Title: Addressing Patients' Multiple Concerns in Primary Care

Principal Investigator/Team Members: Professor John Heritage, UCLA (PI); Professor Jeffrey Robinson, Rutgers University; Dr. Marc Elliott, RAND Corp; Dr. Megan Beckett, RAND Corp; Professor Michael Wilkes, UC Davis

Inclusive Dates of Project: 9/30/2002 - 9/29/2005

Federal Project Officer: Joy Basu

Acknowledgment of Agency Support: I acknowledge that support from the Agency for Healthcare Research and Quality is the sole form of financial support received for this project.

Grant No.: 5R01HS013343-02

ABSTRACT

PURPOSE: To test an intervention to reduce patients' unmet concerns in primary care visits.

SCOPE: About 40% of primary care patients present with more than one medical concern. Numbers of these concerns are not met. This intervention was designed to reduce patients' unmet concerns.

METHODS: Randomized controlled trial of two interventions, with videotaping of office visits, and pre- and post-visit surveys. Physicians performed four normal visits (controls) and were randomly assigned to one of two intervention conditions for at least seven additional visits. In the interventions, physicians asked about additional concerns in one of two ways: "Is there anything else you want to address in the visit today?" (ANY condition) and "Is there something else you want to address in the visit today?"(SOME condition).

SETTING: Outpatient offices of community-based physicians. PARTICIPANTS: 230 patients visiting 20 physicians. MEASUREMENTS: Patients' unmet concerns were operationalized as concerns that were listed in a pre-visit survey that were not raised during the medical visit. Logistic regression was used to determine communication and other factors associated with unmet concerns.

RESULTS: Relative to controls, the SOME condition nearly halved the odds of unmet concerns (OR=0.57, p=.036). The ANY condition had no impact on unmet concerns relative to controls. Neither arm of the intervention influenced visit length. Although the SOME condition generated many additional concerns, it was not associated with the expression of concerns not listed in pre-visit surveys. Neither arm of the intervention influenced visit length or patient satisfaction. Although the SOME condition generated many additional concerns, it was not associated with the expression of concerns not listed in the pre-visit survey.

KEYWORDS: primary care, physician-patient communication, unmet concerns, physician questions, patient agendas

PURPOSE

This study was designed to investigate the extent of patients' unarticulated complaints and physicians' management of multiple complaints in the acute primary care context. The study had six aims:

Aim 1. To investigate the extent to which patients arrive with multiple concerns and present those concerns to physicians.
Aim 2. To determine whether a simple communication intervention can increase the raising of multiple concerns.
Aim 3. To determine whether this communication intervention will result in patients' multiple concerns being addressed fully and effectively.
Aim 4. To determine whether this communication intervention will result in increased patient satisfaction with the medical visit.
Aim 5. To evaluate the impact of the number of concerns raised on visit length.
Aim 6. To determine the association between visit length and patients' visit satisfaction within the context of these variations.

SCOPE

Primary care patients frequently present to their physicians with more than one medical concern. Data from the 1998 National Ambulatory Medical Care Survey (NAMCS) indicate that some 35% of patients present with two or more reasons for the medical visit and that this figure rises to 42% for patients presenting on an acute basis. These statistics suggest that physicians can face severe problems in managing their patients' arrays of concerns fully and effectively. In a context in which cost pressures are generally reducing visit times, physicians have less time to gather information about patients' health, and relevant history taking may be abbreviated [1]. Studies suggest that new and potentially severe medical problems may emerge late in visits, further curtailing the opportunity for physicians to address them in a complete and effective manner [2-4].

Prior research has documented the significance of physician-patient communication in the primary care context with respect to a wide range of physician- and patient-level outcomes. These include the ability of physicians to evaluate patients' symptoms, to diagnose, to make effective treatment recommendations, to manage consultation time effectively, and to assess such patient-level outcomes as physiological indicators of health status, satisfaction, adherence to medical recommendations, and propensity to litigate [5-17]. Physician communication behaviors are among the more significant predictors of patient satisfaction and adherence. Previous research has shown that the extent to which patients are satisfied with their medical care is an significant determinant of several important outcomes including the economic success of various healthcare delivery systems and even the viability of certain providers' practices. Patient satisfaction is also strongly associated with patient adherence to medical regimens [18, 19] and better healthcare outcomes [5, 13]. When patients are dissatisfied, particularly with the interpersonal aspects of their care, they are more likely to change doctors [20], to disenroll from prepaid health plans [21], and to bring malpractice litigation [22]. A range of physician behaviors is associated with increased patient satisfaction, including the patient-centered interviewing style involving an active search for the patient's point of view, empathetic and affiliative communication behaviors, information giving by physicians, and physician technical competence [10, 11, 23, 24].

