

# Facilitators and Barriers to Nurses Screening for Frailty in Acute Care in a Provincial Health-Care System: a Survey Study Guided by the Theoretical Domains Framework



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<https://doi.org/10.5770/cgj.26.650>

## ABSTRACT

### Background

Older adults living with frailty represent the largest population of hospitalized patients in Canada, but they do not always receive the quality of care needed. Nurses are well-positioned to screen for frailty, but current frailty screening practices are poorly understood.

### Methods

A cross-sectional survey study was conducted over a six-week period with nurses from Alberta, Canada working in acute care with older adults. Demographics were descriptively reported. Frailty screening methods were quantified on 5-point frequency scales, reported descriptively and compared by practice area using linear regression. The top-five mean scores from a 43-item, 6-point Likert-type questionnaire based on the Theoretical Domains Framework were compared by practice area.

### Results

Frailty screening by clinical impression was “usually” used (median = 4, IQR = 4-5), while tools were “rarely” used (median = 2, IQR = 1-3). Medical and/or surgical nursing had higher general frailty screening tool use ( $\beta = 0.81$ ,  $r = .31$ ,  $p < .001$ ), but no significant ( $p > .05$ ) differences for using clinical impression, or preference of screening method. The top facilitator was the disbelief that frailty screening negatively impacts relationships with older adults. The top barrier was belief that conducting frailty screening was routine. Nursing practice area influenced frailty screening beliefs.

### Conclusions

There is an opportunity to implement frailty screening tools into the nursing practice of Alberta’ nurses working in

acute care. Frailty screening tools that become routine have greater likelihood for utilization. Nursing practice areas may have unique situations that require tailored approaches to tool implementation.

**Key words:** frailty, older adult, nurse, theoretical domains framework

## INTRODUCTION

Older adults are significant users of the Canadian public health-care system, and older adults living with frailty represent the largest primary and tertiary service users.<sup>(1)</sup> Frailty is a state of vulnerability especially common to the older adult population developed as a consequence of multidimensional deficits accumulated over time.<sup>(2,3)</sup> It is conservatively estimated that 47–58% of all individuals 65–85 years of age are living with at least a mild level of frailty in Canada.<sup>(4)</sup>

There is debate how best to measure or operationalize frailty assessment,<sup>(5)</sup> which creates dissonance in clinical recommendations. Expert consensus suggests four aspects of a frailty definition should include: physical performance (including gait speed and mobility), nutritional status, mental health, and cognition.<sup>(3)</sup> One scoping review<sup>(6)</sup> found the four most commonly used frailty scales in acute care were: Frailty Index (FI) (89% predictive ability), Edmonton Frail Scale (EFS) (88%), Clinical Frailty Scale (CFS) (73%), and Frailty Phenotype (FP) (53%).

Frailty is one measurable way to identify vulnerable older adults to facilitate the best utilization of health resources. Indirect ways to assess for frailty include: non-frailty tools (validated risk scales but not specifically for frailty), study-specific measures (such as risk-stratification by number of

chronic diseases or age), and clinical judgment.<sup>(6)</sup> Studies published from Canadian populations on acute care screening tools were more likely to use established frailty tools than indirect frailty assessments, especially the CFS.<sup>(6)</sup> During the COVID-19 pandemic, frailty screening using the CFS has become an important tool for critical care triage.<sup>(7)</sup>

Licensed nurses in Alberta include registered nurses (RNs), licensed practical nurses (LPNs), registered psychiatric nurses (RPNs), and nurse practitioners (NPs). These nurses have the professional capacity to use evidence to inform assessments to meet client or patient health goals<sup>(8–10)</sup> and are the principal care providers to older adults in acute care. Initial research has shown nurses in acute care use several established frailty screening tools,<sup>(11)</sup> but it is important to focus on this population to understand their specific experience. Exploratory, qualitative research with nurses on medical and/or surgical (med/surg) units found frailty screening tools could help to structure the nurses' days overall, but the nurses preferred their own clinical judgment to assess for frailty.<sup>(12)</sup> Expanding this preliminary research into Canadian nursing populations, different frailty screening tools, and alternative research methods has the potential to strengthen the understanding of nurses' uses and beliefs of screening for frailty. In this study, we explored and compared i) the current state of frailty screening by nurses, and ii) the barriers and facilitators of frailty screening performed by nurses in acute care with older adults in one Canadian province.

