A Measure of Trust in Insurers

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Background. Patient-centered assessments are increasingly important. Patients repeatedly emphasize the importance of trust in health care institutions and personnel.

Objectives. (1) Develop a conceptual framework for trust in health care organizations and a comprehensive, reliable measure of trust in health insurers. (2) Examine predictors and correlates of trust in insurers.

Study Design. A conceptual framework for trust in health organizations based on theory and empirical studies was used to develop items for a structured telephone survey, which also included measures of health and utilization, doctor–patient trust, and satisfaction with care. Principal components factor analyses identified hypothesized domains of trust in health insurers and identified items for scales. Internal consistency assessment used Cronbach’s α . Univariate analyses used Pearson’s r or Student’s t -tests.

Sample. Insured residents of Southeastern Michigan ($n = 400$).

Results. Respondents were diverse in age, gender, ethnicity, health, and socioeconomic status. One dominant factor (eigenvalue > 10) included hypothesized domains: administrative competence, clinical competence, advocacy and beneficence, fairness, honesty and openness, and one global item. Multidimensional scales were reliable (long version 13 items, $\alpha = 0.95$, short: 9 items, $\alpha = 0.91$). Insurer trust correlated strongly with trust in doctors ($r = 0.49$ and 0.46) and satisfaction with care ($r = 0.70$ and 0.66), and with an item assessing overall worry about health insurance ($r = -0.37$ and -0.35). Those with less trust in their insurer were more likely to say that they would change insurance plans ($p < .001$).

Conclusions. This well-grounded, reliable measure of enrollee trust in insurers can be a useful patient-centered assessment tool.

Key Words. Surveys, trust, patient satisfaction

Patient or enrollee assessment of health insurance plans is increasingly important for a number of health care constituencies. Consumers need this information to choose wisely between alternative health insurers, as do employers or governments as they choose which plans to offer their constituents. Accrediting bodies increasingly focus on patient-centered measures of organizational performance, and insurers themselves turn to their enrollees for feedback on many facets of care. Most patient-centered measures have thus far

been aimed at patient or enrollee satisfaction with care, perceptions of the quality of care, health outcomes, and quality of life. A few studies have included views of the doctor-patient relationship (including trust and the perception of incentives), or measures of organizational ethics (Cleary et al. 1991, 1993; Ware and Sherbourne 1992; Cleary and Edgman-Levitan 1997; Safran et al. 1998; Ware and Gandek 1998; Cleary 1999; Kaegi 1999; Thom et al. 1999; Wynia et al. 2001; Hall et al. 2002; Hojat et al. 2002; Van der Feltz-Cornelis et al. 2004). Measures aimed at patient perceptions of the organizational and economic aspects of health care or enrollee perceptions of fairness, trust, or trustworthiness are scant (Zheng et al. 2002; Rose et al. 2004), despite the popularity of similar measures in other organizational settings (Kramer and Tyler 1996; Petersen 2002).

Nevertheless, the study of trust in health care is growing, as it is in other arenas (Barber 1983; Fukuyama 1995; Hosmer 1995; Lehrer 1995; Kramer and Tyler 1996; Seligman 1997; Lagerspetz 1998; Hawe and Shiell 2000; Ruppel and Harrington 2000; Cook 2001; Mollering 2001). This increased interest in trust and trustworthiness in the health care context follows naturally from the vulnerability of ill patients. Patients grant, sometimes reluctantly, discretionary power to doctors, other clinicians, and numerous organizations in order to achieve something the patient desires, usually better health or even the preservation of their life (Goold 2001). Numerous open-ended studies of patients' views about their care, in a variety of contexts, many of which did not include specific hypotheses about trust, have found that patients spontaneously discuss trust in health care institutions and personnel and its importance, adding to the evidence that trust is important to patients (American Hospital Association 1996; Kulwicki 1996; Cooper-Patrick et al. 1997; Larsen et al. 1997; Winters 1999; Goold and Klipp 2002). A variety of tools to study trust are gradually becoming available, ranging from straightforward single questions (Kao et al. 1998a,b; Corbie-Smith, St. George, and Thomas 2001; O'Malley and Forrest 2002) to small groups of items (Doescher et al. 2000), and more complex measures to assess trust in a specific doctor (Safran et al. 1998; Thom et al. 1999; Ramsay et al. 2000; Keating et al. 2002), trust in doctors generally (Hall, Camacho, and Dugan 2002), and trust or distrust in

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health care institutions (Zheng et al. 2002; Rose et al. 2004; Thompson et al. 2004). These studies parallel changes in the way trust is measured in other domains (Cook 2001).

The challenging task of defining and measuring trust and related concepts—distrust, skepticism, trustworthiness, confidence, vulnerability, and satisfaction, for instance—requires a solid conceptual foundation. Although the definition of trust is itself far from straightforward (Cook 2001), there are a few elements common to most conceptions. First, trust as a sociological construct refers to people's *expectations* for the future. These expectations are typically for goodwill, advocacy, and competence on the part of the trusted party (person, collective, or institution), and usually, for a good outcome with respect to the trust object (one's health, life, or well-being). Although past experiences and other forms of knowledge (e.g., the reputation of a clinician or hospital) influence the degree of current trust, measuring trust itself requires measuring expectations about the trusted party. It can be difficult, in practice, to separate trust-as-expectation from other beliefs (especially those heavily influenced by past experiences) that can *influence* trust. The measurement of perceptions about integrity, honesty, fairness, or commitment to confidentiality, for instance, may reflect actual trust, beliefs about behaviors or characteristics that influence trust, or, possibly, both. Similarly, when measuring trust, it might be difficult to separate respondents' actual trust from perceptions related to the conditions of trust. For instance, feelings of great vulnerability might intensify a patient's reported trust in the person or institution acting on his/her behalf during that period of vulnerability.

