Functional Transitions among the Elderly: Patterns, Predictors, and Related Hospital Use

ABSTRACT

Objectives. This paper describes 6-year rates and correlates of functional change in the elderly, as well as associated hospital use.

Methods. The Longitudinal Study on Aging (n = 7527) and matched Medicare claims were used to calculate 6-year functional status transition rates and hospital use rates. A hierarchical measure that incorporated activities of daily living, instrumental activities of daily living, and competing risks of institutionalization and death was used to assess functional status. Multinomial logistic regression was used to predict 1990 status.

Results. The functional status of 12% of men and women 70 to 79 years of age who were initially impaired in instrumental activities of daily living improved, and about half of the initially independent people in that age group remained so. Multivariate analyses revealed that age, baseline functioning, self-rated health, and comorbidity predicted 1990 status. Both baseline functioning and functional change were related to hospitalization.

Conclusions. This study supports others that have shown some long-term functional improvement, but more commonly decline, in the elderly. Furthermore, it documents the link between functional decline and increased hospital use. (*Am J Public Health.* 1994;84:1274–1280)

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Introduction

The ability to perform routine daily tasks is an important aspect of quality of life. In general, this ability declines with age.[1,2] In 1985, an estimated 5 million community-dwelling elderly people experienced a functional impairment lasting 90 days or longer; an additional 1.3 million were institutionalized.[3] Physically disabled elderly people face an elevated risk of institutionalization and death.[4]

Disability in the elderly is not always permanent; some experience a return of lost functional capacity.[2,5–8] One purpose of this study was to examine change in functional status in Longitudinal Study on Aging participants. Although several previous studies have examined disability transitions using Longitudinal Study on Aging data,[4,6,9–13] they have used shorter time periods, been confined to subpopulations, examined a limited definition of functioning, or ignored the competing risks of death or institutionalization.

A second purpose of this study was to identify predictors of functional change in the elderly, focusing on age, gender, and self-reported health. Some evidence suggests that age decreases the likelihood of regaining lost functional ability.[2] Most, but not all, of the available data indicate a higher prevalence of disability among women than men,[1–3,14] although research concerning gender differences in the incidence of disability is inconclusive.[2,8,10,15] Positive health perceptions have been associated with a lowered risk of institutionalization, mortality, and functional decline,[7,15–18] and these associations are independent of more objective health indicators.

Little is known about the relationship between functional change and hospital use. Disability levels are positively associated with number of physician visits, length of hospital stay, use of home health services, and likelihood of both hospitalization and institutionalization.[12,19–23] However, it is not clear whether use is a function of disability per se or the process of functional decline. Thus, our third purpose was to assess the relationship between functional change and hospital use and costs.

Methods

Sample

This paper is based on (1) the Longitudinal Study on Aging person-level interview files, (2) Medicare claims files, and (3) a match of Medicare hospital claims with the National Death Index. The Longitudinal Study on Aging uses baseline data from the 1984 National Health Interview Survey (NHIS) Supplement on Aging, which involved the collection of health and social data on NHIS participants 55 years of age and older. The Longitudinal Study on Aging includes 7527 Supplement on Aging participants 70 years old or older who were still living in their respective communities in 1984. These participants were reinterviewed in 1986, 1988, and 1990. A complete description of the Longitudinal Study of Aging has been published previously.[24,25]

SUDAAN Version 6.0[26] was used in weighting and adjusting the sample for

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the complex sampling design. All analyses, except where otherwise noted, involved the weighted and adjusted sample.

Measures

Health. Comorbid conditions were assessed by counting the number of serious medical problems reported by the respondent from a list of 13 conditions (e.g., stroke, broken hip, cancer). Self-rated health was assessed by the following standard NHIS question: "Would you say your health in general is excellent, very good, good, fair, or poor?" Response categories were recoded as excellent/very good, good, and fair/poor/don't know (there were some 40 "don't know" cases). "Don't know" responses were included in the latter category because previous research[27] has shown that such responses are associated with an elevated mortality risk comparable to that associated with fair self-rated health.

