
Elderly inpatients' priorities for acute care service quality

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Keywords

Elder care, Patient care, Hospitals, Quality

Abstract

This study examines elderly and advanced elderly inpatients' perceptions of acute care service quality, prioritises opportunities for quality improvement, and assesses variation in patients' satisfaction with care. Psychometrically-validated postal questionnaires were sent to random samplings of patients discharged from the US acute care facilities in 2002 ($n = 2,057,164$). Quality improvement priorities among non-elderly (< 65 years), elderly (65-74 years), and advanced elderly (> 74 years) were similar but substantial variation was found comparing single items between age groups. Elderly and advanced elderly patients rated the quality of meals and rooms significantly lower than the non-elderly, and the advanced elderly rated treatment decision making involvement significantly lower than the other two age groups. The data reveals specific, actionable areas for quality improvement and a non-linear relationship between age and satisfaction. Findings question assumptions regarding older patients' evaluations of care and indicate directions for quality improvement that account for their unique needs.

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Introduction

Recent US health policy has focused on identifying opportunities and establishing national priorities for quality improvement; some have targeted the elderly in particular. For example, in the recent sequel to *Crossing the Quality Chasm* (IOM, 2001), *Priority Areas for National Action: Transforming Health Care Quality* (IOM, 2002), the Institute of Medicine (IOM) sets forth 20 national quality improvement focal points. Included among these 20 focal points is "frailty associated with old age" (IOM, 2002). Other research has determined quality improvement priorities specifically within the elderly population (Sloss *et al.*, 2000; Fink *et al.*, 1987). A healthcare future (dominated by an elderly population projected to double by 2030 due to the trends of an aging baby boom and increased longevity) accentuates the importance of determining quality improvement priorities for the elderly and advanced elderly (CDC, 2003). However, to date, these investigations have focused almost entirely on clinical quality, leaving acute care service quality conspicuously absent, despite widespread acknowledgement that patient satisfaction is an important outcome of quality care (Donabedian, 1988; Press, 2002).

Patients perceive the hospitalisation experience through a series of care episodes. Within each, the patient encounters a variety of hospital personnel (e.g. nurses, physicians, technicians, clerical staff, etc.) with whom the patient shares intimate details and allows access to his/her body in normally taboo ways. What care episodes represent the prime opportunities for improving service quality among the hospitalised elderly and advanced elderly? Does variation exist among the acute care service quality improvement priorities of the non-elderly, elderly, advanced elderly? Do the elderly and advanced elderly perceive care quality differently than the non-elderly? The present study investigates these issues and considers issues that frequently appear in health services quality research examining patient satisfaction among elderly populations.

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Patient satisfaction

Patient satisfaction is multidimensional: patients distinguish and evaluate distinct episodes of a health care experience (Linder-Pelz and Struening, 1985; Press, 2002; Locker and Dunt, 1978; Ware *et al.*, 1978; Cleary and McNeil, 1988). Application of this concept to the acute care experience means that patients experience and evaluate the quality of care and service provided when admitted, by nurses and physicians throughout the stay, when undergoing tests and treatment procedures, the meal service, the discharge process, and many more factors (Press, 2002). It is considered inappropriate to report and analyse only overall patient satisfaction without considering patients' satisfaction with the multiple dimensions of a health care experience (Sitzia and Wood, 1997; Press, 2002; Cleary and McNeil, 1988). Still previous studies have not analysed age and patient satisfaction across multiple dimensions of the acute care experience.

A positive correlation between age and overall patient satisfaction has been frequently cited (Cleary *et al.*, 1992; Cleary *et al.*, 1989; Cleary and McNeil, 1988; Hall and Dornan, 1990; Lee and Kasper, 1998; Larsen and Rootman, 1976; Henley and Davis, 1967; Williams and Calnan, 1991; Jaipaul and Rosenthal, 2003). However, the generalisability of these studies is limited because their methodologies diverge from best practice for assessing patients' perceptions (Kelley *et al.*, 2003). For example, studies using telephone surveys suffer from order effects, social desirability bias, ingratiation bias and acquiescence bias; they also often produce samples that are not representative of the national population (Hall, 1995; Burroughs *et al.*, 2001; Dillman *et al.*, 1996; Sitzia and Wood, 1997). Some of the studies derive their sample from community-health or assisted-living settings and/or small geographic areas (e.g. one particular hospital or small geographic region) (Lee and Kasper, 1998; Cleary *et al.*, 1992; Cleary *et al.*, 1989; Williams and Calnan, 1991; Henley and Davis, 1967; Jaipaul and Rosenthal, 2003). The two most recent studies (Lee and Kasper, 1998; Jaipaul and Rosenthal, 2003) utilise data from the early 1990s and exclude the perceptions of recently elderly baby boomers, a prominent demographic. Finally, leading researchers have called for larger sample sizes in patient satisfaction research (Lin and Kelly, 1995; Cleary and McNeil, 1988), a call that remains unanswered in investigations of age and patient satisfaction. All of these factors limit generalisability to the elderly population's acute care experience in the US.

The present study follows best practices for measuring patient perceptions by using a psychometrically-validated mail questionnaire, a

randomised sample derived from across the US, the most recent data available for a full calendar year (2002), and the largest sample size to date for analysing elderly patients' satisfaction with the experience of acute care.

Methods

Patient satisfaction data were obtained from the Press Ganey database, the largest single-method database of patient-derived information in the US, representing approximately 33 percent of all US hospitals and 44 percent of all US hospitals of more than 100 beds. Press Ganey is an independent research firm that healthcare organisations engage to measure patients' perceptions of the hospitalisation experience. The database is the largest inpatient satisfaction database utilising a standard methodology in the US.

Straight random sampling procedures were used to determine the sample of patients to survey from each hospital. Patients typically received the surveys within 15 days after discharge, well within the six weeks recommended by current research on reliability of patient survey responses (Bredart *et al.*, 2002). The response rate for the sample is estimated at 25 to 30 percent, an acceptable range for mail-back surveys without previous contact with the receiver (Kelley *et al.*, 2003). Analysis of the characteristics of non-respondents showed no evidence of non-response bias (Kaldenberg, 1998a,b).

The standard survey included 49 ratings questions in ten sections covering the complete hospitalisation experience from admissions to discharge, as well as several background questions including age, sex, self-rated health status, presence of a roommate in the hospital, and whether someone other than the patient filled out the survey. The instrument used a five-point Likert-type response scale, (1) very poor, (2) poor, (3) fair, (4) good, (5) very good, and has been psychometrically tested to be an exceptionally reliable ($\alpha = 0.98$) and valid measure of patient satisfaction (Kaldenberg *et al.*, 2003). The rigorous psychometric testing included a principal components factor analysis, testing of subscales, inter-item correlation analysis and item analyses to test for item bias; each test showed that the survey met or exceeded the highest standards for reliability and validity (for more information on the psychometric properties and development of the survey instrument, see the Appendix). Factor analysis performed during psychometric testing revealed that certain items measured distinct events and cluster together into dimensions that

mirror intuitively-perceived episodes within the hospitalisation experience (Kaldenberg *et al.*, 2003). Averaging the patients' ratings for each item within a dimension produced a section score. The overall patient satisfaction mean-score was calculated by averaging all of the section scores. In the tables below, prefixes denoting each section (A – admissions, R – room, M – meals, N – nurses, T – tests and treatments, V – visitors and family, P – physician, D – discharge, I – personal issues, O – overall assessment) are placed in front of the question items for the reader's ease of reference.

