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Do medical house officers value the health of veterans differently from the health of non-veterans?

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Published: 07 April 2004

Received: 13 January 2004

Health and Quality of Life Outcomes 2004, **2**:19

Accepted: 07 April 2004

This article is available from: <http://www.hqlo.com/content/2/1/19>

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Abstract

Background: Little information is available regarding medical residents' perceptions of patients' health-related quality of life. Patients cared for by residents have been shown to receive differing patterns of care at Veterans Affairs facilities than at community or university settings. We therefore examined: 1) how resident physicians value the health of patients; 2) whether values differ if the patient is described as a veteran; and 3) whether residency-associated variables impact values.

Methods: All medicine residents in a teaching hospital were asked to watch a digital video of an actor depicting a 72-year-old patient with mild-moderate congestive heart failure. Residents were randomized to 2 groups: in one group, the patient was described as a veteran of the Korean War, and in the other, he was referred to only as a male. The respondents assessed the patient's health state using 4 measures: rating scale (RS), time tradeoff (TTO), standard gamble (SG), and willingness to pay (WTP). We also ascertained residents' demographics, risk attitudes, residency program type, post-graduate year level, current rotation, experience in a Veterans Affairs hospital, and how many days it had been since they were last on call. We performed univariate and multivariable analyses using the RS, TTO, SG and WTP as dependent variables.

Results: Eighty-one residents (89.0% of eligible) participated, with 36 (44.4%) viewing the video of the veteran and 45 (55.6%) viewing the video of the non-veteran. Their mean (SD) age was 28.7 (3.1) years; 51.3% were female; and 67.5% were white. There were no differences in residents' characteristics or in RS, TTO, SG and WTP scores between the veteran and non-veteran groups. The mean RS score was 0.60 (0.14); the mean TTO score was 0.80 (0.20); the mean SG score was 0.91 (0.10); and the median (25th, 75th percentile) WTP was \$10,000 (\$7600, \$20,000) per year. In multivariable analyses, being a resident in the categorical program was associated with assigning higher RS scores, but no residency-associated variables were associated with the TTO, SG or WTP scores.

Conclusion: Physicians in training appear not to be biased either in favor of or against military veterans when judging the value of a patient's health.

Background

Health-related quality of life (HRQOL) may be assessed by two fundamentally different approaches: (1) health status measurement and (2) health values or utility assessment [1]. Health status measures evaluate functioning in one or multiple specific domains such as physical functioning, mental health, role functioning, and pain. In contrast, health values ascertain the desirability of health states through one's willingness to undergo risky treatments, sacrifice longevity, or pay money in order to improve health. Health values may be assessed for one's current state of health or for health states described to the subject.

Resident physicians report that patients' HRQOL is an important criterion in making treatment decisions for patients, and better understanding of patients' HRQOL has been shown to have beneficial effects on patients' functional outcomes [2,3]. Nevertheless, both resident and attending physicians' perceptions of patients' HRQOL have been shown to correlate poorly with patients' own reports, and physicians' assumptions of patients' treatment preferences have been shown to be inaccurate [4-7]. Studies have also shown that physicians' perceptions of patients' HRQOL and physicians' treatment recommendations may be affected by non-medical factors such as patients' age, sex, race and socioeconomic status [8-12]. For example, resident physicians' perceptions regarding their relationships with patients (e.g., feeling frustration, empathy) and physicians' sense of effectiveness in caring for their patients can be influenced by the patient's socioeconomic background [13]. Non-minority medical trainees have been shown to assign higher health values to health states of (hypothetical) non-minority patients, and health professionals and other groups have been shown to assign higher health values to female patients than male patients [8,9]. Such differences in perceptions surrounding HRQOL have the potential to influence medical decision-making. For example, attending and resident physicians' assessments of the HRQOL of hypothetical patients (with a respiratory disorder or severe stroke) were shown to be lower than patients' HRQOL assessments of the same hypothetical health states. Those differences were associated with resuscitation preferences in the expected direction, with physicians being less likely to favor resuscitation for such a patient [6].