Functional status. Activities of daily living and instrumental activities of daily living items were used in assessing functional status. Item selection was based on preliminary analyses designed to identify the items that best predicted functional decline and mortality.[10,17] The activities of daily living items assessed respondents' ability to toilet, dress, bathe, transfer, eat, and walk. The instrumental activities of daily living items measured the ability of respondents to prepare meals, shop for personal items, and do light housework. Respondents were asked whether they had difficulty performing each activity, how much difficulty they had, and whether they received help from another person. Respondents who were "unable" or "receiving help" were classified as unable and compared with those who reported being able to perform each activity independently.

Correlations between activities of daily living and instrumental activities of daily living items are high enough to suggest that they measure a single domain, with impairment in activities of daily living more severe than impairment in instrumental activities of daily living.[22] Therefore, we constructed a hierarchical scale in which individuals were classified as (1) independent (able in all activities), (2) impaired in instrumental activities of daily living only (unable in one or more such activities), (3) moderately impaired in activities of daily living (unable in one to two such activities, irrespective of ability in instrumental activities of daily living), or (4) severely impaired in activities of daily living (unable in three or more such activities, irrespective of ability in instrumental activities of daily living). As a result of missing 1984 functional status data, 120 cases were dropped from all analyses. Several categories were added to the 1990 status outcome: institutionalized at the time of the 1990 reinterview attempt, dead, and missing. The dependent variable included a "missing" category to control for the known bias that nonresponse is correlated with disability.[28]

TABLE 1—Characteristics of Study Participants at 1984 Baseline

	Functional Status Data Available (n = 7407), %	Use Data Missing (n = 1406), %	Use Data Available (n = 6001), %	P[a]
Gender				<.01
Male	38.7	24.7	42.0	
Female	61.3	75.3	58.0	
Age, y				<.01
70–74	41.6	35.8	43.0	
75–79	30.6	29.3	31.0	
80–84	16.8	18.6	16.4	
85–99	10.9	16.3	9.6	
Race				NS
White	90.6	89.2	90.9	
Other	9.4	10.8	9.1	
Marital status				<.01
Married	48.2	41.0	49.9	
Never married	4.6	2.6	5.1	
Other	47.2	56.4	45.0	
Living arrangement				=.01
With others	63.8	60.2	64.6	
Alone	36.2	39.8	35.4	
Self-rated health				<.01
Excellent/very good	35.7	31.8	36.6	
Good	30.8	30.2	31.0	
Fair/poor/don't know	33.5	38.0	32.5	
Functional status				<.01
Independent	81.5	73.4	83.4	
IADL disabled	6.6	9.4	5.9	
Moderately ADL disabled	7.3	8.8	7.0	
Severely ADL disabled	4.6	8.5	3.6	

Note. IADL = instrumental activities of daily living; ADL = activities of daily living; NS = not significant.
[a]Use data available vs use data missing.

Institutionalization. To ascertain institutionalization at the time of the interview, we used the National Center for Health Statistics code indicating that subjects were not asked about receiving help with activities of daily living or instrumental activities of daily living because they resided in a nursing home. After those with missing 1984 functional status were eliminated, 262 people were residing in a nursing home at the 1990 interview.

Mortality. Mortality was based on National Death Index matching, verified by information obtained from attempts to conduct the next scheduled interview. When the National Death Index indicated that the respondent was deceased but respondent tracking information indicated that he or she was still alive, we assumed that the interview data were correct.

Hospital use. Medicare Part A and MEDPAR summary data were linked by year to Longitudinal Study on Aging participants who provided their health insurance claim number. We used the hospital claims data to determine the probability of hospitalization in each year and the associated Medicare reimbursement (standardized to 1990 dollars using the Medical Care Consumer Price Index). Respondents who were not matched on both Medicare A and B (n = 2045) or had no record of any Medicare A or B (n = 595) claims filed between 1984 and either 1990 or their death were dropped from the use analyses to avoid artificially deflating the numerator.

