#### **IMPLEMENTATION OF A NURSE-DRIVEN FRAILTY** SCREENING TO IMPROVE ACCESS TO HOME-BASED PRIMARY CARE

A DOCTOR OF NURSING PRACTICE PROJECT

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### BACKGROUND

#### HOME BASED PRIMARY CARE (HBPC):

Continuous in-home primary & palliative care from an interprofessional team that provides routine and urgent care services to homebound adults with high healthcare utilization due to multiple chronic conditions.





## SIGNIFICANCE

- Proactive care tailored to patient preference & needs
- Vigilant patient monitoring
- Targets avoidable utilization, complications, and medication errors
- Provides access to care for "invisible homebound"



THE "INVISIBLE HOMEBOUND"? 2 MILLION frail, seriously ill and home-limited older

adults unable to visit physicians' offices

. . . . . . . . . .

**WHO ARE** 

#### HBPC IS PREVENTIVE MEDICINE

Vigilant patient monitoring, care management and preemptive interventions help



Source: 2011 data from CMS

Prevent chronic conditions from getting worse

 Avoid unnecessary emergency department visits and hospitalizations

56%



#### WHAT IS HOME-BASED PRIMARY CARE (HBPC)?

Teams of HBPC professionals that deliver appropriate primary or palliative care in the home according to patient preferences

A **new standard of care** for high-risk, medically vulnerable homebound adults



#### HBPC IS COST-EFFECTIVE

**Proactive**, preemptive care targets healthcare's major cost drivers...

- Re-admissions
- ED visits
- Avoidable complications
- Medication errors

... for the invisible homebound who account for about half of the costliest 5% of patients and are responsible for out-of-control healthcare costs





## **PROVEN BENEFITS**

- Reduces avoidable utilization (hospitalizations, ED visits)
- Improves Patient/Caregiver Satisfaction
- Reduces Cost
- Decreases Mortality



#### **FINANCIAL ANALYSIS**

2 Veer Tetel	YEAR #3				
3 Year Total	1 Year Savings	# Units	Unit savings		
\$2,736,000	\$ 912,000.00	60	15,200.00	\$	
\$1,000,000					
\$1,713,010	Net Savings				
85%	nvestment (ROI)	turn on l	Re		
\$19,942,400	\$ 9,515,200.00	626	15,200.00	\$	
\$17,919,410	Net Savings				
886%	Return on Investment (ROI)				

Comparing the average cost of a HBPC program against the revenue generated in preventing hospital readmissions yields significant return on investment.



## EQUITY AND INCLUSION

Ornstein et al., 2015 examined epidemiological trends for the United States' homebound population and found that:

- only 12% of the homebound population reported having access to in-home primary care.
- Homebound individuals were older, more likely to be female, and of nonwhite race compared to non-homebound individuals.



#### JOHNS HOPKINS EVIDENCE-BASED PRACTICE MODEL





## **PROBLEM INQUIRY**



What are current barriers to accessing HBPC at the practice setting?

- Lapse in care coordination existed from hospital discharge to enrollment in the HBPC program
- Lack of formalized process for identifying frail, homebound (HBPC eligible) patients prior to inpatient hospital discharge.
- Outpatient frailty screening with the Clinical Frailty Scale



#### **CLINICAL FRAILTY SCALE**

1	1	VERY Fit	People who are robust, active, energetic and motivated. They tend to exercise regularly and are among the fittest for their age.
1	2	FIT	People who have <b>no active disease</b> <b>symptoms</b> but are less fit than category 1. Often, they exercise or are very <b>active</b> <b>occasionally</b> , e.g., seasonally.
t	3	MANAGING Well	People whose <b>medical problems are</b> well controlled, even if occasionally symptomatic, but often are <b>not</b> regularly active beyond routine walking.
•	4	LIVING WITH Very Mild Frailty	Previously "vulnerable," this category marks early transition from complete independence. While <b>not dependent</b> on others for daily help, often <b>symptoms</b> <b>limit activities</b> . A common complaint is being "slowed up" and/or being tired during the day.
A	5	LIVING WITH MILD FRAILTY	People who often have more evident slowing, and need help with high order instrumental activities of daily living (finances, transportation, heavy housework). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation, medications and begins to restrict light

housework.



activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing. Completely dependent for personal

care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~6

Completely dependent for personal care and approaching end of life. Typically, they could not recover even from a

Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise living with severe frailty. (Many terminally ill people can still exercise until very close to death.)