Previous work in the 1980s and 1990s has shown that patients receiving care at Veterans Affairs (VA) facilities may receive differential care (e.g., have longer hospitalizations) when compared with patients receiving care in private or university-based hospitals, even after controlling for factors such as severity of illness, demographics, and characteristics of the resident physician [14,15]. Such dif-

ferences could be due in part to residents' perceptions of patients receiving care at VA facilities as "down and out." In contrast, the terrorist attacks of September 11, 2001 and subsequent emphasis on military readiness may have elevated the stature of veterans in society's view. Since medical residents in many training programs provide direct care to patients from the general population as well as to military veterans, housestaff are sufficiently experienced to understand the health outcomes and needs of both veterans and non-veterans.

The purpose of our study was: 1) to determine how resident physicians value the health of patients, 2) to examine whether residents' values differ based upon whether the patient is described as a veteran versus a non-veteran, and 3) to examine whether residency-associated variables or demographics impact the values ascribed to health states.

Methods

Study subjects

All subjects were interns or residents in the internal medicine training program at the University of Cincinnati Medical Center in academic year 2002-2003. The identities of the respondents were kept completely anonymous. We administered the questionnaire during the annual In-Training Exam, which took place in October 2002 on 3 successive days. Approximately 1/3 of residents were surveyed on each of the days. On each day, the subjects were randomized to one of 2 rooms based upon the first letter of their last name. To avoid cross-contamination across the 3 days of the survey, respondents were explicitly asked not to discuss the content of the survey with others. For completing the survey, house officers received a free lunch and a \$3 gift certificate to a local coffee shop. The University of Cincinnati Institutional Review Board approved the study.

Health state description

The respondents were asked to watch a 2 1/2-minute video of a professional actor depicting a patient with mild-moderate congestive heart failure (CHF). The health state characteristics were based on the Minnesota Living with Heart Failure Questionnaire (MLHFQ) and consisted of 3 HRQOL attributes: physical functioning, psychological functioning, and role functioning (Appendix 1 [see Additional file 1]) [16,17]. The health state description approximated the average MLHFQ score for a population of patients with mild to moderate CHF [17]. The same digital track was used in both rooms so that the subjects saw exactly the same actor and heard the same script, which described the same level of physical, psychological, and role functioning and financial difficulties. However, throughout the video text and the survey instrument, the patient in one room was referred to as a "72-year-old veteran of the Korean War," while in the other room he was

referred to only as a "72-year-old male." The actor was dressed exactly alike in both videos in order to minimize the influence of other variables that could affect the valuation of the hypothetical health state. We chose to use the Korean War in the description because, arguably, this war evokes less strong connotations (both positive and negative) than other major wars.

Health value measures

After viewing the video, subjects were asked to complete a questionnaire regarding their perceptions of the health of the patient depicted. Respondents assessed the health state of the patient using 4 instruments: a rating scale (RS), a time tradeoff (TTO) utility, a standard gamble (SG) utility, and a willingness-to-pay (WTP) question (Appendix 2 [see Additional file 2]). The RS asked the subject to rate the health state depicted on a continuum from 0–100, anchored by death (0) and perfect health (100). The RS is often considered a rating rather than a utility because it does not involve risks or trade offs. As such, RS ratings are generally relatively lower than TTO or SG utilities. The TTO was asked in the format of a single question and assessed how much life expectancy, if any, the resident felt the patient should be willing to give up in order to have perfect health. For example, if a respondent felt that the patient should be willing to give up at most 40% of his remaining life expectancy in exchange for perfect health, the TTO utility would equal 0.60 ($1.0 - 0.40 = 0.60$). To make the scenario as realistic as possible for a patient with CHF, the patient's remaining life expectancy was estimated to be 5 years [18]. The SG assessed how great a risk of death, if any, the resident felt the patient should be willing to accept in order to have perfect health. If, for example, the respondent felt that the patient should be willing to risk at most a 20% chance of death in order to have perfect health, the SG utility would equal 0.80 ($1.0 - 0.20 = 0.80$). In order to facilitate simultaneous assessment by a large group, we used a modified version of the Paper Standard Gamble instrument (Ben Littenberg, Burlington, VT) [19,20]. The Paper Standard Gamble is a paper-and-pencil version of the SG that correlates well with other forms of the SG, does not require an interviewer, and exhibits high test-retest reliability. Both the TTO and SG are scaled from dead (0.0) to perfect health (1.0), with a higher value representing a more desirable health state (less willingness to trade time or take a risk of dying). The WTP metric asked how much money the respondent believed that society should be willing to pay for an imagined therapy that would restore this patient to perfect health. The subjects were given information regarding the average annual per capita healthcare expenditures for non-institutionalized US citizens over the age of 65: \$7600 in 2002 [21].