TABLE 2—Cross Tabulation of 1984 and 1990 Functional Status, Stratified by Age: Men

	1984 Status, %							
	No Disability		IADL Impairment Only		Moderate ADL Impairment		Severe ADL Impairment	
1990 Status	70–79 y (n = 1932)	80+ y (n = 489)	70–79 y (n = 64)	80+ y (n = 50)	70–79 y (n = 114)	80+ y (n = 67)	70–79 y (n = 54)	80+ y (n = 47)
No disability	48.5	22.4	12.4	0	7.0	2.7	6.9	0
IADL impairment only	3.3	3.3	12.1	5.5	5.5	3.5	0	0
Moderate ADL impairment	3.6	3.8	4.5	3.9	9.9	4.2	3.8	2.0
Severe ADL impairment	1.8	2.8	3.1	6.2	10.2	10.1	6.9	2.0
Institutionalized	1.8	3.3	2.9	2.5	4.1	5.7	6.1	0
Dead	27.4	52.7	47.6	72.3	55.5	66.7	69.3	92.3
Missing	13.6	11.8	17.4	9.6	7.8	7.0	7.1	3.6

Note. IADL = instrumental activities of daily living; ADL = activities of daily living.

TABLE 3—Cross Tabulation of 1984 and 1990 Functional Status, Stratified by Age: Women

	1984 Status, %							
	No Disability		IADL Impairment Only		Moderate ADL Impairment		Severe ADL Impairment	
1990 Status	70–79 y (n = 2735)	80+ y (n = 875)	70–79 y (n = 187)	80+ y (n = 190)	70–79 y (n = 167)	80+ y (n = 201)	70–79 y (n = 105)	80+ y (n = 130)
No disability	53.5	24.6	12.2	2.9	10.0	1.8	3.5	0
IADL impairment only	4.3	5.7	9.8	6.6	3.9	3.4	0	0.7
Moderate ADL impairment	5.7	9.3	11.1	9.0	14.1	7.7	6.2	0.7
Severe ADL impairment	2.3	4.6	5.5	6.0	11.9	8.3	18.1	6.0
Institutionalized	2.6	5.4	4.9	9.6	5.6	9.7	8.0	3.9
Dead	14.0	31.3	36.1	56.6	35.8	56.1	52.4	81.5
Missing	17.6	19.0	20.3	14.2	18.8	13.0	11.8	7.2

Note. IADL = instrumental activities of daily living; ADL = activities of daily living.

Analytic Approach

SUDAAN[26] was used to generate 6-year functional transition tables, stratified by age and sex, from the weighted data. The BMDP[29] multinomial logistic regression procedure was used in weighting the data; however, this procedure did not adjust for the complex sampling as a result of software limitations. The seven-category 1990 status variable was the outcome measure, and 1984 functioning, age, sex, self-reported health, number of serious illnesses, and an Age × Sex interaction were entered as predictors. Hospital use and reimbursements per user were calculated for 4 calendar years—1986, 1987, 1988, and 1989—and are presented here in a weighted format. The tables include actual sample size numbers, but the percentages reflect weighting.

Analyses of functional transitions were based on 7407 individuals with 1984 functional status data. Analyses of hospital use were based on a subsample of 6001 individuals for whom it was possible to match the Medicare health insurance claim number with the Longitudinal Study of Aging personal-level interview file and who had some indication of Part A or MEDPAR use for the 6-year period.

Results

Sample Characteristics

Individuals with valid 1984 functional status data were compared with the 120 individuals with missing 1984 functional status data on the sociodemographic variables, living arrangements, and self-rated health. Those with missing 1984 data had poorer self-rated health but did not differ otherwise from those with valid data.