## METHODS

### Study Design

A cross-sectional, non-experimental, descriptive survey study approach was undertaken. The survey consisted of three sections:

#### *Section 1: Demographics*

Demographic questions were guided by the Canadian Institute for Health Information (CIHI) population level data characteristics<sup>(13)</sup> and additional characteristics considered relevant for the Albertan nursing population. These ten categorical variables were: license type, primary area of practice, age, gender, years in current position, most common shift, current employment status, area of responsibility, and highest education level in nursing and in non-nursing.

#### *Section 2: Frailty Screening Methods*

An operationalized definition of frailty that supports a multi-domain deficit accumulation understanding<sup>(3)</sup> was selected to inform the survey development. Four commonly used frailty screening tools were examined with visual aids: CFS, EFS, FI, and FP. A fifth open-text response of other frailty screening tools was included. Respondents rated these items on a 5-point frequency scale. Two additional 5-point questions asked about frailty screening in general and assessing for frailty using clinical impression; this was followed by a 101-point sliding scale choice of preference of these two methods.

#### *Section 3: Theoretical Domains Framework (TDF)*

The TDF<sup>(14,15)</sup> was chosen to structure questions seeking to understand barriers and facilitators to nurses using frailty screening tools. The TDF enables identifying the reasons behind health-care professionals' behaviour, which can be useful to inform targeted changes to meet goals. The TDF is advantageous as it has multidisciplinary applications, is specific to health-care research (including nursing), and is designed to overcome the hurdle from theoretical behavioural information to knowledge translation.<sup>(14)</sup> Behavioural reasons are structured within 14 different domains including: (1) knowledge, (2) skills, (3) social/professional role and identity, (4) beliefs about capabilities, (5) optimism, (6) beliefs about consequences, (7) reinforcement, (8) intentions, (9) goals, (10) memory, attention and decision processes, (11) environmental context and resources, (12) social influences, (13) emotion, and (14) behavioural regulation.<sup>(14)</sup> A 43-item quantitative questionnaire by Huijg and colleagues<sup>(16)</sup> was used to capture the 14 different behavioural domains, with items set up as 6-point Likert-type scales.

### Eligibility

Inclusion criteria were: (i) practicing as any type of licensed nurse in Alberta, Canada for at least three months, (ii) primary practice in acute care, and (iii) provide care for older adults. Using a standardized sample size calculator<sup>(17)</sup> with 95% Confidence Intervals (CI) and 5% margins of error for total population size of 23,950,<sup>(13)</sup> it was estimated an ideal sample size of 379 research participants was required for appropriate power to represent the populations' studied traits. Based on population data<sup>(13)</sup> and discussions with the nursing colleges, it was estimated the goal sample size was achievable.

### Piloting

The survey was pilot tested by a convenience sample of nine individuals with RN or LPN experience in Alberta but outside eligibility. A process of think-aloud interviewing was used to have participants paraphrase their understanding of each question; participants were followed up with cognitive probes if there was dissonance between expected responses and actual responses.<sup>(18)</sup> This testing improved the flow, comprehension, grammatical errors, and explanation of the slider scale question. The last four individuals were timed; the mean time was 12 min.

### Recruitment

The online survey was sent to currently practicing RNs, NPs, and LPNs during the recruitment period April 7th to May 18th, 2021. The University of Ottawa Office of Research Ethics and Integrity (H-02-21-5958) approval was obtained prior to, and maintained throughout, data collection. Computer, tablet, and cell-phone survey responses were accepted through the platform SurveyMonkey® (<https://www.surveymonkey.com/>). LPNs were recruited through their weekly online nursing college bulletin with an embedded link to the survey. RNs and NPs who agreed for their nursing college to send their contact information

were directly emailed the study information and survey link three times during the recruitment period. Participants provided consent for data collected to be utilized for research purposes. The total emailed population was 19,329 nurses.