Trust takes different forms, and may differ in important ways depending on the context, including who is trusting and who or what is trusted. Expectant or presumptive trust refers to the predisposition an individual brings to a new relationship, while experiential trust develops with knowledge of the trustee over time, and identification-based trust is based on a sense of shared values (Kramer and Tyler 1996). Trust in individuals (e.g., in physicians) can be heavily influenced by trust in general, through previous experiences, second-hand knowledge from others, or general trusting tendencies. Trust in individuals can also be influenced by trust in relevant organizations, whether that is a small clinic or a multinational corporation (Joffe 2001; O'Malley and Forrest 2002). Indeed, as the organization and financing of health care appears to influence trust in clinicians, organizational changes may be the most fruitful ways to enhance trust in doctors (Thom, Bloch, and Segal 1999).

Like interpersonal trust, expectations directed toward health care organizations (e.g., "I trust my insurer to be there for me if I get ill") are

future-directed and about the organization, not the services the organization may deliver or the outcomes one expects. Although it can be tempting to concentrate on expected outcomes rather than perceived motivations, there is evidence that the assessment of intent, character, or values is *more* important to trusting parties than the outcomes of trustees' decisions (Corbie-Smith et al. 1999; Wynia et al. 2002). Trust in organizations differs in some respects from trust in persons (Goold 2001). Perceptions of shared values, of fair decision making processes and/or fair treatment, and judgments about administrative competence are likely to be important aspects of trust in health care organizations, while they may be minimal or absent features of interpersonal trust relationships.

In this study we: (1) developed a conceptual framework for trust in health insurers, (2) developed a reliable measure of trust in health insurers, (3) added items reflecting cost-containment, the doctor's role in rationing, and the doctor-organization relationship to an existing measure of doctor-patient trust, and (4) examined predictors and correlates of trust in health insurers.

METHODS

Instrument Development

One author's (S.D.G.) study of managed care enrollees' expectations and experiences revealed the importance of trust in physicians, hospitals, and health insurers and suggested how organizational trust might operate in the health care arena (Goold and Klipp 2002). The conceptual framework for trust in health insurers was based on these findings as well as a comprehensive review of theoretical and empirical studies of trust in organizations in other (not health care) arenas (Barber 1983; Kramer and Tyler 1996), trust in health care organizations (Konovsky and Pugh 1994; Scott et al. 1995; Gray 1997; Mechanic and Rosenthal 1999; Rhodes and Strain 2000; Goold 2001), and trust in physicians (Mechanic and Schlesinger 1996; Axelrod and Goold 2000; Mechanic and Meyer 2000; Hall et al. 2001). The domains of trust in organizations identified through this comprehensive literature review included Competence (managerial and clinical), Beneficence and Advocacy, Fairness, Openness and Honesty, Reliability, and Vulnerability (see Table 1). Many items were taken verbatim, with only minimal modifications, from interviews with members of managed health plans (Goold and Klipp 2002). Items about the doctor-insurer relationship and the doctor's role in rationing were likewise taken verbatim with minimal changes from the interview study. In order to examine the

Table 1: Topics in Structured Instrument

Organizational trust
Expectations of:
Competence/quality
Beneficence/advocacy
Fairness
Honesty/openness
Reliability
Doctor–patient trust
Interpersonal trust (Thom et al. 1999)
Doctor–organization relationship
Doctor’s role in rationing
Perceived vulnerability
Worry about
Coverage
Health
Confidentiality
Satisfaction with care
Process variables
Subjective judgements (Ware and Hays 1988)

separability of these constructs from existing measures, we identified an appropriate validated instrument on doctor–patient trust (Thom et al. 1999) (11 items) and satisfaction with care (9 items) (Ware and Hays 1988). We included demographic items (13), health (one global health status and one presence of chronic/serious illness in the household), source of health insurance and number of covered individuals, length of time in plan and any household hospitalization in the past 6 months (yes/no/do not know) to assess construct validity as well as examine hypothesized relationships. We asked respondents to name their primary health insurer (“the plan used most”), referring if needed to their insurance card, and whether their insurance included in its name any of the phrases “Health Maintenance Organization (HMO), Preferred Provider Organization (PPO), Point-of-Service (POS), Network, or Health Plan.” In addition, we included four items assessing respondents’ perceived input into health plan selection, knowledge about one’s health insurance, worry about health insurance coverage, and concern about their ability to switch health insurance plans using a five-point Likert scale (A great deal–Very little) and a single dichotomous item asking if they would switch plans if they were able.

New items were combined with a screen for eligibility, validated instruments, and demographic questions to yield a 117-item survey. This version of the instrument was pretested with 21 publicly or privately insured volunteers

of various ages (*R*: 20–64), race/ethnicity, income levels (*R*: \$15,000–\$60,000+), and health status. Pretesting included behavioral coding, the think aloud technique, and postsurvey debriefing. In behavioral coding, interviewers observed and recorded their own behavior and that of respondents as they went through a survey together. This yielded information such as how many times the respondent asked for clarification and on which questions, or how many times the respondent interrupted the interviewer, and identified questions that were problematic for either the interviewer or the respondent. The “think-aloud technique” asked respondents to talk through their thought processes as they answered each question. This allowed us to determine whether the respondent understood the question as intended, had the information required to answer the question, and whether the information matched the response options given. Postsurvey debriefing asked patients to think about the survey they just completed and offer suggestions to improve it, comment on sections they had trouble with or did not like, and any other general or specific feedback. These strategies identified several problems which were corrected in subsequent drafts, including unclear response options, question stems that required repeating or clarification, questions for which most respondents misunderstood the intended meaning, and sections that ran too long for respondents to maintain attention. In addition, the range of responses was used to identify questions that respondents were answering similarly and so were candidates for deletion. New items developed to measure trust used a five-point Likert (Strongly Agree–Strongly disagree) response option; all questions asked about trust in the insurer using language that referred to the respondent’s “health insurance plan” or “health insurance company.”