Patient Problem Presentation

One of the most longstanding, important, and complex issues currently being addressed by scholars of physician-patient communication concerns patients' levels of communicative involvement, or participation, during medical visits (e.g., [25, 26]). A consistent finding of numerous studies is that patients commonly adopt a responsive position within the primary care encounter. Stated negatively, patients take the interactional initiative relatively infrequently: they rarely ask for information, explanations, or clarification, or volunteer information, opinions, preferences, or concerns [6, 19, 26 34].

When patients visit primary care physicians, they often have more than one concern, including (1) the presentation of medical problems, which can themselves multiple biomedical and psychosocial components; (2) requests for information; and (3) requests for non-diagnostic services (e.g., prescriptions) [2, 3, 35-37]. Data from the 1998 National Ambulatory Medical Care Survey (NAMCS) indicate that some 35% of patients present with two or more reasons, symptoms, or complaints and that this figure rises to 42% for patients presenting on an acute basis. Physicians' knowledge of the full spectrum of patients' concerns is vital not only for the accurate diagnosis and treatment of medical conditions but also for the delivery of comprehensive and quality healthcare [30, 37-45]. One consequence of patients' predominantly responsive stance in the medical visit is that patients' full agendas of concerns do not always get revealed and addressed during visits. The number of patients with one or more unarticulated concerns is presently under-researched, but a recent small-scale British study indicated that only 11% of patients voiced all their concerns in their primary care visits and that, in 40% of visits, there were problematic outcomes (e.g., unwanted prescriptions, nonadherence, and major misunderstandings), all of which were associated with unvoiced concerns.

Patients' additional concerns tend to be articulated in two basic locations in the acute primary care visit: (1) at the beginning of the visit and (2) after the presenting complaint has been addressed. In 75-85% of acute visits, physicians ordinarily solicit patients' chief complaints with open-ended yet task-focused questions, such as "What can I do for you?" [46]. In a large majority of cases, these questions, and the more or less extended patient responses to them, lead directly into history taking for the presenting complaint [47-52]. Many medical textbooks advice physicians to "survey concerns," or solicit additional problems and concerns throughout encounters [11, 50, 51, 53]. Specifically, physicians are encouraged to survey concerns after patients finish presenting their first medical problem (e.g., "Anything else that's bothering you?" [37, 48]). However, the nature, value, and efficacy of this phenomenon – that is, surveying patients' concerns after patients finish presenting their first medical problem – has not been rigorously examined; there is no prior research on this phenomenon, and extant recommendations are based solely on informed speculation. Moreover, the examination of actual physician-patient communication indicates that physicians rarely survey concerns in this manner [48, 49, 54, 55].

In this context, patients' additional concerns (whether volunteered or solicited) tend to emerge only after the chief complaint has been addressed, often in response to a physician inquiry, such as "Anything else?" or "Do you have any other problems?" One consequence of this is that additional, and potentially serious and consequential, complaints may only emerge

toward the end of the consultation, when time may be running short, and in a communication context for which closing the encounter has clearly become a relevant option [56]. One manifestation of this is the classic "by-the-way" syndrome [57], in which patients present "doorknob" concerns. This phenomenon appears to be quite general. White et al. (1994) [2] found that patients raised new concerns in the closing phase of 21% of encounters (see also [3]).

The Effects of Question Formats

Although the use of questions to survey patients' additional concerns creates a context in which those concerns can be articulated [11, 30, 37, 58-60], much can depend on how those questions are worded. Research into survey design [61-65], and discourse studies of mundane conversation [58, 66 69], medical [11, 30, 37, 46, 70-73], legal [74-77], and mass media questioning [78-85] document the impact of the specific wording of questions on subsequent responses. Similar findings are available from studies of the wording of patient concerns [86, 87]. Studies of question design during both comprehensive history taking and history taking focused on presented medical conditions show that physicians tend to employ question designs that embody an expectation for, and tend to promote, 'no problem' or 'optimized' responses [71-73]. Questions like "Are your bowel movements normal?", "You have your gall bladder?", "But no blood in the urine?", or "You don't have asthma, do you?" embody this preference for 'no problem' answers. Eric Cassell [88] notes that, "even when we physicians ask questions, the structure of the questions and their wording provides information about ourselves, our intent, our beliefs about patients and diseases as well as eliciting such information about patients; 'taking a history' is unavoidably and actually an *exchange* of information." [p.4] Questions such as those listed above convey information about not only desirable medical conditions but also what the physician treats as expectable or likely. Studies of question design suggest that both physicians and patients are finely attuned to the implications of these differences in question design. Of particular importance in this context are questions containing what linguists term 'negative polarity items' [89], especially terms such as 'any', 'ever', 'at all,' etc., that convey that the optimal and expected answer to the question is "No." In the example below, all five of the arrowed questions are negatively polarized:

```
DOC:   -> An' do you have any other medical problems?
PAT:      Uh: no.
          (7.0)
DOC:   -> No heart disease,
PAT:      #Hah:.# ((cough))
PAT:      No.
          (1.3)
DOC:   -> Any lung disease as far as you know:,
PAT:      No.
          (.)
PAT:      Not that I know of.
          (.)
DOC:   -> Any diabetes,
PAT:      No.
DOC:   -> Have you ever had (uh) surgery?
          (0.5)
PAT:      I've had four surgeries on my left knee:.
```