### Statistical Analysis

Statistical analysis was run using SPSS version 28.0 (IBM Corp, Armonk, New York) with 95% CI and  $\alpha$  set to .05. Missing value analysis was assessed using Little's MCAR and patterns of missingness visual analysis; complete case analysis was used. The data were analyzed for potential differences evidenced by including LPN and NP with the larger RN sample by running all statistical analyses twice with and without these groups. Demographic information was represented by n, mean (M), range, and standard deviation (SD). Three main practice areas emerged from the data: critical care, med/surg, and other acute care settings.

Descriptive statistics of n and range are reported for all questions in the Results section. Skewness to the right was significant at  $\alpha = .05$  using the Shapiro-Wilk test, therefore these data were represented by medians and interquartile range (IQR). The M and SD were reported for the preferred method question. Parametric analyses were conducted by linear regression including outputs of: unstandardized coefficients ( $\beta$ ) and standard error, standardized coefficient ( $\beta$ ), *t*-value, significance ( $\alpha = .05$ ), and 95% CI. Med/surg was chosen as the reference group because of the comparatively higher mean rates of frailty screening tool use. Tests for assumptions of regression model normalcy were verified using Durbin-Watson statistic and scatter plot analysis.

The open-text response was codified according to a qualitative description approach.<sup>(19)</sup> Responses were searched in the data bases CINHALL, Medline, and AgeLine; then (if not found), the first 50 responses in Google and the Alberta Health Services internal staff website. All identified frailty screening tools were reported.

The 43 TDF 6-point Likert-type responses were converted for "Very strongly disagree" = 1 and "Very strongly agree" = 6. The seven negatively phrased questions were reverse-coded during data analysis to enable comparative interpretation. The mid-point was 3.50, which was used as a reference, with values below being considered a barrier and above a facilitator. The top-five barriers and facilitators by primary practice areas were reported by n, M, SD, and range.

## RESULTS

### Demographics

Of the nurses emailed, 228 licensed nurses were eligible (3.0%). This sample included: 10.1% LPNs (n = 23), 88.2% RNs (n = 201), and 1.8% NPs (n = 4) (Table 1). When the LPN and NP groups were removed from the RN sample, there were no significant differences ( $p > .05$ ) or changes in interpretation of results; therefore, the full sample of 228 was used. Primary practice areas (n = 224) were in critical care (n = 90), med/surg (n = 101), and other acute care (n = 22).

TABLE 1.  
Demographic characteristics of participants

Characteristic	n (%)
License Type	228 (100)
LPN	23 (10.1)
RN	201 (88.2)
NP	4 (1.8)
Primary Area of Practice	224 (100)
Critical Care	90 (39.5)
ED	64 (28.1)
ICU/CCU	26 (11.4)
Med/surg	111 (48.7)
General med/surg	102 (44.7)
Gerontology	3 (1.3)
Nephrology	3 (1.3)
Oncology	1 (0.4)
Palliative	2 (0.9)
Other Acute Care	23 (10.1)
Psychiatry	15 (6.6)
WOC	2 (0.9)
OR and PACU	1 (0.4)
Additional Areas <sup>a</sup>	5 (2.2)
Gender	228 (100)
Male	22 (9.6)
Female	204 (89.5)
Other <sup>b</sup>	2 (0.9)
Age	228 (100)
Less than 30	55 (24.1)
30-39	65 (28.5)
40-49	46 (20.2)
50-59	41 (18.0)
60 or older	21 (9.2)
Years in Current Position	226 (100)
Less than 1 year	18 (7.9)
1-3	52 (22.8)
4-6	45 (19.7)
7-9	33 (14.5)
10-14	28 (12.3)
15-19	23 (10.1)
20 or more	27 (11.8)
Most Common Shift	226 (100)
Days	54 (23.7)
Evenings	19 (8.3)
Nights	12 (5.3)
Mixed	141 (61.8)
Current Employment Status	226 (100)
Full-time	108 (47.4)
Part-time	88 (38.6)
Casual	28 (12.3)
Locum	2 (0.9)
Area of Responsibility	227 (100)
Direct Care	211 (92.5)
Administration	8 (3.5)
Education	8 (3.5)

