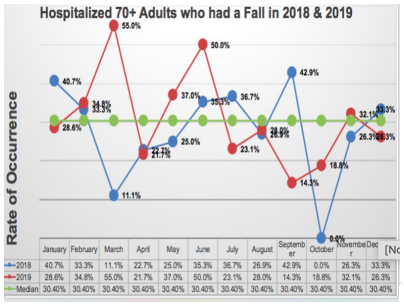
Location: A large Midwestern hospital system

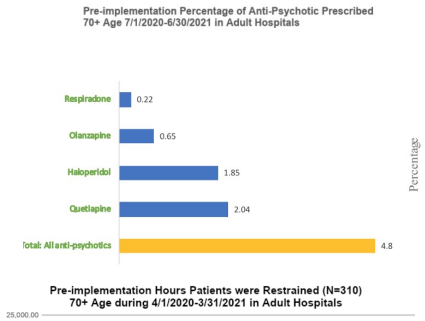
Implemented: Implementation not completed due to COVID-19. Undergraduate course developed but has not yet been enacted at the University level to partner with hospital system for volunteer recruitment

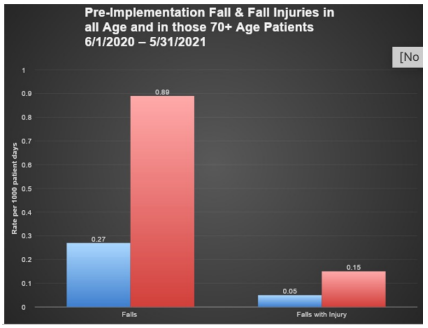
Results: A high rate of falls (0.89/1000-days), length-of-stay (6.1 days), readmission rate (12.6%), restraint use (19,197 hours), BEERs drugs prescribed (15.4%) and delirium (30.2%) were found. Strategies for implementation and products for implementation completed for future use of CoCare: HELP at site

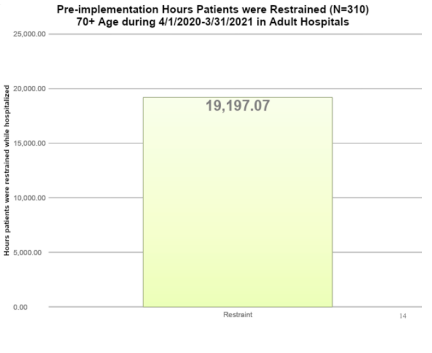


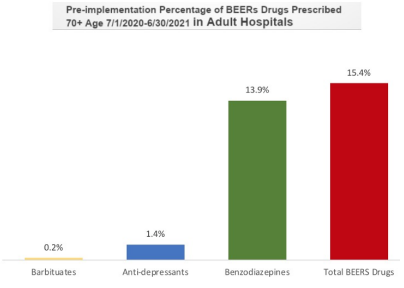


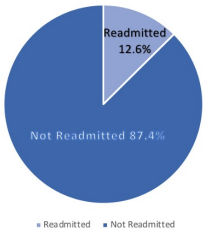






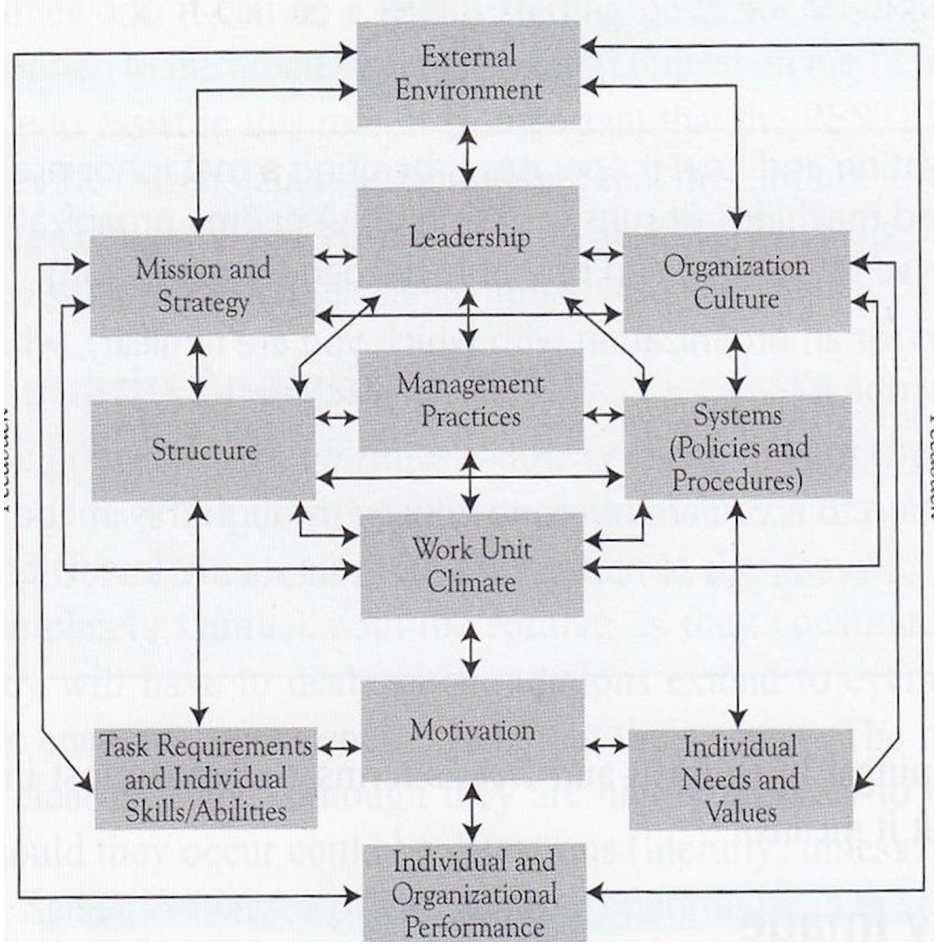






Organizational Assessment Framework

Burke and Litwin (1992) Performance and Change Model: Comprehensively examines 12 factors that affect large scale change in a large organization



Current State of Organization

CoCARE HELP: "Getting Started" Financial Projection

Concept	Description of Data Request	Comments	Amounts
Hospital Data	# of staffed beds in the hospital	Often staffed are less than licensed, due to nursing shortage or lack of demand	1,377 beds
	Hospital occupancy rate (of staffed beds)	High occupancy rates may indicate capacity issues, and impact where the program will be most helpful	N/A
	Average Length of Stay for all cases	Expect this to be lower than the next two	4.11 days
	Average Length of Stay for patients >= 70 years old	Important to be estimating # of days for volunteer visits	5.61 days
	Average Length of Stay for patients >= 70 years AND with LOS >2	This is the "best" proxy for estimating the likely LOS of the patients who be enrolled in	6.72 days
	Total annual admissions	Simple volume indicator	32,355 admissions
	Admissions to general medicine units (modify this according to the sites designated for your program, for instance surgical units)	Assumed that general medicine units are the focus of the HELP program – modify this according to your program	1,467 admissions
	Admissions to general medicine units for patients >= 70 years old	If you plan to establish the program in other areas, such as *Surgery*, then ask for admission to *those* units	498 admissons
	Admissions to general medicine units for patients >= 70 years old AND with LOS > 2 days	Same as above regarding *which* units. These cases are the core focus of the HELP program	400 admissions

Total	Description	Amounts
Salary & Benefits	Estimated annual part-time salary for the Elder Life Specialist role [ELS] (BA or MA level)	$34,850 annually
	Estimated annual full-time salary for the Elder Life Nurse Specialist [ELNS] (APRN with geriatrics experience)	$108,200 annually
	Estimated annual full-time salary for a Geriatrician (MD); The Medical Group Management Association 2001 Compensation median for Geriatricians is $157,092, as a placeholder.	$240,000 annually
	Estimated annual full-time salary for a Program Director (could be any of the positions above, or someone else).	$100,800 annually
	Estimated benefits rate for the ELS, ELNS, and program director (staff benefits rate)	30% rate
	Estimated benefits rate for Geriatrician (MD rate)	30% rate
	Total Expenses	**$483,8050 annually**

(Baldwin et al., 2021)

Current State of Organization

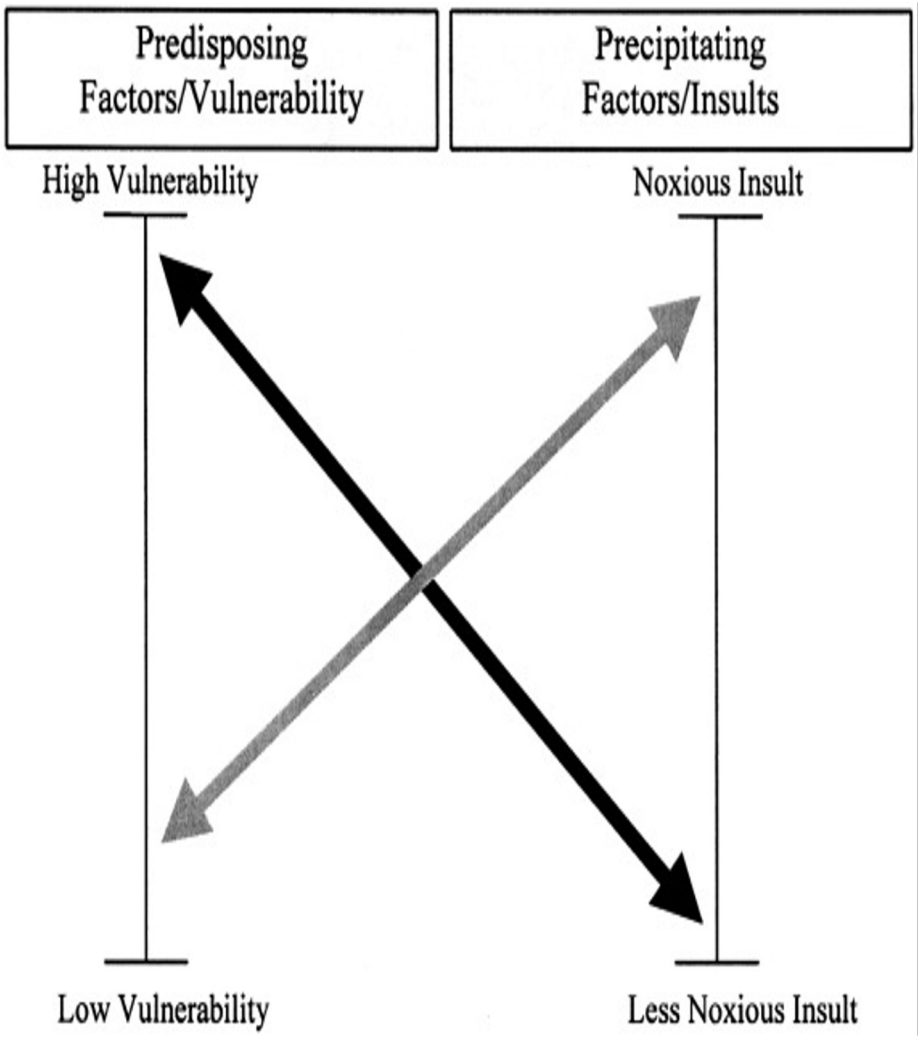
CoCare Help Protocol	EHR Charting Availability	Current site Training RNs/NTs
Assessment (CAM)	**Available (CAM-ICU) , bCAM in production for non-ICU units**	RN learning modules
Orientation	**All but one available** **Not available: updated orientation board**	Onboarding; classroom/preceptor
Vision	**Available**	Onboarding; preceptor
Hearing	**Available**	Onboarding; preceptor
Mobilization	**Available**	Onboarding; classroom/preceptor
Fluid Repletion	**Available**	Onboarding; classroom/preceptor
Feeding	**Available**	Onboarding; preceptor
Sleep	**All but one available** **Not available: hand lotion**	Onboarding; preceptor
Therapeutic Activity	**Available**	**None**


DNP Students, Faculty
Nursing Directors
Nutrition Services
Pharmacy
Human Resources
Utilization Resource Nurse
CFO, Finance Department
Risk Management Officer
Therapy (PT, OT)
Quality Improvement Nurse Specialist
Clinical Nurse Specialists
Lead Geriatrician
Medical Group Leader and Nursing Leader
Delirium Expert Implementation Team (EIT)
Operations Manager, Geriatrics Division
Hospital Board, CEO, CNO
AGS Senior manager of special projects: AGS: CoCare
Age-Friendly Health System Expert Implementation Team (EIT)
Patients >70 years of age who are hospitalized and at risk of delirium

Phenomenon Model

Inouye (1999) Multifactorial Model:

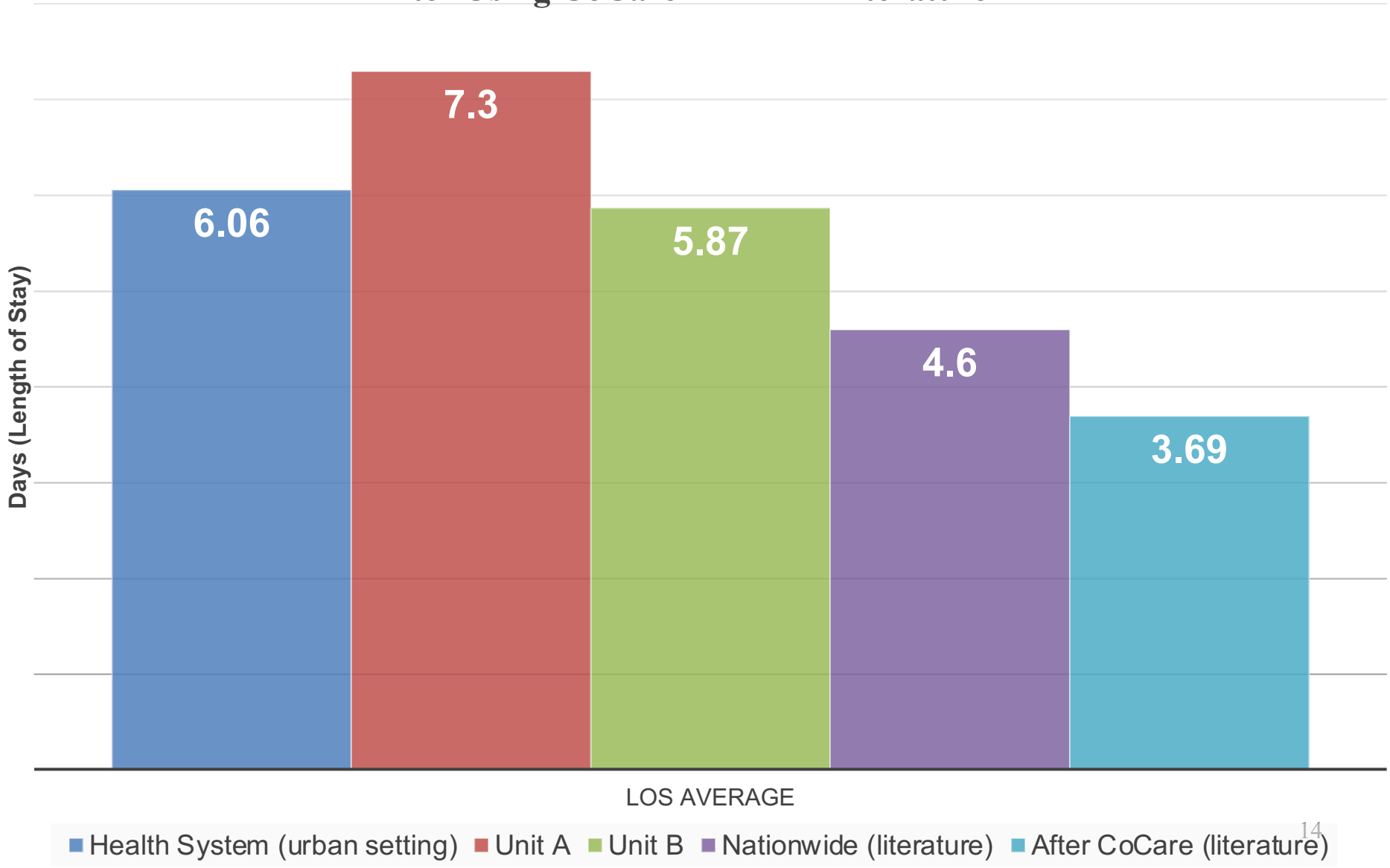
Improved care for patients with delirium may occur by identifying predisposing risk factors and enacting evidence-based interventions