Table 1 presents descriptive data for three groups at baseline: (1) those with valid 1984 functional status data, (2) those excluded because they could not be matched with Medicare claims data, and (3) those with valid Medicare use and 1984 functional status data. Transitions analyses were based on group 1; use analyses were based on group 3 only. The sample was predominantly female, 70 to 79 years of age, White, currently or previously married, and living with others. All groups reported a mean of six serious medical conditions.

The last two columns of Table 1 summarize chi-square tests comparing the baseline characteristics of those with valid and those with missing use data. Use data were more likely to be missing for those

TABLE 4—Results of the Multinomial Regression Predicting 1990 Functional Status

	1990 Functional Status				
	IADL Disabled OR (95% CI)	Moderately ADL Disabled OR (95% CI)	Severely ADL Disabled OR (95% CI)	Institutionalized OR (95% CI)	Dead OR (95% CI)
IADL disabled in 1984	6.6 (4.7, 9.3)	5.3 (3.8, 7.4)	7.6 (5.2, 11.0)	6.7 (4.6, 9.6)	6.6 (5.1, 8.6)
Moderately ADL disabled in 1984	4.1 (2.8, 6.2)	7.8 (5.6, 11.0)	18.0 (13.0, 26.0)	9.8 (6.8, 14.0)	8.6 (6.6, 11.0)
Severely ADL disabled in 1984	0.68 (0.15, 3.0)	5.9 (3.0, 11.0)	40.0 (22.0, 72.0)	17.0 (9.1, 32.0)	30.0 (18.0, 51.0)
80 years of age or older	2.2 (1.6, 3.2)	2.2 (1.6, 3.2)	3.4 (2.3, 4.8)	3.7 (2.5, 5.5)	4.6 (3.9, 5.5)
Female	1.0 (0.84, 1.3)	1.4 (1.1, 1.6)	1.1 (0.87, 1.4)	1.2 (0.96, 1.6)	0.47 (0.42, 0.52)
Good self-rated health	1.6 (1.3, 2.0)	1.5 (1.3, 1.8)	1.2 (0.91, 1.5)	1.8 (1.4, 2.3)	1.5 (1.4, 1.7)
Other self-rated health	2.5 (2.0, 3.1)	2.1 (1.7, 2.5)	1.8 (1.5, 2.3)	2.7 (2.1, 3.5)	3.0 (2.7, 3.3)
No. of illnesses	1.4 (1.2, 1.5)	1.3 (1.2, 1.5)	1.3 (1.2, 1.4)	1.2 (1.1, 1.3)	1.3 (1.2, 1.3)
Age × gender	1.4 (0.92, 2.2)	1.5 (1.0, 2.2)	1.0 (0.68, 1.6)	1.4 (0.90, 2.2)	1.3 (1.0, 1.6)

Note. The reference group consists of those subjects who were independent in both activities of daily living (ADLs) and instrumental activities of daily living (IADLs) in 1990. OR = odds ratio; CI = confidence interval.

who were female, older, not currently married, and living alone and for those who had poorer self-rated health.

Functional Status Transitions

Tables 2 and 3 present transitional probabilities for functional status over a 6-year interval, stratified by age, for men and women, respectively. Over the 6-year period, stability was not the rule, except for the younger respondents who were independent in 1984. Although functional decline was more common than improvement, approximately 4% of men and 2% of women with known 1990 status improved over the 6-year interval. Most strikingly, 3.5% of the women and 7% of the men 70 to 79 years of age returned to complete independence after being in the most severely impaired condition in 1984.

Despite improvement in a minority of the functionally impaired at baseline, most had died by 1990. Among the survivors, disability increased the likelihood of being in an institution in 1990; nonetheless, the majority of elderly respondents impaired in activities of daily living were residing in the community at the follow-up interview. Men were more likely to die than women, and women were more likely to be institutionalized.