TABLE 1. Continued

Characteristic	n (%)
Highest Level of Education in Nursing	227 (100)
Diploma	48 (21.1)
Bachelors	167 (73.2)
Masters	11 (4.8)
PhD	1 (0.4)
Highest Level of Education non-Nursing <sup>c</sup>	227 (100)
NA	111 (48.7)
Diploma	53 (23.2)
Bachelors	53 (23.2)
Masters	7 (3.1)
PhD	3 (1.3)

<sup>a</sup>Additional Areas: Diagnostic imaging (n = 1), endoscopy (n = 1), “rehab” (n = 1), “IV therapy” (n = 1), and transition services (n = 1).

<sup>b</sup>Other Genders: Non-binary (n = 1) and Two-spirit (n = 1).

<sup>c</sup>Education outside of a nursing program.

ED = emergency department; ICU/CCU = intensive and/or cardiac care units; Med/surg = medical and/or surgical care; WOC = wounds, ostomy, and continence; OR = operating room; PACU = post-anesthetic care unit; NA = not applicable.

### Frailty Screening

For the total sample, the four frailty screening tools were reported to be used “never” (median = 1, IQR = 1–3; see Table 2). Frailty screening by clinical impression was used “usually” (median = 4, IQR = 4–5), while frailty screening tools were used “rarely” in general (median = 2, IQR = 1–3). The preferred method between general frailty screening (0) and clinical impression (100) was clinical impression (M = 67.1, SD = 25.7).

Comparing between practice areas, med/surg nurses consistently had higher median and IQR scores showing more tool utilization, especially with the CFS and EFS tools (Table 3). Working outside med/surg decreased use of frailty screening tools in general by 0.81 ( $r = -.31, p < .001$ ), CFS by  $-.59$  ( $r = -.25, p < .001$ ), and EFS by 0.61 ( $r = -.28, p < .001$ ). There were also significant decreases observed for the FP by 0.37 ( $r = -.20, p = .004$ ) and FI by 0.37 ( $r = -.18, p = .009$ ).

Of those (n = 64) that reported using a different frailty screening tool, these were “always” used (median = 5, IQR = 4–5). Other Frailty Screening Tools reported descriptively yielded 103 individual items coded into 27 different groups, of which two were frailty screening tools. There was unit-specific frailty screening (n = 4) and the “RAI” (n = 2), interpreted as the Risk Analysis Index.<sup>(20)</sup>

### Barriers and Facilitators

The top-five facilitators to using frailty screening tools are presented in Table 4. The top facilitator for the sample was disbelief that frailty screening would negatively impact their relationship with older adults (M = 4.48, SD = 0.88) and was the only significant question ( $p < .05$ ). The top-five facilitators were within the domains of Beliefs about Consequences, Reinforcement, and Emotions across practice areas (n = 3); only med/surg nurses had one facilitator from Beliefs about Capabilities. For med/surg and other acute care, the question,

“When I conduct frailty screening, it is discouraged by my patients and their families”, was significant ( $p < .05$ ). In other acute care practice, “When I conduct frailty screening, I get criticized by health-care professionals that are important to me”, was significant ( $p < .05$ ).

The top-five barriers to using frailty screening tools are shown in Table 5. Three domains emerged for barriers to using frailty screening tools: Environmental Context and Resources, Skills, and Goals (Table 5). The top barrier for the sample was belief that conducting frailty screening is routine (M = 2.68, SD = 1.42). This was significant ( $p < .05$ ) for critical care (M = 2.27, SD = 1.22) and other acute care (M = 2.47, SD = 0.94). Other acute care practice differed by having a barrier in domain of Social/Professional Role and Identity (“Conducting frailty screening in my primary area of practice is part of my work as a nurse” [M = 2.89, SD = 1.45]) and no barrier in Goals. A different top-five barrier for other acute care nurses was, “I have conducted frailty screening” (M = 2.68, SD = 1.58).