#### SCORING FRAILTY IN PEOPLE WITH DEMENTIA

The degree of frailty generally corresponds to the degree of dementia. Common symptoms in mild dementia include forgetting the details of a recent event, though still remembering the event itself. repeating the same question/story and social withdrawal.



In moderate dementia, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In severe dementia, they cannot do personal care without help.

In very severe dementia they are often bedfast. Many are virtually mute.

Clinical Frailty Scale @2005-2020 Rockwood. Version 2.0 (EN). All rights reserved. For permission: www.geriatricmedicineresearch.ca Rockwood K et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005:173:489-495.

Source: Copyright permission obtained from Dalhousie University

## CUMULATIVE DEFICIT MODEL

Frailty is the result of an aging process in which the accumulation of age-related deficits predict poor outcomes.





## **PET PROCESS**



#### I. Practice Question

- 1. Recruit interprofessional team
- 2. Define the problem
- 3. Develop and Refine EBP Question
- 4. Identify Stakeholders
- 5. Determine Project Leadership
- 6. Schedule Team Meetings

#### II. Evidence

- 7. Search for evidence
- 8. Appraise evidence
- 9. Summarize the individual evidence
- 10. Synthesize strength & quality
- 11. Develop recommendations

#### **III. Translation**

12. Determine fit of recommendation(s)

- 13. Create action plan
- 14. Secure support and
- 15. Implement action plan
- 16. Evaluate outcomes
- 17. Report outcomes to stakeholders
- 18. Identify next steps
- 19. Disseminate findings



## PHASE I: PRACTICE QUESTION



#### I. Practice Question

- 1. Recruit interprofessional team
- 2. Define the problem
- 3. Develop and Refine EBP Question
- 4. Identify Stakeholders
- 5. Determine Project Leadership
- 6. Schedule Team Meetings

#### II. Evidence

- 7. Search for evidence
- 8. Appraise evidence
- 9. Summarize the individual evidence
- 10. Synthesize strength & quality
- 11. Develop recommendations

#### III. Translation

2. Determine fit of recommendation(s)

- L3. Create action plan
- 4. Secure support and
- 5. Implement action plan
- L6. Evaluate outcomes
- 17. Report outcomes to stakeholders
- 18. Identify next steps
- 19. Disseminate findings



### INTERPROFESSIONAL TEAM RECRUITMENT



**Inpatient: Acute Cardiology Unit** 

Nurses

Charge nurses

Cardiologists

**Resident Physicians** 

Case Managers

Nursing Manager

Outpatient: HBPC program Nurse Nurse Practitioner Physician Pharmacist



## DEFINE AND DEVELOP EBP QUESTION



Can the inpatient team use the Clinical Frailty Scale to improve identification of frail hospitalized adults to increase access to Home-based Primary Care?



## **PROJECT ORGANIZATION**



• Identify Primary Stakeholders: Nurses

• Determine Project Leadership: Charge Nurses

• Schedule Team Meetings: Morning Huddles



## PHASE II: EVIDENCE



#### I. Practice Question

- 1. Recruit interprofessional team
- 2. Define the problem
- 3. Develop and Refine EBP Question
- 4. Identify Stakeholders
- 5. Determine Project Leadership
- 6. Schedule Team Meetings

#### II. Evidence

- 7. Search for evidence
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#### III. Translation

2. Determine fit of recommendation(s)

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## **EVIDENCE SYNTHESIS**



#### Validity

The CFS had the strongest association to mortality and "discharge not to home" when compared to other frailty scales (Aucoin et al., 2020).