Predictors of Functional Transitions

Table 4 shows the results of the multinomial logistic regression predicting 1990 outcomes while adjusting for age, gender, self-rated health, number of medical conditions, baseline functional status, and the interaction between age and gender. Odds ratios and associated 95% confidence intervals are presented for five outcome states; independence in 1990 is the reference outcome. Although results for those with missing 1990 outcome data are not shown, the model adjusts for this competing risk. The odds ratios for each outcome adjust for the competing risks of being in a different outcome state and are expressed relative to being in the independent category. Because 1984 functional status is entered into the equation, the analysis predicts change from 1984 to 1990.

Functional impairment in 1984 was strongly related to functional independence in 1990, to being in a nursing home, and to having died. Being 80 years of age or older was associated with at least a two-fold risk of being in a nonindependent state in 1990 and more than a fourfold increased risk of death. Gender had a small but statistically significant effect on being moderately disabled but had no effect on the other disability states. While women were much less likely to have died, controlling for other factors, we found no significant effect of gender on being in a nursing home. Health status, measured both as the number of serious comorbidities and as self-rated health, was related to all outcomes.

Functional Transitions, Hospital Use, and Cost

Table 5 shows Medicare-reimbursed hospital use and 1990 costs in relation to functional status transitions. The two groups that were impaired in activities of daily living were combined in these analyses. For each group defined by 1984 and 1990 functional status, Table 5 shows use during 1986, 1987, 1988, and 1989. To illustrate, for elderly people who remained independent from 1984 to 1990, an estimated 13% had at least one hospital visit in 1986, at a mean cost per user of $8957. In 1987, 14% of this group were hospitalized, at a mean cost of $9085 per user.

Several points in Table 5 are noteworthy. First, functional decline was associated with higher hospital use rates. For example, 20% of initially independent persons who were dependent in activities of daily living in 1990 were hospitalized in 1986 (vs 13% among those who remained independent); by 1989, 31% had been hospitalized. Second, those who improved had lower rates of hospitalization than those who remained dependent, particularly as 1990 approached. Indeed, the minority who returned to independence had 1989 hospitalization rates similar to initially independent respondents. Third, proximity to death tended to be associated with an increased probability of hospitalization and higher costs per user.

Discussion

Our results support previous research showing considerable changes in functional status in the elderly. The probability of functional improvement was similar to that found in a recent study.[28] Return to independent functioning following even severe disability did occur. However, stability and improvement were rare among those 80 years old and older; age clearly influences the course of disability and the likelihood of death, even for elderly people with similar baseline functioning.

The fact that a higher percentage of women than men experienced functional decline and institutionalization appears to

TABLE 5—Medicare-Reimbursed Hospital Use and Costs in 1986, 1987, 1988, and 1989, by Participant's Functional Status in 1984 and 1990