## DISCUSSION

This study contributes to the understanding of how acute care nurses are using frailty screening tools, and their beliefs surrounding utilization of frailty screening. The nurses in this study “usually” used clinical impression to guide their frailty interpretation and it was their preferred method compared to frailty screening tools. Med/surg nurses used the frailty screening tools in general and, for each of the four studied tools, more compared to other primary practice areas. The top-five facilitators for using frailty screening tools were in the domains of Beliefs about Consequences and Reinforcement; the top-five barriers were in the domain of Environmental Context and Resources. Practice areas demonstrated differences in the top-five facilitators and barriers to frailty screening. This information can be used to guide hospital administration and educators towards theory-informed integration of frailty screening into the practices of their nursing staff members.

The preference for clinical impression complements previous findings in the med/surg population.<sup>(12)</sup> One difference compared to Warnier *et al.*<sup>(12)</sup> was lack of evidence for the younger age group (med/surg) to have increased preference for frailty screening use compared to clinical impression. Critical thinking is a mandatory component of nursing curricula in Canada,<sup>(21,22)</sup> which may strengthen preference towards clinical impression. Given the preference, it would be appropriate to select a frailty screening tool that incorporates or strengthens clinical impression. Of the frailty screening tools being used in Alberta, the CFS best encompasses the clinical judgment by utilizing the impressions to assign a frailty classification score.<sup>(23)</sup> Frailty screening tools that are itemized or question-driven still require clinical judgment to be useful.<sup>(24)</sup> Therefore, if an itemized frailty screening tool is chosen, providing education for its connection to clinical judgment could improve incorporation into practice.

Although frailty tools were “rarely” used during the data collection time, there was indication of some use, particularly

in the med/surg nurse population. The CFS<sup>(25)</sup> and EFS<sup>(26)</sup> were both created in Canada, which may partially explain the greater uptake. Frailty screening tools were previously found to be more successfully adopted when using systems that already exist,<sup>(27-29)</sup> giving support to using one of the tools herein identified. Screening tools that are highly integrated across care areas also have greater adoption, including community care.<sup>(29-31)</sup> The CFS is already showing use in ICUs in Alberta<sup>(32)</sup> and the med/surg population (demonstrated in this study), improving potential for expansion across settings.

This study found that the population of nurses studied at the time of data collection did not use frailty screening routinely and

this barrier has been identified elsewhere.<sup>(33)</sup> Integration into a routine is a multifaceted concept from a behavior-change perspective. Faster tools are more easily integrated into routines.<sup>(34)</sup> The CFS is the fastest of all the studied frailty screening tools, taking 24 sec by trained nurses and geriatricians.<sup>(35)</sup> The CFS also captures physical performance, nutritional status, mental health, and cognition domains of frailty, and includes pictorial aids.<sup>(23)</sup> By not reducing frailty screening to just the physical domain, the frailty picture captured can potentially translate to more useful interventions. This is important, as screening tools that lead to directing clinical decisions for the patients involved also improve routine integration.<sup>(36)</sup>

TABLE 2.  
Use of frailty screening methods by practice area<sup>a</sup>

Practice Area	Factor	Clinical Frailty Scale	Edmonton Frail Scale	Frailty Phenotype	Frailty Index	Other Frailty Screening Tools <sup>b</sup>	General Frailty Screening Tool Use	Clinical Impression	Preferred Method <sup>c</sup>
Critical Care	Median (IQR)	1 (1-2)	1 (1-1)	1 (1-1)	1 (1-1)	4 (4-5)	1 (1-3)	5 (4-5)	71.1 (25.1) <sup>c</sup>
	n	88	87	85	85	12	85	85	74
Medical and/or Surgical	Median (IQR)	1 (1-3)	2 (1-3)	1 (1-2)	1 (1-2)	5 (4-5)	3 (1-4)	4 (4-5)	64.9 (26.2) <sup>c</sup>
	n	108	107	107	107	44	105	105	92
Other Acute Care	Median (IQR)	1 (1-2)	1 (1-1)	1 (1-1)	1 (1-1)	4 (3-5)	2 (1-2)	4 (3-5)	60.8 (26.9) <sup>c</sup>
	n	23	23	23	23	7	22	21	16
Total	Median (IQR)	1 (1-2)	1 (1-2)	1 (1-2)	1 (1-2)	5 (4-5)	2 (1-3)	4 (4-5)	67.1 (25.7) <sup>c</sup>
	n	222	220	218	218	64	215	214	185
	Range	1-5	1-5	1-5	1-5	2-5	1-5	1-5	3-100

<sup>a</sup>Items quantified on a 5-point scale with 1 = "never", 2 = "rarely", 3 = "sometimes", 4 = "usually" and 5 = "always."