To simplify data interpretation and analysis of score variation, the 1-5 scale was converted using a linear transformation to a 0-100 score where (1) very poor = 0, (2) poor = 25, (3) fair = 50, (4) good = 75 and (5) very good = 100. The instrument and approach has been used across a variety of health care settings to identify quality improvement priorities on a national and local level (Clark, 2003; Clark *et al.*, 2003; Drain, 2001; Gesell, 2001).

The present study used questionnaires received between January 1, 2002, and December 31, 2002 ($n = 2,047,301$). Respondents were classified into three distinct groups designated non-elderly (ages less than 65; $n = 1,098,767$), elderly (ages 65-74; $n = 353,374$) and advanced elderly (ages 75 and above; $n = 429,605$) in light of known old age development subgroups (John and Cole, 1986).

Results

Multivariate analysis of variance of the overall dataset and within each age group determined that gender, length of stay, and self-described health status do not influence the overall patient satisfaction mean score (Table I). This statistical technique assesses the simultaneous relationships of several variables and represents the relationship in an equation that can be used to predict a dependent variable (in this case, the dependent variable is patient satisfaction). The insignificant values for r^2 eliminate the need to control for these variables in observing differences by age group. Statistics for each age group included mean score, standard deviation, and correlation with overall mean score. Quality improvement priority indexes

are created by averaging the rank-order of the item mean scores and the correlations with overall patient satisfaction mean score. The resulting prioritization takes into account both the greatest opportunity for score improvement (lowest mean scores) and the greatest potential effect on the desired outcome (correlation with overall mean score).

Quality improvement priorities

Table II presents priority indices for the three age groups. There is conspicuous congruence among the age groups. "Response to concerns/complaints made during your stay," "degree to which staff addressed your emotional/spiritual needs," and "staff sensitivity to the inconvenience that health problems and hospitalisation can cause" populates three of the four highest quality improvement priorities for all age cohorts. The highest priority for improving inpatient satisfaction in each age group was "Response to concerns/complaints. . .", a confirmation of frequent observations that excellence in acute care service quality demands a robust process for handling complaints, engaging in service recovery and utilising this information to make systemic improvements (Malone and Gwozdz, 2002; Barlow and Moller, 1996; Jackson, 2003).

Although "staff concern for your privacy" was considered the second-highest improvement priority for the non-elderly, the elderly and advanced elderly considered involvement in treatment decision making ("staff effort to include you in decisions about your treatment") more important than privacy. Each of these measures was strongly correlated with overall patient satisfaction ($r > 0.74$; $p < 0.001$) and fell within the "personal issues" dimension of care as determined by previous factor analysis. These measures assess the personalisation or "patient-centeredness" of care and are the highest correlates of elderly and advanced elderly patients' overall satisfaction. This diverges from the findings of other old-age studies that found satisfaction of elderly patients to be most strongly correlated with physicians and their technical skill (Hupcey *et al.*, 2003; Lee and Kasper, 1998).

The IOM has identified (but not yet tested) six dimensions of patient-centered care:

- (1) respect for patients' values, preferences, and expressed needs;

Table I Multivariate analysis testing the predictive value of gender, length of stay and health status

	Non-elderly (<65)			Elderly (65-74)			Advanced elderly (>74)			All patients		
	r^2	p	F	r^2	p	F	r^2	p	F	r^2	p	F
Gender	0.001	0.15	2	0.001	0.63	0.23	0.001	0.001	18	0.001	0.001	94,043
Length of stay	0.001	0.39	0.75	0.001	0.001	15	0.001	0.001	18	0.001	0.001	8,719
Health status	0.027	0.001	19,841	0.022	0.001	84	0.029	0.001	140	0.028	0.001	6,306,401

Table II Priority indices by non-elderly, elderly and advanced elderly

Priority rank	Nonelderly (≤ 64)			Elderly (65-74)			Advanced elderly (≥ 75)					
	Survey question	n	Mean score	Correlation with overall mean score	Survey question	n	Mean score	Correlation with overall mean score	Survey question	n	Mean score	Correlation with overall mean score
1	15. Response to concerns/complaints made during your stay	1,034,366	69.84	0.792	15. Response to concerns/complaints made during your stay	268,593	82.84	0.793	15. Response to concerns/complaints made during your stay	301,120	81.06	0.801
2	11. Staff concern for your privacy	1,072,301	73.41	0.735	16. Staff effort to include you in decisions about your treatment	265,466	83.10	0.792	16. Staff effort to include you in decisions about your treatment	296,354	81.20	0.797
3	14. Degree to which hospital staff addressed your emotional/spiritual needs	1,030,925	75.8	0.742	12. Staff sensitivity to the inconvenience that health problems and hospitalization can cause	296,092	84.01	0.799	12. Staff sensitivity to the inconvenience that health problems and hospitalization can cause	332,811	82.39	0.804
4	12. Staff sensitivity to the inconvenience that health problems and hospitalization can cause	1,062,013	82.34	0.793	14. Degree to which hospital staff addressed your emotional/spiritual needs	271,152	82.63	0.751	14. Degree to which hospital staff addressed your emotional/spiritual needs	305,101	81.16	0.762
5	02. How well staff worked together to care for you	1,001,224	82.35	0.811	11. Staff concern for your privacy	315,847	85.05	0.765	T1. Waiting time for tests or treatments	363,905	76.92	0.665
6	N3. Nurses' attitude toward your requests	9,35,169	77.56	0.725	V2. Accommodations and comfort for visitors	298,018	83.21	0.696	N5. How well the nurses kept you informed	397,168	83.46	0.772
7	13. How well your pain was controlled	5,98,565	72.64	0.677	T1. Waiting time for tests or treatments	309,135	78.86	0.645	T3. Explanations about what would happen during tests and treatments	354,113	82.55	0.723
8	D4. Help with arranging home care services (if needed)	1,074,820	75.51	0.68	N5. How well the nurses kept you informed	337,093	85.40	0.763	I1. Staff concern for your privacy	360,685	83.69	0.77
9	16. Staff effort to include you in decisions about your treatment	1,025,952	83.22	0.788	O2. How well staff worked together to care for you	339,500	88.04	0.808	V2. Accommodations and comfort for visitors	349,637	82.46	0.708
10	04. Overall rating of care given at hospital	907,106	84.23	0.816	R2. Room cleanliness	342,768	80.78	0.629	P1. Time physician spent with you	394,888	81.04	0.663

- (2) coordination and integration of care;
- (3) information, communication, and education;
- (4) physical comfort;
- (5) emotional support; and
- (6) involvement of family and friends (IOM, 2001).

Strikingly, the top two items in the priority-ranking for each age group directly correspond with the first dimension (respect for patients' values, preferences and expressed needs) while items ranked third and fourth correspond with the fifth dimension (emotional support). These results support and serve to focus national policy for improving the care of patients towards the objective of truly patient-centered care. The utmost priorities for improving the quality of acute care services for all patients (elderly, advanced elderly and non-elderly) should be the quality of interaction and reaction of health care professionals to every patient's unique, individual needs and emotional support throughout the hospitalisation experience.