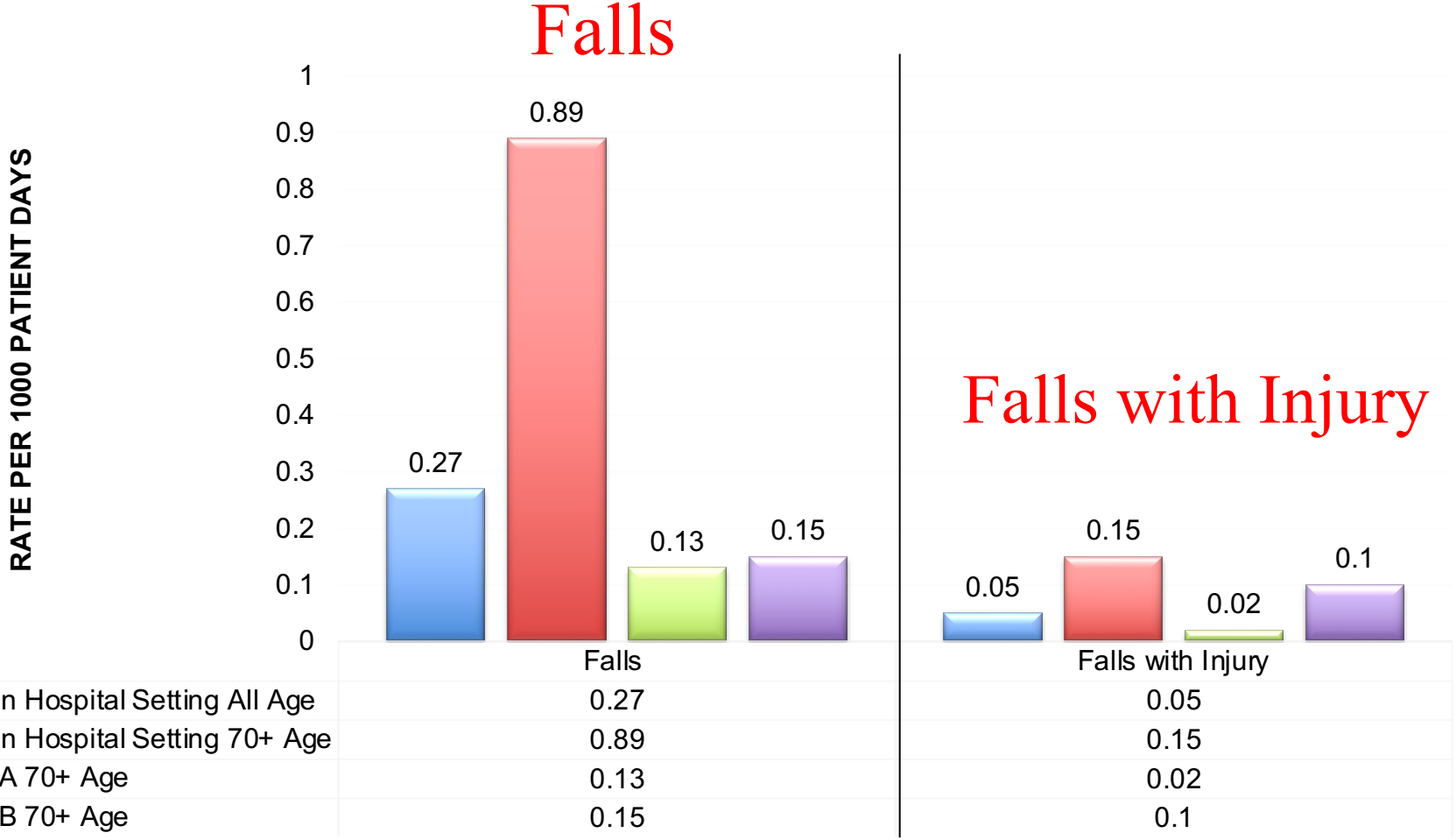
SWOT Analysis Pilot Units A & B

Strengths	Weaknesses
• Part of a large healthcare system in West Michigan • Clearly defined vision, mission, and strategic plan • Clear and concise goals- reduce delirium and improve patient safety • Support from many unit and system leaders • American Geriatrics Society (AGS): HELP previously purchased • Electronic Health Record (EHR) system already designated to incorporate delirium charting • **Interdisciplinary Expert Implementation Team (EIT)**	• **Lack of staff knowledge of bCAM importance and prevalence of delirium** • **Staffing shortages** • Higher acuity patient population • Nurse burnout and staff turnover • Lack of time to provide care and document for complex patient population • **Reactive responses to delirium vs preventative** • Complex management system • **Lack of standardized delirium assessment tool used in system** • **Falls, LOS, and readmission rates elevated in the hospital system related to delirium** • **Delirium assessments not consistently performed** • Cost of implementing CoCare: HELP • **FTE approval for Elder Life Specialist (ELS) and Elder Life Nurse Specialist (ELNS)**
Opportunities	**Threats**
• **President's Grand available for application** • **Opportunity to educate RNs on bCAM before CoCare Implementation** • **Improving identification of delirium through bCAM improves likelihood of implementing prevention** • **Improving quality indicators for the hospital system (Length of stay [LOS], readmission, falls)** • Adaptable HER • **Close schools with students pursuing medical degrees likely to sign up for volunteer course**	• **Volunteer base dependent on university course approval and start date TBD** • Multiple demands and other outside opportunities which may affect willingness of persons to volunteer for this program within system • EHR sustainability • COVID-19 impact on insurance and census • COVID-19 impact on training individuals

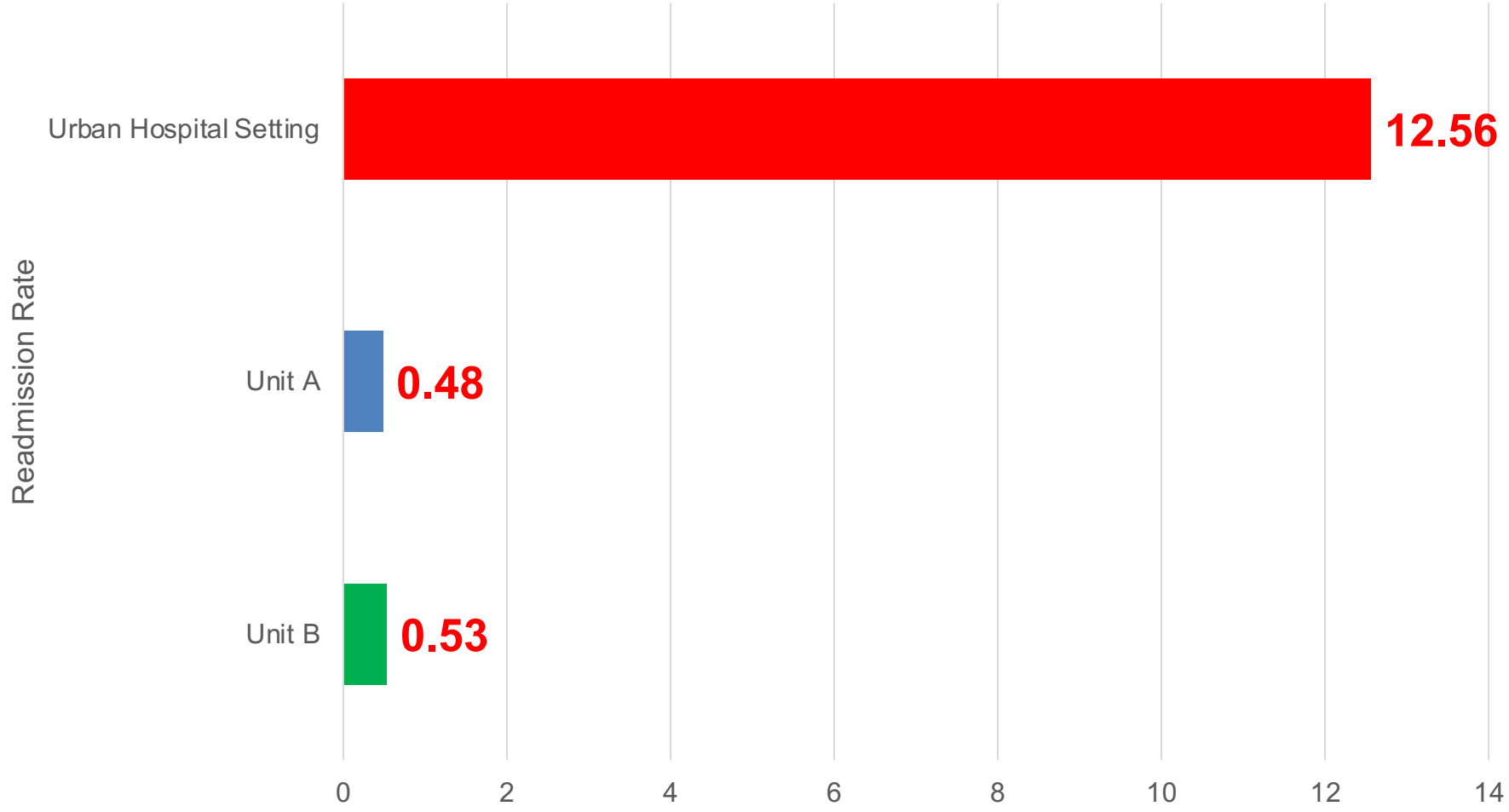
Comparison of Length of Stay Averages in Hospitalized Adults 70+: Nationwide, Urban Health System Adults (6/1/20- 5/31/21), Pilot Units A and B (10/1/21- 4/30/22), After Using CoCare HELP in Literature



Baseline Fall & Fall Injuries In All Ages and Patients Aged 70+ Urban Hospital Settings (6/1/20- 5/31/21) and 70+ Age on Pilot Units (10/1/21- 4/30/22)

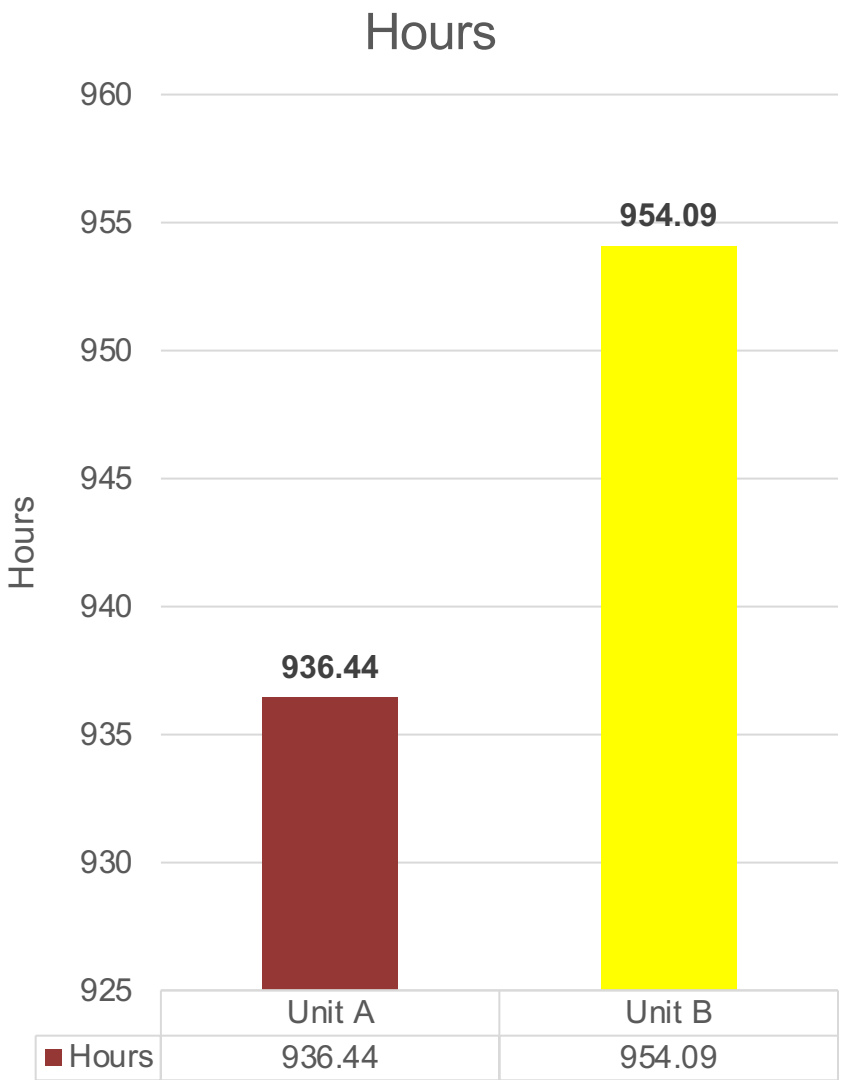


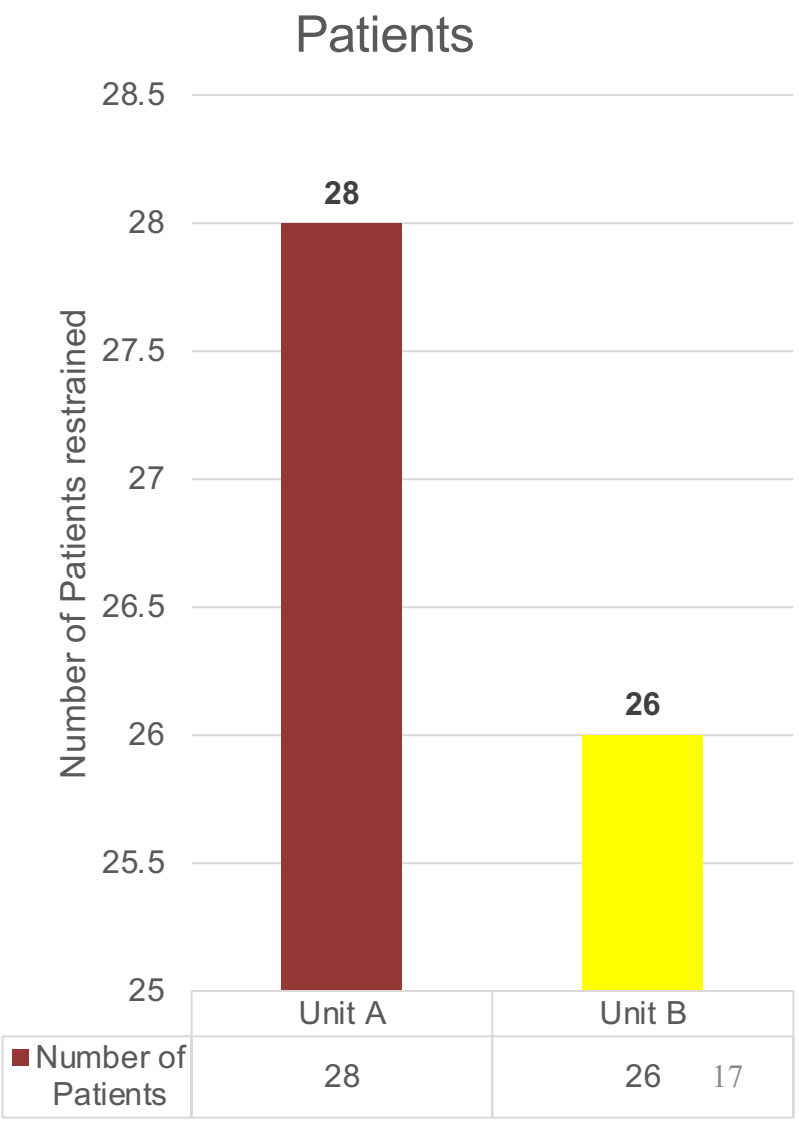
Baseline All Cause Readmissions Rates for Adults 70+ in Urban Hospital Setting (4/1/2020 – 3/31/2021), Pilot Units A & B (10/31/21- 4/30/22)



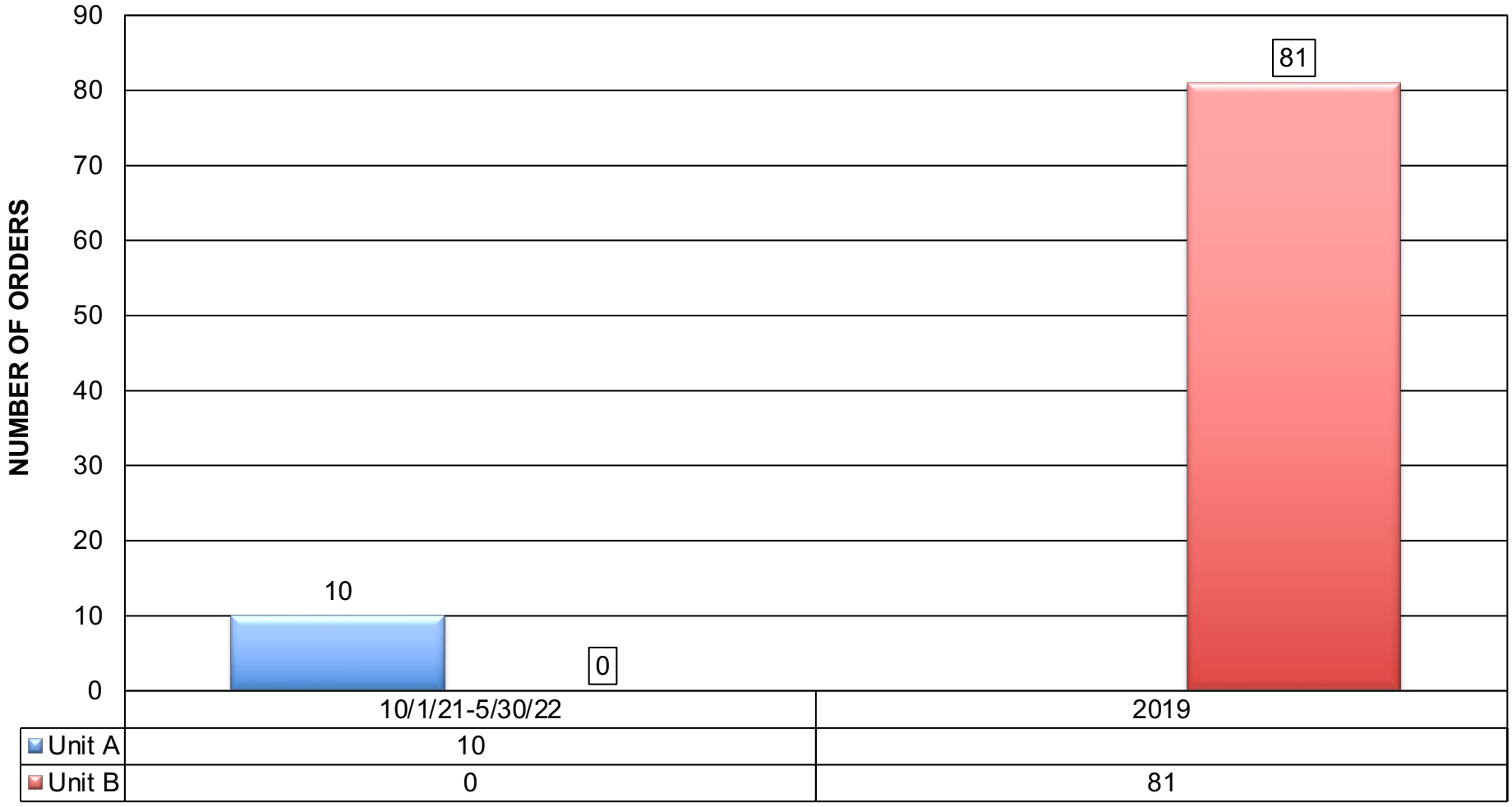
	Unit B	Unit A	Urban Hospital Setting
All Cause Readmissions	0.53	0.48	12.56