Demographics, clinical experience, and risk attitudes

The second part of the survey assessed house officers' demographic characteristics and clinical experience. We asked questions regarding age, sex, race/ethnicity, program type (categorical versus non-categorical), post-graduate year, current rotation (medicine inpatient [including consultation rotations] versus non-inpatient-based rotation), number of months they had worked at the VA hospital, and when they were last on overnight call. We assumed that the housestaff physicians had similar education levels and incomes, so we did not ask about education and income. We assessed attitudes toward taking risks using a modified version of the risk scale from the Jackson Personality Inventory (JPI), which consists of 6 questions pertaining to risk attitudes [22]. Scores on the JPI are summed: the possible range is 6–36, with higher scores representing risk-seeking attitudes and lower scores representing risk aversion.

Statistical analyses

Descriptive statistics include means, standard deviations, medians, and 25th and 75th percentiles. To facilitate comparisons among the RS, TTO and SG scales, we normalized RS scores to a 0.0–1.0 scale by dividing them by 100. For analysis of WTP results, we coded one response of "less than \$7600" as \$7599, and 2 "unlimited" amount responses as the highest actual value reported – \$100,000. We used the χ^2 test to compare proportions and the Student's t test and Wilcoxon rank sum test, as appropriate, to compare continuous variables across the two groups. We used Spearman rank correlations to perform bivariate analyses, and for paired analyses of TTO and SG utilities, we used the Wilcoxon signed rank test. We used stepwise linear regression analysis to assess the multivariate relationship of covariates with the RS, TTO, SG and WTP. Due to non-normal distributions in the TTO, SG and WTP scores, we analyzed those scores with and without log transformation. All analyses were performed by using SAS version 8.2 (SAS Institute, Inc., Cary, NC). For a 2-sided alpha of 0.05 and 81 total subjects (36 and 45 in each arm), the sample size provided 80% power to detect a difference in mean values between the 2 groups of 0.09 on the RS, 0.13 on the TTO, and 0.06 on the SG.

Results

A total of 91 residents took the In-Service Exam, 81 (89.0%) of whom agreed to watch the video and complete the questionnaire. After the 2 1/2-minute video, the questionnaire took approximately 10–15 minutes to complete. Their mean (SD) age was 28.7 (3.1) years; 51.3% were female; and 67.5% were white. Seventy-six (93.8%) completed all 4 health value measures. All participants completed at least a portion of the questionnaire and all responses were included in the analysis. No significant differences were found in demographic factors,

Table 1: Residents' Characteristics

Residents' Characteristics	Hypothetical Patient	
	Veteran (N = 36)*	Non-veteran (N = 45)*
Mean (SD) Age, y	28.4 (2.8)	28.9 (3.4)
Women, %	44.4	56.8
Caucasian, %	77.8	59.1
PGY-1, %	36.1	34.1
Categorical Resident, %	58.3	61.4
Mean (SD) JPI Risk Score†	20.6 (4.7)	19.8 (4.4)
Number of Months Worked at the Veterans Affairs Hospital	3.5 (2.2)	3.7 (2.2)

PGY – post-graduate year of residency; JPI – Jackson Personality Inventory. * All differences were not significantly different at $p < 0.05$ using the χ^2 test. † Possible scores range from 6–36 with higher scores representing greater risk-seeking.