Elderly and advanced elderly variation from non-elderly

Table III presents differences in mean score between the elderly and advanced elderly and the non-elderly, ordered by advanced elderly mean score differences. To ensure that these differences are actually meaningful, the effect size was calculated for each measure using the methods set forth by Cohen where $es = (M1-M2)/SD$ and an es of 0.2 is considered small, 0.5 medium and 0.8 large (Cohen, 1977; Welkowitz *et al.*, 1971).

On most measures, the elderly and advanced elderly were less satisfied than the non-elderly baseline. An interesting pattern emerges when considering the dimensions within which the measures in Table III fall.

Meals

Elderly and advanced elderly evaluations of the quality of meals secured the three greatest negative mean differences from the non-elderly (Figure 1), all of which were statistically significant and had medium to large effect sizes. "If you were placed on a special/restricted diet, how well it was explained" exhibited the greatest positive or negative difference for both the elderly at -17.19 [$t(1,284,739) = -284.42, p < 0.001$] and the advanced elderly at -16.95 [$t(1,314,609) = -309.45, p < 0.001$]. "Quality of the food" and "temperature of the food (cold foods cold, hot foods hot)," were the next two items of greatest divergence for the advanced elderly -7.89 [$t(1,426,887) = -189.89, p < 0.001$] and -12.55 [$t(1,456,866) = -305.50, p < 0.001$]. For the elderly, quality -14.24 [$t(1,394,858) = -309.20, p < 0.001$] and temperature -8.11

[$t(1,368,826) = -180.06, p < 0.001$] of food placed second and fourth most negatively divergent from the non-elderly assessments.

Room

Aspects of service quality related to the room also drew the ire of the elderly and advanced elderly compared to the non-elderly (Figure 2).

Respectively, the elderly and advanced elderly rated the following measures significantly lower than the non-elderly:

- "room cleanliness" at -7.49 [$t(1,468,611) = -214.40, p < 0.001$] and -8.11 [$t(1,400,109) = -180.06, p < 0.001$];
- "room temperature" at -7.40 [$t(1,464,260) = -193.72, p < 0.001$] and -7.24 [$t(1,399,417) = -175.36, p < 0.001$];
- "courtesy of the person who cleaned your room" at -7.12 [$t(1,427,479) = -224.04, p < 0.001$] and -7.08 [$t(1,360,158) = -200.05, p < 0.001$];
- "noise level in and around room" at -7.10 [$t(1,468,039) = -157.68, p < 0.001$] and -8.04 [$t(1,404,405) = -160.81, p < 0.001$]; and
- "pleasantness of room decor" at -6.21 [$t(1,464,447) = -170.34, p < 0.001$] and -6.68 [$t(1,393,586) = -170.07, p < 0.001$].

In addition to statistical significance, effect size calculations found these differences to be of practical significance as well. In sum, the elderly and advanced elderly consistently evaluated the quality hospitals' amenities (meals and rooms) far more critically than the non-elderly.

Personal issues

On the other end of the spectrum, the elderly and advanced elderly paralleled each other in the items rated significantly higher than the non-elderly. Elderly and non-elderly both experienced pain control resulting in higher ratings than the non-elderly 13.73 [$t(896,335) = 287.24, p < 0.001$] and 11.72 [$t(929,677) = 248.52, p < 0.001$], respectively. Elderly and advanced elderly evaluated "response to concerns/complaints made during your stay" more favorably at 13.00 [$t(1,302,957) = 276.78, p < 0.001$] and 11.22 [$t(1,335,484) = 245.85$], respectively. This may indicate a greater willingness by staff to meet special requests made by the elderly. Finally, in "staff concern for your privacy" the elderly 11.64 [$t(1,388,146) = 287.689, p < 0.001$] and non-elderly 10.28 [$t(1,432,984) = 262.49, p < 0.001$] provided higher ratings than the non-elderly. This may indicate a greater respect among staff for the physical privacy and confidentiality of older persons than younger persons. Each of these items fell within the personal issues dimension (Figure 3).

Table III Elderly and advanced elderly mean score differences from non-elderly

Question	Elderly (65-74)			Advanced elderly (75+)		
	Difference in means from patients < 65	T-test	Effect size	Difference in means from patients < 65	T-test	Effect size
<i>M1. If you were placed on a special/restricted diet</i>	(17.19)	- 284.42	- 0.93	(16.95)	- 309.45	- 0.91
<i>M3. Quality of the food</i>	(14.24)	- 309.2	- 0.68	(12.55)	- 305.50	- 0.60
<i>M2. Temperature of the food (cold foods cold, hot foods hot)</i>	(8.11)	- 180.06	- 0.34	(7.89)	- 189.89	- 0.33
<i>R2. Room cleanliness</i>	(8.23)	- 219.89	- 0.45	(7.49)	- 214.4	- 0.41
<i>R4. Room temperature</i>	(7.24)	- 175.36	- 0.35	(7.40)	- 193.72	- 0.36
<i>R3. Courtesy of the person who cleaned your room</i>	(7.08)	- 200.05	- 0.44	(7.12)	- 224.04	- 0.44
<i>R5. Noise level in and around room</i>	(8.04)	- 160.81	- 0.33	(7.10)	- 157.68	- 0.29
<i>R1. Pleasantness of room decor</i>	(6.68)	- 170.07	- 0.31	(6.21)	- 170.34	- 0.28
T1. Waiting time for tests or treatments	(4.01)	- 76.60	- 0.16	(5.95)	- 117.57	- 0.24
<i>N2. Promptness in responding to the call button</i>	(3.44)	- 83.93	- 0.18	(5.42)	- 139.11	- 0.29
V2. Accommodations and comfort for visitors	(3.07)	- 77.98	- 0.15	(3.82)	- 102.47	- 0.19
A1. Speed of admission process	(0.05)*	- 1.11	0.00	(2.66)	- 60.95	- 0.11
V4. Information given your family about your condition and treatment	(0.88)	- 21.95	- 0.04	(2.50)	- 63.39	- 0.12
I6. Staff effort to include you in decisions about your treatment	(0.12)*	- 2.73	- 0.01	(2.02)	- 46.75	- 0.11
M4. Courtesy of the person who served your food	(0.87)	- 22.58	- 0.04	(1.43)	- 33.08	- 0.06
T4. Skill of the person who took your blood (i.e. did it quickly)	(0.31)	- 7.60	- 0.01	(1.38)	- 38.18	- 0.07
R6. How well things worked (TV, call button, lights, bed, etc.)	(0.74)	- 18.33	- 0.03	(1.32)	- 35.16	- 0.06
D2. Speed of discharge process after you were told you could go home	0.73	16.52	0.03	(1.03)	- 24.59	- 0.05
P2. Physician's concern for your questions and worries	1.57	42.47	0.09	(0.91)	- 24.82	- 0.05
D3. Instructions given about how to care for yourself at home	1.36	34.20	0.07	(0.86)	- 21.61	- 0.04
A3. Rating of pre-admission process (if any)	1.21	24.96	0.06	(0.68)	- 14.04	- 0.03
T2. Concern shown for your comfort during tests or treatments	1.30	35.50	0.07	(0.53)	- 15.05	- 0.03
P3. How well physician kept you informed	2.47	60.73	0.12	(0.28)	- 6.91	- 0.01
A2. Courtesy of the person who admitted you	1.09	33.08	0.06	(0.25)	- 7.94	- 0.01
N5. How well the nurses kept you informed	1.71	42.56	0.09	(0.23)	- 5.93	- 0.01
O1. Overall cheerfulness of the hospital	0.63	18.27	0.03	(0.15)	- 4.57	- 0.01
V3. Staff attitude toward your visitors	0.97	26.77	0.04	(0.07)*	- 1.99	0.00
O3. Likelihood of your recommending this hospital to others	0.97	25.10	0.05	0.02 *	0.54	0.00
I2. Staff sensitivity to the inconvenience that health problems and hospitalisation can cause	1.67	41.52	0.08	0.05*	1.28	0.00
T3. Explanations about what would happen during tests and treatments	2.51	63.84	0.12	0.20	5.18	0.01
P1. Time physician spent with you	2.90	71.17	0.14	0.25	6.23	0.01
N4. Amount of attention paid to your special or personal needs	2.57	64.49	0.13	0.90	23.63	0.05
V1. Helpfulness of the people at the information desk	1.45	40.43	0.08	0.92	27.04	0.05
T6. Skill of the person who started the IV	3.68	85.64	0.16	1.94	48.43	0.08
O4. Overall rating of care given at hospital	4.42	121.90	0.24	3.36	96.78	0.18
<i>P5. Skill of physician</i>	6.12	189.75	0.30	4.09	125.54	0.20
<i>T7. Courtesy of the person who started the IV</i>	5.78	156.62	0.26	4.38	122.99	0.20
O2. How well staff worked together to care for you	5.69	148.73	0.24	4.52	122.86	0.19
<i>D1. Extent to which you felt ready to be discharged</i>	7.25	187.07	0.35	4.70	121.71	0.23
<i>I4. Degree to which hospital staff addressed your emotional/spiritual needs</i>	6.83	151.44	0.31	5.36	123.03	0.24
<i>N6. Skill of the nurses</i>	6.92	193.39	0.32	5.97	174.83	0.27
<i>P4. Friendliness/courtesy of physician</i>	8.08	227.10	0.36	6.15	174.53	0.28
<i>N1. Friendliness/courtesy of the nurses</i>	7.88	227.13	0.34	6.90	206.62	0.30
<i>T5. Courtesy of the person who took your blood</i>	7.69	203.71	0.33	7.14	197.32	0.30
<i>D4. Help with arranging home care services (if needed)</i>	9.44	156.95	0.41	7.78	142.58	0.34
<i>N3. Nurses' attitude toward your requests</i>	10.93	283.19	0.49	9.47	256.33	0.42
<i>I1. Staff concern for your privacy</i>	11.64	287.69	0.43	10.28	262.49	0.38
<i>I5. Response to concerns/complaints made during your stay</i>	13	276.78	0.53	11.22	245.85	0.46
<i>I3. How well your pain was controlled</i>	13.73	287.24	0.51	11.72	248.52	0.44