Baseline Hours and Numbers of Hospitalized Patients Aged 70+ Restrained on Pilot Units (10/1/2021 – 4/30/2022)

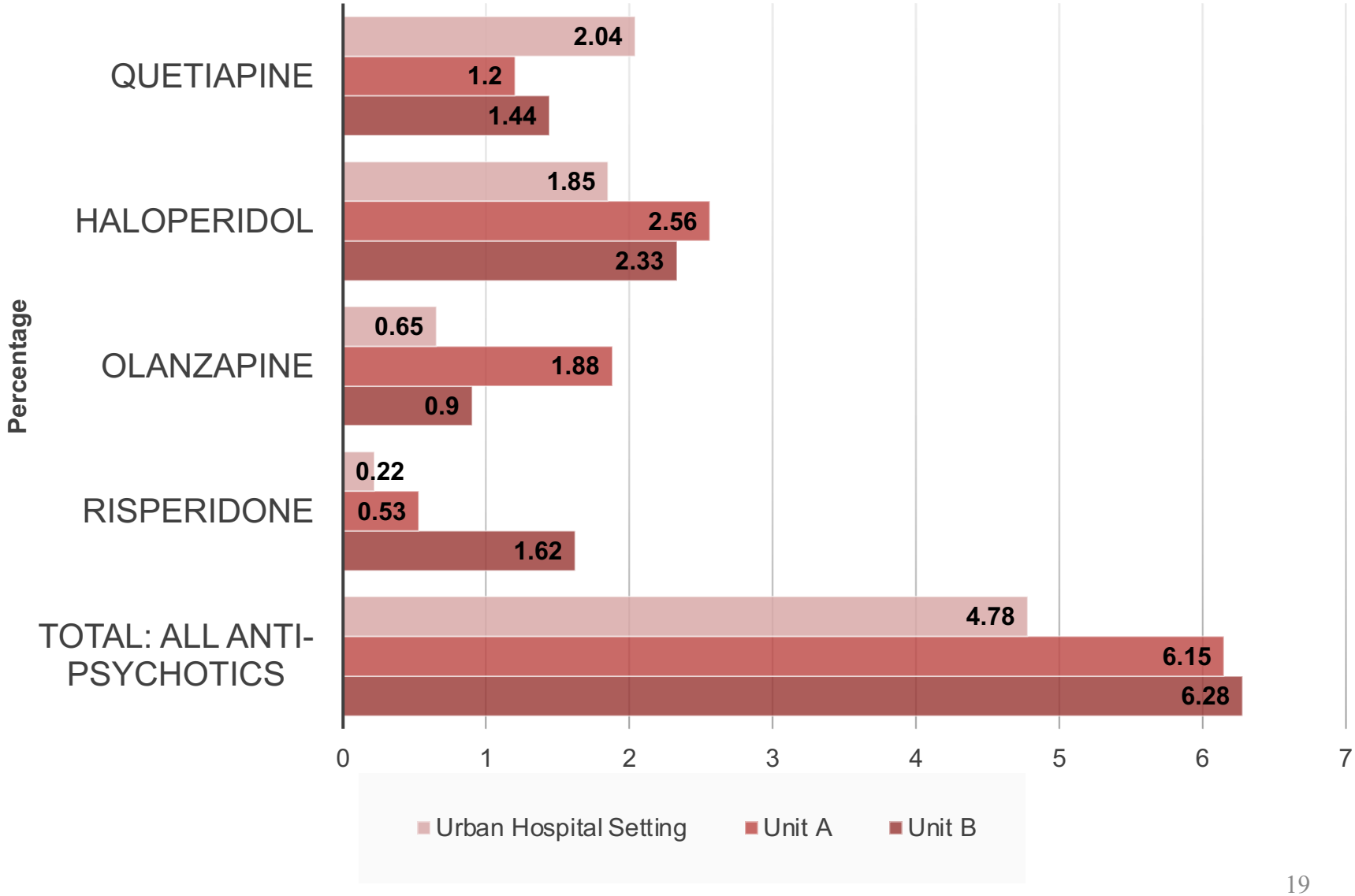




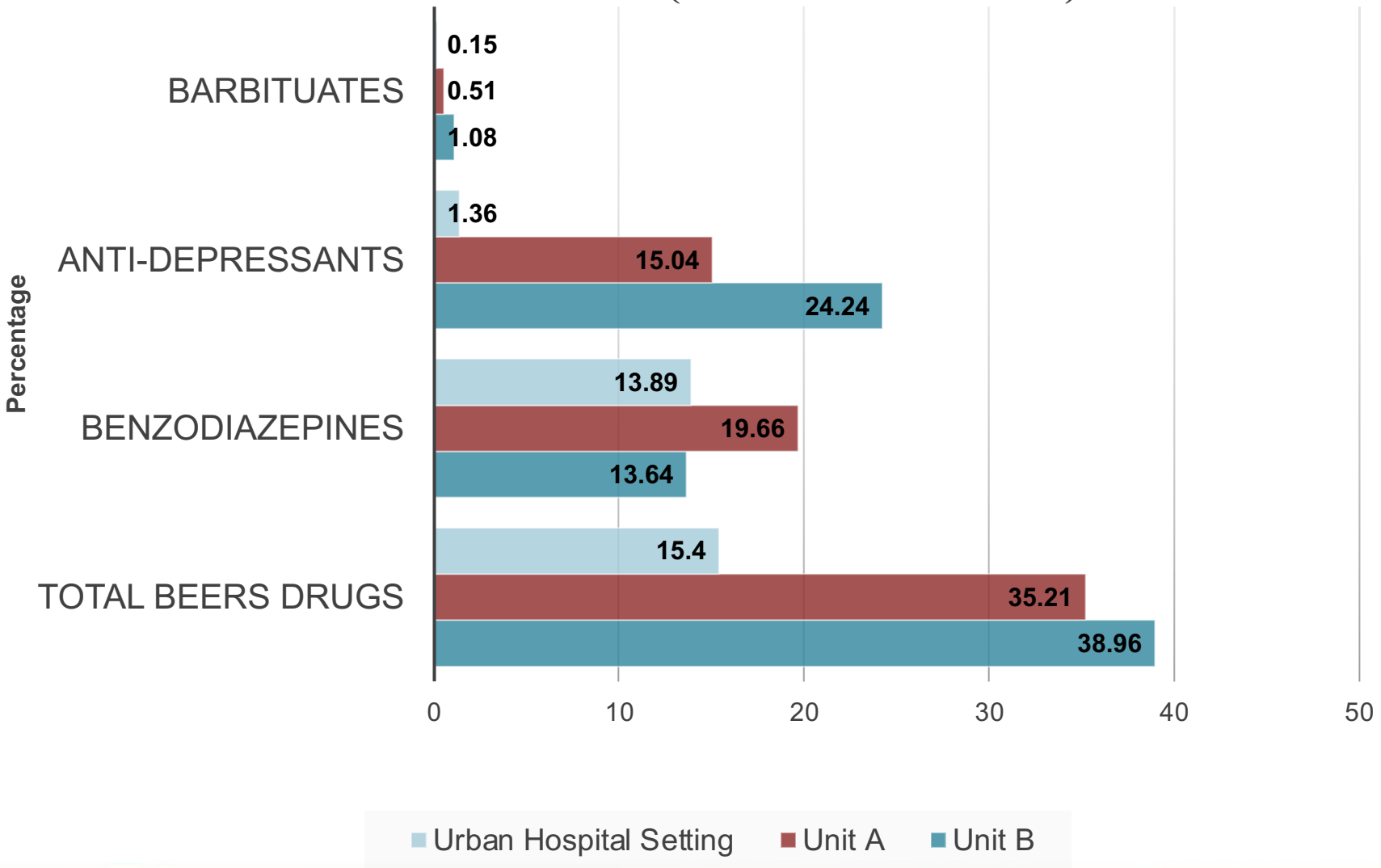
Baseline Number of Orders for Safety Attendants in Hospitalized Patients Aged 70+ for Pilot Units (10/1/21 - 4/30/22) and Pilot Unit B (2019)



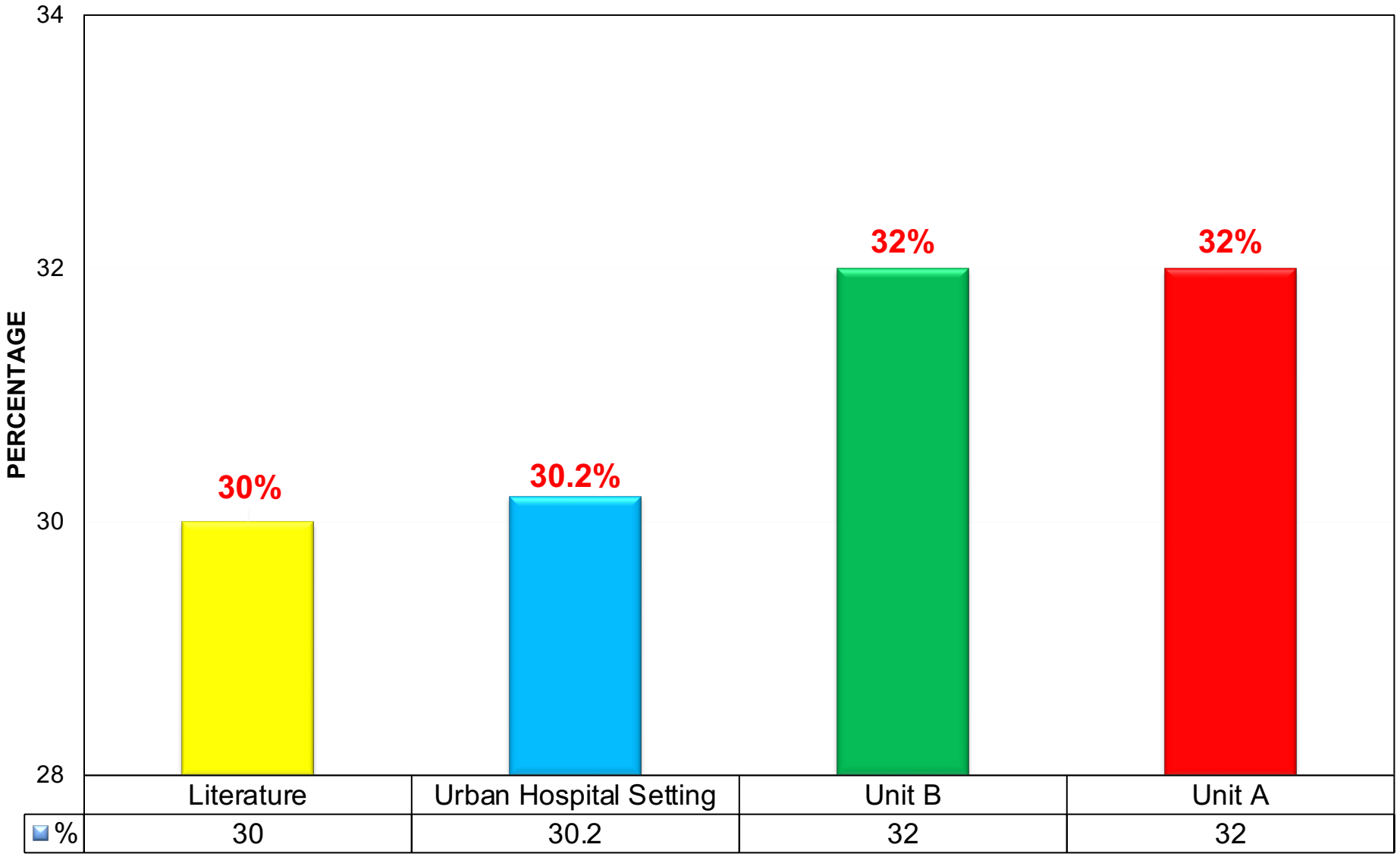
Baseline Antipsychotics Prescribed Ages 70+ For Urban Hospital Setting (7/1/2020-6/30/2021) and Pilot Units (10/2/2021 - 4/30/2022)



Baseline BEERs Drugs Prescribed Ages 70+ in Urban Hospital Setting (7/1/2020-6/30/2021) and Pilot Units (10/2/2021 - 4/30/2022)



Delirium Rate in Hospitalized Adults 70+ from Scientific Literature, Chart Audits (2018-2019), Pilot Unit Audits (6/1/22 – 7/20/22)



Clinical Practice Question

The clinical practice question for this project is:

How will the implementation of an evidence-based program prevent and reduce the incidence of delirium, 30-day readmission rates, length of stay, falls with injuries, safety attendant orders, restraint numbers, use of antipsychotics, and use of BEERs criteria medications in those who are 70 years of age and older on two pilot units?

Evidence-based Intervention

CoCare HELP

CoCare HELP

- Identifies six known delirium risk factors:
  - Cognitive impairment
  - Sleep deprivation
  - Immobility
  - Visual impairment
  - Hearing impairment
  - Dehydration

(Caplan and Harper, 2007; Inouye et al., 2000; Inouye et al., 1999).

CoCare HELP
Online Education Curriculum

Front Matter
- Curriculum Developers & Staff
- Introduction
- Program Guidelines
- Contributing Authors
- Disclosure of Financial Interest
- Copyright

Using the Online Educational Curriculum
- Overview and Roadmap
- Target Audience for Online Educational Curriculum

Administrative Procedures
- Program Overview & Structure
- Volunteer Coordination
- Quality Assurance
- Documenting Effectiveness

The Clinical Process
- Introduction to Delirium -Clinical
- Introduction to Delirium- Non-Clin
- Patient Screening & Enrollment
- Elder Life Specialist: Core Interver
- Volunteer Training
- Elder Life Nurse Specialist (ELNS) Interventions: Part I
- Elder Life Nurse Specialist (ELNS) Interventions: Part II

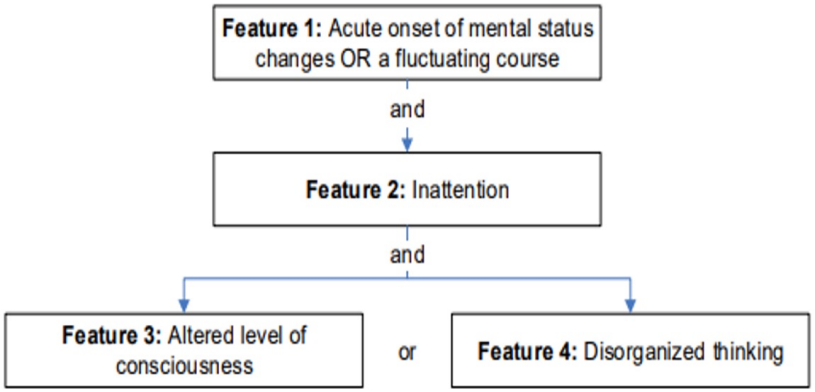
Planning for Implementation & Sustainability
- Program Planning
- Implementation Challenges
- Annual Reports

CoCare HELP
Delirium Instrument

b-CAM: a brief cognitive screen with 4 features.

-A valid and reliable instrument:

-Previously selected by health system for routine RN assessment on non-ICU units.