#### Utility

The CFS was the superior instrument for use in acute care patients in terms of speed and ease of use (Lewis et al., 2019).

#### **Discharge Outcomes**

Moderate to severe CFS scores were correlated to poor discharge outcomes (Kanenawa et al., 2021; Tew et al., 2021).



## **EVIDENCE BASED RECOMMENDATION**



The evidence supported the use of the Clinical Frailty Scale to improve identification of frail hospitalized adults at risk for poor discharge outcomes in an acute care setting to increase access to effective discharge resources, like home-based primary care.



### PHASE III: TRANSLATION



- 1. Recruit interprofessional team
- 2. Define the problem
- 3. Develop and Refine EBP Question
- 4. Identify Stakeholders
- 5. Determine Project Leadership
- 6. Schedule Team Meetings

#### II. Evidence

- 7. Search for evidence
- 8. Appraise evidence
- 9. Summarize the individual evidence
- 10. Synthesize strength & quality
- 11. Develop recommendations

#### **III. Translation**

12. Determine fit of recommendation(s)

- 13. Create action plan
- 14. Secure support and
- 15. Implement action plan
- 16. Evaluate outcomes
- 17. Report outcomes to stakeholders
- 18. Identify next steps
- 19. Disseminate findings



## **METHODS & IMPLEMENTATION**





- Weekly educational sessions utilizing handouts
- How to document CFS score EMR designated flowsheet
- How to refer to HBPC
- Defined a CFS score of 6 or greater as potentially eligible

## METHODS

#### Handout #2 (redacted)



The

(VaH) is a home-based primary care program for older adults living with complex medical concerns and needs, who are confined to their homes ("homebound") due to medical, functional, and/or cognitive difficulties.

Through two years of service, VaH has decreased hospitalizations and emergency department visits among participants in the program by nearly half. The program offers comprehensive, person-centered primary care for older adults with complex morbidity that is responsive and equitable. VaH utilizes intensive care coordination, and medication management to provide primary care to individuals who experience difficulties in access to care.

#### How does this program benefit my patient?

- For homebound persons, home-based primary care (HBPC) is a model that has been shown to improve quality of care and patient satisfaction by bringing primary care directly to patients' homes.
- HBPC programs have also significantly reduced participants' need for emergency department visits and hospitalizations.
- Regular House calls are provided to streamline care and prevent avoidable acute care utilization.
- Caregiver Support and education is delivered through house calls, and referrals to existing community providers.
- Advance Care Planning is offered to document and support participants' care goals.

Potentially eligible participants must meet Medicare criteria for "homebound" status, which Medicare defines as "You have trouble leaving your home without help (like using a cane, wheelchair, walker, or crutches; special transportation; or help from another person) because of an illness or injury."

Persons living with dementia and multiple chronic medical conditions are particularly prone to being homebound, but VaH can be considered for any homebound adult with complex health needs for whom the usual sources of care are not working.

For example, homebound persons struggling with multiple hospitalizations and emergency department visits often benefit from VaH's coordinated model of care in the home.



For more information, view Patient Programs at <u>.com</u>.



## **METHODS: PROJECT SCHEDULE**



Content Outline	Description of Learners	Setting	Education Details
Week 1: Education Session 1 Handout review	Staff nurses, nursing case manager, acute cardiology LIPs	Inpatient Unit	Staff nurses completed screening flowsheet in EMR, findings presented to case manager
Week 2: Education Session 2 Handout review	Staff nurses, nursing case manager	Inpatient Unit	Staff nurses completed screening flowsheet in EMR, findings presented to case manager
Week 3: Education Session 3 Handout review	Staff nurses, nursing case manager, acute cardiology LIPs	Inpatient Unit	Same as prior + eligible patients were discussed in discharge rounds
Week 4: Education Session 4 Handout review	Staff nurses, nursing case manager	Inpatient Unit	Same as prior + eligible patients were discussed in discharge rounds