<sup>b</sup>The Other Frailty Screening Tools were conditionally reported if "yes" to using other frailty screening tools.

<sup>c</sup>Preferred Method was quantified on a 101-point sliding scale: 0 = "Frailty Screening Tool," 50 = "Equally Useful," and 100 = "Clinical Impression." This question was represented by  $M(SD)$ .

TABLE 3.  
Medical and/or surgical nurses compared to all other nurses' frailty screening method use<sup>a</sup>

Frailty Screening Method	B	SE	B	t	Sig.	95% CI	
						Lower Bound	Upper Bound
Clinical Frailty Scale (n = 219)	-0.59	0.15	-0.25	-3.85	.000 <sup>c</sup>	-0.89	-0.29
Edmonton Frail Scale (n = 217)	-0.61	0.14	-0.28	-4.32	.000 <sup>c</sup>	-0.89	-0.33
Frailty Phenotype (n = 215)	-0.37	0.13	-0.20	-2.93	.004 <sup>b</sup>	-0.62	-0.12
Frailty Index (n = 215)	-0.37	0.14	-0.18	-2.63	.009 <sup>b</sup>	-0.64	-0.09
Other Frailty Screening Tools (n = 63)	-0.03	0.25	-0.02	-0.13	.898	-0.53	0.47
General Frailty Screening (n = 212)	-0.81	0.17	-0.31	-4.72	.000 <sup>c</sup>	-1.14	-0.47
Clinical Impression (n = 211)	-0.05	0.13	-0.03	-0.39	.698	-0.30	0.20
Preferred Method (n = 182)	4.39	3.84	0.08	1.14	.255	-3.19	11.96

<sup>a</sup>All items run individually as simple linear regressions with the medical and/or surgical practice area set as the reference group.

<sup>b</sup> $p < .05$

<sup>c</sup> $p < .001$

TABLE 4.  
Top-five facilitators to frailty screening by practice area<sup>a</sup>