Data Collection

The final version (111 items) was converted to computer-assisted telephone interviewing (CATI) format (Frey 1989) and pretested again for comprehension, skip patterns, and CATI compatibility. Phone interviewers at the Center for Urban Studies in Detroit started with a sampling frame of 2,489 residential phone numbers with prefixes from the tri-county Detroit metropolitan area (Wayne, Oakland, and Macomb counties), a geographic area chosen for its rural/urban, socioeconomic, and racial heterogeneity. Phone numbers were randomly sampled from the purchased list. Six attempts were made at various times to reach a household before the number was discarded. As the purpose of this study was primarily instrument development and testing, we did not pursue these numbers or try to convert refusers to responders.

Inclusion into our sample was based on several screening questions designed to yield a sample of respondents older than 18 with any type of health insurance, including Medicare and/or Medicaid. We aimed for 400 completed surveys (approximately 10 respondents per item in the largest factor analyses) with at least 20 percent minority respondents and at least 20 percent with an experience of chronic or serious illness in their family. Sampling stopped at 400 completed interviews; overselection was not required to assure >20 percent minority and ≥ 20 percent chronic/serious illness.

Data Analysis

Descriptive Statistics Were Employed to Describe the Study Participants. New items with unacceptable skew (mean <2 or >4) were dropped prior to factor analysis and respondents were excluded from the factor analysis if they responded to <80 percent of attitudinal items ($n = 54/400$). Missing values for the remaining sample were imputed using multivariate analysis of responses to other attitudinal items (StataCorp 1995) prior to factor analysis. Items were factor analyzed using principal factor extraction with Varimax orthogonal and Promax oblique rotation, as we hypothesized that factors (such as insurer trust and satisfaction) might not be orthogonal. Factors were retained based on eigenvalues > 1 and a scree test which plots eigenvalues on the y -axis and factors on the x -axis. The “elbow” of the resulting curve, where additional retained factors would explain less additional variance, helps define the number of factors that should be retained in subsequent analyses (Figure 1) (Kim and Mueller 1978, p. 44), and formed into scales based on factor loadings, the avoidance of duplicative items, and inclusion of diverse elements of the concept. We assessed the internal consistency (reliability) of these scales using Cronbach’s coefficient α (Cronbach 1951); $\alpha \geq 0.80$ were considered sufficient (Anastasi 1988; Cronbach 1990).

We predicted that those with greater knowledge of and input into choosing their insurance would have greater trust in their insurer (Balkrishnan et al. 2003; Schlesinger et al. 2002). We also predicted that those enrolled for shorter periods of time, and those reporting an intent to switch out of their plan, would have lower levels of trust (Schlesinger et al. 2002). We expected that insurer trust would be separable from, but correlate with, trust in one’s physician and satisfaction with care (Ware and Hays 1988; Scotti and Stinerock 2003). Other analyses were pursued less to assess the construct validity of the instrument than to explore hypothesized relationships, as relationships reported in other studies of trust, using scales

Figure 1: Illustrative Scree Test with Eigenvalue on *Y*-axis and Factors (1–10) on *X*-axis.

It is customary to retain factors through the “elbow” of the curve. Here subsequent analyses retained 3 or 4 factors

or single-item measures, are mixed. For instance, we examined the relationship between insurer trust and respondent age, race/ethnicity, gender, income level, and educational attainment. We also examined the relationship between insurer trust and health status, type of health insurance and the presence of a chronic or serious health condition in the household (Schlesinger et al. 1999; Druss et al. 2000). We hypothesized that trust might be associated with health care utilization in a nonlinear manner; that is, that those with high utilization (and thus more experience and contact with their health insurer) would have either higher or lower—that is greater extremes of—trust. Hence, we divided respondents into two groups, those with insurer trust scores in the middle two quartiles and those in the upper and lower quartiles, and performed χ^2 analyses with the respondent’s report of a household hospitalization in the past 6 months. Analyses of relationships included Pearson’s correlation coefficients, χ^2 statistics for the analysis of categorical variables, and Student’s *t*-tests (Student 1907) for comparing means of continuous variables between two populations.

This study was reviewed and approved by the University of Michigan Medical School Institutional Review Board. Verbal informed consent was obtained from each respondent prior to the interview.

RESULTS

Nine hundred and eighty-four working numbers with eligible respondents were contacted, of which 546 refused to participate, and 38 were ineligible for reasons other than exclusion criteria (e.g., language barrier, hearing problem). Four hundred completed interviews were conducted for a response rate of 42 percent. Respondents represented a range of education, income, and age (Table 2). They ranged in age from 18 to 83 (mean = 47.2, SD = 15.4). A majority of respondents were women (68.3 percent), about two-thirds were Caucasian, and 29 percent African American, with a small portion coming from other ethnicities. About one-sixth reported their health status as "fair" or "poor" and a third had had an experience of chronic or serious illness in their family. Eighteen percent of respondents had government-provided health insurance outside of a managed care plan (12 percent Medicare and 6 percent Medicaid), 16 percent had commercial indemnity insurance, and 47 percent were enrolled in a managed care plan.

