

Journal Watch

Patterns of functional decline at the end of life.

Lunney JR, Lynn J, Foley D, et al. *JAMA* 2003; 289(18):2387-2392.

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Abstract:

Context: Clinicians have observed various patterns of functional decline at the end of life, but few empirical data have tested these patterns in large populations.

Objective: To determine if functional decline differs among 4 types of illness trajectories: sudden death, cancer death, death from organ failure, and frailty.

Design, Setting, and Participants: Cohort analysis of data from 4 US regions in the prospective, longitudinal Established Populations for Epidemiologic Studies of the Elderly (EPESE) study. Of the 14456 participants aged 65 years or older who provided interviews at baseline (1981-1987), 4871 died during the first 6 years of follow-up; 4190 (86%) of these provided interviews within 1 year before dying. These decedents were evenly distributed in 12 cohorts based on the number of months between the final interview and death.

Main Outcome Measures: Self- or proxy-reported physical function (performance of 7 activities of daily living (ADLs) within 1 year prior to death; predicted ADL dependency prior to death.

Results: Mean function declined across the 12 cohorts, simulating individual decline in the final year of life. Sudden death decedents were highly functional even in the last month before death (mean [95% confidence interval {CI}] numbers of ADL dependencies: 0.69 [0.19-1.19] at 12 months before death vs 1.22 [0.59-1.85] at the final month of life, $P = .20$); cancer decedents were highly functional early in their final year but markedly more disabled 3 months prior to death (0.77 [0.30-1.24] vs 4.09 [3.37-4.81], $P < .001$); organ failure decedents experienced a fluctuating pattern of decline, with substantially poorer function during the last 3 months before death (2.10 [1.49-2.70] vs 3.66 [2.94-4.38], $P < .001$); and frail decedents were relatively more disabled in the final year and especially dependent during the last month (2.92 [2.24-3.60] vs 5.84 [5.33-6.35], $P < .001$). After controlling for age, sex, race, education, marital status, interval between final interview and death, and other demographic differences, frail decedents were more than 8 times more likely than sudden death decedents to be ADL dependent (OR, 8.32 [95% CI, 6.46-10.73]; cancer decedents, one and a half times more likely (OR, 1.57 [95% CI, 1.25-1.96]); and organ failure decedents, 3 times more likely (OR, 3.00 [95% CI, 2.39-3.77]).

Conclusions: Trajectories of functional decline at the end of life are quite variable. Differentiating among expected trajectories and related needs would help shape tailored strategies and better programs of care prior to death.

Comments:

Strengths/uniqueness:

A large patient cohort was used to provide useful information demonstrating the different potential trajectory of decline in varying disease states.

Weaknesses:

The data set used was limited to patients over age 65, which excludes a large component of cancer patients and may not be sufficiently representative of all diseases, e.g. cardiac. As noted by the authors the study design relies on means of cohort subsets for monthly intervals and cannot follow individual decline.

Relevance to Palliative Care:

The variation in functional decline across different diseases emphasizes the difficulty in providing care in a funding model that requires more certainty in prognosis estimation. This has limited hospice/palliative care mainly to cancer populations. The development of end-of-life care services to these varying patients is an ongoing challenge.