



Electronic Patient Reported Outcome Measures in Head & Neck Cancer

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Introduction

- Significance of Problem:** Patients with head and neck cancer (HNC) have among the poorest health related quality of life scores when compared across 12 cancer disease sites and these patients report the most severe pain and physical function symptoms.¹
- Intervention Proposed to Address Problem:** Symptom monitoring before, during, and after oncologic treatment is imperative to ensure best patient care and long-term treatment outcomes.

Framework for PROs utility in clinical care

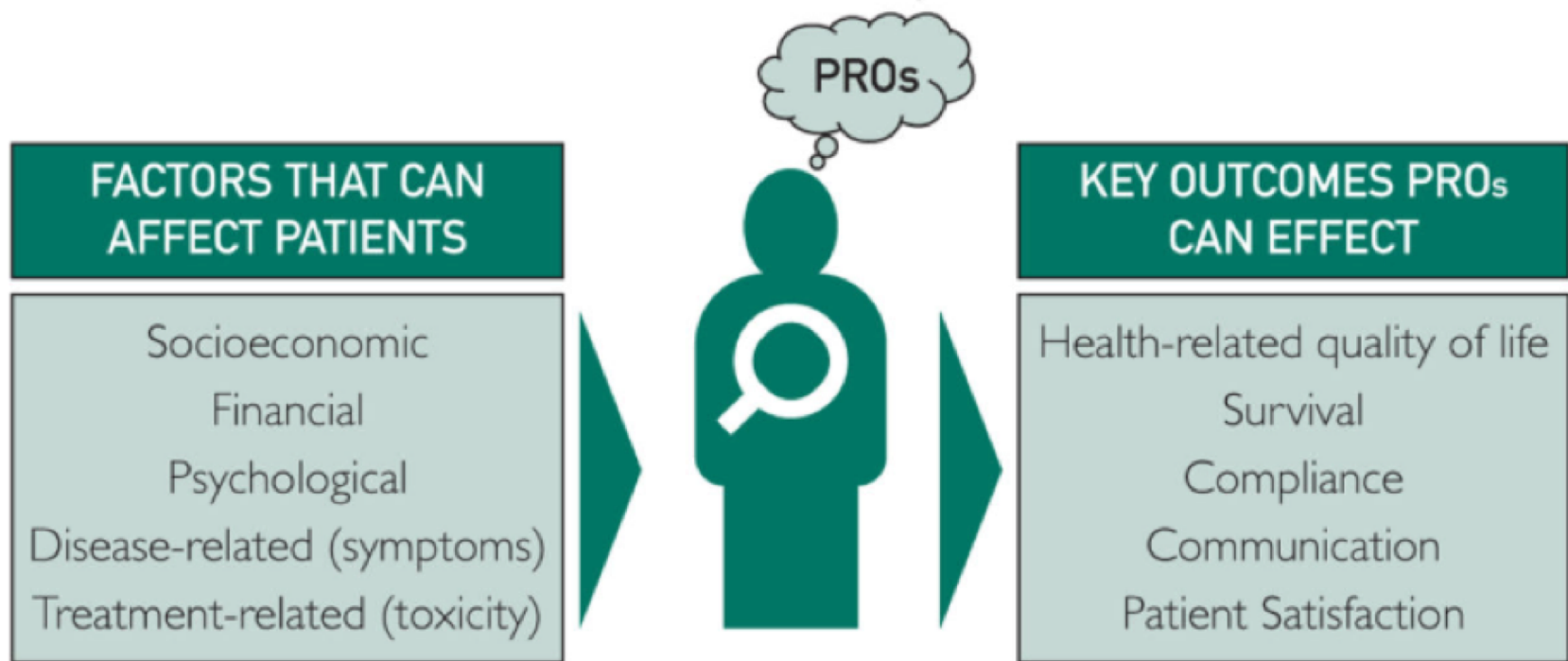


Figure 1. PROs Utility in Clinical Care adapted from Warsame R, D'Souza A (2019). Patient Reported Outcomes Have Arrived: A Practical Overview for Clinicians in Using Patient Reported Outcomes in Oncology. Mayo Clin Proc.