Notes: Italics indicate effect size of moderate to large proportions (0 is no difference, 0.2 is small, 0.5 medium and 0.8 is large); all differences are statistically significant at $p < 0.001$ except for those denoted with *

Figure 1 Elderly and advanced elderly evaluations of the quality of the meals

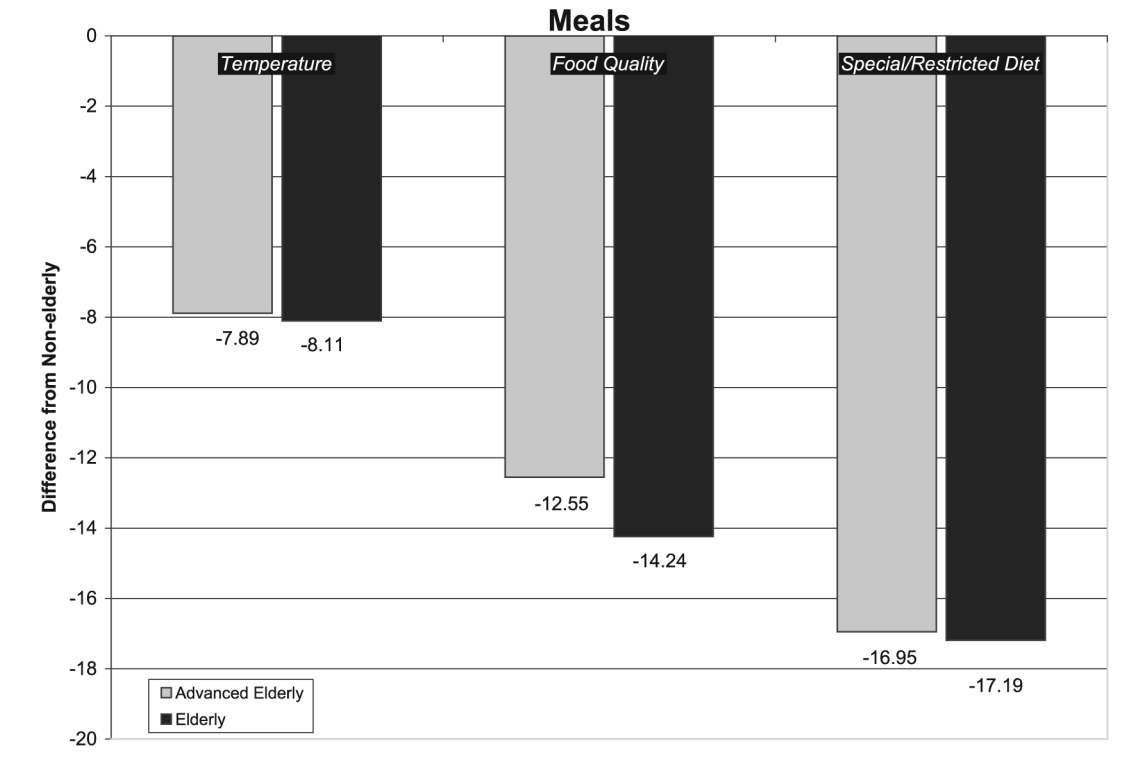


Figure 2 Elderly and advanced elderly evaluations of the quality of the room

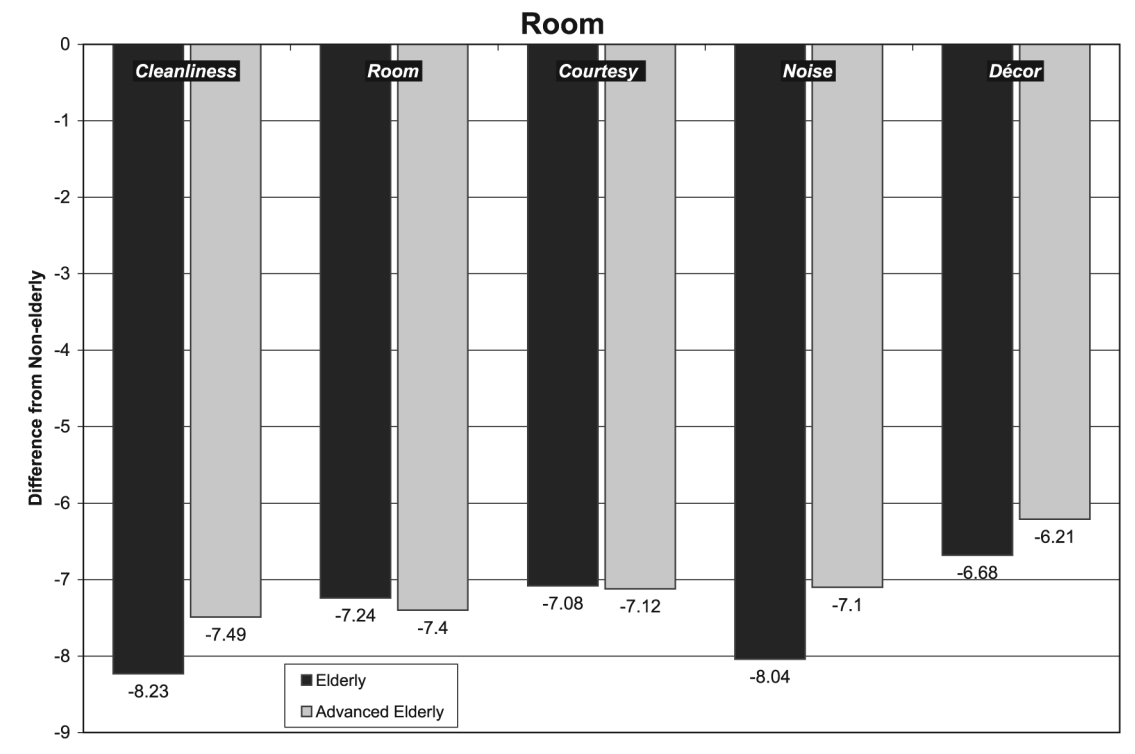
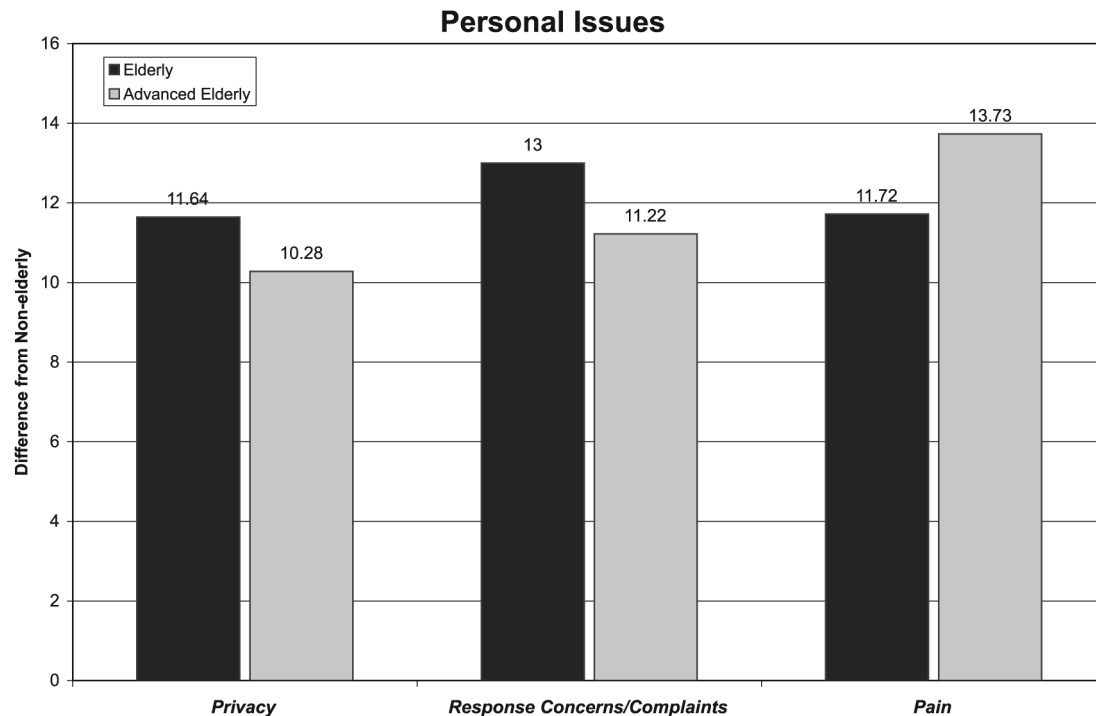


Figure 3 Elderly and advanced elderly evaluations of the personal issues*Courtesy, friendliness, attitude*

Measures of respect, courtesy, friendliness and attitude assumed the second-most superlative evaluations by the elderly and advanced elderly compared to the non-elderly (Figure 4). Courtesy of nurses 7.88 [$t(1,411,040) = 227.13, p < 0.001$] and 6.90 [$t(1,480,750) = 206.62, p < 0.001$], physicians 8.08 [$t(1,396,815) = 227.10, p < 0.001$] and 6.15 [$t(1,454,823) = 174.53, p < 0.001$], and the “person who took your blood” 7.69 [$t(1,254,114) = 203.71, p < 0.001$] and 7.14 [$t(1,311,322) = 197.32, p < 0.001$] each were rated significantly higher by the elderly and advanced elderly, respectively. “Nurses attitude toward your requests” 10.93 [$t(1,274,474) = 283.19, p < 0.001$] and 9.47 [$t(1,339,534) = 256.33, p < 0.001$], was also assessed as substantially