

# Prognostication in Chronic Disease

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## KEYWORDS

- Prognostication • Prognosis • Disease trajectories • Prognostic landmarks
- Frailty prognosis • Heart failure prognosis
- Chronic obstructive pulmonary disease prognosis • Depression prognosis

## HOSPITAL MEDICINE CLINICS CHECKLIST

1. Prognostication is a complex task and often avoided.
2. Most chronic diseases follow well-known trajectories.
3. The natural course of common chronic diseases yields straightforward clinical indicators regarding prognosis.
4. Landmark clinical milestones in chronic disease give clinicians specific prognostication cues to share with patients.
5. Published evidence supports that many chronic conditions (eg, dementia, chronic obstructive pulmonary disease, congestive heart failure) have well-defined, readily obtainable bedside landmarks predictive of 50% 1-year or 5-year mortality.
6. Approximating prognosis using bedside landmarks avoids time-intensive application of prognostic scoring systems.
7. Well-informed discussions about prognosis allow patients and their families time to process and plan for end-of-life care choices.
8. Appropriate end-of-life planning improves the quality of patient care.

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## INTRODUCTION

### 1. What makes prognostication so difficult?

Providing a prognosis is a difficult and unpleasant part of medicine. Physicians often avoid the emotional burden of contemplating and discussing mortality with patients and families. When attempting to provide an objective perspective on prognosis, physicians are biased, based on their own clinical experience and relative familiarity with specific diseases. Further, unrealistic patient expectations and previous prognostic inaccuracy compound prognostic uncertainty. As a result, prognostication is an imperfect science, and multiple factors contribute to the inability to accurately predict the time of death. A serial study revealed that physicians routinely overestimate survival by 2-fold to 5-fold.<sup>1</sup> Although prediction tools abound for many diseases, the complexity of individual patients and the tools themselves limit their widespread acceptance and use. Also, the physician's reluctance to discuss prognosis centers on a perceived discomfort with a felt need to be specific.<sup>2</sup>

### 2. Aside from formal scoring models, are there bedside prognostic indicators?

Rather than review a set of complex predictive models to prognosticate down to a specific number of days, we propose a set of simple clinical landmarks that predict mortality in a more applicable and clinically useful way. First, defining the natural course of the patient's problem for the patient from one of a few classic disease trajectories provides clinicians with the opportunity to discuss patient values and treatment goals in a nonthreatening manner. Once the classic disease trajectory has been explained to the patient, we propose that prognostic discussions are facilitated by defining for the patient a period of time that correlates with 50% mortality. This strategy helps the patient anticipate the expected natural course of their disease, and the psychological buffer of a half-way point to the end of life can provide the clinician with a safe introductory statement. Ideally, a 5-year focus eliminates many of the self-imposed physician barriers about accuracy. The tasks of assigning disease trajectories and identifying landmark prognostic indicators opens the door for further discussions with patients, providers, and family regarding end-of-life care.

## CLASSIC DISEASE TRAJECTORIES

### 1. Are there characteristic patterns of decline?

Studies to identify patterns of decline in terminal illness have revealed 3 classic illness trajectories (**Fig. 1**):

1. Short period of eventual decline
2. Long-term limitations with intermittent serious episodes
3. Prolonged dwindling<sup>3</sup>

These trajectories can be alternatively labeled rapid decline, stepwise decline, and steady decline.

### 2. Which diseases follow a rapid decline trajectory?

Examples of conditions that follow a short period of eventual decline (ie, rapid decline) include most types of incurable cancer: a period of relatively normal functioning followed by a precipitous descent.

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