CoCare HELP
Implementation Toolkit

Patient Screening & Enrollment
- Criteria & Guidelines
- Patient Information Packet

Elder Life Specialist
- Overview & Responsibilities
- Protocols

Elder Life Nurse Specialist
- Overview & Responsibilities
- Protocols
- Interdisciplinary Interventions
- Optional Interventions
- Educational Interventions

ssment & Data Collection
& Volunteer Assignments
- Tracking Adherence of Volunteer Interventions
- Tracking Adherence of Nursing Interventions

harge Planning & Patient faction
- Sample of Completed Forms

Maintenance & Sustainability
- Planning for Sustainability

Annual Reports
- Measures for Documenting Clinical Effectiveness
- Measures for Documenting Financial Cost Savings
- Outcomes by Admission
- Adherence Rates of Interventions

Communications

Guide to Using the Online Community

CoCare HELP Intervention Bundle

Elder Life Nurse Specialist (ELNS) 1.0 FTE

- Conduct geriatric clinical and cognitive assessments
- Provide nursing interventions
- Provide education
- Coordinate interdisciplinary team rounds
- Monitor and record adherence to nursing interventions
- Facilitate discharge planning

Elder Life Specialist (ELS) 0.6 FTE

- Conduct screening & enrollment
- Design care plan & assign protocol

Volunteers

- Conduct walking or range-of-motion exercises (early mobilization)
- Therapeutic activities
- Feeding assistance
- Orientation

CoCare HELP

Example of Admission Outcomes (N=1716)

(AGS, 2022)

Change in Cognitive Test Score* from admission to discharge n(%)

Same or improved n=1028 (92%)

Decline n= 86 (8%)

Change in Activities of Daily Living (ADL) Score from admission to discharge n(%)

Same or improved n=969 (86%)

Decline n=53 (14%)

LOS, days

Mean 7, SD 9.2-8.7 (Median 7; Range 1-

Discharge Status n (%)

Home: no services n=489 (29%)

Home: with services n=470 (27%)

Nursing home: Short-term n=248 (15%)

Nursing home: Long-term n=147 (9%)

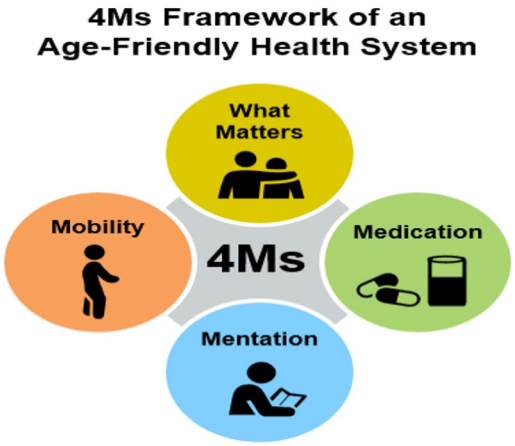
Not Specified n=115 (7%)

*Cognitive Test includes Mini-Cog or SPMSQ=Short Portable Mental Status Questionnaire, ADL = Activities of Daily Living, LOS=length of hospital, SD = standard deviation. Please note that this table is only an example. Your hospital should track changes in cognitive status based on the assessment you use, such as the SPMSQ or Mini-Contest.

Many sites also track changes in delirium status with the CAM.†"Other "category includes: hospice, transfer to acute rehabilitation unit, assisted living, rest home, and unknown

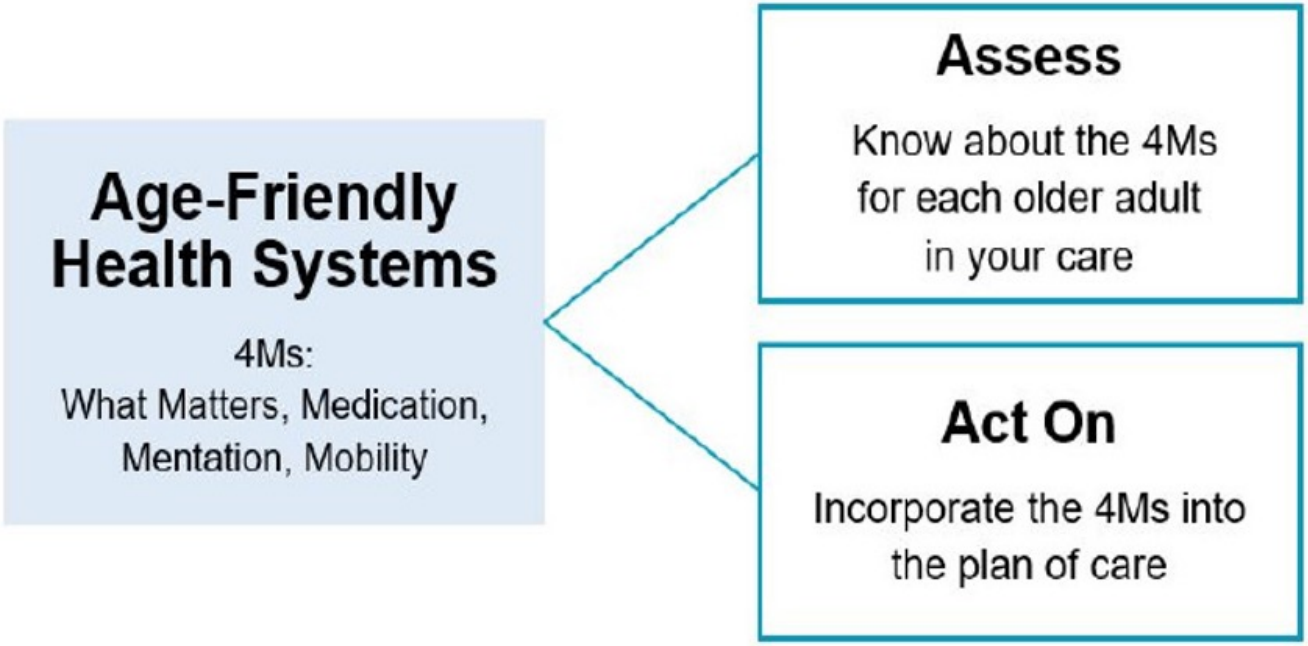
Age Friendly Health Systems

Alignment



Age Friendly Health Systems (AFHS)

There are two key drivers of age-friendly care: knowing about the 4Ms for each older adults in your care (”assess”) and incorporating the 4Ms into the plan of care accordingly (“act on”). Both are supported by documentation and communication across settings and disciplines (IHI, 2020).



4M Core Elements & Interventions

The 4Ms	Description
Matters Most	Know & align care with each older adult's specific health outcome goals and care preferences across settings of care
Medications	Use only medications that do not interfere with what matters most, mobility, or mentation across settings of care
Mentation	Prevent, identify, treat, & manage dementia, depression, and delirium across settings of care
Mobility	Ensure that older adults move safely every day to maintain function and do what matters

Fulmer T, Mate KS, Berman A. *J Am Geriatric Soc*. 2018 Jan;66(1):22-24.

CoCare HELP Addresses 4Ms

The 4Ms	Outcomes of CoCare HELP
Matters Most	***Addresses what matters most:*** ❑ Improved quality of care ❑ Reduced complications and resource costs ❑ Reduced hospital re-admissions
Medications	***Stops use of deliriogenic drugs:*** ❑ Reduced use of BEERs and anti-psychotic meds
Mentation	***Prevents Delirium:*** ❑ Decreased onset of delirium from 15% of cases to 9.9% (a 34% reduction) ❑ Increased scores on patient cognitive functioning tests
Mobility	***Prevents falls:*** ❑ Less need for patient restraints

(Hshieh et al., 2018; Hshieh et al, 2015; Inouye et al, 2020; Inouye et al., 1999; Rubin et al, 2011; Rubin et al., 2017)

Alignment

CoCare HELP

- Can be a critical cornerstone of participation as an Age Friendly Health System
- Provides care targeted to the four geriatric "M"s of the Age Friendly Health System

Leah Ann Lamb, a volunteer with the Hospital Elder Life Program (HELP), visits with a patient at University Hospital. The HELP program—designed to prevent delirium in patients—offers a low-tech, high-touch approach that helps relax and orient the patient, improves the quality and safety of care, and saves the hospital money.

Literature Review

Purpose, Aims & Methods

Purpose of review: *To identify the effectiveness of champion engagement strategies at the macro and micro levels during quality improvement implementation*

Aims:

1. *What champion engagement strategies are effective?*
2. *What makes champions successful for change implementation?*

Methods: The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guided the review (Moher et al., 2009)

- Databases: *PubMed, CINAHL, GoogleScholar*
- Type: *secondary analysis, qualitative research, systematic reviews, meta-analysis, integrative reviews, clustered randomized controlled trials*
- Keywords: *champion, clinical champion, community-based or community setting, hospital or long-term care, implementation, and delirium was added to GoogleScholar*
- Inclusion criteria: *champion engagement strategies, champion implementation strategies, English language, 2015-2022*
- Exclusion criteria: *no champion engagement, primary settings of ICU, primary focus on pediatrics*

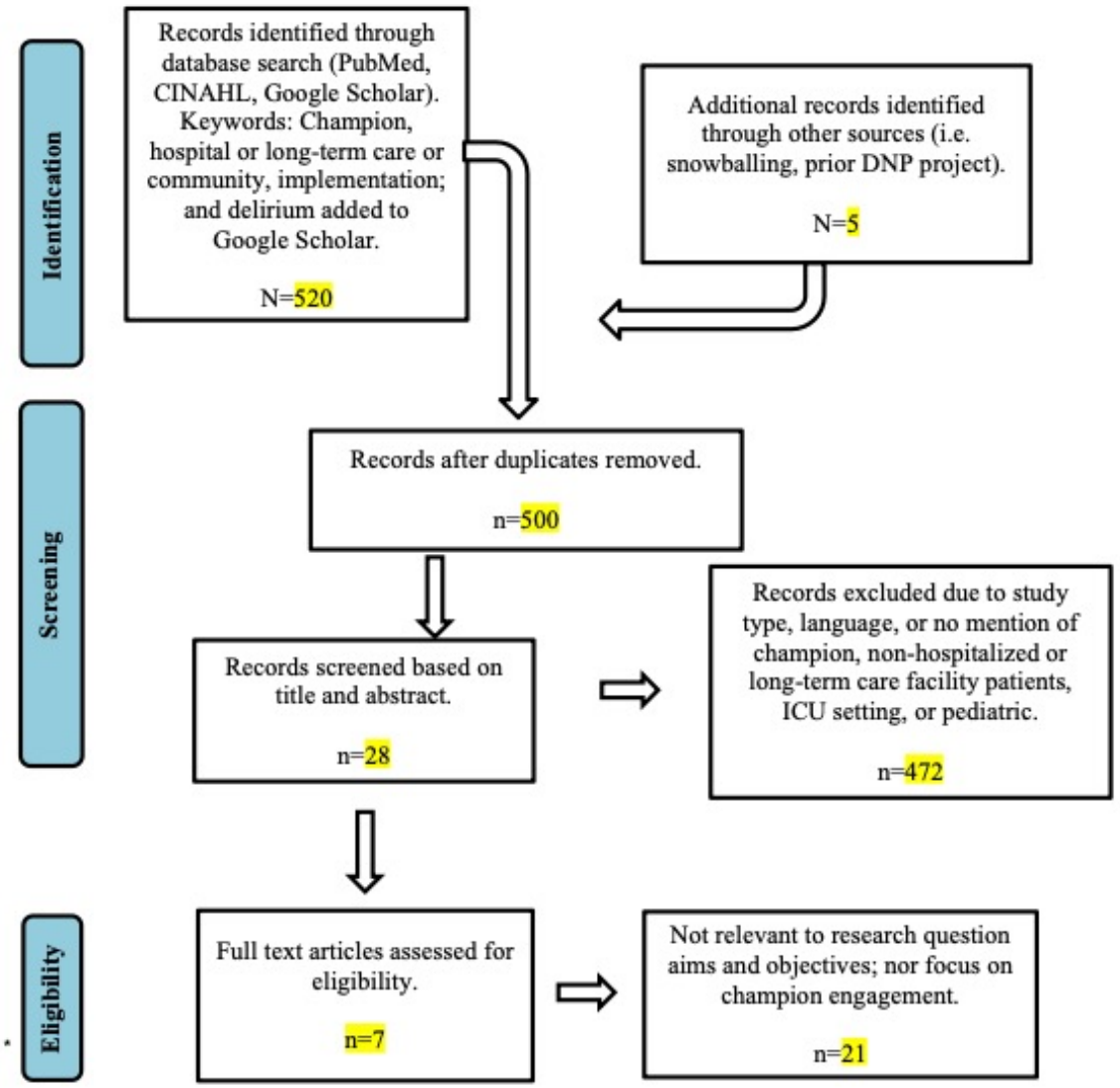
PRISMA Figure

(Moher, et al., 2009)

Yield: 520 articles and 5 from secondary sources

- 25 duplicates removed
- Titles reviewed for relevance and 472 articles removed
- 28 remaining abstracts reviewed for inclusion criteria
- Full text articles resulted in removal of 21 articles

Results: *7* articles remained in the review



Results of Review

Type: 1 systematic review and meta-analysis, 1 systematic review, 1 integrative review, 1 mixed-methods study, 2 qualitative studies, 1 randomized control trial (Bunce et al., 2020; Conn et al., 2015; Hall et al., 2021; Laur et al., 2018; Miech et al., 2018; Swindle et al., 2021; Wood et al., 2020)

Locations: North America, Europe, Australia

Samples: from 1 to 625; type of sample varied from single champion implementors, physicians, advanced practice providers, anesthesiologists, RNs, project coordinators, social workers, psychologists, hospital staff, educators, children, and articles

Scope: based on construct of healthcare champions and the impact a champion may have on the implementation process

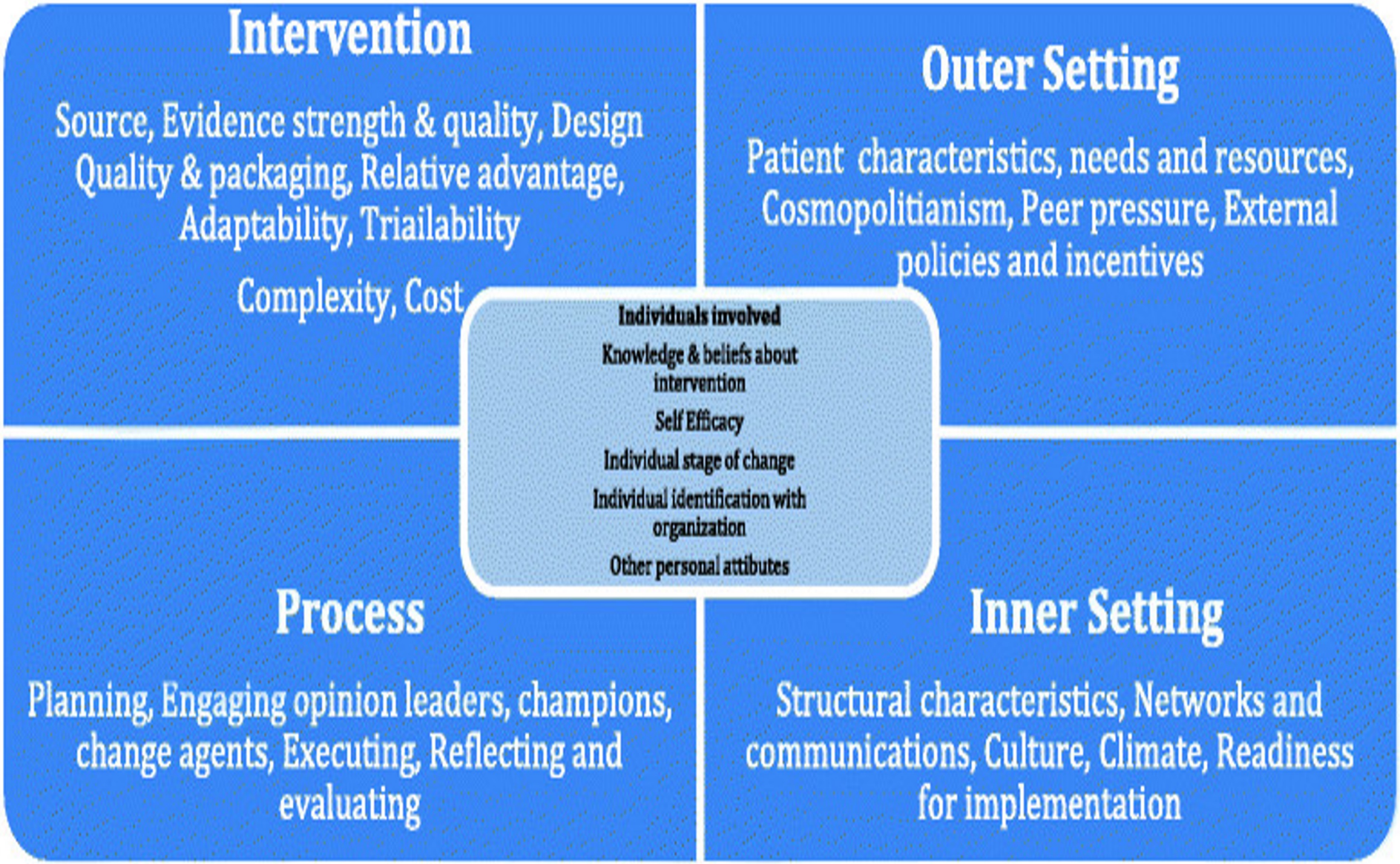
Champion strategy classification: per the Powell et al., (2015) publication