1990 Functional Status	1986		1987		1988		1989	
	% Using	Mean Cost per User, $ (SE)	% Using	Mean Cost per User, $ (SE)	% Using	Mean Cost per User, $ (SE)	% Using	Mean Cost per User, $ (SE)
Independent in 1984								
Independent	13	8 957 (615)	14	9 085 (675)	15	9 597 (612)	15	9 159 (559)
IADL dependent	27	8 136 (1 220)	22	10 003 (2 145)	16	11 443 (1 819)	26	8 037 (1 164)
ADL dependent	20	10 693 (1 207)	26	12 003 (1 170)	27	9 942 (1 086)	31	14 628 (2 088)
Institutionalized	29	8 413 (1 129)	29	9 021 (1 310)	34	11 040 (1 460)	31	9 347 (1 159)
Dead	39	38 865 (5 030)	43	31 506 (3 632)	48	42 054 (4 189)	56	67 628 (11 728)
Missing	18	11 038 (1 063)	20	14 535 (1 508)	21	12 474 (1 195)	19	16 655 (1 958)
Total	20	20 622 (1 982)	22	17 686 (1 289)	22	19 582 (1 403)	22	23 896 (2 853)
IADL dependent in 1984								
Independent	7	13 240 (5 333)	16	7 144 (1 744)	27	7 515 (1 018)	17	15 094 (6 794)
IADL dependent	40	5 249 (1 093)	18	4 839 (1 052)	19	7 500 (1 745)	24	5 974 (1 258)
ADL dependent	31	11 720 (1 742)	26	9 204 (2 507)	20	7 653 (1 983)	28	5 160 (908)
Institutionalized	41	12 008 (4 544)	20	14 350 (1 690)	49	11 503 (4 388)	37	7 352 (1 125)
Dead	41	41 770 (11 052)	53	28 892 (9 418)	52	29 848 (7 084)	56	131 307 (75 804)
Missing	26	10 957 (1 642)	26	13 556 (3 782)	18	17 565 (3 803)	28	13 574 (2 923)
Total	34	25 264 (5 627)	33	20 465 (5 310)	31	18 631 (3 527)	32	47 162 (24 698)
Moderately ADL dependent in 1984								
Independent	10	9 621 (3 413)	20	8 899 (3 522)	16	7 776 (1 690)	17	2 875 (292)
IADL dependent	27	7 887 (1 867)	32	9 660 (2 487)	18	9 128 (2 989)	18	3 743 (740)
ADL dependent	33	10 276 (1 974)	23	7 964 (1 211)	21	9 330 (2 007)	29	10 663 (2 241)
Institutionalized	31	8 492 (1 492)	38	8 956 (2 349)	34	8 728 (2 369)	25	6 852 (1 474)
Dead	40	41 307 (9 227)	44	24 051 (3 648)	50	41 232 (11 374)	69	67 278 (18 676)
Missing	31	15 654 (5 723)	31	14 821 (5 472)	27	10 243 (3 017)	20	25 132 (7 136)
Total	33	25 807 (4 458)	33	16 664 (1 928)	31	24 768 (5 648)	33	34 138 (7 957)
Severely ADL dependent in 1984								
Independent	17	8 671 ...	33	24 092 (398)	17	6 110 ...	17	26 487 ...
IADL dependent	...	...	...	...	...	...	...	...
ADL dependent	18	7 881 (3 311)	30	13 639 (3 330)	19	12 910 (5 157)	27	11 351 (2 113)
Institutionalized	49	15 736 (3 867)	20	3 776 (754)	14	2 622 (540)	20	6 434 (2 046)
Dead	39	28 594 (8 048)	54	62 716 (32 732)	50	40 225 (13 815)	61	32 558 (9 128)
Missing	19	13 172 (1 848)	19	6 054 (429)	25	12 552 (3 422)	18	7 591 (2 982)
Total	33	23 529 (5 764)	40	47 040 (22 816)	30	28 478 (8 440)	32	20 393 (4 701)

Note. The denominator is the number of individuals alive and in that status in 1984 and 1990. IADL = instrumental activities of daily living; ADL = activities of daily living.

reflect women's greater likelihood of survival. This conclusion is supported by previous reports that women who become disabled live longer than their male counterparts[3,12,30] but are more likely to enter a nursing home.[4] Our analyses highlight the importance of controlling for the competing risks of dying and institutionalization when investigating the possibility of gender differences in functional change. After adjusting for initial disability and competing risks, we found no consistent effects of gender on changes in physical functioning, corroborating recent reports.[2,7]

Our study extends the literature demonstrating the ability of personal health appraisals to predict future health outcomes by showing that self-rated health predicts subsequent functional status, institutionalization, and death, even when these competing risks are included in a single model. Elderly people who rated their health as less than excellent were more likely to be disabled, institutionalized, or dead in 1990, even after controlling for 1984 functional status and the presence of serious disease.