- Why:** Traditionally, clinical assessments rely on physician generated assessments. However, these assessments correlate poorly with electronic patient-reported outcome measures (ePROMs).¹
- Outcome driven data:** Implementation of ePROMs alone in the clinical trial setting has improved length of systemic treatment and overall survival, decreased acute care visits and emergency department visits, and improved patient-reported quality of life in patients with metastatic breast, genitourinary, gynecologic, and lung cancers.
- Study Purpose:** The purpose of this study is to describe the pragmatic implementation of ePROMs in a multidisciplinary Head and Neck cancer practice.

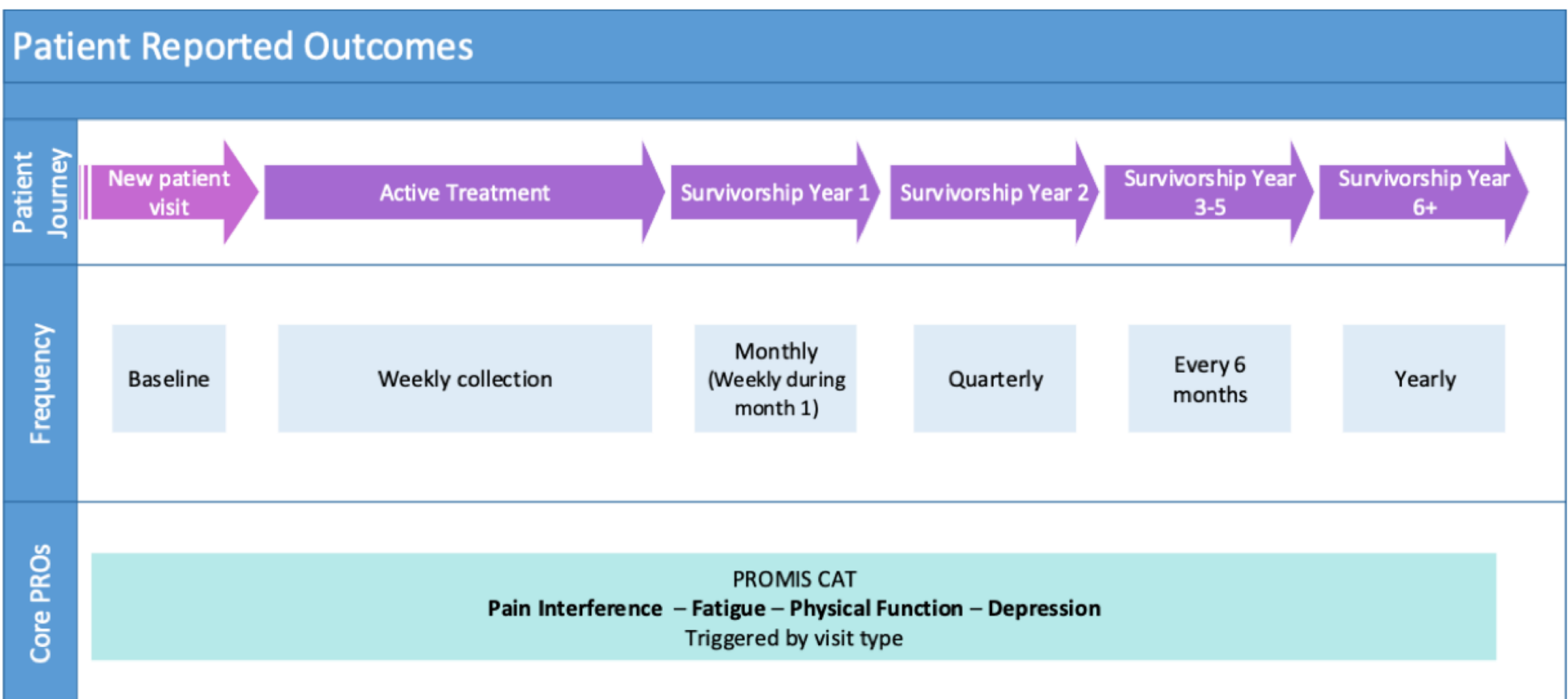


Figure 2. System-Wide ePROMs Implementation Protocol

References:

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Materials and Methods

- Implementation of ePROMs began in September 2020 in all multidisciplinary head and neck surgical/medical/radiation oncology clinics.
- ePROMs utilized 4 core oncology domains using the National Institute of Health's validated and standardized Patient-Reported Outcomes Measurement Information System (PROMIS):
 - Fatigue
 - Physical Function
 - Depression
 - Pain interference
- Questionnaires were administered prior to patient appointments via secure email within the EMR or an iPad that was provided to the patients at the time of check-in, should the questionnaires be incomplete before each visit.
- Questionnaire results are tabulated as t-scores and then immediately uploaded to EMR so it can be integrated into the clinic flow and are available for clinicians to act on during their encounter.
- For patients with HNC and ePROMs data, demographic and disease characteristic data were collected.
- Descriptive statistics were calculated. T-tests, one-way ANOVA, and univariate linear regression were used to make comparisons in ePROMs within the cohort.

Results

- Physical function scores were the only subscale to vary significantly within the cohort.
- Patients scored 0.22 points less on the physical function subscale with each year of increasing age (p=0.004).
- Patients with oropharyngeal primaries had significantly higher physical function scores (mean=48.7, 95% CI=44.9-52.5) compared to patients with laryngeal primaries (mean=39.7, 95% CI=35.8-43.5, p=0.003).

Discussion

- Physical function was significantly worse for older patients and those with laryngeal primaries. There were no significant differences in fatigue, pain interference, and depression scores with patients with HNC.
- Our institution's ePROMs initiative was a pragmatic application of ePROMs in a clinical setting, integrated to the clinic workflow such that scores are actionable at the time of visits. This involves a system-wide, multiple disease application, thus the PROMIS was chosen for use as it is not specific for disease site. We believe our data will be applicable to other cancer disease sites as well.
- Previously research has found that patient outcomes vary according to race, gender, insurance status, and socioeconomic background as communication breakdowns result in poorer adherence to treatment, poorer health outcomes, and patient dissatisfaction.²