Evidence-based Champion Strategies (Powell, 2015)	Rate of occurrence	Source
Identify and prepare champions	6	Bunce et al., 2020, Conn et al., 2015, Hall et al., 2021, Miech et al., 2018, Wood et al., 2020. Swindle et al., 2021
Create a learning collaborative	5	Bunce et al., 2020, Conn et al., 2015, Miech et al., 2018, Laur et al., 2018, Wood et al., 2020
Develop educational materials	5	Bunce et al., 2020, Hall et al., 2021, Miech et al., 2018, Swindle et al., 2021, Wood et al., 2020
Conduct ongoing Training	5	Bunce et al., 2020, Hall et al., 2021, Miech et al., 2018, Swindle et al., 2021, Wood et al., 2020
Facilitation	5	Miech et al., 2018, Bunce et al., 2020, Conn et al., 2015, Laur et al., 2018, Wood et al., 2020
Audit & feedback	4	(Hall et al., 2021; Conn et al., 2015; Laur et al., 2018; Miech et al., 2018)
Build a coalition	4	(Bunce et al., 2020; Conn et al., 2015; Swindle et al., 2021; Wood et al., 2020)
Asses for readiness and identify barriers and facilitators	3	(Laur et al., 2018; Miech et al., 2018; Conn et al., 2015)
Conduct educational meetings	3	(Hall et al., 2021; Miech et al., 2018; Bunce et al., 2020)
Facilitate relay of clinical data to providers	3	Conn et al., 2015, Laur et al., 2018)
Promote adaptability	3	Laur et al., 2018, Miech et al., 2018, Swindle et al., 2021
Provide ongoing consultation	3	Laur et al., 2018, Miech et al., 2018, Swindle et al., 2021
Recruit, designate, and train for leadership	3	Conn et al., 2015; Hall et al., 2021; Miech et al., 2018
Provide clinical supervision	1	Hall et al., 2018
Purposefully re-examine the implementation	1	Miech et al., 2018

Champion Implementation Strategies

Implementation Framework

Consolidated Framework For Implementation Research (CFIR) (Damschroeder et al., 2009)



	Champion Engagement Strategy	Mapping Strategy on CFIR Framework
1	**Build a coalition**	Inner Setting
2	**Asses for readiness; identify barriers/facilitators**	Process, Inner Setting
3	**Create a learning collaborative**	Inner/Outer Settings
4	**Recruit, designate, and train leadership**	Inner setting, process
5	**Identify and prepare champions (units)**	Process
6	**Develop educational materials**	Inner/Outer Setting, Planning
7	**Conduct educational meetings**	Inner Setting, Intervention, Process
8	**Facilitation**	Process, Intervention
9	**Provide supervision (clinical)**	Process, Intervention
10	**Ongoing consultation (clinical)**	Process, Intervention
11	**Promote adaptability (clinical)**	Intervention
12	**Audit & feedback**	Process, Inner Setting
13	**Purposefully re-examine the implementation**	Process, Intervention

PROJECT PLAN

Phased Approach

Stage 1 (short-term)

DNP Students

- RN education on bCAM (with Education Department, coordination in process)
- Pilot Project on two units Winter 2023
  - ELNS (students)
  - ELS (students)
  - Volunteers (train/use)
- Identify champions to continue project

Stage 2 (long-term)

EIT Chair/Members

- Key Stakeholders:

  Geriatric specialty physicians, nursing senior leadership team, operations, and finance.
- Recruit volunteers for full deployment
  - Other universities/colleges
  - Local high school seniors
  - SH volunteer department
  - Retired RNs
- Sustainability recommendations: add two units per month for 10 months (July 2023-April 2024)
- Full Deployment: May 2024
- Track measures (LOS, readmission rate, fall & fall with injury rate, safety attendant use)

Purpose, Objectives, Type, & IRB

Project purpose: The hospital system identified a problem with delirium; purchased CoCare HELP as a solution to decrease delirium rates and improve quality of care. Then formed an EIT and requested DNP students assist with implementation. Previous DNP students (due to COVID-19 restrictions) analyzed the pre-implementation of CoCare: HELP in order to optimize success of program administration.

Objectives:

1. Complete an organizational assessment on pilot units
2. Review the literature on effective champion strategies for implementation
3. Identify and work alongside stakeholders
4. Align with the health systems mission and goals (e.g., Age Friendly)
5. Improve quality metrics, clinical practice, patient care, and reduce delirium

Project Type: Evidence-based Practice Implementation & Quality Improvement

IRB Determination (available upon request):

- Reviewed by Hospital System and University IRB committees
- Deemed quality improvement (not research)
- Data required to be stored on internal drive and managed internally

Setting & Participants

Setting: a Midwestern hospital system

Stage 1 Pilot project units (A & B)

Stage 2 Adult units in health system

Participants:

- Patients age >70 years old at risk for developing delirium during hospitalization
- ELNS, ELS, volunteers
- Physicians, physician assistants, nurse practitioners, registered nurses, nursing technicians, respiratory therapists, physical therapists, occupational therapists, dieticians, and speech therapists
- EIT members
- Other staff as applicable

Measures
&
Evaluation

Measures & Evaluation

- **System Outcomes:** LOS, all case readmissions, safety attendant orders
- **Patient Outcomes:**
  - General: Fall rate, falls with injury, restraint hours, restraint numbers, BEERS medications, anti-psychotic medications
  - Delirium rate: Pre-implementation chart audits, post-implementation chart audits via bCAM
  - CoCare HELP Program: delirium rate, delirium rate bCAM post-implementation, number served, volunteer hours/interventions, ELS/ELNS interventions*
- **Implementation Outcomes:** Number of EIT meetings, Education/Training uptake & satisfaction (Likert scale)
- **Satisfaction Outcomes:** Number of unit-identified champions, staff satisfaction
- **Policy Outcomes:** number new or modified

* Removed after plan modifications

Analysis Plan

- **Quantitative analysis:**
  - Descriptive statistics:
    - To explain participant characteristics and demographics
    - To explain the frequency of pre-/post-implementation comparison
      - Falls, LOS, use of restraints, safety attendants, and others.
      - Per Table of Measures (handout)
- **Qualitative analysis:**
  - Thematic analysis: Of statements or comments

Budget

Budget & Resources: Stage 1 Pilot Project

Cost Mitigation if Delirium is Prevented using CoCare HELP *Pilot*	
Cost per capita saved if one delirium case is prevented	$2,700
Total cost per capita saved if 79 delirium cases are prevented	**+$213,300**

Income for Implementation Pilot Project	
GVSU Presidential Award	+$1,500
Project managers (DNP Students; 400-hours each; In-kind)	+$52,500
Total Income	**+$54,000**

Expenses for Implementation of Pilot Project	
EIT members wages/benefits (1hr monthly meeting); QI	-$18,698
RN (130) wage/benefits for b-CAM education (pilot units)	-$5,687
Patient supplies	Previously purchased
Lead staff (Director, Geriatrician, ELNS, ELS)	-$124,400
Total Expenses	**-$148,785**

Budget & Resources: Stage 2 System Wide Implementation

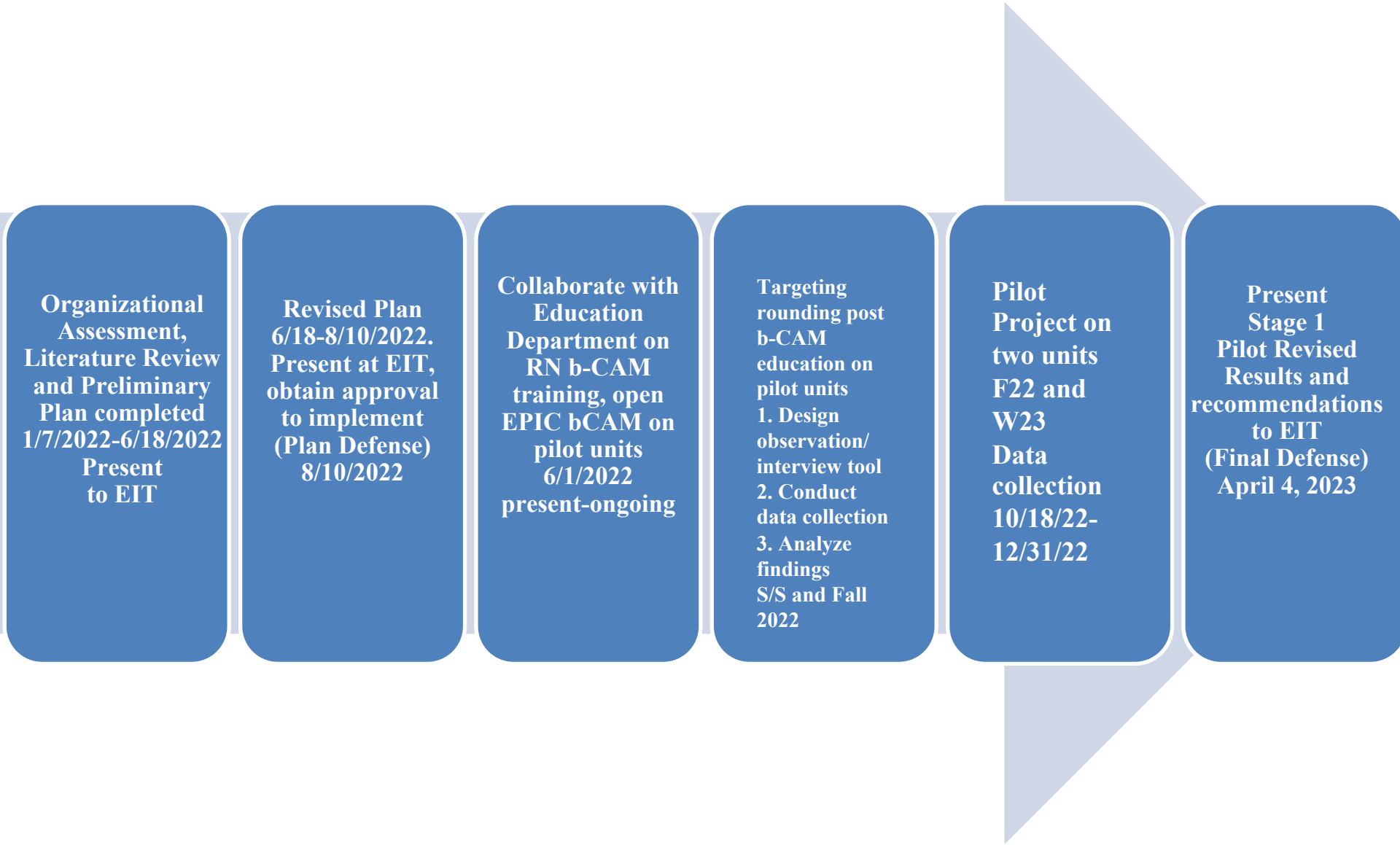
Cost Mitigation if Delirium is Prevented using CoCare HELP	
Cost per capita saved if one delirium case is prevented	$2,700
Annual cost saved if prevention of 1269 cases of delirium (30% of 4230) on adult units in primary site (not outlying hospitals)	**+$3,426,300**

Expenses for Implementation of CoCare HELP in Adults (Primary Site)	
Lead staff (Director, Geriatrician, ELNS, ELS)	-$248,800
Patient supplies ($57/case)	-$241,110
RN wage/benefits for b-CAM education	-$52,500
Total annual expenses at the single urban hospital location	**-$542,410**

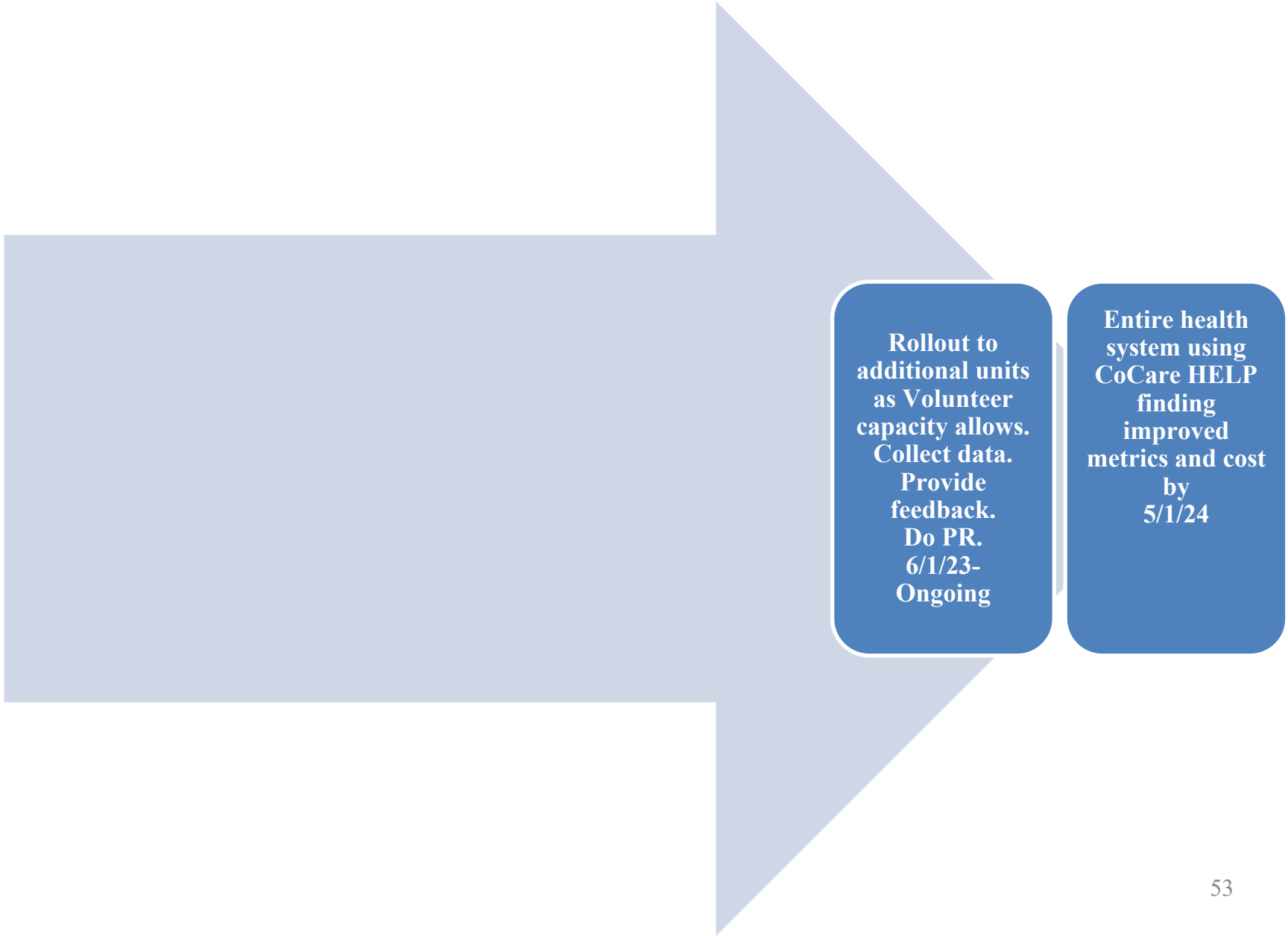
Annual Cost Savings from CoCare HELP in primary site (not outlying hospitals)	**+$2,883,890**

