Enhancing Communication Amongst Health Care Professionals in End-of-Life Care: Correlating the Palliative Performance Scale (PPS) and Clinical Frailty Scale (CFS)

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Background

- Older adults are living longer and facing an increased burden of symptoms from terminal malignant and non-malignant illnesses[1]. Furthermore, they must make difficult decisions regarding goals of care and advanced directives.[2]
- Since both geriatricians and palliative care physicians care for the elderly patient at end of life, collaboration between these two disciplines is essential.
- Palliative care physicians and geriatricians use scales such as the Palliative Performance Scale (PPS)[3,4] [see Figure A] and Clinical Frailty Scale (CFS)[5,6] [see Figure B] respectively, to describe functional status, inform treatment decisions, and guide conversations about prognosis.
- Currently, these two scales are not interchangeable, there is therefore no common method to describe functional status in the end of life.

Purpose

- To develop a clinical tool that will make scores on the PPS and CFS interchangeable.
- This will create a common language to describe functional status, thereby enhancing communication between health care professionals working in end of life care.

Methods

- Participants:
  - Patient 65 years and older were recruited from two settings in Toronto: Baycrest (chronic) and Sunnybrook Health Sciences Centre (acute), see [Figure C] for demographic information
- Outcome Measures:
  - Functional status: PPS and CFS scores
  - Assessment of PPS: palliative care physician and advanced practice nurse
  - Assessment of CFS score: geriatrician and clinical nurse specialist
- Conversion Chart:
  - Inter-rater reliability ***within*** each measure established using Cohen's weighted kappa
  - Inter-rater reliability ***between*** each measure calculated for every possible combination of PPS categories, matching CFS categories [Figure D], in order to determine which combination achieved maximal agreement, creating the conversion chart [Figure F]

Figures

Figure A. PPS

PPS Level	Ambulation	Activity & Evidence of Disease	Self-Care	Intake	Conscious Level
100%	Full	Normal activity & work No evidence of disease	Full	Normal	Full
90%	Full	Normal activity & work Some evidence of disease	Full	Normal	Full
80%	Full	Normal activity *with* Effort Some evidence of disease	Full	Normal or reduced	Full
70%	Reduced	Unable Normal Job/Work Significant disease	Full	Normal or reduced	Full
60%	Reduced	Unable hobby/house work Significant disease	Occasional assistance necessary	Normal or reduced	Full or Confusion
50%	Mainly Sit/Lie	Unable to do any work Extensive disease	Considerable assistance required	Normal or reduced	Full or Confusion
40%	Mainly in Bed	Unable to do most activity Extensive disease	Mainly assistance	Normal or reduced	Full or Drowsy +/- Confusion
30%	Totally Bed Bound	Unable to do any activity Extensive disease	Total Care	Normal or reduced	Full or Drowsy +/- Confusion
20%	Totally Bed Bound	Unable to do any activity Extensive disease	Total Care	Minimal to sips	Full or Drowsy +/- Confusion
10%	Totally Bed Bound	Unable to do any activity Extensive disease	Total Care	Mouth care only	Drowsy or Coma +/- Confusion
0%	Death	-	-	-	-

Figure B. CFS

The CSHA Clinical Frailty Scale

1 **Very fit** – Robust, active, energetic, well motivated and fit; these people commonly exercise regularly and are in the most fit group for their age

2 **Well** – Without active disease, but less fit than people in category 1

3 **Well, with treated comorbid disease** – Disease symptoms are well controlled compared with those in category 4

4 **Apparently vulnerable** – Although not frankly dependent, these people commonly complain of being "slowed up" or have disease symptoms

5 **Mildly frail** – With limited dependence on others for instrumental activities of daily living

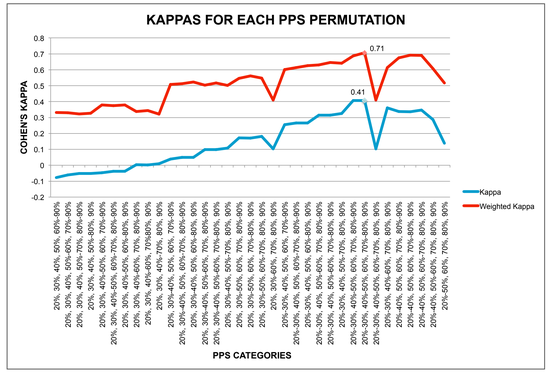
6 **Moderately frail** – Help is needed with both instrumental and non-instrumental activities of daily living