### **METHODS**



• Prospective chart audit to ensure CFS completion

• Weekly review of identified patients with the unit-based nursing case manager

 Referrals tracked prospectively during the project period and 1 month post project



### **OUTCOMES**



Week	Eligible	Screened	Mean Frailty Score	Homebound	Meets Criteria
1	26	22	4.91	12	6
2	24	20	4.90	9	7
3	22	19	4.11	5	3
4	21	18	3.94	6	3
Total	93	79	4.49	32	19



# OUTCOMES











## DISCUSSION



- Referrals increased significantly during the study period
- Successful adoption of the CFS tool by inpatient nursing staff
  - 85% adherence rate
- Increased nursing staff confidence in frailty identification
- Project accessed a population most likely to benefit from frailty screening
  - 40% screened as homebound
- Including specialized nursing roles for intervention was a success
  - 8 referrals from case management, 1 from NP, 1 from HF navigator



### **NEXT STEPS & SUSTAINABILITY**



- Integration with interdisciplinary discharge rounds and admission database
- Implementation on additional inpatient units
- Foster long term collaboration between inpatient/outpatient providers for improved care coordination & transitions of care



### **REPORT & DISSEMINATE FINDINGS**



- UVA SON Submission (Libra) and Poster Presentation
- Journal of the American Geriatrics Society (JAGS)
- Poster Presentation AGS Scientific Meeting May 2023
- UVA Health 2023 EBP Symposium



## **DNP PROJECT TEAM**

- Regina DeGennaro, DNP, CNS, RN, AOCN, CNL
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  - Practice Mentor
- Halima Walker MSN, RN, CCRN
  - Practice Mentor
- Sarah Craig, PhD, RN, CCNS, CCRN-K, CHSE, CNE
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# **APPENDICES**

- Structure slide Phase I
- Structure slide Phase II
- Evidence Search and Appraisal
- Teaching Plan
- Limitations and Ethical Considerations
- Financial Analysis





### PHASE I: PRACTICE QUESTION

Step 1: Recruit interprofessional team

Step 2: Define the problem

Step 3: Develop and Refine the EBP Question

Step 4: Identify Stakeholders

Step 5: Determine Project Leadership

Step 6: Schedule Team Meetings





### PHASE II: EVIDENCE

Step 7: Conduct internal and external search for evidence

Step 8: Appraise the level and quality of each piece of evidence

Step 9: Summarize the individual evidence

Step 10: Synthesize overall strength and quality of the evidence

Step 11: Develop recommendations for change based on evidence synthesis



### **EVIDENCE SEARCH**

Identification

Screening

Eligibility

Included

- 70 articles identified from 4 databases
- 22 excluded due to nonrelevance to PICOT question
- 19 excluded for using alternate frailty screening (not CFS)
- 9 Excluded for not addressing discharge outcomes





### **STEP 8: EVIDENCE APPRAISAL**

Study (Author, Year)	Study Design	Level of Evidence
Aucoin et al. (2020)	Systematic Review and Meta-Analysis	II, A
Church et al. (2020)	Scoping Review	III, A
Curtis et al. (2018)	Retrospective cohort study	II, A
Juma et al. (2016)	Prospective cohort study	II, A
Kanenawa et al. (2021)	Retrospective cohort study	II, A
Lewis et al. (2019)	Prospective cohort study	II, A
Mazzola et al. (2022)	Retrospective cohort study	II, A
McLeod et al. (2016)	Exploratory Case Series	III, A
Tew et al. (2021)	Prospective cohort study	II, A
Wharton et al. (2019)	Retrospective cohort study	II, A



#### **STEP 15: TEACHING PLAN**



Content Outline	Weekly Objectives	Project Objectives
Week 1: Information Session 1	1, 2	1.) Integrate frailty nursing knowledge into the acute care environment. Incorporate interrelatedness of frailty and poor discharge outcomes.
Week 2: Information Session 1	1,2,3	2.) Demonstrate ability to create a CFS score using an EMR flowsheet.
Week 3: Information Session 2	1,2,3	3.) Demonstrate skill in application of the CFS score to referral to HBPC.
Week 4: Information Session 3	1,2,3,4	4.) Use the CFS to guide prioritization and clinical decision making to assign appropriate discharge interventions.