Timeline

Timeline: Stage 1 Pilot Stage



Timeline: Stage 2 System-wide



Project Plan Modifications

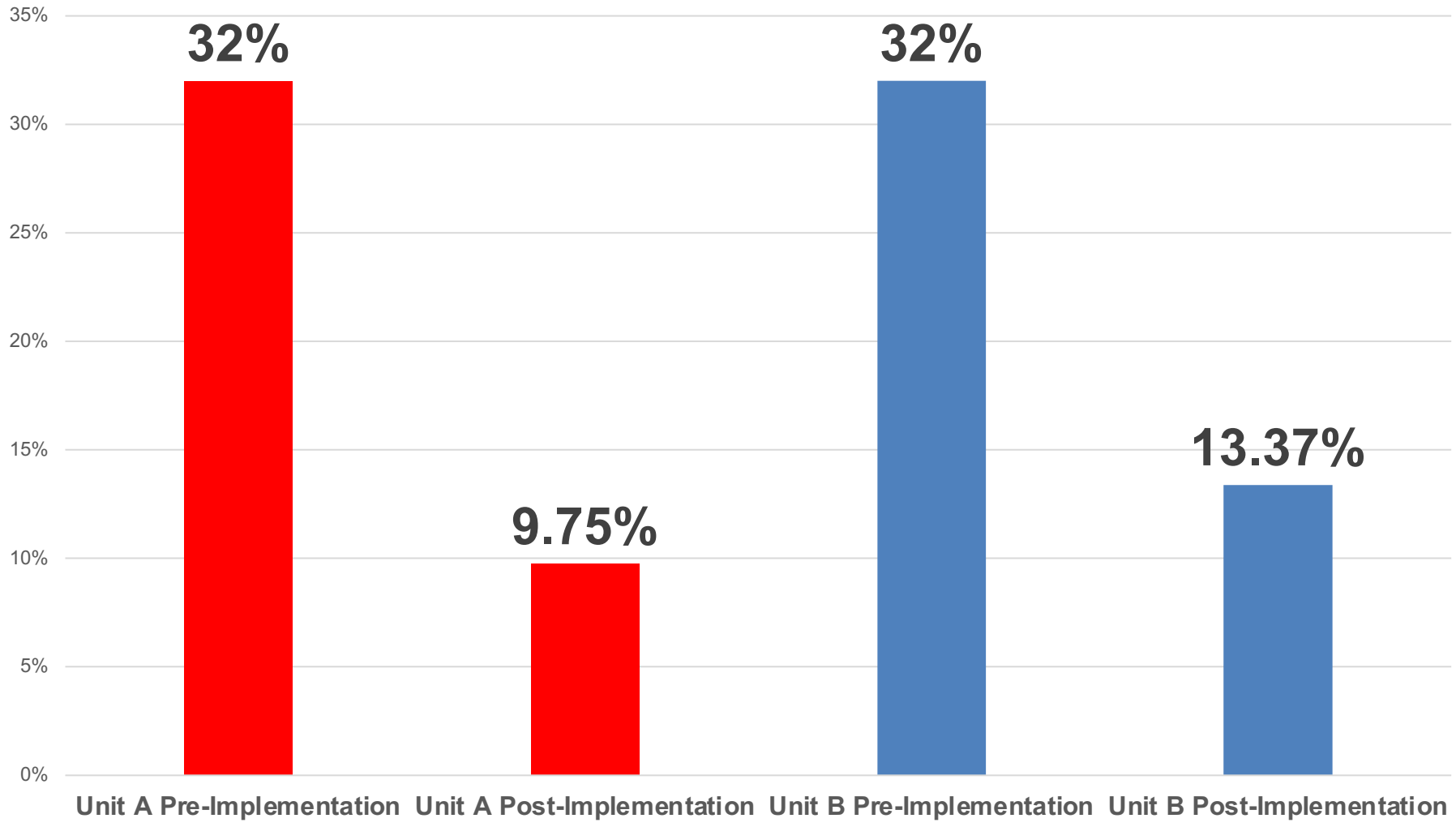
Modifications

Delays in collaborating university course approval and budget evaluations for paid positions at the organization resulted in a smaller scale intervention with the intention of supporting a larger scale intervention in the future

- Education about delirium screening using bCAM
- Four CoCare Strategies applied to basic nursing care
  - Orientation
  - Sleep enhancement
  - Mobility
  - Hearing assistance

Results

Pre- (6/1/22- 7/20/22) and Post-Implementation (10/18/22 – 12/31/22) Delirium Positivity Rate for Adults 70+ on Unit A and Unit B



bCAM rate Unit A

VAR00001 * Delirium Crosstabulation

Count

		Delirium		
		No	Yes	Total
VAR00001	Pos	213	23	236
	Pre	17	8	25
Total		230	31	261

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10.696[a]	1	.001		
Continuity Correction[b]	8.676	1	.003		
Likelihood Ratio	8.127	1	.004		
Fisher's Exact Test				.004	.004
N of Valid Cases	261				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.97.

b. Computed only for a 2x2 table

bCAM rate Unit B

VAR00001 * Delirium Crosstabulation

Count

		Delirium		
		no	yes	Total
VAR00001	pos	162	25	187
	pre	17	8	25
Total		179	33	212

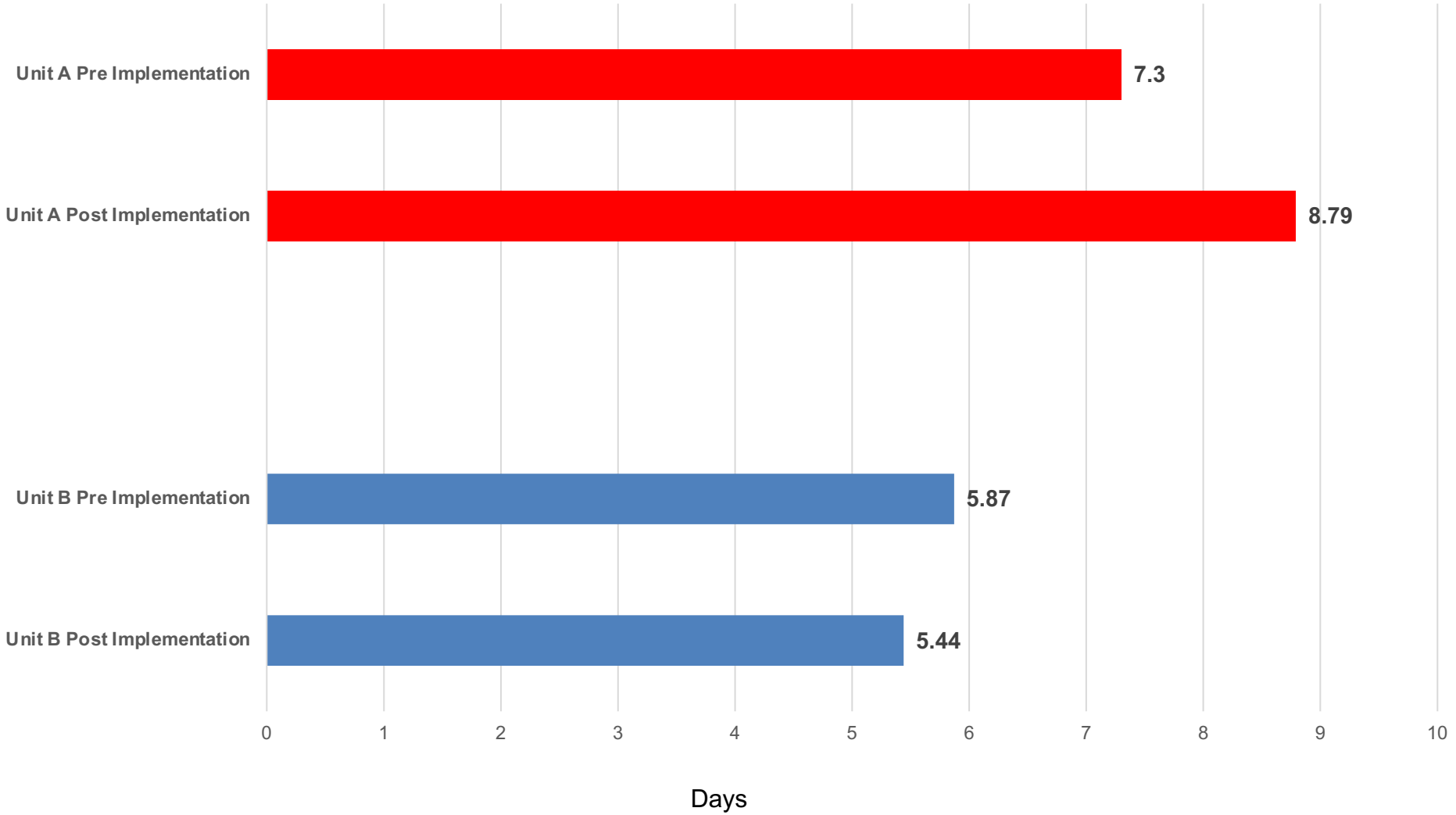
Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.824[a]	1	.016		
Continuity Correction[b]	4.493	1	.034		
Likelihood Ratio	4.886	1	.027		
Fisher's Exact Test				.034	.023
N of Valid Cases	212				

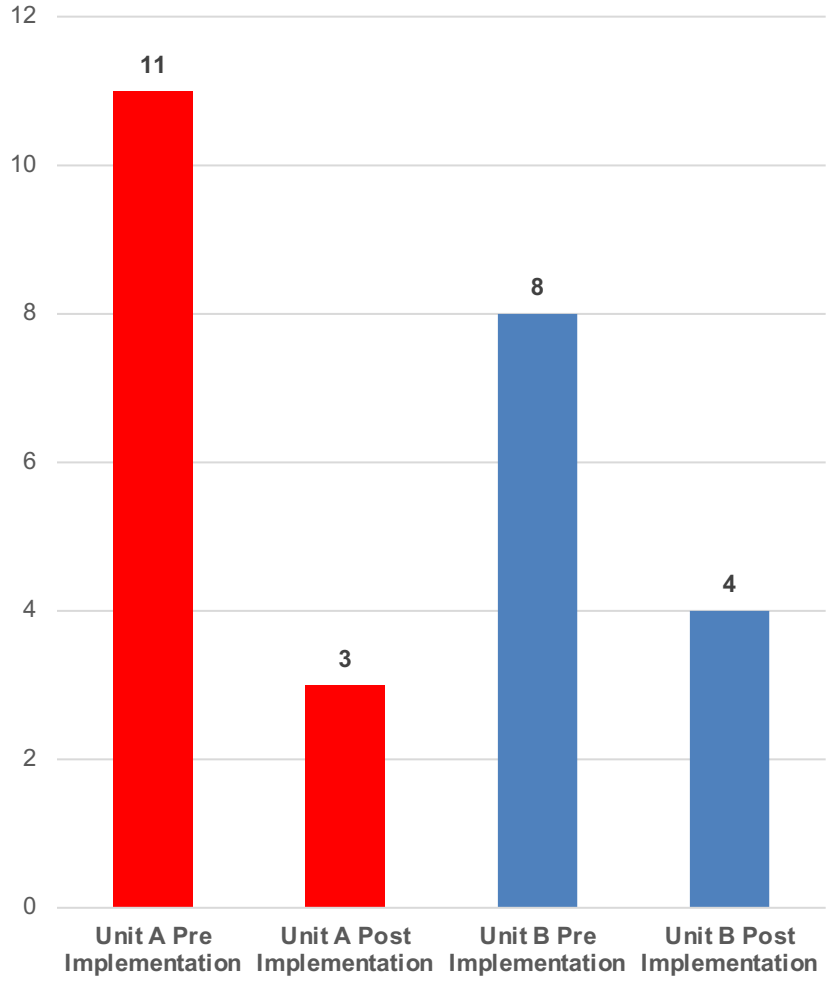
a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.89.

b. Computed only for a 2x2 table

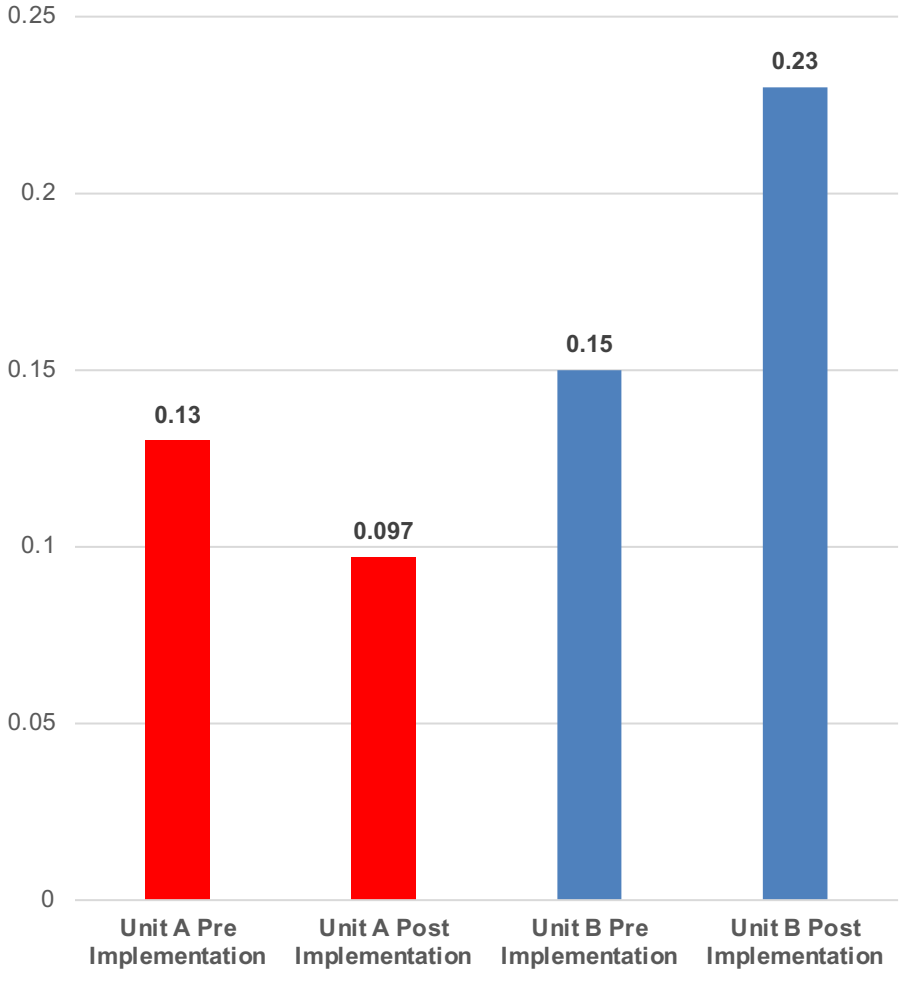
Pre- (10/1/21-4/30/22) and Post- Implementation (10/18/22-12/31/22) Average Length of Stay in Adults 70+ on Units A & Unit B



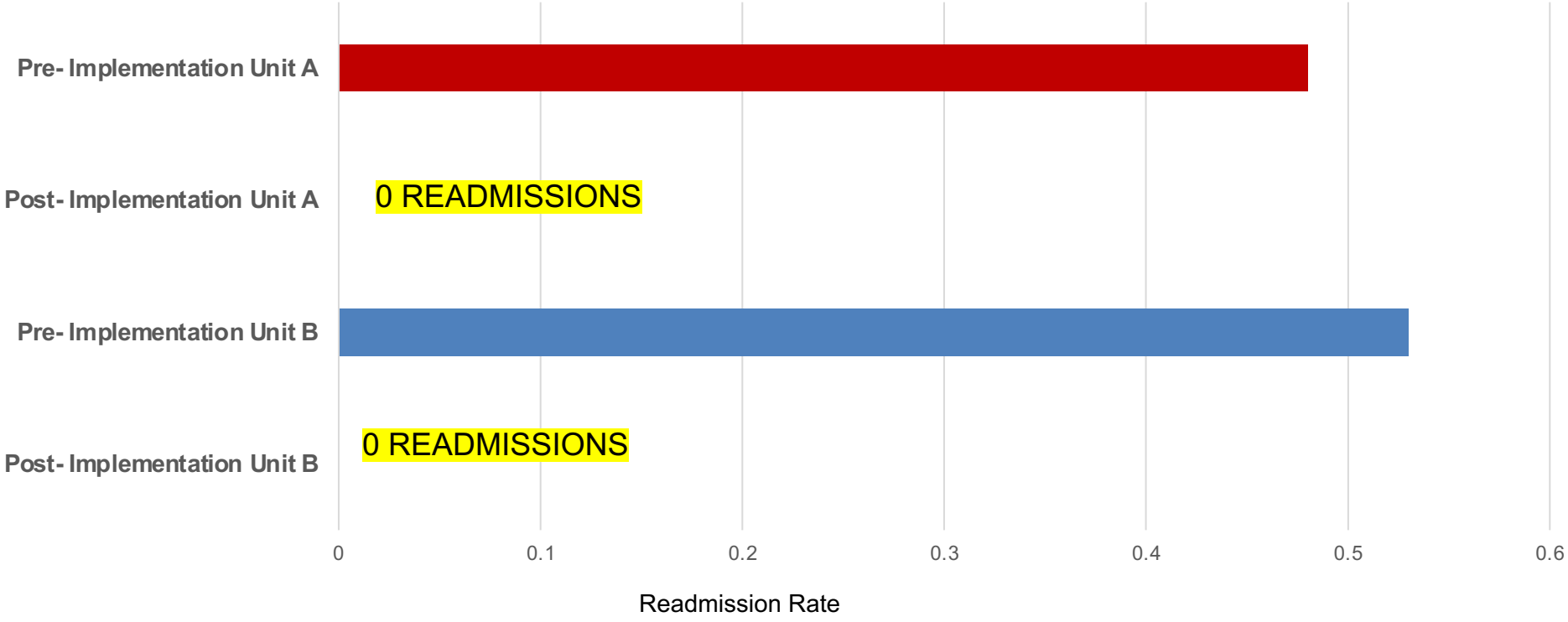
Pre- (10/1/21-4/30/22) and Post Implementation (10/18/22-12/31/22) Number of Falls in Adults 70+ on Unit A & Unit B