better by elderly and advanced elderly inpatients. While all were statistically significant, effect size calculations consider all of these differences to be moderately significant. In total, measures rated significantly higher by the elderly and advanced elderly conceptually fit within the IOM’s first theoretical dimension of patient-centered care – “respect for patients’ values, preferences, and expressed needs.”

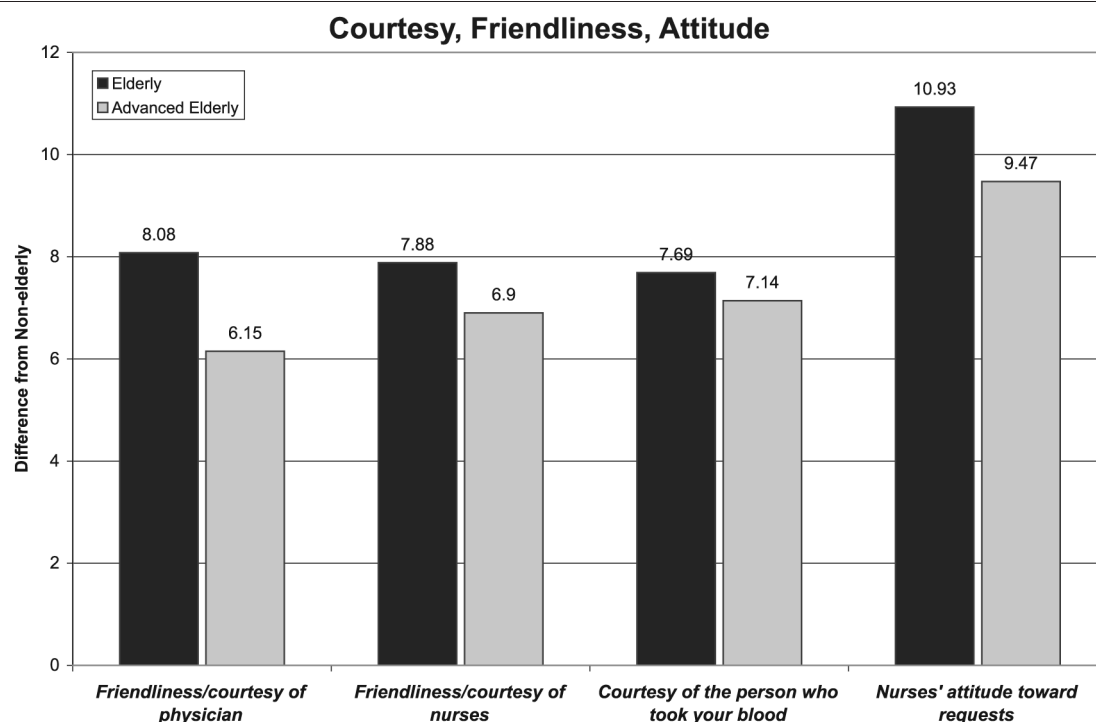
Predictive value of age

Multivariate linear regression analysis by section score was used to determine if age held any predictive value for overall patient satisfaction or

among the dimensions of the care experience patients evaluate to determine overall satisfaction (Table IV). Across every dimension and across every age cohort including the overall dataset, age failed to establish itself as a significant predictor of patients’ satisfaction. The main effect of age on satisfaction is minimal ($r^2 = 0.001, p < 0.001$). This contradicts other studies that found age to be a minor but significant predictor of patient satisfaction (Cleary *et al.*, 1989; Hall and Dornan, 1990). The sizable and significant differences in elderly and advanced elderly evaluations of acute care services are more likely to be an artifact of the actual quality of service provided rather than differences inherent in a particular age cohort.