### LIMITATIONS



- Critical staffing days correlated to a significant drop in referrals from the unit staff
- Proportion of homebound patients decreased from 46% in week 1 to 29% in week 4
- Intervention may be less generalizable to populations with lower incidence of moderate to severe frailty
- Unexpected barrier to intervention was the misconception that only physician providers had the authority to place a referral to HBPC



### **ETHICAL CONSIDERATIONS**

- Ensuring the patient & family understand the implications of HBPC referral
- Respecting the patient's choice of primary care provider
- Patients who are referred but then screen as ineligible for HBPC



#### **CLINICAL IMPLICATIONS**

#### YaleNews EXPLORE TOPICS .

INTERNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY

#### Frailty, dementia raise mortality risk for older Americans after surgery

In the first study of its kind, Yale researchers found striking differences in the mortality rate of older Americans within a year of having major surgery.

By Jim Shelton OCTOBER 19, 2022

Heart, Lung and Circulation (2020) **29**, 1187–1194 1443-9506/19/\$36.00 https://doi.org/10.1016/j.hlc.2019.10.007



SCHOOL of NURSING

#### Frailty in Elderly Patients Undergoing Cardiac Surgery Increases Hospital Stay and 12-Month Readmission Rate

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THE PRESENT AND FUTURE			Impact Factor: <b>2.645</b> 5-Year Impact Factor: <b>2.956</b>	JOURNAL
Interventions for Frailty Among Older	Available acc	ess Research article First pub	lished online December 18, 2019	
Adults With Cardiovascular Disease	Frailty Is Ass	sociated With Early Hospit	al Readmission in Older Medical Patier	its

VOL 79 NO 5 2022



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#### Home Based Primary Care to Reduce Hospital **Readmissions: Financial Analysis**

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# Early Hospital Readmissions

#### Percent of Total Readmissions

<b>22.3%</b> Gen, Geri, Pall, Hosp	<b>8.3%</b> Transpla	nta	ation	<b>4.5%</b> Genera Surger	al Y	3.6%
	3.2%	<b>3</b> Fi	. <b>1%</b> amily	<b>3.0%</b> Gener	al	<b>2.8%</b> Admin
<b>10.9%</b> CV Medicine	<b>2.6%</b> Pulmona	iry	1.9%	1.8%		
	2.2%		1.4%			
<b>10.4%</b> Hem/Onc	2.2%		1.3%			
	1.9%					



Current FY Prior FY

#### FY 2020 | 1,178 mortalities By Physician Divisi

Gen, Geri, Pall, Hosp	42.9%			505
CV Medicine	22.3%		263	
Hem/Onc	19.9%		234	
Infectious Dis	7.8%	92		
Pulmonary	6.1%	72		
Endocrinology	1.0%	12		

Counts of readmissions broken out by Physician Divisions. Physician and department services based on discharge provider and location of prior (index) admission.