Table 2: Health Values for the Congestive Heart Failure Health State Based on the Patient's Veteran Status

Health Value Scale	For Veteran*	For Non-veteran*	All Respondents
RS			
Mean (SD)	0.59 (0.16)	0.62 (0.13)	0.60 (0.14)
Median (25 th , 75 th percentile)	0.60 (0.50, 0.70)	0.65 (0.60, 0.70)	0.60 (0.50, 0.70)
Range	0.25–0.80	0.30–0.85	0.25–0.85
TTO			
Mean (SD)	0.81 (0.19)	0.79 (0.21)	0.80 (0.20)
Median (25 th , 75 th percentile)	0.83 (0.75, 0.99)	0.80 (0.73, 0.95)	0.80 (0.73, 0.96)
Range	0.20–1.00	0.02–1.00	0.02–1.00
SG			
Mean (SD)	0.93 (0.07)	0.90 (0.12)	0.91 (0.10)
Median (25 th , 75 th percentile)	0.94 (0.89, 0.96)	0.94 (0.88, 0.97)	0.94 (0.88, 0.96)
Range	0.68–0.99	0.45–0.99	0.45–0.99
WTP			
Mean (SD)†, \$	-	16,142 (18,082)	-
Median (25 th , 75 th percentile), \$	10,000 (7600, 20,000)	10,000 (7000, 20,000)	10,000 (7600, 20,000)
Range, \$	1000–∞	1000–100,000	1000–∞

RS – rating scale (normalized to a 0.0–1.0 scale); TTO – time tradeoff; SG – standard gamble; WTP – willingness to pay. * All comparisons of values for the veteran and the non-veteran were not significantly different at the $p < 0.05$ level. † The mean WTP for the veteran group was not calculable due to 2 "unlimited" amount responses.

proportion of interns, and proportion of categorical residents between the groups of subjects viewing the video of the veteran vs. the non-veteran (Table 1).

Health values for the hypothetical health state

Rating Scale

The mean (SD) RS score for all respondents was 0.60 (0.14). RS scores did not differ in univariate analyses based upon whether the residents rated the health state of the veteran or the non-veteran (p -value for the difference = 0.71; Table 2). RS scores also did not differ based on residents' age ($r = 0.03$), sex, race, risk attitudes ($r = -0.03$), and post-graduate year, but categorical residents rated the

CHF health state higher than non-categorical residents (mean difference = 0.11; $p < 0.01$; Table 3).

Time Tradeoff

The mean (SD) TTO score for all respondents was 0.80 (0.20; Table 2). In other words, given an estimated remaining life expectancy of 5 years, residents reported that on average, the patient should be willing to give up 1 year of life ($[1.0 - 0.80] \times 5 \text{ years} = 1 \text{ year}$) in exchange for perfect health. Eighteen subjects (22.5% of 80 subjects who completed the TTO) felt that the patient should not be willing to give up any life expectancy in exchange for perfect health (utility = 1.0), while 9 subjects (11.3%)

Table 3: Health Values for the Health State Based on House Officers' Demographic and Program Characteristics