7 **Severely frail** – Completely dependent on others for the activities of daily living, or terminally ill

Figure C. Demographics

Characteristic	N = 120
Age, mean (SD)	80.9 (8.0)
	Frequency (%)
Sex (male)	54 (45%)
Diagnoses	
Malignant	61 (51%)
Gastrointestinal	14 (12%)
Lung	13 (11%)
Genitourinary	11 (9%)
Brain	7 (6%)
Haematological	7 (6%)
Breat	5 (4%)
Head/Neck	3 (3%)
Skin	1 (1%)
Non-malignant	59 (49%)
Cardiac	20 (17%)
Dementia	14 (12%)
Neurological	10 (8%)
Musculoskeletal	6 (5%)
Renal Failure	4 (3%)
Respiratory	4 (3%)
Endocrine	1 (1%)

Figure D. Maximizing Inter-Rater Reliability



The chart above shows the inter-rater reliability between the PPS and CFS demonstrated for each combination of PPS score. The point with the highest agreement (0.71) was chosen for the conversion chart [Figure F]

Figure F.
CFS-PPS Conversion Chart

CFS-PPS Conversion Chart	
CFS	PPS
3	90%
4	80%
	70%
5	60%
6	50%
	40%
7	30%
	20%
	10%
Kappa = 0.41	
Weighted Kappa = 0.71	

Figure E. Frequencies

FREQUENCIES						
PPS / CFS	3	4	5	6	7	Total
20%				1	4	5
30%				9	25	34
40%			1	22	15	38
50%			3	15	3	21
60%		2	7	6		15
70%		1	2	1		4
80%				1		1
90%	1	1				2
Total	1	4	13	55	47	120

This table shows the frequencies of the corresponding CFS and PPS scores with the highest agreement [Figure D]

Results

- 120 patients recruited between July 2012 and March 2013
  - 20 outpatients from Baycrest Day Treatment Centre
  - 60 inpatients from Baycrest Palliative Care Unit and Complex Continuing Care Unit
  - 40 inpatients from Sunnybrook Palliative Care Consult Team
- Very high inter-rater reliability[9] ***within*** each measure
  - CFS weighted kappa: 0.92
  - PPS weighted kappa: 0.80
- High inter-rater reliability[9] ***between*** each measure: weighted kappa 0.71

CFS SCORE	7	6	5	4	3
PPS SCORE	10%-30%	40%-50%	60%	70%-80%	90%

Discussion

- The conversion chart is a useful means for translating scores between the Palliative Performance Scale (PPS) and Clinical Frailty Scale (CFS), as demonstrated by high inter-rater reliability [Figure F].
- Although unable to recruit patients with PPS score of ≤ 10% due to their proximity to death, we extrapolate that a CFS score of 7 corresponds with a PPS score of ≤ 30%.

Limitations

- There is insufficient data to include CFS scores of 1 & 2 and PPS score of 100% in the conversion chart as patients with high functional status (high PPS, low CFS) were not represented in our study population.
- Cut-off points on the conversion chart are optimized but not absolute. For example: a CFS score of 6 may correspond to PPS scores of 40% or 50% while a score 7 may correspond to a PPS score of 30% or 40% [Figure E].
- Our study used the 7-Point CFS as it is more commonly cited than the 9-Point CFS, and also because of the inapplicability of the CFS score of 9 in the palliative care setting.

Conclusion

- Our conversion chart is a reliable means for translating scores between the Palliative Performance Scale (PPS) and Clinical Frailty Scale (CFS).
- The ability to match functional status scores on two disparate scales and find corresponding scores creates a common language between the geriatric and palliative care performance scales.
- This is significant for the following reasons:
  - For geriatric health care teams, the conversion chart translates the CFS score to the PPS score, facilitating completion of the Common Palliative Care Referral Form and enabling discussions with palliative health care teams.
  - CCAC allocates resources to patients living with terminal illnesses based on their PPS scores.
  - For palliative care health care teams, the conversion chart translates the PPS score to the CFS score, allowing conceptualization of patients' functional status to ensure a meaningful discussion with geriatric health care teams.
- A common language is essential when health care professionals in palliative care and geriatrics collaborate in the care of the elderly patient.

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