

# **Development of Prognosis in Palliative care Study (PiPS) predictor models to improve prognostication in advanced cancer: prospective cohort study**

**Presented By: Dr. Magali Benard, September 7, 2011**

**Reference** *BMJ* 2011;343:d4920

## **Abstract**

**Objective** To develop a novel prognostic indicator for use in patients with advanced cancer that is significantly better than clinicians' estimates of survival.

**Design** Prospective multicentre observational cohort study.

**Setting** 18 palliative care services in the UK (including hospices, hospital support teams, and community teams).

**Participants** 1018 patients with locally advanced or metastatic cancer, no longer being treated for cancer, and recently referred to palliative care services.

**Main outcome measures** Performance of a composite model to predict whether patients were likely to survive for "days" (0-13 days), "weeks" (14-55 days), or "months+" (>55 days), compared with actual survival and clinicians' predictions.

**Results** On multivariate analysis, 11 core variables (pulse rate, general health status, mental test score, performance status, presence of anorexia, presence of any site of metastatic disease, presence of liver metastases, C reactive protein, white blood count, platelet count, and urea) independently predicted both two week and two month survival. Four variables had prognostic significance only for two week survival (dyspnoea, dysphagia, bone metastases, and alanine transaminase), and eight variables had prognostic significance only for two month survival (primary breast cancer, male genital cancer, tiredness, loss of weight, lymphocyte count, neutrophil count, alkaline phosphatase, and albumin). Separate prognostic models were created for patients without (PiPS-A) or with (PiPS-B) blood results. The area under the curve for all models varied between 0.79 and 0.86. Absolute agreement between actual survival and PiPS predictions was 57.3% (after correction for over-optimism). The median survival across the PiPS-A categories was 5, 33, and 92 days and survival across PiPS-B categories was 7, 32, and 100.5 days. All models performed as well as, or better than, clinicians' estimates of survival.

**Conclusions** In patients with advanced cancer no longer being treated, a combination of clinical and laboratory variables can reliably predict two week and two month survival.

### **Study Strengths**

- Large number of study patients (1018)
- Wide range of palliative care services multi center study
- Prognostic models independent of clinician prediction of survival
- 2 Models available for assessment for with or without blood work
- Applicable for competent and incompetent patients

### **Study Weaknesses**

- Only cancer patients involved
- Did not define their global health status 7 point scale that is used in the assessment
- Patient self-report of symptoms was not done, a researcher completed a checklist
- Used the abbreviated mental test instead of the MMSE
- Referred to the palliative prognostic score for which they criticised the requirement of a clinician's prediction of survival but failed to look at the palliative performance scale
- Needs External Validation

### **Relevance to Palliative Care**

Prognostication of survival is important to patients because having an idea as to the length of time left may help them make end of life decisions whether they be practical or spiritual. It is also helpful to the family so that they may choose to spend special time together, discuss estate management and plan funeral arrangements. Furthermore, survival time is also beneficial to the patient, family, and clinical staff as it can help with referral to specialized palliative care services or to services like hospice.