This study assessed the point prevalence of institutional residence in 1990 rather than the cumulative prevalence of nursing home placement during the 6-year interval. Because nursing home episodes that ended before 1990 were not included in our measure, our results underestimate the 6-year incidence of nursing home placement. Many individuals have relatively short nursing home episodes before returning home or dying.[31–33]

To our knowledge, this is the first study to examine hospital use in association with functional status transitions. Elderly respondents who were more disabled at baseline showed higher use rates and costs during each time interval examined. The costs per user increased over time for each group defined by initial functional status. This pattern of increasing costs was most notable among those who died. These findings are consistent with a report from Health Care Financing Administration analysts who examined Medicare payments for cohorts over 16 years.[34]

Individuals whose functional status improved showed a reduced likelihood of hospitalization in future years. This suggests that temporary impairment is associated with a transient elevation in health care costs that presumably dissipates once the medical cause of the impairment has resolved. Among elderly respondents whose status declined, use increased for those who had no impairment at baseline but not for those with preexisting impairment in 1984. Thus, it appears that the emergence of new disability in previously independent elderly people, rather than the exacerbation of impairment in those previously disabled, leads to an increase in use. However, the temporal sequencing of our data dictates that any conclusions about causal relationships be viewed as tentative.

Our study is limited by the fact that we did not consider intermittent transitions during the 6-year period. However, the consistent level of fluctuation observed in both 2- and 4-year periods across multiple data sets suggests that there are probably real transitions in health and functioning as well as more transitory fluctuations that are at least partially due to acute states that affect functioning.[16,28] Future research should examine the periodicity of these fluctuations to improve current transition rate models.

Another limitation is the high and biased rate of failure to match claims data. Those without matched Medicare data were older, in poorer self-rated health, and more likely to be female. These factors are associated with greater use[35]; thus, our analyses probably underestimate use. In contrast, our decision to exclude matched cases without any claims may have biased toward overuse, but analyses comparing claims and self-reported hospitalizations in these data suggest that the claims may be incomplete, thus justifying our decision.[36] Future studies should use more complete measures of use. Furthermore, since functional status is largely the outcome of multiple disease and age-related processes, our analyses cannot address the "true" causes of hospitalization.

In summary, our analyses indicate some long-term functional improvement, even among those in their 70s. However, decline and death were more prevalent, particularly in men 80 years of age and older and among the elderly with a preexisting disability. Illness and perceived health are robust predictors of all future outcome states, even more so than age and nearly as much as function. Finally, as has been long suspected, functional change is strongly related to future hospital use, with decreased use associated with improvement and increased use associated with decline, particularly as death approaches. □

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New Toll-Free Hotline of Resources on Domestic Violence

With domestic violence at epidemic proportions in the United States, the Family Violence Prevention Fund has established a hotline to provide health professionals with resources to better understand and treat victims of spouse abuse. By calling the Health Resource Center On Domestic Violence at 1-800-313-1310, health professionals can request data and materials designed specifically for their specialty, technical assistance for developing domestic violence programs and protocols, and advice from specialists. Health researchers, journalists, and local, state, and federal policymakers also can request information and assistance through the hotline, which is funded by a grant from the US Department of Health and Human Services.

The hotline operates weekdays from 9 AM to 5 PM Pacific time. Callers can request the following:

- Resource materials, including general information on strengthening health care providers' response to domestic violence, and materials specifically designed for a variety of health care specialties
- Technical assistance, including help developing hospital- or clinic-based domestic violence programs and protocols
- Library services, including advice from information specialists who can provide customized computer literature searches, research studies, and other published materials from the nation's most extensive domestic violence collection

A collaborative effort between the Family Violence Prevention Fund and the Trauma Foundation, this special service library maintains a collection of journal articles, reports, surveys, government documents, curricula, and protocols on domestic violence. Library staff have access to MEDLINE and numerous other computer databases, electronic mail, and the Internet. The library is located at the Pacific Center for Violence Prevention at San Francisco General Hospital. In order to cover costs, the library will charge a photocopying fee and postage for materials provided.

The hotline is one of a series of Family Violence Prevention Fund activities. Later this year, the fund will release the results of a national survey assessing whether nurse managers and physician directors at hospital emergency departments around the country are trained to identify and treat victims of domestic violence. With support from the Advertising Council, the fund will also launch a national public education campaign to promote the prevention of domestic violence.