

FAST FACTS AND CONCEPTS #30
PROGNOSTICATION

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Doctors are poor prognosticators

Physicians tend to be overly optimistic when dealing with prognosis. A study by Christakis illustrates this point (1). He asked 343 physicians to provide survival estimates for 468 terminally ill patients at the time of hospice referral. Only 20% of predictions were accurate (as defined as within 33% of actual survival). Overall, doctors overestimated by a factor of 5.3! Every type of doctor tended to overestimate, although the more experienced physicians had less error. Inaccurate predictions were given for all types of patients, including cancer patients and those with chronic non-malignant diseases. Interestingly, as the duration of the physician patient relationship increased, prognostic accuracy decreased. In other words, the longer a doctor knew his/her patient, the less likely he/she was to correctly predict prognosis.

Why does this matter?

Undue optimism may hurt patients in multiple ways. First of all, it may explain some of the findings of the SUPPORT trial (2). This study showed that a large number of do-not-resuscitate (DNR) orders are written in the last 2 days of life, and that physician knowledge about patient DNR preference is poor. Why review issues surrounding end-of-life (EOL) care when the prognosis is rosy? In the same vein, undue optimism may lead to late hospice referral. Hospice care, however, is most beneficial when utilized for months, not days, as commonly happens currently. Lastly, an overestimation of prognosis may cause patients to request futile care. Learning the true prognosis of a disease very late in the course is a difficult pill to swallow, and makes for an abrupt transition from curative/life-prolonging care to palliative care.

Appropriate prognostic information is essential for informed advance planning decisions. This is often acutely true in the setting of the 'DNR discussion.' Murphy showed that people change EOL care decisions based on their perception of prognosis (3). He asked 371 adults age 65 or older if they wanted CPR in case of arrest during an acute illness. Before learning the true probability of survival 41% wanted CPR. After learning the true probability of CPR, only 22% wanted it. If asked about CPR wishes in the setting of a life-limiting illness, in which overall life expectancy was less than one year, only 5% wanted CPR after knowing accurate information about outcomes.

What to do?

Many reasons have been put forward for why we overestimate prognosis (see Christakis' book *Death Foretold* [4]). Probably the most important step in correcting the problem is recognizing that it exists. Ask yourself, "Would I be surprised if my patient died in the next year?" Answering "no" should trigger a re-assessment of the patient's current state and immediate future. There are many scientifically derived models of patient survival probability that can be used, and there are many well recognized clinical predictors. Metastatic cancer has the most predictable course (see *Fast Fact* #13); assessing where a patient is along the dying trajectory is relatively easy. Other diseases such as COPD or CHF are more difficult to predict (see *Fast Facts* #141, 143). Each exacerbation can lead to remission (and future exacerbation) or death, and knowing which will occur on any given admission can be extremely challenging. This uncertainty, however, can be an excellent starting place for discussion with the patient; communicating that one of the possible outcomes of an exacerbation is death allows you both to plan accordingly.

Finally, you may want to consider a second opinion for patients you are particularly close to. Present the data objectively to a colleague and ask them to prognosticate using the information alone. Studies by Christakis and others suggest that impartial observers are more accurate than physicians well invested in the patient-physician relationship.

References:

1. Christakis NA, Lamont EB. Extent and Determinants of Error in Doctor's Prognoses in Terminally Ill Patients: Prospective Cohort Study. *BMJ*. 2000; 320:469-472
2. The SUPPORT Principal Investigators. A controlled trial to improve care for seriously ill hospitalized patients. The study to understand prognoses and preferences for outcomes and risks of treatments (SUPPORT). *JAMA*. 1995; 274:1591-1598.
3. Murphy DJ, et al. The Influence of the Probability of Survival on Patient's Preferences Regarding CPR. *NEJM*. 1994; 330:545-49.
4. Christakis NA. *Death Foretold : Prophecy and Prognosis in Medical Care*. Chicago, IL: Univ of Chicago Press; 2000. ISBN: 0226104702.
5. Lamont EB, Christakis NA. Complexities in prognostication in advanced cancer. *JAMA*. 2003; 290:98-104.
6. Lamont EB and Christakis NA. Prognostic disclosure to patients with cancer near the end of life. *Ann Int Med*. 2001; 134:1096-1105.

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