

## **Doctor, how much time do I have? Accuracy of Clinician Predication of Survival for Patients with Advanced Cancer**

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**BACKGROUND:** Patients with advanced cancer and their family members often desire to know information about their prognosis. Studies have shown that the survival predictions made by health care professionals, in most cases by the physicians, are not accurate and have shown to be frequently optimistic. The aims of this study were to evaluate the clinical estimation of survival (ECS) made by physicians and to compare this accuracy with patients reported outcomes, physician's characteristics and clinical information.

**HYPOTHESIS:** Physicians' predictions are inaccurate, but some physician-related factors should be associated with a higher accuracy.

**METHODS:** This was a prospective observational study conducted at Barretos Cancer Hospital with medical oncology physicians (interns and faculty) who referred patients with advanced cancer to palliative care during this study. The physicians were invited to participate and asked to provide an estimation of the patients' survival when referred to palliative care in five categories: < 3 weeks, ≤ 3 and > 7 weeks, ≥ 7 and < 12 weeks, ≥ 12 and ≤ 24 weeks and > 24 weeks. The follow-up data was collected through medical records until the date of death or last evaluation in the study. We evaluated the underestimation rate (i.e. number of patients who lived longer than the physician's expectation divided by all of the patients in this study) and the overestimation rate (i.e. number of patients who lived less than the physician's expectation divided by all of the cases included in this study). Furthermore, the following information from physicians were collected: age, clinical experience, number of prior consultations with the same patient, time since specialization in oncology; from patients: site of the primary cancer, cachexia, pain, fatigue, depression, liver metastasis, lung metastasis, brain metastasis, age, nutritional intake and Karnofsky Performance Status (KPS). Weighted kappa was used to measure agreement rate. Additionally, we calculated the univariate and multivariate logistic regression to evaluate factors associated with a higher chance of correct prediction.

**RESULTS:** The Kappa statistic was fair (0.35, 95%CI: 0.27 to 0.42) between ECS given by physicians versus actual survival time. The underestimation rate was 35.1% and the overestimation rate was 32.8%. No physician characteristic (age, clinical experience, time since specialization in oncology, number of prior consultations) was associated with more accurate predictions. Only two variables were associated with more correct prediction in multivariate analysis: primary tumor type classified as "other" (OR= 0.24, p=0.026) and poor nutritional intake (OR=2.21, p=0.005).

**CONCLUSIONS:** We concluded that the clinical estimation given by physicians is not sufficiently accurate to predict survival for outpatients with advanced cancer. Prognostic tools are needed to assist physicians in providing more accurate life expectancy in patients with advanced cancer who have been referred to palliative care.