Discussion

Elderly and advanced elderly patients provide lower ratings than non-elderly patients on several distinct dimensions of acute care service quality (e.g. meals and rooms). This finding may represent the unique needs of older patients and/or widespread failure to meet the expectations of the elderly population. Non-elderly, elderly, and advanced elderly patients’ perceptions and evaluations of acute care experiences are different, multifaceted and not as simplistic as characterised by previous research.

Figure 4 Elderly and advanced elderly evaluations of courtesy, friendliness and attitude**Table IV** Multivariate linear regression analysis to determine the ability of age to predict patient satisfaction

	Nonelderly (<65)		Elderly (65-74)		Advanced elderly (>74)		All patients	
	r^2	p	r^2	p	r^2	p	r^2	p
Overall patient satisfaction mean score	0.001	<0.001	0.001	<0.001	0.001	<0.001	0.001	<0.001
Admissions	0.005	<0.001	0.001	<0.001	0.001	<0.001	0.005	<0.001
Room	0.007	<0.001	0.001	<0.001	0.001	0.560	0.005	<0.001
Meals	0.003	<0.001	0.001	0.106	0.001	0.218	0.003	<0.001
Nurses	0.003	<0.001	0.001	<0.001	0.001	<0.001	0.005	<0.001
Tests and treatment	0.004	<0.001	0.001	0.013	0.001	<0.001	0.005	<0.001
Visitors and family	0.003	<0.001	0.001	<0.001	0.001	<0.001	0.005	<0.001
Physicians	0.003	<0.001	0.001	<0.001	0.001	<0.001	0.005	<0.001
Discharge	0.002	<0.001	0.001	<0.001	0.001	<0.001	0.004	<0.001
Personal issues	0.003	<0.001	0.001	<0.001	0.001	<0.001	0.004	<0.001

Priorities for hospital service quality improvement

This study has identified several priorities for improvement in the quality of care for hospitalised elderly and advanced elderly patients. The systematic assessment and response to each patient's personal and unique needs (including emotional and spiritual needs) presents one potent path to improving overall patient satisfaction.

Improvement in the quality of meals, rooms and amenities for the elderly and advanced elderly offers the most obvious path to reducing the enormous variation in acute care service quality between older and younger patients. The results indicate that the elderly and advanced elderly may boast greater expectations for hospitals' food

quality, interpersonal service and presentation which represent the primary determinants of inpatient satisfaction with meal service quality (Hwang *et al.*, 2003).

Differences in patient perceptions

The results demonstrate that the non-elderly, elderly and advanced elderly experience hospitalisation differently; older patients rate the quality of care significantly lower and higher than the non-elderly in numerous areas. Hospitalised elderly and advanced elderly patients, who may have longer stays or make more frequent visits to the hospital, remain acutely aware of their surroundings and, in general, are more critical of

the amenities currently provided than the non-elderly. While older patients tended to provide higher ratings in evaluating respect and courtesy, the results were characterised by significant variation among specific items. This variation included items measuring level of autonomy, information and involvement in treatment decisions. The ratings of the elderly varied above and somewhat below the non-elderly while ratings by the advanced elderly were consistently below both the elderly and non-elderly. The advanced elderly demonstrated significantly lower evaluations of the treatment decision making episode, which supports the findings of Callahan and colleagues (Callahan *et al.*, 2000), who found that the oldest patients experienced less counseling, less discussion about families and substance use, fewer requests to change behavior and less health education than younger patients. Considering these studies together, the most elderly patients are likely to experience care differently within the physician-patient encounter and decision making episode than the elderly and non-elderly. This may sensitise caregivers to ensure that appropriate communication, education and involvement of the oldest patients actually takes place.

Satisfaction and age

Satisfaction does not increase as patients age – older cohorts are not universally more satisfied. This non-linear finding re-emphasises the multidimensional nature of patients' experiences, the necessity for careful, methodical analysis of patient-reported data and the importance separately analysing the perceptions of elderly and advanced elderly patients. The findings call into question assumptions that older patients satisfaction scores are inflated or that they are less discerning consumers of acute care services. Although the most frequently-cited studies supporting this assertion are more than a decade old (Cleary *et al.*, 1989; Cleary and McNeil, 1988), studies from as recently as five-years ago found older patients comparatively more satisfied than younger cohorts – even in specific items such as “quality of food” (Regrut, 1997; Lee and Kasper, 1998). Older patients' evolution into discriminating healthcare consumers could represent a sea change for hospitals as the age spectrum demanding higher service quality broadens.

Best practices

If analyses at your hospital confirm significantly lower satisfaction with meals and rooms among elderly and advanced elderly inpatients, steps may be taken to resolve these variations. Among

patients with special diets, dieticians, patient education, improving taste and allowing as much choice as possible has improved these patients' satisfaction (Malone, 1999). The addition of a hotel-like “room service” amenity where patients can order whatever they want, whenever they want, has consistently improved patients' satisfaction with meals (McLymont *et al.*, 2003; Williams *et al.*, 1998). Customer service training alone (Malone, 1999) and in conjunction with increased selectivity in food service personnel, improved efficiency and decreased time from patients' ordering to food delivery (Folio *et al.*, 2002) have also been shown to result in higher levels of patient satisfaction with meals.

Malone (1998) offers a basic service quality improvement checklist as a starting point for examining patient satisfaction with the quality of rooms:

- Leave tangible evidence that the room has been clean – a business card or “sani-wrap”.
- Scripted pleasant (not prying) patient-housekeeper interaction reinforces the perception of the hospital as a caring place.
- Reinforce the appearance of cleanliness by: removing clutter, emptying wastebaskets multiple times a day, changing sheets, asking the patient what needs cleaned or changed.
- Leave a calling card with information on whom to call to get something cleaned or repaired.
- Include light checks, cleaning of walls and a routine for cleaning from the ceilings to the floor.
- Interview and selectively hire housekeeping personnel on customer service criteria (in addition to normal criteria).
- Language skills classes for housekeeping personnel who do not speak English well.
- Have cross-functional “patient service associates” trained in multiple skills including cleaning, light repair and maintenance.