Practice Area	Factor	Ranking				
		1	2	3	4	5
Critical Care	Domain	Beliefs about Consequences	Emotions	Reinforcement	Emotions	Beliefs about Consequences
	Question	If I conduct frailty screening with older adults it will have disadvantages for my relationship with these patients. <sup>b</sup>	I feel anxious when I start to think about conducting frailty screening. <sup>b</sup>	When I conduct frailty screening, I get criticized by health care professionals that are important to me. <sup>b</sup>	Conducting frailty screening for my patients is stressful to me. <sup>b</sup>	If I conduct frailty screening with older adults it will benefit public health.
	<i>M(SD)</i>	4.43(0.86) <sup>c</sup>	4.36(1.03)	4.35(0.89)	4.31(1.00)	4.16(0.85)
	n	75	61	65	62	75
Medical and/or Surgical	Domain	Beliefs about Consequences	Beliefs about Consequences	Reinforcement	Reinforcement	Beliefs about Capabilities
	Question	If I conduct frailty screening with older adults it will have disadvantages for my relationship with these patients. <sup>b</sup>	If I conduct frailty screening with older adults it will benefit public health.	When I conduct frailty screening, I get criticized by health care professionals that are important to me. <sup>b</sup>	When I conduct frailty screening, it is discouraged by my patients and their families. <sup>b</sup>	I am confident that if I was motivated and wanted to, I could conduct frailty screening.
	<i>M(SD)</i>	4.53(0.89) <sup>c</sup>	4.51(1.06)	4.45(0.99)	4.41(0.90) <sup>c</sup>	4.39(1.05)
	n	89	89	84	85	90
Other Acute Care	Domain	Reinforcement	Reinforcement	Beliefs about Consequences	Emotions	Beliefs about Consequences
	Question	When I conduct frailty screening, I get criticized by health care professionals that are important to me. <sup>b</sup>	When I conduct frailty screening, it is discouraged by my patients and their families. <sup>b</sup>	If I conduct frailty screening with older adults it will have disadvantages for my relationship with these patients. <sup>b</sup>	I feel anxious when I start to think about conducting frailty screening. <sup>b</sup>	If I conduct frailty screening with older adults it will benefit public health.
	<i>M(SD)</i>	4.88(0.89) <sup>c</sup>	4.56(0.96) <sup>c</sup>	4.50(0.92) <sup>c</sup>	4.38(1.02)	4.27(1.03)
	n	16	16	18	16	15
Total	Domain	Beliefs about Consequences	Reinforcement	Emotions	Emotions	Beliefs about Consequences
	Question	If I conduct frailty screening with older adults it will have disadvantages for my relationship with these patients. <sup>b</sup>	When I conduct frailty screening, I get criticized by health care professionals that are important to me. <sup>b</sup>	I feel anxious when I start to think about conducting frailty screening. <sup>b</sup>	Conducting frailty screening for my patients is stressful to me. <sup>b</sup>	If I conduct frailty screening with older adults it will benefit public health.
	<i>M(SD)</i>	4.48(0.88) <sup>c</sup>	4.44(0.96)	4.38(1.06)	4.35(1.08)	4.30(1.02)
	n	184	167	159	160	184
	Range	1-6	1-6	1-6	1-6	1-6

<sup>a</sup> Means were generated from a 6-point Likert-type scale (midpoint 3.50). 1 = "Very strongly disagree" and 6 = "Very strongly agree." Questions are ranked from 1 being the highest mean score (greatest facilitator) to 5 the fifth highest mean score out of all 43 Theoretical Domains Framework guided questions.

<sup>b</sup>Reverse coded.

<sup>c</sup>*p* < .05; 95% CI.

TABLE 5.  
Top-five barriers to frailty screening by practice area<sup>a</sup>

Practice Area	Factor	Ranking				
		1	2	3	4	5
Critical Care	Domain	Environment Context and Resources	Skills	Goals	Environment Context and Resources	Environment Context and Resources
	Question	On the unit that I work on, conducting frailty screening is routine.	I have been trained how to conduct frailty screening.	There often is something else more important than conducting frailty screening. <sup>b</sup>	I have the necessary resources (including physical resources, technologies, and staff) to conduct frailty screening.	In general, I have enough time to conduct frailty screening.
	<i>M(SD)</i>	2.27(1.22) <sup>c</sup>	2.48(1.11)	2.50(1.03)	2.52(1.17)	2.66(1.12)
	n	64	80	66	64	64
Medical and/ or Surgical	Domain	Goals	Environment Context and Resources	Environment Context and Resources	Environment Context and Resources	Skills
	Question	There often is something else more important than conducting frailty screening. <sup>b</sup>	In general, I have enough time to conduct frailty screening.	I have the necessary resources (including physical resources, technologies, and staff) to conduct frailty screening.	On the unit that I work on, conducting frailty screening is routine.	I have been trained how to conduct frailty screening.
	<i>M(SD)</i>	2.73(1.12)	2.95(1.20)	2.96(1.30)	3.00(1.53)	3.04(1.34)
	n	82	82	82	82	98
Other Acute Care	Domain	Skills	Environment Context and Resources	Skills	Environment Context and Resources	Social/Professional Role and Identity
	Question	I have been trained how to conduct frailty screening.	On the unit that I work on, conducting frailty screening is routine.	I have conducted frailty screening.	I have the necessary resources (including physical resources, technologies, and staff) to conduct frailty screening.	Conducting frailty screening in my primary area of practice is part of my work as a nurse.
	<i>M(SD)</i>	2.37(1.30)	2.47(0.94) <sup>c</sup>	2.68(1.53)	2.82(1.07)	2.89(1.45)
	n	19	17	19	17	19
Total	Domain	Environment Context and Resources	Skills	Goals	Environment Context and Resources	Environment Context and Resources
	Question	On the unit that I work on, conducting frailty screening is routine.	I have been trained how to conduct frailty screening.	There often is something else more important than conducting frailty screening. <sup>b</sup>	I have the necessary resources (including physical resources, technologies, and staff) to conduct frailty screening.	In general, I have enough time to conduct frailty screening.
	<i>M(SD)</i>	2.68(1.42)	2.74(1.27)	2.75(1.15)	2.78(1.24)	2.85(1.17)
	n	165	200	166	165	165
	Range	1-6	1-6	1-6	1-6	1-6