Varimax orthogonal factor analysis of attitude and belief statements (51 items) revealed one dominant factor of 21 items with an eigenvalue consistently over 12 (Figure 1 and Table 3). A second factor (eigenvalue just > 1) consisted of three items about vulnerability. The dominant factor, which contained only new items, persisted in multiple analyses that included or omitted the "Trust in Physician" (11 items) and "Satisfaction with Care" (9 items) scales. Oblique factor analyses confirmed the factor structure and its separability from the other measures. This factor was called "Insurer Trust." Two insurer trust scales were then developed based on content, internal consistency, and factor loading. These scales were designed to eliminate duplication, retain items representing various domains of trust, and provide long and short scale versions for future research. For instance, loadings for "Some people get better treatment than others by my health insurance company" were low (< 0.4), and this item was dropped. The item "My health insurance company knows a lot about how medical services work" was, we judged, similar to (if with a narrower focus than) "The health care I can get through my health insurance plan is first-rate;" only the latter item was retained. Long and short versions were developed as the needs of researchers for scales often vary. Research that attempts to measure change over time or after an intervention, for instance, requires greater internal reliability (and usually longer scales), while correlating two measures, or comparing two populations, requires less internal consistency and may use shorter scales. The final long scale contained 13 items (Cronbach's $\alpha = 0.95$). The shorter "Insurer Trust" scale contained

Table 2: Respondent Characteristics ($n = 399$)

Age—mean $\pm$ SD (years)	
All	47.2 ($\pm$ 15.4)
Male	46.8 ($\pm$ 14.7)
Female	47.4 ($\pm$ 15.7)
Gender—% female	68.3
Race (%)	
White/Caucasian	65.9
African American	28.8
Other	5.3
Education (%)	
Less than high school	5.5
High school graduate	30.9
Some college	27.5
College graduate	22.8
Beyond college	13.3
Family income %	
< \$20,000	11.8
\$20,000–34,999	16.3
\$35,000–60,000	31.0
> \$60,000	25.9
Refused	15.0
Employment (%)	
Full time	57.1
Part time	9.9
Unemployed	17.3
Retired/disabled	15.6
Marital status (%)	
Married	57.4
Divorced/separated/widowed	25.9
Never married	16.6
Reported health status (%)	
Excellent	14.8
Very good	38.2
Good	30.9
Fair	12.3
Poor	3.8
Type of health insurance (%)	
Government-provided indemnity	18
Commercial indemnity	16
Managed care plan	47
Not characterized or no response	19

nine items and retained very good internal consistency (Cronbach's $\alpha = 0.91$) (Table 4). The three-item "vulnerability" scale had only modest internal consistency (Cronbach's $\alpha = 0.69$). Mean scores for both long and short "Trust in Insurer" scales were near the mid-point of possible scores (Table 5).

Table 3: Factor Analysis with Varimax Rotation for Survey Responses

<i>Variable*</i>	<i>Insurer Trust</i> <i>Eigenvalue = 12.76</i>	<i>Vulnerability</i> <i>Eigenvalue = 1.15</i>	<i>Physician Advocacy</i> <i>Eigenvalue = 1.06</i>
IT 4	0.80623	—	—
IT 11	0.79970	—	—
Q 48	0.77425	—	—
IT 13	0.76436	—	—
Q 36	0.76390	—	—
IT 6	0.75783	—	—
IT 12	0.75311	—	—
IT 7	0.74847	—	—
IT 10	0.73856	—	—
IT 3	0.73144	0.32609	—
IT 5	0.71315	—	—
IT 8	0.66391	—	—
IT 9	0.65975	—	0.32942
Q 26	0.63179	—	—
Q 47	0.61724	—	—
IT 13	0.60356	—	—
Q 37	0.58104	—	0.32081
IT 1	0.57957	—	0.34435
Q 54	0.57752	—	—
IT 2	0.57215	—	—
Q 55	0.42787	—	0.31403
V 3	0.31081	0.56476	—
V 2	—	0.53093	—
V 1	—	0.43746	—
Q 41	—	0.43771	—
Q 31	0.38375	0.35774	—
Q 42	—	0.32125	—
Q 40	0.31061	—	—
PA 1	—	—	0.64650
PA 2	0.35315	—	0.58803
Q 35	0.35924	—	0.39173
PA 3	—	—	0.29355*
Q 43	—	—	—

*In analyses when the Doctor Trust scale was included, the loading for this item consistently exceeded 0.4.

IT, item in final insurer trust scale (see Appendix A); V, vulnerability item; PA, physician advocacy item added to existing Doctor Trust scale; Q, item dropped during scale development. Items were dropped based on weak or duplicate loadings (e.g., Q31), or to avoid duplication of content, maintain internal consistency, include all relevant domains, and minimize the number of items while ensuring a high-performing measure.

Three items about physicians, insurance, and costs rotated with the 10-item “Doctor Trust” scale. Internal consistency of the combined 13-item scale was high Cronbach’s $\alpha = 0.87$ (Table 4).

Table 4: Scale Reliability

<i>Scale</i>	<i>Number of Items</i>	<i>Cronbach's α</i>
Insurer trust (long version)	13	0.94
Insurer trust (short version)	9	0.91
Vulnerability	3	0.69
Doctor trust +3 new items	13	0.87

We predicted that those respondents reporting a longer length of time in their plan, more input into choosing their plan, more knowledge about their insurer, and an intention to remain with their plan would all have greater trust in their health insurance and this was confirmed (Table 6). Those with fair or poor health status had lower levels of trust in their insurer than those with good, very good, or excellent health status. Respondents with at least a high school degree had lower levels of trust than the less educated. As expected, insurer trust scales correlated with the satisfaction with care scale developed by Ware and Hays (1988) (Table 7), and less strongly with a measure of doctor-patient trust. We found a weak relationship between reported health care utilization and extremes of trust. Of 54 respondents who reported a hospitalization, 21 were in the middle two quartiles and 33 were in the upper or lower quartile of insurer trust. Of those without a hospitalization, 148 were in the middle quartiles and 141 in the upper or lower quartiles of insurer trust ($p = .10$). Age, income, gender, race, income level, and type of health insurance were not, in this study, associated with the level of trust or distrust in insurers (Table 5).