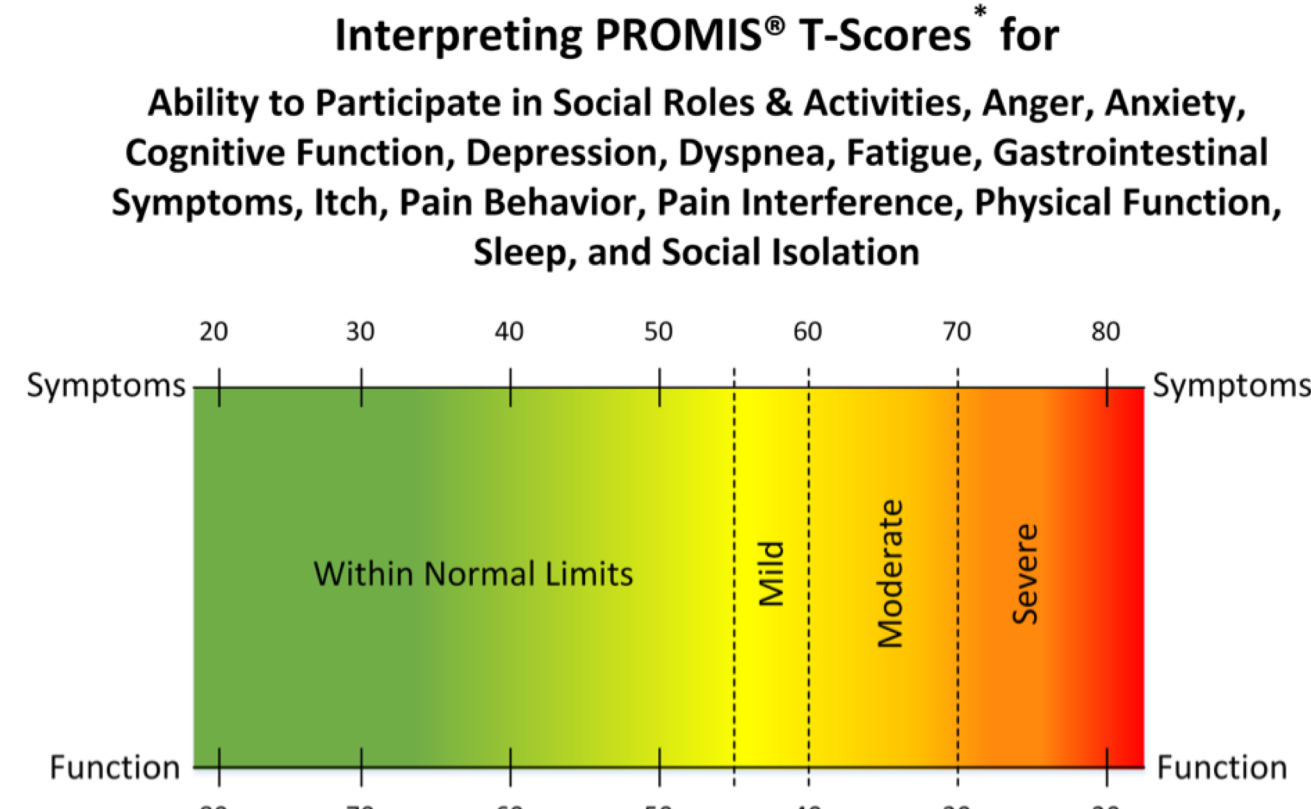


Figure 3. PROMIS Composite Score Interpretation.

- Study Limitations:** Not capturing data for all patients with HNC. Higher symptom burden or lower socioeconomic status may make patient more likely to not complete ePROMs. There is also no indicator of whether or not physicians addressed issues reported by the patient in ePROMs.
- Future Directions:** Our study identifies demographics of this cohort, which will serve as a launching pad to increase implementation throughout our HN group and also broadly throughout different cancer disease sites.

Conclusion

- ePROMs can be successfully implemented as a part of a routine multidisciplinary head and neck cancer practice with efficient integration of real-time patient-driven data into the clinic workflow. ePROMs have previously been shown to use patient-generated data to allow for timely intervention and may improve quality of life, patient satisfaction, and overall survival.
- In patients with head and neck cancer those who were older and those with laryngeal primaries reported worse physical function-related quality of life.

Patient and Disease/Treatment Characteristics	
Sample Size (N)	106 patients
Median Age	61 years old (range 25-84 years)
Male (N)	68 (64.2%)
Female (N)	38 (35.8%)
White (N)	74 (67%)
African-American (N)	14 (13%)
Hispanic (N)	2 (2%)
Asian (N)	1 (1%)
Disease Site	
Oropharynx (N)	27 (23.3%)
Larynx (N)	24 (20.7%)
Oral Cavity (N)	23 (19.8%)
Disease Staging	
Stage 1	21 (23.33%)
Stage 2	16 (17.78%)
Stage 3	17 (18.89%)
Stage 4	42 (46.67%)
Treatment Modality	
Surgery	14 (13%)
Surgery + Radiation Therapy	34 (32%)
Surgery + Radiation & Chemotherapy	28 (26%)
Radiation Therapy alone	8 (8%)
Radiation Therapy + Chemotherapy	21 (20%)
Chemotherapy alone	2 (2%)
ePROMs Average Scores	
Depression	51.35
Pain Interference	56.68
Fatigue	52.45
Physical Function	43.68

Table 1. Patient and Disease/Treatment Characteristics