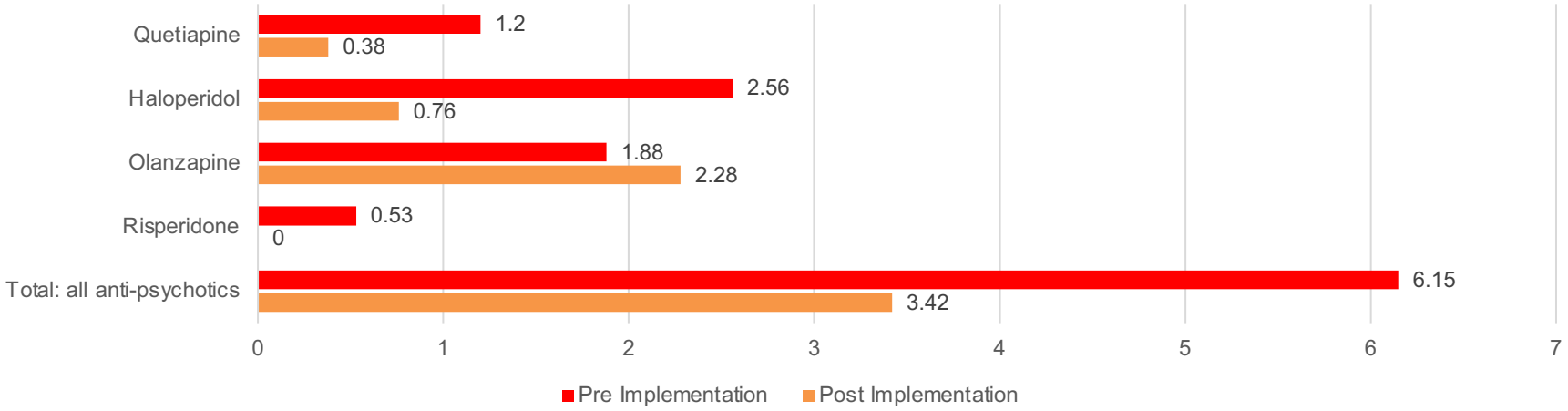
Pre- (10/1/21-4/30/22) and Post-Implementation (10/18/22-12/31/22_Fall Rate in Adults 70+ on Unit A and Unit B



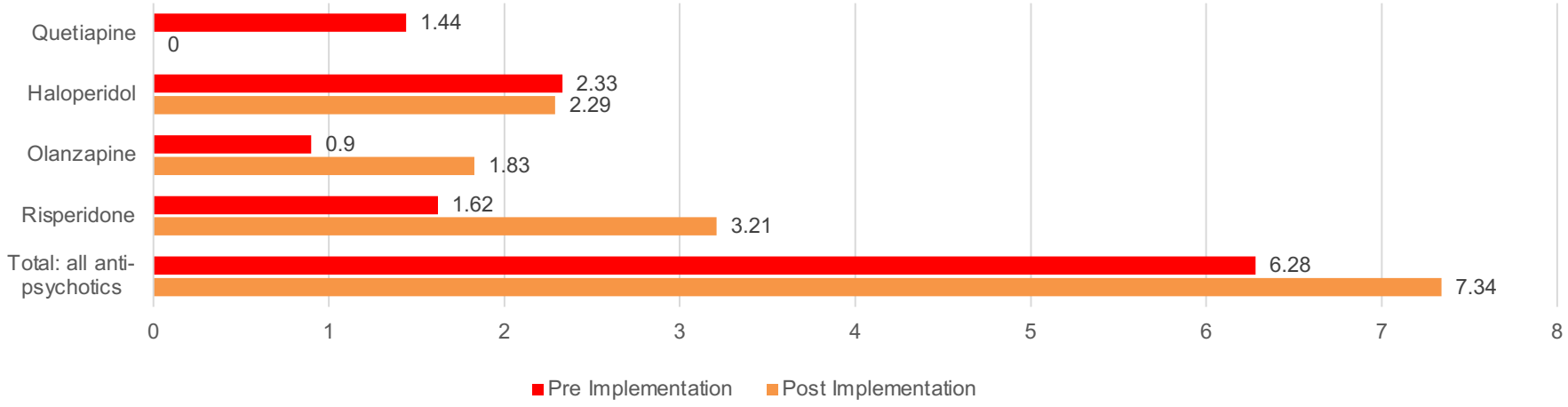
Pre- (10/1/21-4/30/22) and Post Implementation (10/18/22-12/31/22) All Cause Readmission Rate for Adults 70+ in Pilot Units A & B



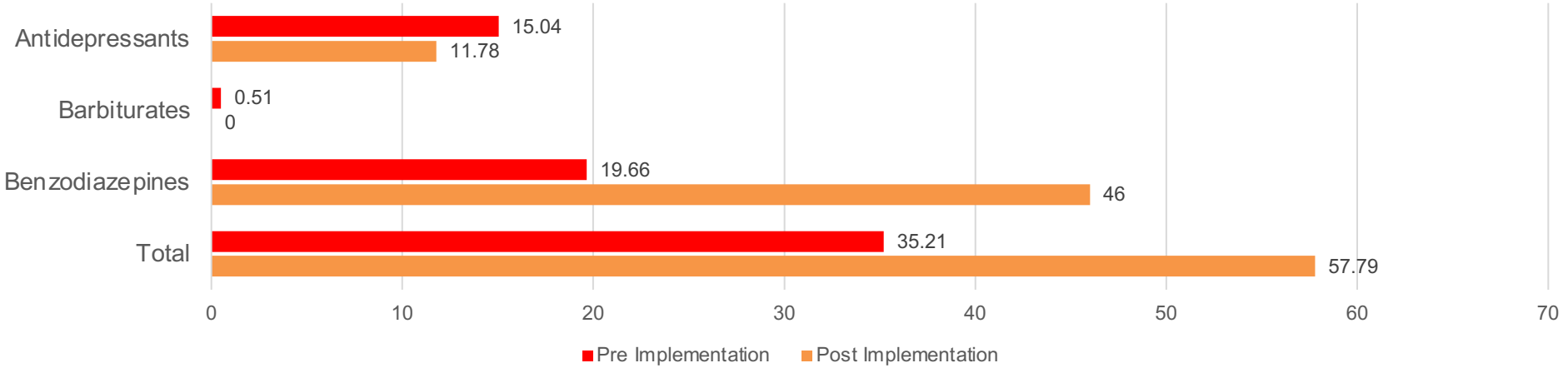
Unit A Pre (10/18/22) and Post (10/18/22-12/31/22) Implementation
Antipsychotics Prescribed for Adults 70+



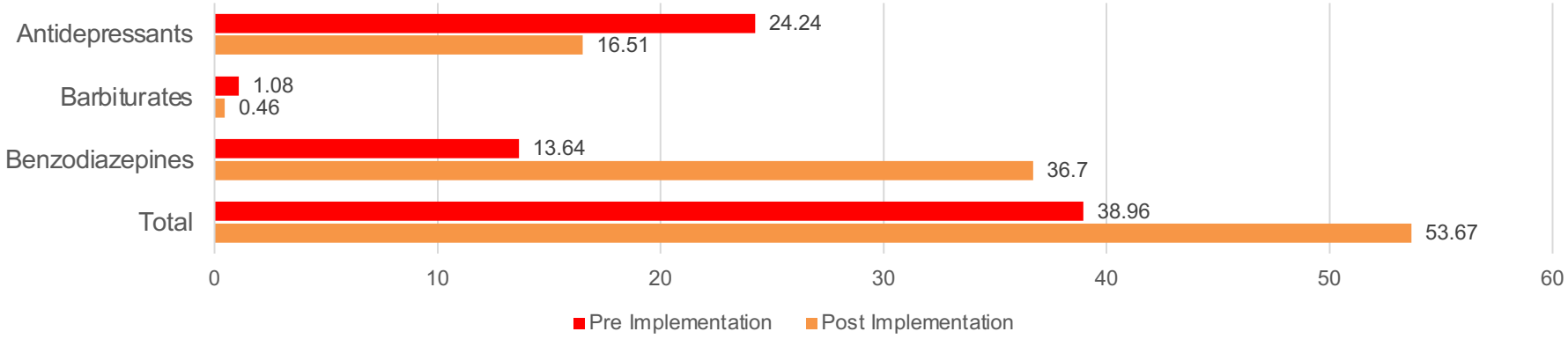
Unit B Pre (10/2/21-4/30/22) and Post (10/18/22-12/31/22) Implementation
Antipsychotics Prescribed for Adults 70+



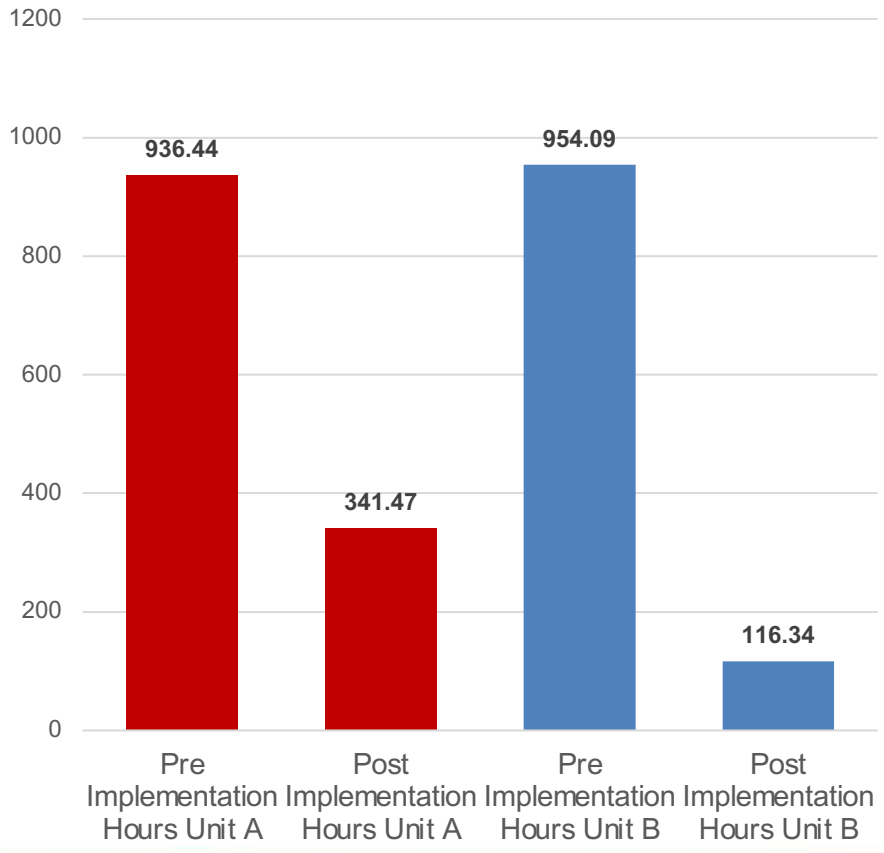
Unit A Pre (10/1/21-4/30/22) and Post Implementation (10/18/22-12/31/22) Percent BEERS Drugs Prescribed Adults 70+



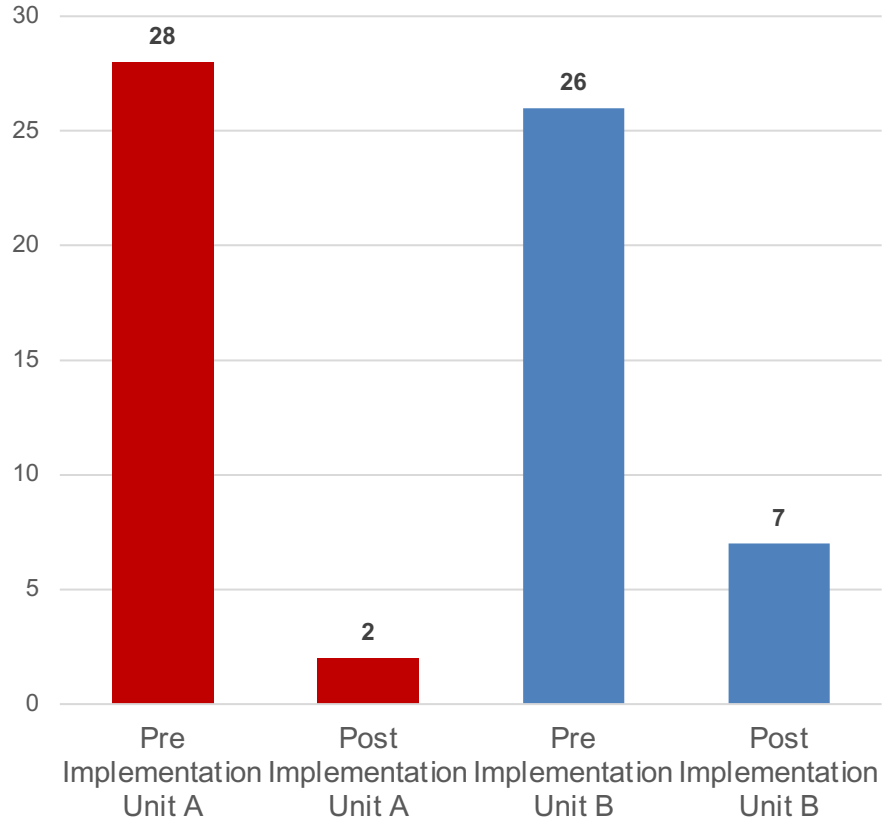
Unit B Pre (10/1/21-4/30/22) and Post Implementation (10/18/22-12/31/22) Percent BEERS Drugs Prescribed in Adults 70+



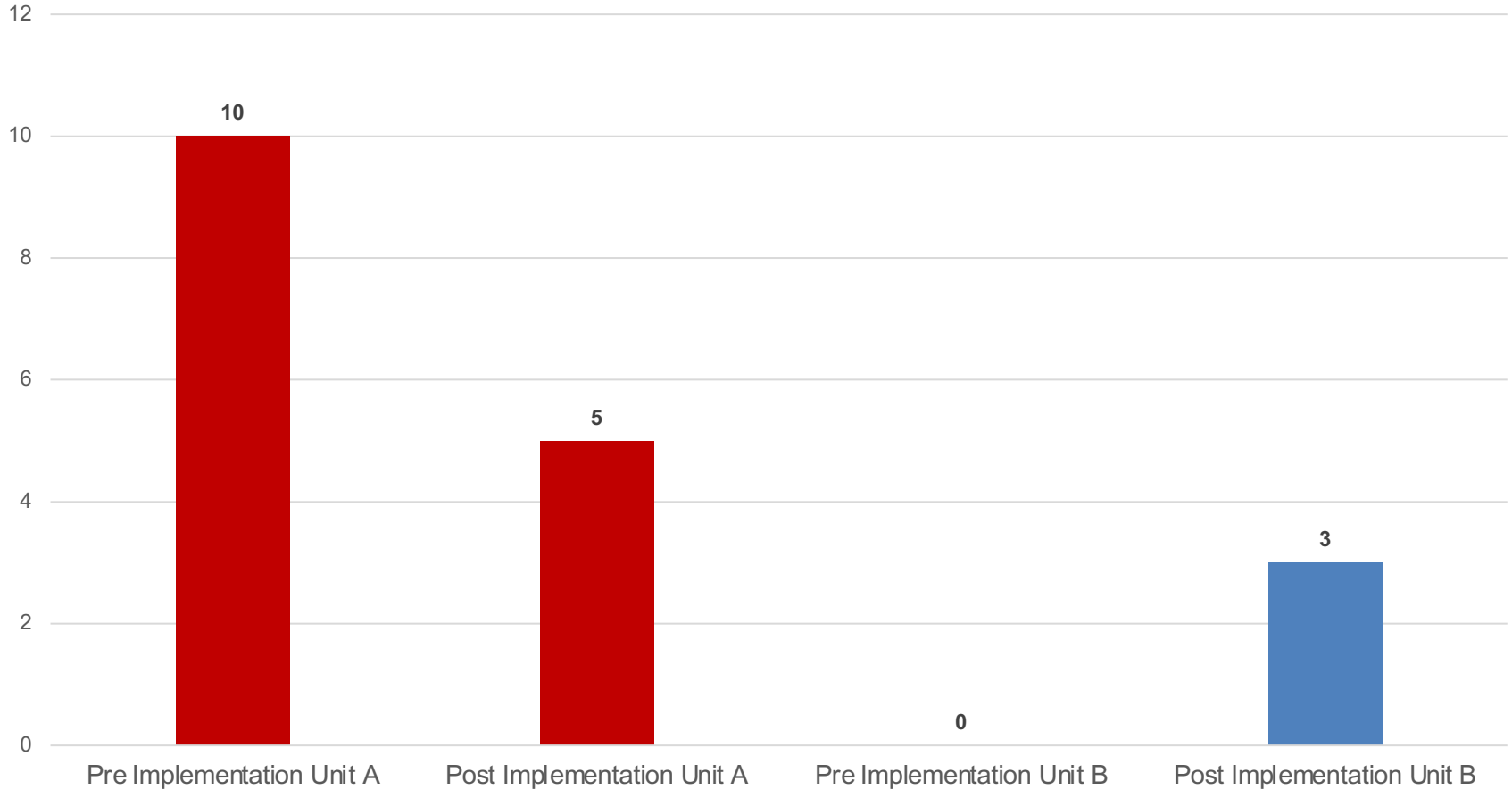
Unit A and Unit B Pre- (10/1/21-4/30/22) and Post-Implementation (10/18/22-12/31/22) Hours of Restraint Use in Adults 70+