DISCUSSION

We have developed a comprehensive measure of insurer trust that is well grounded in the theoretical and empirical literature on trust in organizations

Table 5: Summary Scores of Scales

<i>Scale</i>	<i>Mean / No. of Items</i>	<i>$\pm$ SD</i>
Long insurer trust	3.41	0.779
Short insurer trust	3.42	0.745
Trust in physician	3.64	0.645
Trust in physician +3	3.69	0.587
Satisfaction with care	3.61	0.647

Table 6: Relationships between Insurer Trust and Participant Characteristics

	<i>Insurer Trust (Long Version)</i>	
	<i>Mean (SD)</i>	<i>p</i>
Perceived health status		
Fair or poor	3.13 (0.13)	< .005*
Excellent, very good, or good	3.46 (0.04)	
Education		
≤ High school	3.51 (0.07)	< .05*
> High school	3.36 (0.05)	
Type of health insurance		
Indemnity (government or commercial)	3.4 (0.76)	NS
Managed care plan	3.3 (0.82)	
Gender		
Women	3.5 (0.78)	.07*
Men	3.3 (0.78)	
Race/ethnicity		
African American	3.5 (0.78)	NS
All others	3.4 (0.79)	
Knowledge about plan		
A great deal	3.58 (0.81)	< .001 [†]
Very little	2.95 (0.96)	
Input into choosing plan		
A great deal	3.66 (0.07)	< .0001*
Very little	3.26 (0.07)	
Length of time in plan		
< 1 year	3.13 (0.71)	< .05 [‡]
1–3 years	3.28 (0.78)	
> 3 years	3.48 (0.78)	
Intent to switch plans		
Intend to keep plan	3.64 (0.04)	< .0001*
Intend to switch plans	2.72 (.09)	
Hospitalization	Portion in middle quartiles of trust	
Yes (<i>n</i> = 54)	38.8%	.10 [‡]
No (<i>n</i> = 289)	51.2%	

*Student *t*-test.

[†]ANOVA.

[‡] χ^2 test.

and trust in health care contexts. This measure is reliable and, unlike many other patient-centered measures, did not have a skewed distribution in our population. Hypothesized relationships provide preliminary evidence of construct validity. Intent to switch plans, as expected, was associated with lower

Table 7: Correlations between Scales

	Pearson's <i>r</i>	
	<i>Satisfaction with Care</i>	<i>Trust in Physician</i>
Insurer trust (long)	0.749	0.480
Insurer trust (short)	0.754	0.490

levels of trust. Greater choice of health plan has been associated with greater satisfaction with plans in other studies (Davis 1995; Enthoven 2001) and with insurer trust using a different measure (Zheng et al. 2002); we found similar relationships between choice, input, and knowledge about health insurance and respondents' level of trust in their insurer. Although some respondents (e.g., those with Medicare alone, or those with only one health insurance plan to "choose") are not likely to perceive changing their health insurance as an option, their responses would tend to bias results away from our hypothesis. Although in most studies race has been associated with lower trust in doctors, medical research, and the health care system (Callender et al. 1984; Gamble 1993; Armstrong et al. 1999; Doescher et al. 2000; LaVeist et al. 2000; Freburger et al. 2003), we did not find race and trust in insurers to be associated. This may have been a function of our sample size combined with the modest difference in means between white and nonwhite respondents; we had only 11 percent power to claim that the difference we found (<0.10 on a scale of 1–5, with SD 0.78) was statistically significant. Racial differences may not be as great for insurer trust as for other relationships in health care. Healthier respondents reported greater trust, perhaps reflecting more optimism about their health generally, or fewer bad experiences. Further research will be needed to confirm and deepen our understanding of the predictors and correlates of greater and lesser trust in insurers.

This measure of insurer trust and a previously published measure (Zheng et al. 2002) share some features in common but have notable differences. Zheng's measure has a subgroup of items addressing confidentiality with relatively weaker item-to-total correlations. Based on our conceptual framework, we did not include a domain related to confidentiality although we included one item about privacy (V1) in our domain of vulnerability. Confidentiality can be considered an aspect of expectations of beneficence, one of the conceptual elements of trust (Table 2), although expectations of beneficence are, probably, less prominent in institutional trust than in interpersonal

trust (Goold 2001). In our study, this item and other vulnerability items did not load heavily on the insurer trust factor, so we opted to omit them. It is possible that vulnerability is not an inherent aspect of trust but instead a condition which predisposes to trust (or, more accurately, the need to trust). Alternatively, the vulnerability items were negatively worded, which can influence responses and hence factor loadings. Our scale also differs from the Zheng instrument in that it includes items about fairness. This may reflect our study's use of verbatim quotes about trust from interviews with managed care enrollees, where interviewees' narratives about trust were unprompted. Other comparisons between the two studies are intriguing. Both found trust to be relatively unidimensional with the possible exception of domains of confidentiality and/or vulnerability. Each group found insurer trust associated with choice of plan and intent to switch. We found no relationship between trust and type of health insurance or race/ethnicity, but did find greater trust amongst healthier respondents, those with less than a high school education, greater knowledge of their plan, and a longer time with their insurer. It is possible that insurer trust might differ for respondents who *think* they are or are not in a managed care plan. We did not examine this question. Instead, we found that insurer trust did not differ according to whether or not the respondent was actually enrolled in a managed care plan. These relationships, and other work examining the predictors and correlates of trust in insurers, provide exciting avenues for future research.

We also developed three items on doctor trust that address the economic and insurance context of the doctor-patient relationship and appear to fit well with an established measure of doctor trust. Surveys of patients about the doctor-patient relationship have, with rare exceptions (Kao, et al. 1998a, b; Doescher et al. 2000), seldom included items addressing the relationship between the doctor and the health insurer, or their doctor's role in economic decisions, despite evidence that these issues are increasingly important to patients. In one recent study, trust in one's physician changed little over time, while trust in the insurer increased over time for the subgroup of enrollees who switched physicians (Balkrishnan et al. 2003). Clearly, the relationship between insurer trust and doctor trust is complex. Given increasing interest in measuring trust in physicians and how it may relate to organizational contexts (Kao et al. 1998a, b; Safran et al. 2000; Goold 2001; O'Malley and Forrest 2002; Wynia et al. 2002; Balkrishnan et al. 2003), our expansion of an existing measure may be of value to such research.