Variable (N)	RS Mean (SD)	TTO Mean (SD)	SG Mean (SD)	WTP Median (25 th , 75 th percentile), \$
Sex*				
Female (41)	0.58 (0.16)	0.79 (0.21)	0.91 (0.09)	7600 (5000, 20,000)
Male (39)	0.63 (0.11)	0.80 (0.19)	0.91 (0.11)	10,000 (8500, 20,000)
Race*				
Caucasian (54)	0.62 (0.14)	0.82 (0.20)	0.92 (0.10)	10,000 (7600, 20,000)
Non-Caucasian (26)	0.57 (0.15)	0.75 (0.19)	0.89 (0.09)	8800 (5000, 17,500)
PGY Level				
Intern (28)	0.60 (0.15)	0.79 (0.23)	0.89 (0.13)	10,000 (5000, 20,000)
Resident (52)	0.61 (0.14)	0.80 (0.19)	0.92 (0.08)	10,000 (7600, 20,000)
Program Type*				
Categorical Medicine (48)	0.65 (0.11)	0.83 (0.19)	0.91 (0.09)	10,000 (7000, 22,800)
Non-Categorical (32)	0.54 (0.16)	0.75 (0.21)	0.91 (0.12)	10,000 (7600, 15,000)
Current Rotation				
Inpatient-based (67)†	0.61 (0.14)	0.80 (0.20)	0.90 (0.11)	10,000 (7599, 20,000)
Non-inpatient-based (13)	0.56 (0.15)	0.79 (0.19)	0.94 (0.06)	10,000 (7600, 15,000)
Last Call Night				
>4 days ago (37)	0.61 (0.12)	0.80 (0.22)	0.93 (0.09)	10,000 (7600, 20,000)
≤4 days ago (42)	0.60 (0.16)	0.79 (0.19)	0.89 (0.11)	8500 (7599, 20,000)

RS – rating scale (normalized to a 0.0–1.0 scale); TTO – time tradeoff; SG – standard gamble; WTP – willingness to pay; PGY – post-graduate year of residency. * Bold results indicate significance at p < 0.05 in univariate analyses. † Includes consultation months.

reported that the patient should be willing to give up at least 50% of his remaining life expectancy (2.5 years) in exchange for perfect health (utility ≤ 0.50). Two subjects (2.5%) felt that the patient should be willing to give up at least 80% of his remaining life expectancy (4 years) in exchange for perfect health (utility ≤ 0.20). In univariate analyses, TTO utilities differed neither by the veteran status of the patient (Table 2) nor by residents' characteristics, with the exception of race – Caucasian residents assigned a higher health value (mean difference = 0.07; p = 0.047; Table 3).

Standard Gamble

The mean (SD) SG score was 0.91 (0.10), which was significantly greater than TTO scores (p < 0.01). Thus, the residents reported that, on average, they would recommend a treatment to the patient that incurred up to a 9% risk of death [(1.0 - 0.91) × 100% = 9%] with a corresponding 91% chance of perfect health. All 80 subjects who completed the SG were willing to recommend a treatment that carried at least a 1% chance of death but would otherwise restore perfect health. Eight subjects (10.0%) were willing to recommend a treatment that would incur greater than a 20% chance of death (utility < 0.80). None were willing to recommend a treatment that would incur more than a 55% chance of death (utility < 0.45). In univariate analyses, SG utilities did not differ based upon the veteran status of the patient (Table 2) or the residents' characteristics (Table 3), but SG scores correlated well with TTO scores (r = 0.61).

Willingness To Pay

The median (25th, 75th percentile) WTP was \$10,000 (\$7600, \$20,000; Table 2; Figure 1), indicating that half of the residents were willing to have society spend \$10,000 or more per year to restore the patient to perfect health. Nineteen subjects (24.7% of 77 subjects who completed the WTP) were unwilling to have society pay the per capita health care cost of \$7600 per year to restore the patient to perfect health. On the other hand, 9 subjects (11.7%) were willing to have society pay at least \$50,000 per year and 2 subjects (2.6%), both of whom evaluated the patient described as the veteran, were willing to have society spend "as much as necessary" or "unlimited" amounts of money to restore the patient to perfect health. In univariate analyses, WTP scores did not differ based upon the veteran status of the patient (Table 2) or the residents' characteristics (Table 3), with the exception of sex: male residents were willing to have society spend more (median difference = \$2400; p = 0.046).