Additionally, hospitals on the cutting edge have redesigned their hospitals to offer the soft comforts and familiar surroundings one would find at home, for example: in-unit kitchens for families to prepare and eat home-cooked meals, fresh-baked cookies, equipment and walls designed to minimise noise, allowing patients to choose the artwork in their room from an “art cart,” natural lighting, rooms with views from the bed, decorative ceilings, and other such factors (Ulrich, 1984; Martin *et al.*, 1998; Frampton *et al.*, 2003).

Limitations

Although this study's sample is the largest and broadest sample of US inpatients possible, it does not include patient satisfaction data from every

hospital in the nation and, therefore, may contain some degree of selection bias. Hospitals that utilise a research firm to assess patient satisfaction may differ from those that do not. This selection bias may result in an overestimation of patients' satisfaction with the experience of care. Hospitals that do not consider service quality a priority may be less likely to participate in its continuous measurement.

Conclusion

This investigation of elderly and advanced elderly patients' precise evaluations of acute care service revealed nonlinear variation among specific components of the hospital stay; specific, actionable areas for quality improvement; and a lack of a simple, linear relationship between age and satisfaction and the specific actionable areas for quality improvement. Older patients' evaluations of the hospitalisation experience lead to precise and actionable quality improvement priorities for this population. The methods used here could be applied at a local level as well as to guide hospitals seeking to improve the services it provides to elderly and advanced elderly populations. Furthermore, different quality improvement goals can be established through these simple analyses. The ranking of priorities yields goals appropriate for improving the outcome of overall patient satisfaction. Analysis of variation in different groups of patients' quality ratings results in a guide to reducing variation in specific areas where services are either delivered or perceived differently. When working towards the US's national IOM goal of patient-centered health care, it is the patients' perception, experience, and evaluation of care that ultimately matters.

References

- Barlow, J. and Moller, C. (1996), *A Complaint Is a Gift: Using Customer Feedback as a Strategic Tool*, Berrett-Koehler Publishers, San Francisco, CA.
- Bredart, A., Razavi, D., Robertson, C., Brignone, S., Fonzo, D., Petit, J.Y. and de Haes, J.C. (2002), "Timing of patient satisfaction assessment: effect on questionnaire acceptability, completeness of data, reliability and variability of scores", *Patient Education and Counseling*, Vol. 46 No. 2, pp. 131-6.
- Burroughs, T.E., Waterman, B.M., Cira, J.C., Desikan, R. and Claiborne Dunagan, W. (2001), "Patient satisfaction measurement strategies: a comparison of phone and mail methods", *The Joint Commission Journal on Quality Improvement*, Vol. 27 No. 7, pp. 349-61.
- CDC (2003), "Public health and aging: trends in aging – United States and worldwide", *MMWR*, Vol. 52 No. 6, pp. 101-6.
- Callahan, E.J., Bertakis, K.D., Azari, R., Robbins, J.A., Helms, L.J. and Chang, D.W. (2000), "The influence of patient age on primary care resident physician-patient interaction", *Journal of The American Geriatrics Society*, Vol. 48 No. 1, pp. 30-5.
- Clark, P.A. (2003), "Medical practices' sensitivity to patients' needs, opportunities and practices for improvement", *Journal of Ambulatory Care Management*, Vol. 26 No. 2, pp. 110-23.
- Clark, P.A., Drain, M. and Malone, M.P. (2003), "Patients' perceptions of emotional/spiritual needs", *Joint Commission Journal on Quality and Safety*.
- Cleary, P.D. and McNeil, B.J. (1988), "Patient satisfaction as an indicator of quality care", *Inquiry*, Vol. 25 No. 1, pp. 25-36.
- Cleary, P.D., Edgman-Levitan, S., McMullen, W. and Delbanco, T.L. (1992), "The relationship between reported problems and patient summary evaluations of hospital care", *Quality Review Bulletin*, Vol. 18 No. 2, pp. 53-9.
- Cleary, P.D., Keroy, L., Karapanos, G. and McMullen, W. (1989), "Patient assessments of hospital care", *Quality Review Bulletin*, Vol. 15, pp. 172-9.
- Cohen, J. (1977), *Statistical Power Analysis for Behavioral Sciences*, Academic Press, New York, NY.
- Dillman, D.A., Sangster, R.L., Tarnai, J. and Rockwood, T. (1996), Braverman, M.T. and Slater, J.K. (Eds), *Current Issues in Survey Research, New Directions for Program Evaluation Series*, Jossey-Bass, San Francisco, CA, pp. 45-62.
- Donabedian, A. (1988), "The quality of care. How can it be assessed?", *Journal of the American Medical Association*, Vol. 260 No. 12, pp. 1743-8.
- Drain, M. (2001), "Quality improvement in primary care and the importance of patient perceptions", *Journal of Ambulatory Care Management*, Vol. 24 No. 2, pp. 30-46.
- Fink, A., Siu, A.L., Brook, R.H., Park, R.E. and Solomon, D.H. (1987), "Assuring the quality of health care for older persons. An expert panel's priorities", *Journal of the American Medical Association*, Vol. 258 No. 14, pp. 1905-8.
- Folio, D., O'Sullivan-Maillet, J. and Touger-Decker, R. (2002), "The spoken menu concept of patient foodservice delivery systems increases overall patient satisfaction, therapeutic and tray accuracy, and is cost neutral for food and labor", *J. Am. Diet. Assoc.*, Vol. 102, pp. 546-8.
- Frampton, S.B., Gilpin, L. and Charmel, P.A. (2003), *Putting Patients First: Designing and Practicing Patient-Centered Care*, Jossey-Bass, San Francisco, CA.
- Gesell, S.B. (2001), "A measure of satisfaction for the assisted-living industry", *Journal of Healthcare Quality*, Vol. 23 No. 2, pp. 16-25.
- Hall, J.A. and Dorman, M.C. (1990), "Patient sociodemographic characteristics as predictors of satisfaction with medical care: a meta-analysis", *Social Science Medicine*, Vol. 30 No. 7, pp. 811-8.
- Hall, M.F. (1995), "Patient satisfaction or acquiescence? Comparing mail and telephone survey results", *Journal of Health Care Marketing*, Vol. 15 No. 1, pp. 54-61.
- Henley, B. and Davis, M.S. (1967), "Satisfaction and dissatisfaction: a study of the chronically-ill aged patient", *Journal of Health and Social Behavior*, Vol. 8, pp. 65-75.
- Hupcey, J.E., Clark, M.B., Hutcheson, C.R. and Thompson, V.L. (2003), "Expectations for care: elders' satisfaction and trust in health care providers", *Journal of Gerontological Nursing*.
- Hwang, L.J., Eves, A. and Desombre, T. (2003), "Gap analysis of patient meal service perceptions", *International Journal of Health Care Quality Assurance including Leadership in Health Services*, Vol. 16 No. 2/3, pp. 143-53.