Our study was limited geographically; all respondents were drawn from one large metropolitan area, albeit one with considerable diversity. Some items

in the original questionnaire might be useful additions to the scale in other markets—for instance, responses to “My health plan is likely to be in business for a long time” may not have been sufficiently discriminatory in a single and relatively stable health insurance market. As for all new survey measures, the instruments’ psychometric properties and factor structure should be tested in other populations. Relationships found between scale scores and respondent characteristics, while intriguing, should be interpreted with caution in light of the response rate and nonrandom sampling technique. On the other hand, incomplete data were relatively infrequent, surprising for a long telephone survey.

A reliable, theoretically grounded measure of trust in insurers, and doctor trust items incorporating economic concerns, may be useful additions to the armamentarium for researchers and administrators interested in patient-centered assessments of health insurance and health care. These instruments may be useful not only in evaluating health plans, for instance, but in testing the impact of organizational or system changes such as changes in plan governance or communication with enrollees. Given the finding that those who perceived more input into their choice of health plan placed greater trust in their insurer, for instance, future work could examine the impact on trust of organizational efforts to solicit and use the input of consumers for organizational decision making. Other studies could examine whether trust in insurers, like trust in physicians, influences patients’ adherence to treatment or their judgments about the quality of care (Meredith et al. 2001). Finally, although trust has both inherent and instrumental value for patients, clinicians, and health care institutions, trust can be misplaced, and distrust can be unjustified. Measuring trust is not the same as measuring trustworthiness.

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REFERENCES

- American Hospital Association. 1996. “Reality Check.” Chicago: AHA.
- Anastasi, A. 1988. *Psychological Testing*, 6th Edition. New York: Macmillan Publishing Co.
- Armstrong, T. D., L. D. Crum, R. H. Rieger, T. A. Bennett, and L. J. Edwards. 1999. “Attitudes of African Americans toward Participation in Medical Research.” *Journal of Applied Social Psychology* 29 (3): 552–74.

- Axelrod, D., and S. D. Goold. 2000. "Maintaining Trust in the Surgeon-Patient Relationship: Challenges for the New Millennium." *Archives of Surgery* 135 (1): 55-61.
- Balkrishnan, R., E. Dugan, F. T. Camacho, and M. A. Hall. 2003. "Trust and Satisfaction with Physicians, Insurers, and the Medical Profession." *Medical Care* 41 (9): 1058-64.
- Barber, B. 1983. *The Logic and Limits of Trust*. New Brunswick, NJ: Rutgers University Press.
- Callender, C. O., J. A. Bayton, C. Yeager, and J. E. Clark. 1984. "Attitudes among Blacks toward Donating Kidneys for Transplantation: A Pilot Project." *Journal of the National Medical Association* 74: 807-9.
- Cleary, P. D. 1999. "The Increasing Importance of Patient Surveys. Now That Sound Methods Exist, Patient Surveys Can Facilitate Improvement." *British Medical Journal* 319 (7212): 720-1.
- Cleary, P. D., and S. Edgman-Levitan. 1997. "Health Care Quality. Incorporating Consumer Perspectives." *Journal of the American Medical Association* 278: 1608-12.
- Cleary, P. D., S. Edgman-Levitan, M. Roberts, T. W. Moloney, W. McMullen, J. D. Walker, and T. L. Delbanco. 1991. "Patients Evaluate Their Hospital Care: A National Survey." *Health Affairs* 10: 254-6.
- Cleary, P. D., S. Edgman-Levitan, J. D. Walker, M. Gerteis, and T. L. Delbanco. 1993. "Using Patient Reports to Improve Medical Care: A Preliminary Report from 10 Hospitals." *Quality Management in Health Care* 21: 31-8.
- Cook, K. S., (Ed.). 2001. *Trust in Society. Russell Sage Foundation Series on Trust*, Vol. 2.
- Cooper-Patrick, L., N. R. Powe, M. W. Jenckes, J. J. Gonzales, D. M. Levine, and D. E. Ford. 1997. "Identification of Patient Attitudes and Preferences Regarding Treatment of Depression." *Journal of General Internal Medicine* 12 (7): 431-8.
- Corbie-Smith, G., D. St. George, and S. Thomas. 2001. "Distrust, Race and Research (Abstract)." *Journal of General Internal Medicine* (S1): 124.
- Corbie-Smith, G., S. B. Thomas, M. V. Williams, and S. Moody-Ayers. 1999. "Attitudes and Beliefs of African Americans toward Participation in Medical Research." *Journal of General Internal Medicine* 14 (9): 537-46.
- Cronbach, L. J. 1951. "Coefficient Alpha and the Internal Structure of Tests." *Psychometrika* 16: 97-334.
- . 1990. *Essentials of Psychological Testing*, 5th Edition. New York: HarperCollins Publishers Inc.
- Davis, K. 1995. "Commonwealth Fund Initiatives." *Bulletin of the New York Academy of Medicine* 72 (2 suppl): 624-6.
- Doescher, M. P., B. G. Saver, P. Franks, and K. Fiscella. 2000. "Racial and Ethnic Disparities in Perceptions of Physician Style and Trust." *Archives of Family Medicine* 9: 1156-63.
- Druss, B. G., M. Schlesinger, T. Thomas, and H. Allen. 2000. "Chronic Illness and Plan Satisfaction under Managed Care." *Health Affairs* 19 (1): 203-9.
- Enthoven, A. C. 2001. "Consumer Choice and the Managed Care Backlash." *American Journal of Law and Medicine* 27 (1): 1-15.
- Freburger, J. K., L. F. Callahan, S. S. Currey, and L. A. Anderson. 2003. "Use of the Trust in Physician Scale in Patients with Rheumatic Disease: Psychometric

