

INTRODUCTION

- Expected survival of patients with incurable cancer impacts recommendations for treatment, research eligibility, and future planning (1).
- Complex needs of patients with advanced disease are increasingly supported by clinicians within multidisciplinary teams (2), although little is known about how different disciplines estimate survival (3-4).
- Our objective was to evaluate the prognostication ability of multidisciplinary team members experienced in providing Palliative and Supportive Care and palliative radiotherapy.

METHODS

- We evaluated the prognostication ability of clinicians from multiple disciplines providing specialist Palliative Care (PC) or palliative radiotherapy (PRT) at a tertiary cancer centre in Canada.
- After usual clinical assessment of consecutive patients with any primary histology, clinical predictions of survival (CPS) were independently, anonymously and prospectively made by each health care provider (HCP).
- No CPS was made solely based on medical record review.
- Clinical characteristics including Palliative Performance Scale (PPS), and description of factors influencing predictions were collected.
- CPS were correct if within 30 days or 30% of actual survival (AS).
- Actual survival was measured from the date of clinic visit.
- Summary statistics were calculated.

RESULTS
Table 1. Characteristics of unique patients

	All (N=944)	Palliative Radiation Oncology (N=705)	Specialist Palliative Care (N=239)
Age (median, SD)	65.1 ± 12	66.6 ± 11.9	60.9 ± 12.3
Male %	56.1%	61.0%	50.2%
Received PRT		88.1%	0%
Primary Site			
Lung	36.9%	40.7%	25.5%
Genitourinary	28.1%	33.6%	11.7%
Gastrointestinal	11.7%	7.7%	23.4%
Breast	10.8%	9.2%	15.5%
Primary Unknown	3.9%	4.7%	1.7%
Gynecological	3.3%	2.6%	5.4%
Hematological	1.5%	0.1%	5.4%
Melanoma	1.5%	0.6%	2.5%
Head and Neck	1.4%	0.3%	4.6%
Sarcoma	1.0%	0.3%	2.9%
Endocrine	0.5%	0.3%	1.3%

RESULTS

- Clinicians within a Palliative Care or specialized PRT clinic assessed 980 patients during 1130 clinic visits (2010-2014).
- 944 patients have died (96.3%) and comprise this cohort (Table 1).
- For the 744 clinic visits where available, median PPS was 60%.
- Eleven disciplines - including trainees - provided 2776 total predictions.

Discipline	Number of predictions	Survival	
		Actual, Days [95%CI]	Predicted, Days [95%CI]
PRT Clinic			
Radiation Oncologist	812	125 [112-138]	180 [175-185] **
Radiation Therapist	593	115 [102-128]	180 [167-193] **
Registered Nurse	132	111 [61-161]	180 [154-206] **
Pharmacist	390	152 [130-174]	365 [346-384] **
Nurse Practitioner	214	154 [127-181]	180 [172-188] **
Allied Health [^]	66	114 [91-137]	210 [157-263] **
Resident	112	111 [85-137]	195 [167-223] **
Medical Student	50	116 [85-147]	180 [150-210] **
PC Clinic			
PC Physician	234	91 [77-105]	120 [108-132] **
PC RN	149	93 [73-113]	150 [120-180] **
PC Fellow	24	143 [93-191]	180 [132-228] *
Total	2776	122 [115-129]	180 [178-181]

*P<0.05, **p<0.01, predicted is greater than actual, Log Rank test.

[^]Allied Health disciplines included dietitian, occupational therapist, physical therapist and respiratory therapist.

Table 2. Survival predictions by discipline.

Discipline	Number of predictions	Accuracy		
		Incorrect % (Under-Predicted)	Correct %	Incorrect % (Over-Predicted)
PRT Clinic				
Radiation Oncologist	812	20.2	32.0 ^a	47.8
Radiation Therapist	593	26.0	30.7 ^a	43.3
Registered Nurse	132	25.8	31.1 ^{ab}	43.2
Pharmacist	390	21.3	21.3 ^c	57.4
Nurse Practitioner	214	25.2	29.9 ^a	44.9
Allied Health	66	18.2	22.7 ^{bc}	59.1
Resident	112	17.0	27.7 ^{bc}	55.4
Medical Student	50	18.0	28.0 ^{abcd}	54.0
PC Clinic				
PC Physician	234	21.4	40.6 ^{bd}	38.0
PC RN	149	20.1	43.0 ^d	36.9
PC Fellow	24	25.0	16.7 ^{bc}	58.3
Total	2776	19.4	30.7	47.1

Table 3. Accuracy of CPS by assessor.