- IOM (2001), *Crossing the Quality Chasm: A New Health System for the 21st Century*, National Academy Press, Washington, DC.
- IOM (2002), *Priority Areas for National Action: Transforming Health Care*, National Academy Press, Washington, DC.
- Jackson, S. (2003), "Inappropriate response to complaints – a missed opportunity for improvement", *International Journal of Health Care Quality Assurance including Leadership in Health Services*, Vol. 16 No. 2/3, pp. 63-4.
- Jaipaul, C.K. and Rosenthal, G.E. (2003), "Are older patients more satisfied with hospital care than younger patients?", *J. Gen. Intern. Med.*, Vol. 18 No. 1, pp. 23-30.
- John, D.R. and Cole, C. (1986), "Age differences in information processing: understanding deficits in young and elderly customers", *Journal of Consumer Research*, Vol. 13 December, pp. 297-315.
- Kaldenberg, D.O. (1998a), "Results from the press, Ganey response study (Part 1)", *The Satisfaction Monitor*, March/April, pp. 4-5.
- Kaldenberg, D.O. (1998b), "Results from the press, Ganey response study (Part 2)", *The Satisfaction Monitor*, Vol. 2 May/June, pp. 5-7.
- Kaldenberg, D.O., Mylod, D.E. and Drain, M.D. (2003), Goldfield, N., Pine, J. and Pine, N. (Eds), *Measuring and Managing Health Care Quality*, Aspen Publishers, New York, NY, pp. 4:69-4:89.
- Kelley, K., Clark, B., Brown, V. and Sitzia, J. (2003), "Good practice in the conduct and reporting of survey research", *International Journal for Quality in Health Care*, Vol. 15 No. 3, pp. 261-6.
- Larsen, D.E. and Rootman, I. (1976), "Physician role performance and patient satisfaction", *Social Science and Medicine*, Vol. 10, pp. 29-32.
- Lee, Y. and Kasper, J.D. (1998), "Assessment of medical care by elderly people: general satisfaction and physician quality", *Health Services Research*, Vol. 32 No. 6, pp. 741-58.
- Lin, B. and Kelly, E. (1995), "Methodological issues in patient satisfaction surveys", *International Journal of Health Care Quality Assurance*, Vol. 8 No. 6, pp. 32-7.
- Linder-Pelz, S. and Struening, E.L. (1985), "The multidimensionality of patient satisfaction with a clinic visit", *Journal of Community Health*, Vol. 10 No. 1, pp. 42-54.
- Locker, D. and Dunt, D. (1978), "Theoretical and methodological issues in sociological studies of consumer satisfaction with medical care", *Social Science and Medicine*, Vol. 12, pp. 283-92.
- McLymont, V., Cox, S. and Stell, F. (2003), "Improving patient meal satisfaction with room service meal delivery", *Journal of Nursing Care Quality*, Vol. 18 No. 1, pp. 27-37.
- Malone, M.P. (1998), "Best practices: the latest & greatest in housekeeping and maintenance", *The Satisfaction Monitor*, available at: www.pressganey.com/products_services/readings_findings/satmon/article.php?article_id=49 (accessed October 6, 2003).
- Malone, M.P. (1999), "Food, glorious food!", *The Satisfaction Monitor*, available at: www.pressganey.com/products_services/readings_findings/satmon/article.php?article_id=50 (accessed October 6, 2003).
- Malone, M.P. and Gwozdz, J. (2002), "Practices: after the 'oops', Parts 1 and 2", *The Satisfaction Monitor*, available at: www.pressganey.com/products_services/readings_findings/satmon/article.php?article_id=42 and http://www.pressganey.com/products_services/readings_findings/satmon/article.php?article_id=44 (accessed October 6, 2003).
- Martin, D.P., Diehr, P., Conrad, D.A., Davis, J.H., Leickly, R. and Perrin, E.B. (1998), "Randomized trial of a patient-centered hospital unit", *Patient Education and Counseling*, Vol. 34 No. 2, pp. 125-33.
- Press, I. (2002), *Patient Satisfaction: Defining, Measuring, and Improving the Experience of Care*, Health Administration Press, Chicago, IL.
- Regrut, B. (1997), "The boomer consumers and health care", *The Satisfaction Monitor*, November/December, pp. 3-5.
- Sitzia, J. and Wood, N. (1997), "Patient satisfaction: a review of issues and concepts", *Social Science and Medicine*, Vol. 45 No. 12, pp. 1829-43.
- Sloss, E.M., Solomon, D.H., Shekelle, P.G., Young, R.T., Saliba, D., MacLean, C.H., Rubenstein, L.Z., Schnelle, J.F., Kamberg, C.J. and Wenger, N.S. (2000), "Selecting target conditions for quality of care improvement in vulnerable older adults", *Journal of the American Geriatric Society*, Vol. 48 No. 4, pp. 363-9.
- Ulrich, R.S. (1984), "View through a window may influence recovery from surgery", *Science*, Vol. 224, pp. 420-1.
- Ware, J.E. Jr, Davies-Avery, A. and Stewart, A.L. (1978), "The measurement and meaning of patient satisfaction", *Health and Medical Care Services*, Vol. 1 No. 1, pp. 3-15.
- Welkowitz, J., Ewen, R.B. and Cohen, J. (1971), *Introductory Statistics for the Behavioral Sciences*, Academic Press, New York, NY.
- Williams, S.J. and Calnan, M. (1991), "Convergence and divergence: assessing criteria of consumer satisfaction across general practice, dental and hospital care settings", *Social Science and Medicine*, Vol. 33 No. 6, pp. 707-16.
- Williams, R., Virtue, K. and Adkins, A. (1998), "Room service improves patient food intake and satisfaction with hospital food", *J. Pediatr. Oncol. Nurs.*, Vol. 15 No. 3, pp. 183-9.

Appendix

The Press Ganey Inpatient Survey was first developed in 1987. The conceptual model behind the ratings is real-world based, in that it derives from typical experiences a patient may actually encounter during a hospital stay. Events that occur, (admission, meals, tests or treatments, discharge); personnel encountered (nurses physicians and technical staff); the physical surroundings (room and hospital) and the interpersonal aspects of the stay are seen as important contributors to the patient's total experience. They are also believed to be reflections of the quality of the medical care delivered and received.

The inpatient survey was revised in 1997 and revalidated in 2002 to reflect changes in health care. During the revalidation, surveys from patients from 721 hospitals in 48 states were analysed to determine the survey's psychometric properties. Preliminary review of response frequencies and patient comments found no problems with question ambiguity.

Reliability

The internal consistency/reliability of the survey was determined by calculating Cronbach's alpha statistic for each scale and for the entire instrument. Alpha's for the scales range from 0.84 to 0.95, and Cronbach's alpha for the entire instrument was .98, confirming its high internal consistency/reliability.

Validity

Construct validity assesses whether the conceptual model that forms the basis of the survey reflects distinctions made by patients as they fill out the scale. Do patients rate items within a subscale in a coherent way? Construct validity was determined by factor analysis, which yielded nine factors mirroring the subsections of the questionnaire. An item should be correlated with its own scale (convergent validity) as well as correlated more with its own scale than with other scales (discriminant validity) Convergent validity is demonstrated by the average correlations between each item and its parent scale, corrected for the contribution made by the particular item in question. Average corrected item-scale

correlations for the subsections of the inpatient survey range from 0.62 to 0.86. Discriminant validity is shown by the fact that, on average, items from each scale are correlated with items from other scales from 0.40 to 0.59. Predictive validity, the ability of an instrument to predict outcomes that theoretically should be tied to the construct measured by the instrument, is measured by the relationship of individual items (and the entire scale) to the patient's reported likelihood of recommending the facility to others, a measure of "positive word of mouth." Multiple regression analysis revealed that. Collectively, all items are significant predictors of patients' reported likelihood to recommend the hospital, explaining approximately 77 percent of the variance in that measure.

Readability

According to the Flesch-Kincaid index, the inpatient questionnaire has a reading level between the fifth and sixth grades.

More information about the psychometric properties of the Press Ganey inpatient survey can be obtained from the authors.