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Editorial

Signs of Death

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THE PAPER BY Teno et al.,[1] entitled "Dying Trajectory in the Last Year of Life: Does Cancer Trajectory Fit Other Diseases?" in this issue of *Journal of Palliative Medicine* (pp. xx–xx) provides (at least) two answers, and asks (at least) two more questions.

The first answer this paper provides is to the following question: "Are cancer patients different from other patients in their last year of life?" This has been routinely supposed and asserted.[2] But here we have clear evidence. The average person who will die of cancer is doing much better than the average person who will die of congestive heart failure (CHF) 12 months before death; this is still true even 6 months before death. But, thereafter, those who will die of cancer begin a substantial decline in function, so that in the last month before death, they are worse off than those who will die of CHF, diabetes, chronic obstructive pulmonary disease (COPD), and stroke. This is what many suspected; but, given how often our anecdote-based intuitions are wrong, it is worth emphasis when the data actually bear them out.

The paper also provides evidence on a related but distinct question, namely, "Who uses hospice?" This has been extensively explored with attention to diagnostic, demographic, and institutional factors.[3–5] This paper provides intriguing evidence that functional decline appears to be associated with both at-home death and hospice involvement during the dying process. Now, certainly the multivariate models will need to be evaluated in future work, but here the authors show that while only 20% of those without a functional decline in the last 5 months of life die at home, 40% of those with severe functional decline die at home. And barely 6% of those with no functional decline have hospice help, contrasting to almost 30% among those with severe functional decline. This is quite intriguing.

Those were the answers the paper provides. What are the questions? Teno et al.[1] suggest that there are two distinct processes that need to come together to lead to an at-home death with hospice involvement. The first is that a patient's physician must recognize that the patient is terminal. The second is that the patient, and his or her family, must come to believe that the patient is dying, and so become open to the receipt of palliative care. How do these two things happen? As the authors recognize, this study cannot provide definitive explanations.

On the first question—how physicians come to recognize a patient as terminal—we have some prior work to help guide our thinking. We know that physicians disagree significantly as to what it means to be terminal.[6] We know that physicians are deeply reluctant to formulate such prognoses.[7] We know that the prognoses they do formulate at the end-of-life are typically quite inaccurate,[8,9] and this may lead to the use of hospice for much briefer durations than the physicians themselves see as optimal.[4,10] But, as Teno et al. cite, the science of prognosis is underdeveloped, and the study of the particular dynamic processes that physicians use in the absence of good evidence is also quite young.

How do patients come to see themselves as dying? Here, too, we have little evidence beyond the classic work by Kubler-Ross[11] and Glaser and Strauss.[12] Others have shown that where patients die is clearly influenced by their perception of their prognoses[13] and their openness about dying.[14] But we do not know much about what sources of information patients rely on in order to decide if they are terminal. Given the research

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just mentioned, it seems unlikely that physicians are the primary source on which patients rely.[15,16] Understanding patients' experiences would be an important complement to the objective evidence as to what predicts death. It may be easier to teach our patients new approaches if we can keep in mind what they will use in the absence of good information.

Thus, Teno et al.[1] make a valuable contribution to our body of knowledge about the dying process, and about the process by which hospice care is used. This provides a foundation on which we can further the science of prognosis, as well as examine the ways in which the practice of good prognosis-formation can be advanced among both physicians and patients.

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