- Properties and Correlates of Trust in the Rheumatologist." *Arthritis and Rheumatism* 49 (1): 51–8.
- Frey, J. H. 1989. *Survey Research by Telephone*. Newbury Park, CA: Sage Publications.
- Fukuyama, F. 1995. *Trust: Social Virtues and the Creation of Prosperity*, p. 457. New York: Free Press.
- Gamble, V. N. 1993. "A Legacy of Distrust: African Americans and Medical Research." *American Journal of Preventive Medicine* 9 (6 suppl): 35–8.
- Goold, S. D. 2001. *Trust and the Ethics of Healthcare Organizations*. Hastings Center Report, November–December, 26–33.
- Goold, S. D., and G. Klipp. 2002. "Managed Care Members Talk about Trust." *Social Science and Medicine* 54 (6): 879–88.
- Gray, B. H. 1997. "Trust and Trustworthy Care in the Managed Care Era." *Health Affairs* 16 (1): 34–49.
- Hall, M. A., F. Camacho, and E. Dugan. 2002. "Trust in the Medical Profession: Conceptual and Measurement Issues." *Health Services Research* 37 (5): 1419–39.
- Hall, M. A., E. Dugan, B. Zheng, and A. K. Mishra. 2001. "Trust in Physicians and Medical Institutions: What Is It, Can It Be Measured, and Does It Matter?" *Milbank Quarterly* 79 (4): 613–39.
- Hall, M. A., B. Zheng, E. Dugan, F. Camacho, K. E. Kidd, A. Mishra, and R. Balkrishnan. 2002. "Measuring Patients' Trust in Their Primary Care Providers." *Medical Care Research and Review* 59 (3): 293–318.
- Hawe, P., and A. Shiell. 2000. "Social Capital and Health Promotion: A Review." *Social Science and Medicine* 51 (6): 871–85.
- Hojat, M., J. S. Gonnella, T. J. Nasca, S. Mangione, M. Vergare, and M. Magee. 2002. "Physician Empathy: Definition, Components, Measurement, and Relationship to Gender and Specialty." *American Journal of Psychiatry* 159 (9): 1563–9.
- Hosmer, L. T. 1995. "Trust: The Connecting Link between Organizational Theory and Philosophical Ethics." *Academic Management Review* 20: 379–403.
- Joffe, S. 2001. "Trust, Involvement in Decisions, and Respect for Persons among Hospitalized Patients (abstract)." American Society for Bioethics and Humanities, Fourth Annual Meeting, October 25–28, Session code number R2, pp. 58–9 Nashville, TN: The Renaissance Hotel and Nashville Convention Center.
- Kaegi, L. 1999. "Medical Outcomes Trust Conference Presents Dramatic Advances in Patient-Based Outcomes Assessment and Potential Applications in Accreditation." *Joint Commission Journal on Quality Improvement* 25 (4): 207–18.
- Kao, A. C., D. C. Green, A. M. Zaslavsky, J. P. Koplan, and P. D. Cleary. 1998a. "The Relationship between Method of Physician Payment and Patient Trust." *Journal of the American Medical Association* 280 (19): 1708–14.
- Kao, A. C., D. C. Green, N. A. Davis, J. P. Koplan, and P. D. Cleary. 1998b. "Patients' Trust in Their Physicians: Effects of Choice, Continuity, and Payment Method." *Journal of General Internal Medicine* 13 (10): 681–6.
- Keating, N. L., D. C. Green, A. C. Kao, J. A. Gazmararian, V. Y. Wu, and P. D. Cleary. 2002. "How Are Patients' Specific Ambulatory Care Experiences Related to

- Trust, Satisfaction, and Considering Changing Physicians?" *Journal of General Internal Medicine* 17 (1): 29–39.
- Kim, J.-O., and C. W. Mueller. 1978. *Factor Analysis: Statistical Methods and Practical Issues*. Newbury Park, CA: Sage Publications.
- Konovsky, M. A., and S. D. Pugh. 1994. "Citizenship Behavior and Social Exchange." *Academy of Management Journal* 37 (3): 656–69.
- Kramer, R. M., and T. R. Tyler, (Eds.) 1996. *Trust in Organizations: Frontiers of Theory and Research*, Chapter 8. Thousand Oaks, CA: Sage Publications.
- Kulwicki, A. 1996. "An Ethnographic Study of Illness Perceptions and Practices of Yemeni-Arabs in Michigan." *Journal of Cultural Diversity* 3 (3): 80–9.
- Lagerspetz, O. 1998. *Trust: The Tacit Demand*. Boston: Kluwer Academic Publishers.
- LaVeist, T. A., K. J. Nickerson, and J. V. Bowie. 2000. "Attitudes about Racism, Medical Mistrust, and Satisfaction with Care among African American and White Cardiac Patients." *Medical Care Research and Review* 57 (suppl 1): 146–61.
- Larsen, M., C. C. Oldeide, and K. Malterud. 1997. "Not So Bad after all . . . , Women's Experiences of Pelvic Examinations." *Family Practice* 14 (2): 148–52.
- Lehrer, K. 1995. "Knowledge and the Trustworthiness of Instruments." *The Monist* 78: 156–70.
- Mechanic, D., and S. Meyer. 2000. "Concepts of Trust among Patients with Serious Illness." *Social Science and Medicine* 51 (5): 657–68.
- Mechanic, D., and M. Rosenthal. 1999. "Responses of HMO Medical Directors to Trust Building in Managed Care." *Milbank Quarterly* 77 (3): 273, 283–303.
- Mechanic, D., and M. Schlesinger. 1996. "The Impact of Managed Care on Patients' Trust in Medical Care and Their Physicians." *Journal of the American Medical Association* 275 (21): 1693–7.
- Meredith, L. S., M. Orlando, N. Humphrey, P. Camp, and C. D. Sherbourne. 2001. "Are Better Ratings of the Patient–Provider Relationship Associated with Higher Quality Care for Depression?" *Medical Care* 39 (4): 349–60.
- Mollering, G. 2001. "The Nature of Trust: From Georg Simmel to a Theory of Expectation, Interpretation and Suspension." *Sociology* 35 (2): 403–20.
- O'Malley, A. S., and C. B. Forrest. 2002. "Beyond the Examination Room: Primary Care Performance and the Patient–Physician Relationship for Low-Income Women." *Journal of General Internal Medicine* 17 (1): 66–74.
- Petersen, L. A. 2002. "Racial Differences in Trust: Reaping What We Have Sown?" *Medical Care* 40 (2): 81–4.
- Ramsay, J., J. L. Campbell, S. Schroter, J. Green, and M. Roland. 2000. "The General Practice Assessment Survey (GPAS): Tests of Data Quality and Measurement Properties." *Family Practice* 17 (5): 372–9.
- Rhodes, R., and J. J. Strain. 2000. "Trust and Transforming Medical Institutions." *Cambridge Quarterly Healthcare Ethics* 9 (2): 205–17.
- Rose, A., N. Peters, J. A. Shea, and K. Armstrong. 2004. "Development and Testing of the Health Care System Distrust Scale." *Journal of General Internal Medicine* 19 (1): 57–63.