Multivariable determinants of health values for congestive heart failure

In multivariable analyses, we examined whether the patient's veteran status and the respondents' age, sex, race, program type, level of training, current rotation type, proximity of their last call date, and risk attitudes were related to RS, TTO, SG and WTP scores. Confirming univariate analyses, residents in the categorical program assigned significantly higher RS scores than non-categorical residents (p < 0.01), but no other variables were

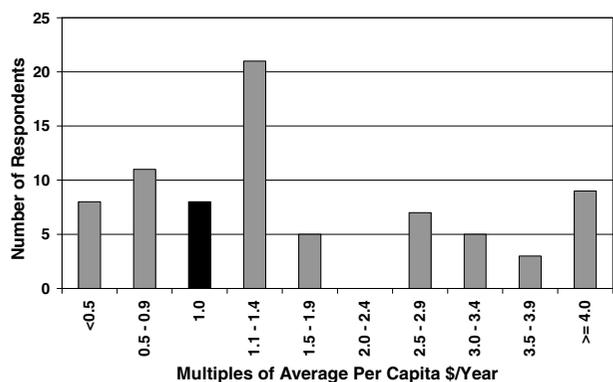


Figure 1
Histogram of Willingness to Pay Amounts. Histogram depicting the dollar amount respondents felt society should be willing to pay per year for an imagined therapy to restore perfect health to the hypothetical patient. The X-axis displays the multiples of the average per capita healthcare expenditures for non-institutionalized US citizens over the age of 65 (\$7600), and the Y-axis shows the number of respondents.

significantly associated with RS scores. No variables were significantly associated with the TTO, SG, and WTP scores in multivariable analyses. Model results were similar when log-transformed values were used for the outcome variables.

Discussion

Several previous studies have examined the impact of the patients' socio-economic and demographic factors on physicians' perceptions of patients' HRQOL [8-12]. Previous studies have also shown that patterns of care are different for veterans than for non-veterans, even after controlling for factors such as severity of illness, demographics, and the resident physician. Part of those differences may be due to house officers' perceptions of veteran vs. civilian patients [14,15]. Very little information is available about how medical residents value the health states of patients, and to our knowledge, no information is available regarding whether they assign different values to veterans than to non-veterans with the same health state.

Our study has two primary findings. First, resident physicians assessed the value of living with mild to moderate functional impairment from CHF to be relatively high. On average, they felt that the patient should be willing to give up no more than 1 year from a life expectancy of 5 years (TTO utility = 0.80) in order to live those 4

remaining years in perfect health. By contrast, other studies have found a mean utility among residents (and attending physicians) for symptomatic HIV infection of 0.45, and of 0.67 for hepatitis B infection with mild symptoms [23]. As generally found in other studies, the SG utility results were greater than those derived using the TTO, but the scores correlated well with each other (r = 0.61) [24]. Correlation coefficients among health value measures in adult populations have been reported to range between 0.31 and 0.65 [25].

Of note, residents were willing to have society pay a median of \$2400 more than the annual per-capita health expenditures to improve this hypothetical patient's health; however, the range of responses varied widely. Two subjects (both of whom watched the video of the patient described as the veteran) felt that an unlimited amount of resources should be spent on the patient. While on the one hand many residents were willing to have society spend quite a bit more than society does spend on healthcare for the elderly, it should be noted that our hypothetical treatment would confer perfect health, whereas most treatments for this age group do not. On the other hand, a quarter of those interviewed thought society should spend less than the average current per capita healthcare costs (i.e., <\$7600/year). Perhaps their low WTP was due to concerns that current healthcare expenditures are generally too great.

Our second finding was that the residents' values were similar for the health state of the veteran and the non-veteran, implying that the driving force behind the valuation was not based upon the patient's past military service. There have been a number of investigations in various populations that have examined other determinants of health values. For a subject's value of their own current health state, clinical, demographic, and health status variables can generally explain only a modest fraction of the variance in utilities (R² = 14% – 43%) [26,27]. There has been less work examining factors affecting the values for hypothetical health states. The race and sex of the hypothetical patient have been shown to potentially impact the values ascribed to hypothetical health states [8,9]. In one study, African-American patients valued certain hypothetical functional outcomes more highly than whites [28]. In another study, physicians and nurses tended to provide lower values for hypothetical conditions than adolescents or their parents [29]. Female physicians tended to ascribe lower values to hypothetical health states when compared with males [29]. In our study, in multivariable analyses, residents' demographic characteristics such as race, sex and age did not affect health values. Also, residency program characteristics, residency year, and factors such as recency of one's last call date and one's current rotation did not impact scores.

