

*S Bouchard MD PhD CCFP FCFP^{1,2,3,4}, A Iancu MD PhD CCFP (PC) FCFP², E Neamt MD CCFP(PC)^{1,2,3,4}, C Cherif BSc MSc¹, F Collette MD^{2,4}, S Dufresne MD CCFP^{2,4,5}, P Guercin MD CCFP^{2,4,5}, S Jeyaganth MSc⁶, D Kovacina MD CCFP(PC)², T Malagón PhD⁶, L Musgrave MD CCFP(PC)^{2,3,4,5}, M Romano MD CCFP(PC)^{2,5}, J Wong MD CCFP(PC)^{2,4,5}

¹Montreal Institute for Palliative Care, ²Teresa Dellar Palliative Care Residence, ³Oncology Department McGill University, ⁴Family Medicine and Emergency Department University of Montreal, ⁵Family Medicine and Emergency Department McGill University and ⁶Oncology Department, Division of Cancer Epidemiology, McGill University.

*corresponding author: sylvie.bouchard@mcgill.ca

Background

Prediction of life expectancy in terminally ill patients is an important end-of-life care issue. Most used validated tools for prognostication: Palliative Performance Scale (PPS) and the Palliative Prognostic Index (PPI) have not been used for very short-term prognosis (life expectancy < 3 weeks).

Objective

To improve the accuracy of the short-term survival prediction of terminally ill patients in a palliative care residence.

Methods

Prospective open study on all patients admitted at the TDPCR during a period of 1 year.

PPI and PPS scores were assessed at admission (Day 0), Week 1, 2, 3, and monthly thereafter or until patient's death.

Seven clinical signs of impending death were systematically documented daily (Designated Short Term Prognosis Signs: DSTPS).

The primary endpoints included:

- prognosis determination using PPI and PPS scores at baseline vs the actual survival time;
- the number of days between the first date of occurrence of each of the DSTPS item and date of death.

Results

A total of 285 patients were included in the study (217 with cancer). Median age: 82. Median survival: 8 days.

Most observed DSTPS item were: severe decrease of consciousness and complete cessation of oral intake. Longest survival probability: totally bedbound (4 days) and agitation, hallucinations (3.5 days).

ROC curves for both PPS and PPI scores showed a high accuracy in predicting survival at each timepoint and in both cancer and non-cancer patients admitted to a palliative care residence.

Possible additional cutoff PPI scores for short-term survival prediction:

- PPI score ≥ 8 : survival < 2 weeks.
- PPI score ≥ 10 : survival < 1 week.

Results

Table 1. Patients baseline characteristics

Characteristics	Cancer		Non-Cancer		Total	
	Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)
Age (years)	80 (68-87)	90 (80-94)	82 (70-89)			
Time to death from admission (days)	9 (3-24)	6 (2-12)	8 (3-19)			
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Total	217 (76%)	68 (24%)	285 (100%)			
Male	94 (43%)	30 (44%)	124 (44%)			
Female	123 (57%)	38 (56%)	161 (56%)			
Most frequent cancer types						
Lungs/bronchi	45 (21%)	0 (0%)	45 (16%)			
Breast	21 (10%)	0 (0%)	21 (7%)			
Gastro-intestinal	65 (30%)	0 (0%)	65 (23%)			
Genito-urinary	35 (16%)	0 (0%)	35 (12%)			
Cancer metastases	177 (82%)	0 (0%)	177 (62%)			

Table 2. Time to death from new occurrence of DSTPS (total population)

DSTPS	N	Event	Median	(IQR)
Complete cessation of oral intake	215	213	2	(1.0, 3.0)
Totally bedbound	134	130	4	(2.0, 8.0)
Agitation and/or hallucinations	122	120	3,5	(1.0, 7.0)
Severe decrease of level of consciousness	227	225	1	(0.5, 2.0)
Presence of rattling	183	181	1	(0.5, 2.0)
Mottled skin	156	155	1	(0.5, 2.0)
Occurrence of end-of-life apnea	167	165	1	(0.5, 3.0)

Conclusions

1. The median time to death is less than 1 week after occurrence of any DSTPS item.
2. The PPS and PPI scores could be reliably used to predict survival less than 1 and 2 weeks for both cancer and non-cancer patients in a palliative care residence.
3. These results can be very useful to health professionals for predicting short-term survival and communicating prognosis with more confidence when patients are approaching death.

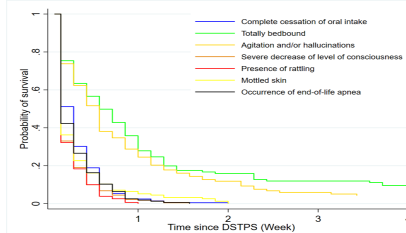


Fig 1. Survival probability from date of new occurrence of DSTPS

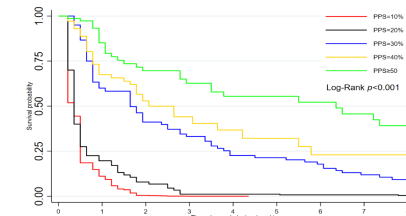


Fig 2. Survival probability from admission by PPS scores

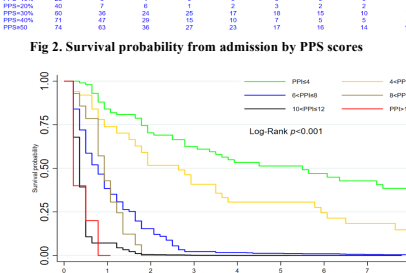


Fig 3. Survival probability from admission by PPI scores

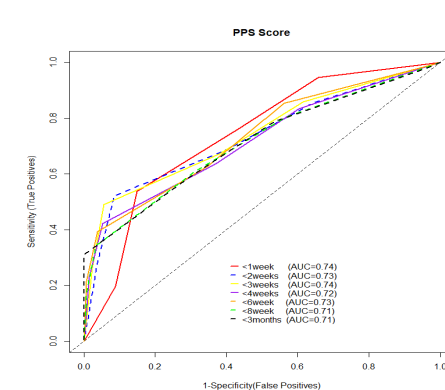


Fig 4. ROC time-varying predictive value of PPS scores (risk of death by time points)

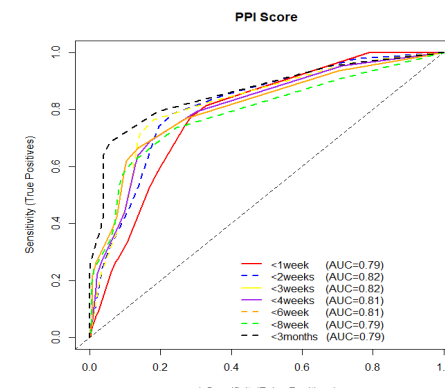


Fig 5. ROC time-varying predictive value of PPI scores (risk of death by time points)

This project received REB approval