- Ruppel, C. P., and S. J. Harrington. 2000. "The Relationship of Communication, Ethical Work Climate, and Trust to Commitment and Innovation." *Journal of Business Ethics* 25 (4): 313–28.
- Safran, D. G., W. H. Rogers, A. R. Tarlov, T. Inui, D. A. Taira, J. E. Montgomery, J. E. Ware, and C. P. Slavin. 2000. "Organizational and Financial Characteristics of Health Plans: Are They Related to Primary Care Performance?" *Archives of Internal Medicine* 160 (1): 69–76.
- Safran, D. G., M. Kosinski, A. R. Tarlov, W. H. Rogers, D. H. Taira, N. Lieberman, and J. E. Ware. 1998. "The Primary Care Assessment Survey: Tests of Data Quality and Measurement Performance." *Medical Care* 36 (5): 728–39.
- Schlesinger, M., B. Druss, and T. Thomas. 1999. "Institution No Exit? The Effect of Health Status on Dissatisfaction and Disenrollment from Health Plans." *Health Services Research* 34 (2): 547–76.
- Schlesinger, M., S. Mitchell, and B. Elbel. 2002. "Voices Unheard: Barriers to Expressing Dissatisfaction to Health Plans." *Milbank Quarterly* 80 (4): 709–55, iv–v.
- Scott, R. A., L. H. Aiken, D. Mechanic, and J. Moravcsik. 1995. "Organizational Aspects of Caring." *Milbank Quarterly* 73 (1): 77–95.
- Scotti, D. J., and R. N. Stinerock. 2003. "Cognitive Predictors of Satisfaction with Hospital Inpatient Service Encounters among the Elderly: A Matter of Trust." *Journal of Hospital Marketing and Public Relations* 14 (2): 3–22.
- Seligman, A. 1997. *The Problem of Trust*. Princeton, NJ: Princeton University Press.
- StataCorp. 1995. *Stata Statistical Software: Release 4.0*, Vol. 2, pp 466–70. College Station, TX: Stata Corporation.
- Student. 1907. "On the Error of Counting with a Haemacytometer." *Biometrika* 5: 351.
- Thom, D. H., D. A. Bloch, and E. S. Segal. 1999. "An Intervention to Increase Patients' Trust in Their Physicians. Stanford Trust Study Physician Group." *Academic Medicine* 74 (2): 195–8.
- Thom, D. H., K. M. Ribisl, A. L. Stewart, and D. A. Luke. 1999. "Further Validation and Reliability Testing of the Trust in Physician Scale. The Stanford Trust Study Physicians." *Medical Care* 37 (5): 510–7.
- Thompson, H. S., H. B. Valdimarsdottir, G. Winkel, L. Jandorf, and W. Redd. 2004. "The Group-Based Medical Mistrust Scale: Psychometric Properties and Association with Breast Cancer Screening." *Preventive Medicine* 38 (2): 209–18.
- Van der Feltz-Cornelis, C. M., P. Van Oppen, H. W. Van Marwijk, E. De Beurs, and R. Van Dyck. 2004. "Institution A Patient-Doctor Relationship Questionnaire (PDRQ-9) in Primary Care: Development and Psychometric Evaluation." *General Hospital Psychiatry* 26 (2): 115–20.
- Ware Jr., J. E., and B. Gandek. 1998. "Overview of the SF-36 Health Survey and the International Quality of Life Assessment (IQOLA) Project." *Journal of Clinical Epidemiology* 51 (11): 903–12.
- Ware Jr., J. E., and R. D. Hays. 1988. "Methods for Measuring Patient Satisfaction with Specific Medical Encounters." *Medical Care* 26 (4): 393–402.
- Ware Jr., J. E., and C. D. Sherbourne. 1992. "The MOS 36-Item Short-Form Health Survey (SF-36). I. Conceptual Framework and Item Selection." *Medical Care* 30 (6): 473–83.

- Winters, C. A. 1999. "Heart Failure: Living with Uncertainty." *Progress in Cardiovascular Nursing* 14 (3): 85–91.
- Wynia, M., S. Coughlin, S. Alpert, D. S. Cummins, and L. L. Emanuel. 2001. "Shared Expectations for Protection of Identifiable Health Care Information." *Journal of General Internal Medicine* 16: 100–111.
- Wynia, M. W., D. Zuker, S. Supran, and H. P. Selker. 2002. "Patient Protection and Risk Selection: Do Primary Care Physicians Encourage Their Patients to Join or Avoid Capitated Health Plans According to the Patients' Health Status?" *Journal of General Internal Medicine* 17 (1): 40–7.
- Zheng, B., M. A. Hall, E. Dugan, K. E. Kidd, and D. Levine. 2002. "Development of a Scale to Measure Patients' Trust in Health Insurers." *Health Services Research* 37 (1): 187.