Our findings have implications for valuations of hypothetical health states. Our results indicate that health values for hypothetical states may be generally similar among resident physicians irrespective of the residents' characteristics, and that the context of the patient's past military service does not affect valuation of the depicted state of health. Therefore, health values, at least those derived from medical residents, may potentially be ascribed to both veterans and non-veterans living in a given state of health.

Our study had several limitations. Although we were able to recruit 89% of all eligible internal medicine resident physicians from our institution, the sample size may not have been large enough to detect small but potentially meaningful differences between groups. Although there is no general consensus regarding what size increment constitutes a clinically significant difference in health value results, a threshold of 0.03 has been proposed by some investigators to be minimally clinically important [30,31]. Others have proposed a population-specific quantitative approach to determining clinically important differences based on distributions of results from the population of interest [32]. In order to have 80% power (2-tailed $p = 0.05$) to detect a difference of 0.03 between the "veteran" vs. "non-veteran" groups, a study would need 698 subjects in each arm for the TTO ($SD = 0.20$) and 174 per arm for the SG ($SD = 0.10$). Also, although we attempted to minimize cross-contamination by implementing the survey in large groups during a time in which residents would have little contact with each other on the wards (the week of the In-Training Exam), strict isolation was obviously not possible. Lastly, because our study was a single-center investigation of a hypothetical patient with CHF and we recruited resident physicians (who have similar levels of education and socioeconomic backgrounds), the generalizability of our results to health states other than CHF and to other more diverse populations is uncertain.

Conclusions

Analysts often incorporate health values for hypothetical health states in assessing outcomes of technologies and interventions, but the determinants of those values are not well understood. Previous studies have examined how patients' non-health-related characteristics may affect valuations of their health state by others and may impact judgments surrounding medical decisions, but our study is the first to compare how subjects value health states of veterans versus non-veterans and one of the first to assess health values of medical house officers. We showed that physicians in training who take care of both veterans and non-veterans appear not to be biased either in favor of or against military veterans when judging the value of a patient's health. We also showed that most resident-spe-

cific demographic and program-related factors did not affect health values. Further work with larger and more diverse populations is needed in order to understand better how subjects' characteristics influence health state valuation.

Authors' contributions

MY, SL, and JT together developed the conceptual framework of the study, the subject selection procedures, the study protocol, the hypothetical health state depiction using multimedia methods, and prepared the manuscript. MY administered the surveys. JM participated in the statistical analyses of data (with MY), interpretation of results, and manuscript preparation.

Additional material

Additional File 1

Script for both the "72-year-old veteran of the Korean War" and the "72-year-old male" depicted in digital video.

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[<http://www.biomedcentral.com/content/supplementary/1477-7525-2-19-S1.doc>]

Additional File 2

Health Values Assessment Rating Scale, Time Tradeoff, Standard Gamble, and Willingness to Pay measures.

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Acknowledgements

The authors gratefully acknowledge Dr. Ben Littenberg for his guidance on the use of the Paper Standard Gamble, and the Internal Medicine housestaff at the University of Cincinnati Medical Center for participating in this study so enthusiastically.

Findings from this study were presented at the 26th Annual Meeting of the Society of General Internal Medicine, April 30–May 3, 2003, Vancouver, B.C.

This study was funded by Veterans Affairs Health Services Research and Development grant #ECI 01-195 and by National Center for Complementary and Alternative Medicine grant 1 R01 AT01147 (PI: Dr. Tsevat).

Dr. Mrus is a recipient of a Career Development Award (RCD 01011-2) from the Veterans Affairs Health Services Research and Development Service.

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