<sup>a</sup>Means were generated from a 6-point Likert-type scale (midpoint 3.50): 1 = "Very strongly disagree" and 6 = "Very strongly agree." Questions are ranked from 1 being the lowest mean score (greatest barrier) to 5 being the fifth lowest mean score out of all 43 Theoretical Domains Framework guided questions.

<sup>b</sup>Reverse coded.

<sup>c</sup>*p* < .05; 95% CI.

It assists frailty screening tool utilization that nurses in all care areas “disagreed” that, “If I conduct frailty screening with older adults it will have disadvantages for my relationship with these patients” in the domain about Beliefs about Consequences. This is in some contrast to previous findings where the same domain Belief’s about Consequences was identified as a barrier.<sup>(33)</sup> This difference may be due to our study structuring the question, “In general, I have enough time to conduct frailty screening” to the domain of Environmental Context and Resources, which was one of the top-five barriers.

Despite med/surg nurses having higher rates of using screening tools and beliefs in their capabilities, they too agreed they had not received adequate education for frailty screening. Professional education (especially in geriatric care) leads to improvements in frailty screening occurring and in improvements in its delivery.<sup>(30,37)</sup> Inadequate education and instructions for completing frailty screening tools was found elsewhere to be a significant barrier for med/surg nurses.<sup>(12)</sup> Inter-rater reliability, using the CFS well established in an intensive care unit, showed agreement between nurses was substantial ( $\kappa = .63$ ; 95% CI), nurse-physicians was moderate ( $\kappa = .59$ ; 95% CI), and nurse-physiotherapists near perfect agreement ( $\kappa = .88$ ; 95% CI).<sup>(38)</sup> This is suggestive that nurses can be the appropriate health professional to collect reliable frailty screening assessment data, but that they should be supported with education on the screening tools.

### Limitations

The original study<sup>(16)</sup> on which the TDF study component was built did not have discriminant content validity of items measured within reinforcement, goals, and behavioural regulation. Although the TDF-guided questions were built from a previously tested survey study, it is possible that the questions asked within a domain header are not capturing the true essence of that domain because factor analysis and construct validity were not tested. Few respondents used frailty screening tools, therefore the barriers and facilitators identified predominantly represent a pre-implementation context. The potential differences in barriers and facilitators for frailty screening that is dependent upon stages in frailty screening tool implementation was not captured. How beliefs change based on the type of frailty screening tool utilized was also not extrapolated. The survey responses were less than required to meet power goals; this suggests there may be additional between-group differences that exist in the population, and that observed differences may be stronger than elicited.<sup>(39)</sup>

### CONCLUSIONS

There is an opportunity to implement frailty screening tools into the nursing practice of Alberta’ acute care nurses, which could improve care for hospitalized older adults. This study gives support towards implementing the CFS based on its support of clinical judgment, its early implementation in the population, its rapid administration time, its multi-domain consideration, and its utility across health sectors. Addressing

barriers from the Environmental Context and Resources TDF domain could have the greatest influence upon successful frailty screening implementation. Further exploration is warranted on how both clinical impression and the frailty screening tools are used to guide nursing care practices for older adults perceived as living with frailty.

### ACKNOWLEDGEMENTS

Not applicable.

### CONFLICT OF INTEREST DISCLOSURES

We have read and understood the *Canadian Geriatrics Journal’s* policy on conflicts of interest disclosure and declare that we have none.

### FUNDING

This research did not receive external funding.

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