# Early Hospital Readmissions



# **HBPC Program Cost Analysis**

Program Costs	Notes		YEAR #	1		YEAR #	#2	3 Year Total
		Unit Costs	# Units	Extended Cost	Unit Costs	# Units	Extended Cost	
Salary Expense								
Medical Director	1 FTE (national average)							
Salary Expense		\$ 175,000.00	1	\$ 175,000.00	\$ 175,000.00	1	\$ 183,750.00	\$551.687.50
Benefit	26% of base salary	\$ 45,500.00	1	\$ 45,500.00	\$ 45,500.00	1	\$ 45,500.00	\$138 775 00
Pharmacist	1 FTE (national average)						· · · · · · · · · · · · · · · · · · ·	<i>, , , , , , , , , , , , , , , , , , , </i>
Salary Expense		\$ 125,000.00	1	\$ 125,000.00	\$ 125,000.00	1	\$ 131,250.00	<u></u>
Benefit	26% of base salary	\$ 32,500.00	1	\$ 32,500.00	\$ 32,500.00	1	\$ 32,500.00	\$394,062.30
Nurse Practitioner	1 FTE (national average)							\$99,125.00
Salary Expense		\$ 100,000.00	1	\$ 100,000.00	\$ 100,000.00	1.5	\$ 155,000.00	
Benefit	26% of base salary	\$ 26,000.00	1	\$ 26,000.00	\$ 26,000.00	1.5	\$ 39,000.00	\$417,750.00
Nurse Coordinator	1 FTE (national average)							\$105,950.00
Salary Expense		\$ 80,000.00	1	\$ 80,000.00	\$ 80,000.00	1	\$ 84,000.00	
Benefit	26% of base salary	\$ 20,800.00	1	\$ 20,800.00	\$ 20,800.00	1	\$ 20,800.00	\$252,200.00
								\$63,440.00
Total Expenses								\$2,022,990.00



# HBPC Program Revenue Analysis

PROGRAM REVENUE ESTIMATE	Notes		YEAR #	1		YEAR #	<b>#2</b>
		Unit savings	# Units	1 Year Savings	Unit savings	# Units	1 Year Savings
Cost avoidance due to reduction in readmissions	VAH enrolled 75 patients in inaugural year, and reduced hospitalization by 80%. 75 x .80 = # units	\$ 15,200.00	60	\$ 912,000.00	\$ 15,200.00	60	\$ 912,000.00
Initial Grant Funding Year 1		\$1,000,000.00	1				
Projected cost savings after enrollment expansion	If VAH expanded coverage to all readmissions age 65+. In 2020 there were 782; thus, 782 x .80 = # units for year 2&3	\$ 15,200.00	60	\$ 912,000.00	\$ 15,200.00	626	\$ 9,515,200.00



	YEAR	#3	
			3 Year Total
Unit savings	# Units	1 Year Savings	
\$ 15,200.00	60	\$ 912,000.00	\$2,736,000.00
			\$1,000,000,00
			\$1,000,000.00
		Net Savings	\$1,713,010.00
Re	turn on l	Net Savings nvestment (ROI)	\$1,713,010.00 85%
<b>Re</b>	turn on l	Net Savings nvestment (ROI)	\$1,000,000.00 \$1,713,010.00 85%
Re \$ 15,200.00	turn on l	Net Savings nvestment (ROI) \$ 9,515,200.00 Net Savings	\$1,713,010.00 85% \$19,942,400.00 \$17,919,410.00
<b>Re</b> \$ 15,200.00	turn on l	Net Savings nvestment (ROI) \$ 9,515,200.00 Net Savings	\$1,713,010.00 85% \$19,942,400.00 \$17,919,410.00

## Return on Investment

## ASSUMPTIONS

- Cost projection assumes all staff are full time, fully benefited, receiving 5% salary increase per year, and that the team will add another part-time NP in year 2.
- Salary/FTE information obtained by combining data from public databases and national average information. (Salary.com, 2021), (U.Va. Faculty & Staff Salaries, 2021).
- Average Medicare readmission will continue to cost approximately \$15,200 per admission over next 3 years, based on national average data. (Weiss et. al, 2021).
- Scenario #1 assumes readmission reduction will remain the same, Scenario #2 assumes VAH will increase enrollment to cover serviceable UVA population.



# Outcomes & Impact

- "In its inaugural pilot year at UVA, the Virginia at Home program reduced hospitalizations by approximately 80%, and emergency department visits by approximately 50%." (Virginia at Home Program, 2021).
- The Virginia at Home Program has the potential to improve patient care while generating significant revenue for the medical system.



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