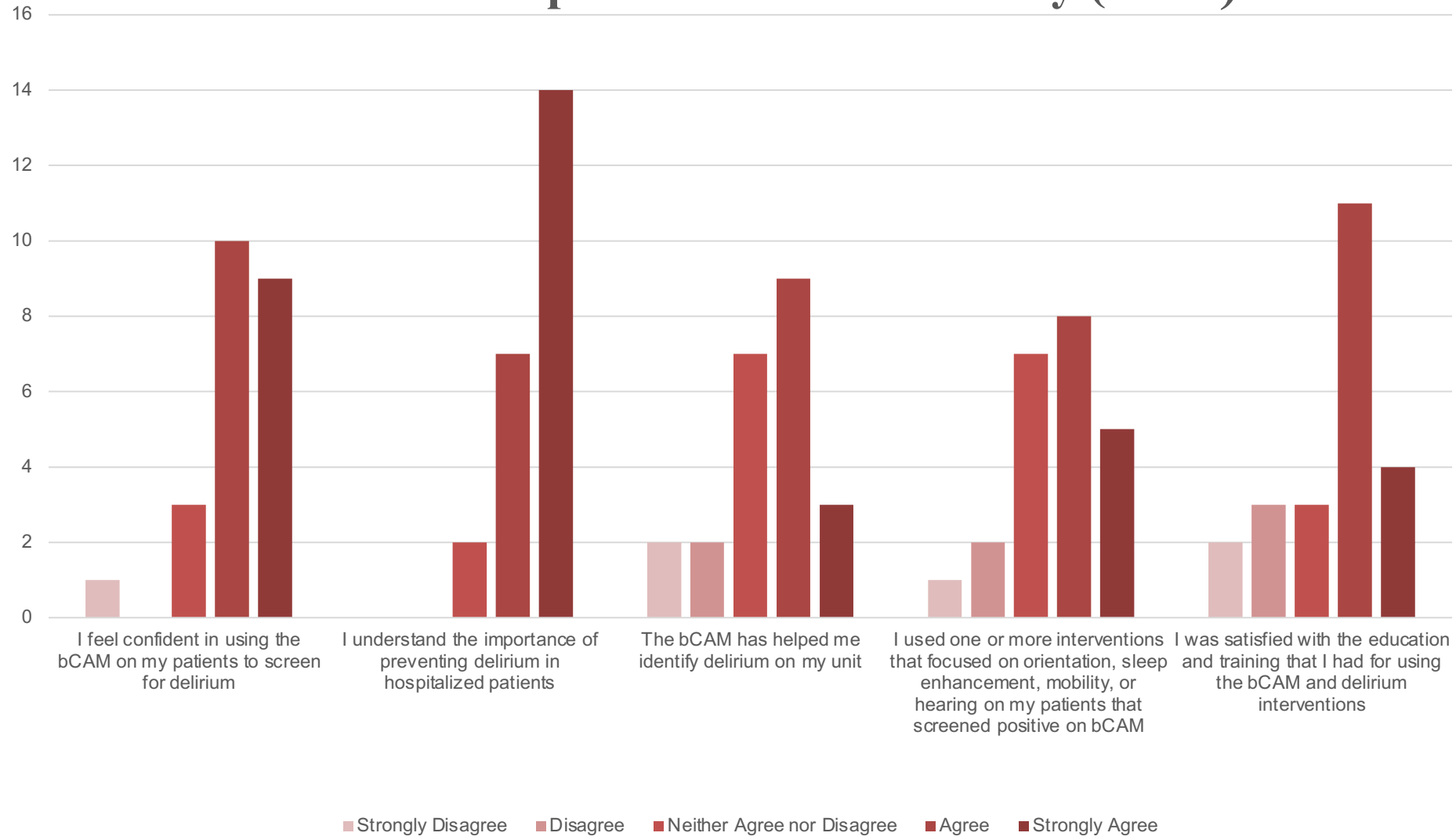
Unit A and Unit B Pre (10/1/21-4/30/22) and Post Implementation (10/18/22-12/31/22) Number of Patients 70+ Restrained



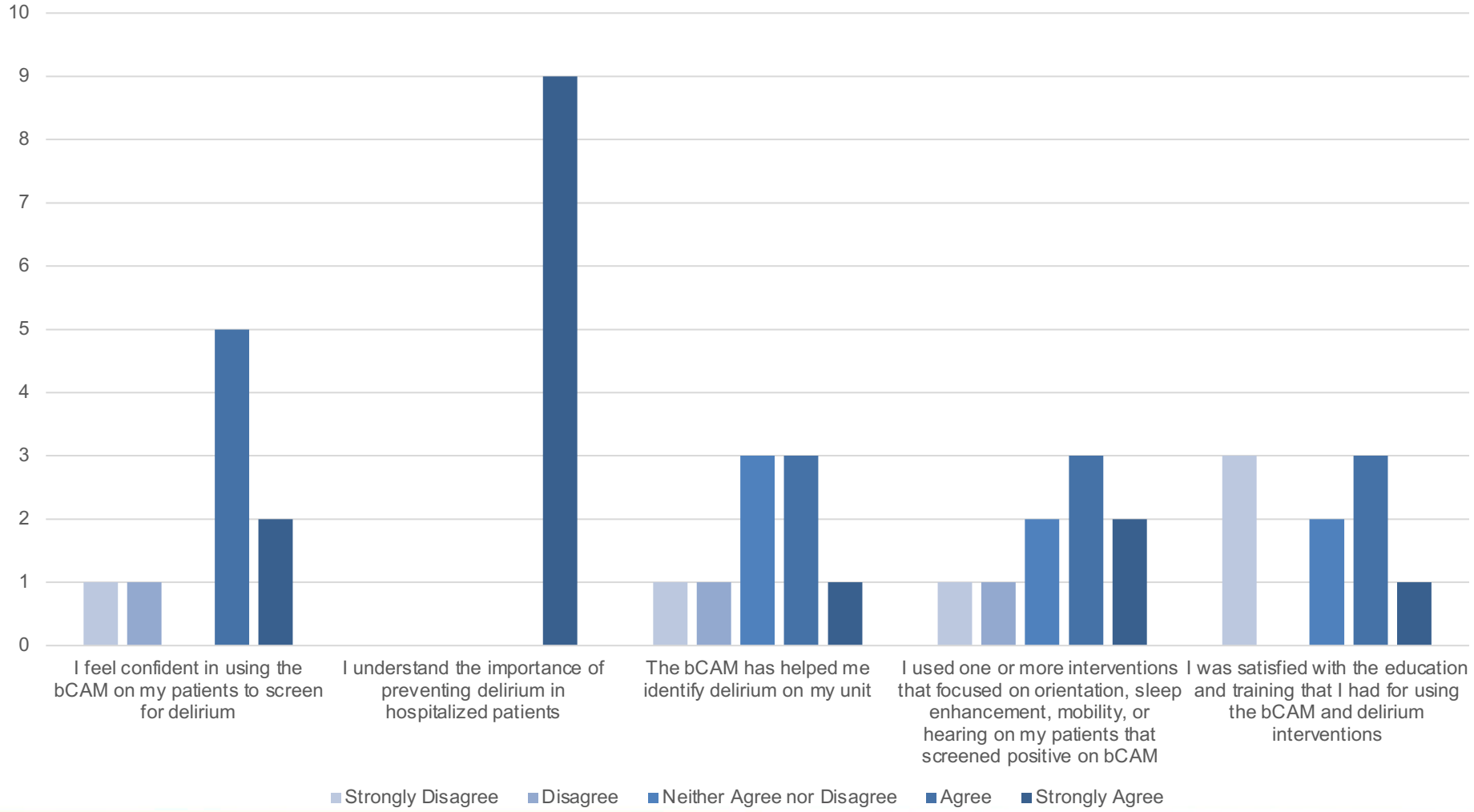
Unit A and Unit B Pre (10/1/21-4/30/22) and Post-Implementation (10/18/22-12/31/22) Number of Orders for Safety Attendants in Adults 70+



Unit A Post Implementation RN Survey (N=23)



Unit B Post Implementation RN Survey (N=9)



Budget/Resources

No additional costs were accrued by the organization during this phase of the project

Income for Implementation Pilot Project	
Project Managers (DNP Students; 400-hours each; In-kind)	+$52,500
$2,700 saved per person prevented from delirium	
32% of Unit A 236 = (75 patients) x $2,700	-$202,500
Post intervention Unit A = 9.75% (23 patients) = $62,100	+$140,400
32% of Unit B = 187 = (59 patients) x $2,700	-$159,300
Post intervention Unit B = 13.37% (25 patients) = $67,500	+$91,800
Total savings from prevention based on pre-implementation data compared to post implementation numbers	**$129,600**

Budget/Resources

No additional cost were accrued by the organization during this phase of the project

Income for Implementation Pilot Project	
Project Managers (DNP Students; 400-hours each; In-kind)	+$52,500
Total savings from prevention based on pre-implementation data compared to post implementation numbers	**$182,100**
Expenses for Implementation of Pilot Project	
EIT members wages/benefits (1hr monthly meeting); QI	-$18,698
RN (130) wage/benefits for b-CAM education (pilot units)	DNP students in role
Patient supplies	Previously purchased
Lead staff (Director, Geriatrician, ELNS, ELS)	DNP students in role
Total Expenses	**-$18,698**
Total Savings from Project	**+$163,402**

	Champion Engagement Strategy	Mapping Strategy on CFIR Framework
1	**Build a coalition**	Inner Setting
2	**Asses for readiness; identify barriers/facilitators**	Process, Inner Setting
3	**Create a learning collaborative**	Inner/Outer Settings
4	**Recruit, designate, and train leadership**	Inner setting, process
5	**Identify and prepare champions (units)**	Process
6	**Develop educational materials**	Inner/Outer Setting, Planning
7	**Conduct educational meetings**	Inner Setting, Intervention, Process
8	**Facilitation**	Process, Intervention
9	**Provide supervision (clinical)**	Process, Intervention
10	**Ongoing consultation (clinical)**	Process, Intervention
11	**Promote adaptability (clinical)**	Intervention
12	**Audit & feedback**	Process, Inner Setting
13	**Purposefully re-examine the implementation**	Process, Intervention

Implications for Practice

- POSITIVE:
  - bCAM implemented with required documentation, nearly 100% compliance
  - Delirium rate decreased on both pilot units with statistical significance
  - Highlighting delirium in the non-ICU setting prompted interprofessional collaboration and additional changes in the organization to improve patient outcomes
- CHALLENGES:
  - Education roll out, Workday was unavailable due to competency assessment and a system freeze on education
  - Champion sustainability
  - RN frustration due to screening without associated provider interventions
  - Inconsistencies in charting due lack of resources (ELNS, ELS, formal education)
  - Address EHR programing flaws to prevent charting errors

Discussion

- Delirium rates decreased in both units while strengthening overall unit awareness of delirium and its impact
- **Unit A**
  - Decreases: fall rate, readmission rate, total antipsychotic use, hours restrained, number of patients restrained, orders for safety attendants
  - Increases: LOS, BEERs medications
- **Unit B**
  - Decreases: LOS, readmission rate, hours of restraints, number of restrained patient, number of orders for safety attendants
  - Increases: fall rate, total antipsychotic use, BEERs medications

Limitations

- Implemented on two pilot units which may not accurately reflect other potential units' patient population; *limited generalizability*
- Pre/Post audits used different screening criteria
- Original audits (n=25, 25) was completed over limited timeframe; post-audits completed on *all* patients over implementation timeframe (n=236,187)
- RN screening *validity*
  - No required RN module due to annual compliance training
    - Concern for screening competence
  - Although compliance on required documentation was high, there was concern for RN screening error
  - No bCAM performed when orientation change documented
  - ICU CAM pulled into patient chart, affecting audit results

Limitations Continued

- Unable to quantify how often and how many interventions were implemented
- There may be confounding variables that affected the changes in delirium rate that cannot be explained
- *Revealed the need for a specific designated role to coordinate, educate, and be a resource for units upon full implementation of CoCare HELP*

Sustainability

Sustainability Plan

According to Ketron (2019) sustainability within a DNP Project can be done through academic-practice partnership and communication.

Stage 1 (Current DNP Students)

- RN education on bCAM
- bCAM implementation, education for RNs on prevention interventions
- Pilot project on two units

Stage 2 (Future DNP Students and/or EIT)

- Approval/hiring/training of ELS/ELNS
- Coordination of university course and volunteer department
- Sustainability recommendations: add two units per month for 10 months (August 2023-August 2024)
- Full deployment May 2025
- Track measures (LOS, readmission rate, fall & fall with injury rate, safety attendant use)

Sustainability

DNP students identified champions within the system using strategies provided by Powel et al., 2015

Delirium EIT and project focus attracted additional physician champions to assist with the creation of:

- Delirium precautions order set
- Medication recommendations based on current evidence
- The expansion of the current agitation order set to include medications other than Ativan and Haldol

Delirium EIT in conjunction with the site mentor:

- Secured sustainability measures such as approval of FTEs for ELS and ELNS to be implemented at an advantageous time for the system
- Worked with the University on course development to educate and supply volunteers to the system upon full implementation of CoCare HELP
- Recruited additional champions among admitting services such as Trauma and Burns

Dissemination Plan

Dissemination

- DNP Project Defense:
  - April 4, 2023
- Site Report to EIT:
  - April 19, 2023
- ScholarWorks submission:
  - April 2023

Summary

Summary

- Organizational assessment supported need to address delirium system wide, starting with two pilot units
- Evidence-based champion engagement strategies identified, guided by CFIR implementation framework (Damschroder et al., 2009)
- Implementation plan developed and adjusted as needed
  - bCAM education and and screening
  - Promoted four CoCare preventative strategies (orientation, sleep enhancement, mobility, hearing assistance)
- Analyzed specified measures of interest to the organization

Summary Continued

Delirium rate decreased significantly in both units

- Pre data collected by DNP students noting the rate of delirium > 30%
- Bedside RNs used bCAM screening tool consistently and completed required documentation
- Lack of a formal education plan may have had an effect on accurate charting
- Emphasized need for designated paid positions (ELS, ELNS) to function as resource for full implementation

Student Contributions

Aaron	Kara
• Formed a committee to oversee project • Team formed • Graduate faculty added • Hospital Epic Provider Training • IRB Hospital CITI Training • University IRB required training • Develop project protocol • Protocol review by Hospital • IRB application and determination through university • Organizational assessment (completed) • 25 Chart Audits for baseline delirium rate on unit B • Literature Review: PubMed searches, table, search outcomes/results/PRISMA • EIT Meetings (attending monthly) • CoCare: Help Coaching calls • Project Plan Defense • 441 manual chart audits for bCAM rate • Rounding 1-2 times weekly on Unit B during implementation • Post-Implementation data analysis for Unit B • Plan Defense • Manuscript	• Formed a committee to oversee project • Team formed • Graduate faculty added • Hospital Epic Provider Training • IRB Hospital CITI Training • University IRB required training • Develop project protocol • Protocol review by Hospital • IRB application and determination through University • Organizational assessment • 25 Chart Audits for baseline delirium rate on unit A • Literature Review: PubMed searches, table, search outcomes/results/PRISMA • EIT Meetings • CoCare: Help Coaching call • Project Plan Defense • 536 manual chart audits for bCAM rate • Rounding 1-2 times weekly on Unit A during implementation • Post-Implementation data analysis for Unit A • Plan Defense • Manuscript

DNP Essentials Reflection

DNP Essentials

Essential I**:** *Scientific Underpinnings for Practice*

Implemented an evidence-based screening method on 2 pilot units, combined this screen with interventions based on strong evidence to prevent delirium, and aligned it with Age Friendly Health Systems strategies to improve care for the geriatric population at a Midwestern Hospital System.

Essential II: *Organizational and Systems Leadership for Quality Improvement and Systems Thinking*

Served as leaders within the Delirium Expert Improvement Team to target improvement of care for the geriatric population overseeing the implementation of the intervention on 2 pilot units. Navigated budget restraints within the organization and a delay to the volunteer course from the university to implement the screening tool along with interventions that could be implemented by the bedside staff.

Essential III: *Clinical Scholarship and Analytical Methods for Evidence-Based Practice*

Critically appraised pre and post implementation measures such as incidence of delirium, length of stay, safety attendants, restraint orders, BEERS criteria drugs, antipsychotics, readmissions, and falls.

Essential IV: *Information Systems/ Technology and Patient Care Technology for the Improvement and Transformation of Health Care*

Extracted and evaluated data from the EHR to determine baseline data through chart audits. Provided information about delirium, screening for delirium, and the prevention of delirium. Implemented a screening with required documentation in the EHR.

DNP Essentials

Essential V: *Health Care Policy for Advocacy in Health Care*

Advocated for all adult patients, focusing on those 70+ by utilizing CoCare HELP to identify and prevent delirium on two pilot units

Essential VI: VI. *Interprofessional Collaboration for Improving Patient and Population Health Outcomes*

Interprofessional collaboration with EIT, nursing, MDs, Advanced Practice Providers, Quality Improvement, Educators, Nurse Managers, Information Technology for delirium education, prevention, and implementation of bCAM and preventative interventions

Essential VII: *Clinical Prevention and Population Health for Improving the Nation's Health*

Implementation of delirium screening tool and CoCare HELP preventative measures to improve the older adult population health by preventing delirium and functional decline

Essential VIII: *Advanced Nursing Practice:*

Incorporated advanced nursing practice solutions within the CoCare HELP program as suggested by CoCare HELP

Handouts

1. **Literature Review:** Table of evidence
2. **Measures:** Table of system, patient, and implementation strategy measures

Products:

- bCAM education module
- Delirium intervention module

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