RESULTS

- Median actual survival of the entire cohort was 122 days (95% CI 115–129 days).
- CPS was significantly longer than actual survival overall and by discipline (Table 2).
- The proportion difference between CPS and actual survival ranged from +17% to +140% (average +47.5%).
- Overall, 30.7% of predictions were correct with a range of 20.1-40.6% (Table 2).
- Incorrect CPS was more often over-prediction (47.1%) than under-prediction (19.4%).
- Median number of days that CPS exceeded actual survival varied by discipline: range 47d (95%CI 39-55d) for Palliative MD to 161d (96%CI 135-187d) for Pharmacists.
- Differential accuracy between disciplines persisted after adjustment for primary tumor site, patient sex and duration of actual survival.
- Factors underpinning CPS also varied by discipline (Figure 1).
- Interestingly, factors utilized within each assessor group did not differ between correct or incorrect predictions.

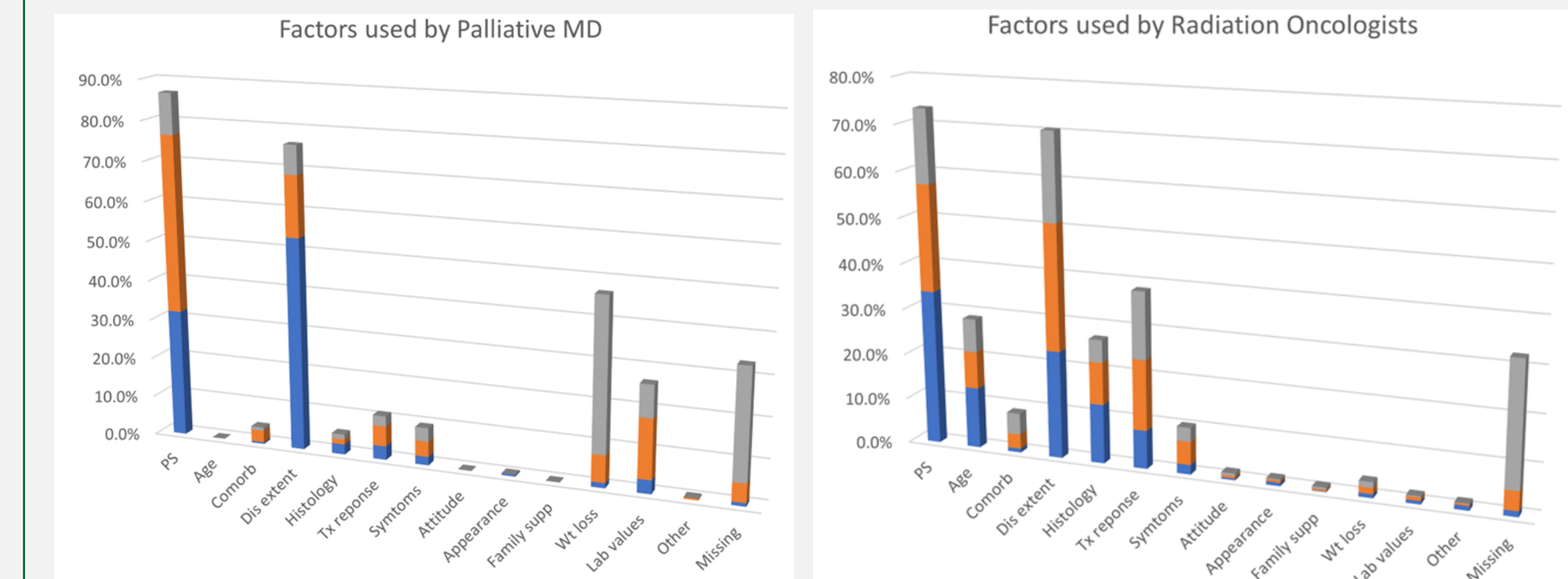


Figure 1. Three primary factors used in CPS by Palliative Care and Radiation Oncology physicians: factor 1 = blue; factor 2 = orange; factor 3 = gray.

CONCLUSIONS

- All disciplines' clinical predictions of survival exceeded actual survival.
- Palliative Care Physicians and RNs were the most accurate while Pharmacists and Allied HCP were correct least often and over-predicted to the largest degree.

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