The patient here is sensitive to the expectation that these questions should likely be responded to with a simple and immediate "No": Although the first four are responded to in this way, the fifth, which attracts a counter-to-expectations affirmative answer, is slightly delayed and the patient avoids an explicit "No." This avoidance is a well-documented feature of responses that find difficulty with a question as framed [67]. This phenomenon of negative polarization is particularly important in the context of inquiries into patients' concerns. For example, it is possible that the use of the negative polarization marker "any" in such questions as "Anything else?" or "Are there any other problems you'd like to talk about today," though inviting the expression of additional concerns, may subtly militate against their expression by conveying an 'optimized' expectation or preference that the patient does not have any. Because this is the likely default format that physicians will use in this context, the use of this format will be specifically addressed in the design of this study.

METHODS

The study was a group randomized trial of two communication interventions, with videotaping of office visits and pre- and post-visit surveys.

Data Collection

Twenty family physicians were recruited to the study, 10 in Los Angeles County, and 10 in the State College area of Pennsylvania (physician response rate: 80%). An LA County pediatrician was also recruited to assess whether the intervention would be more effective for persons younger than 18 years. Physicians and patients were told that the purpose of the study was to examine how patient concerns were expressed in primary care and were offered $300 and $10, respectively, to participate. Data collection spanned January to June 2004. For a 1- to 3-week period, patients were consecutively screened for eligibility in the waiting rooms of physicians' offices. To be eligible, patients had to be adults who had previously visited the healthcare practice, were presenting a new medical concern, and were able to conduct the visit in English. All study procedures were reviewed and approved by the Institutional Review Boards of the University of California, Los Angeles, the Pennsylvania State University, and participating healthcare organizations.

Patients were recruited in the waiting rooms of the physicians' office on a consecutive basis. Initial screening questions were used to determine whether the patient was presenting on an acute basis and whether the medical visit would be conducted in English. Acute-presenting, English-speaking patients were then enrolled (73% response rate) and completed a pre-visit survey that asked them to list "your reasons for seeing the doctor today, including the problems and concerns you want to talk about with the doctor." The pre-visit survey also asked for demographic information and contained a four-item General Healthcare Satisfaction Scale. The subsequent medical visit was videotaped. After the visit, patients were asked to complete a survey focused on satisfaction with the visit, using the Medical Interview Satisfaction Scale.

Intervention

After data collection with the first four of each physician's patients, the physician was given a videotape that described, explained, and exemplified the communication intervention to be

performed. The tape required the physician to open the visit in his or her usual way and, once the presenting concern was determined, to ask "Is there anything else you want to address in the visit today?" (ANY condition) and "Is there something else you want to address in the visit today?"(SOME condition). Physicians were reminded of the intervention question with 3x3" Post-it notes, which were placed unobtrusively in patients' medical charts. In practice, physicians sometimes failed to perform the intervention or performed it inappropriately. These cases were removed from the data set, and the physicians were asked to do replacements until a full complement of cases was collected. At least seven additional 'intervention' visits were collected for each physician. Some oversampling of cases occurred.

Measures

Data analysis began with bivariate modeling of relationships. Relationships that had p values of .1 or better were incorporated into OLS or logistic regression models. Logistic regression was used to test the significance of the interventions on unmet and unanticipated concerns. OLS regression was used to test the impact of these variables on visit length. Clustering of patients within doctors was controlled for in all regression analyses.

Because patients with only a single concern are overwhelmingly likely to have that concern addressed, the primary evaluation of the intervention is restricted to patients who expressed more than one concern in the pre-visit survey. We focus on effects within adherent physicians (e.g., among the treated patients) but also present an intention-to-treat analysis through a sensitivity test that re-samples incorrectly performed interventions from control cases.

RESULTS

Twenty-five physicians were approached before 20 (80%) agreed to participate. Of 391 patients who were approached, 284 (73%) agreed to participate. Physicians accurately performed interventions in 81% of visits. In 54 instances (27% of the intervention cases), the intervention was implemented incorrectly. High levels of non-response to the pre-visit survey made four cases (2%) unusable, yielding a final sample of 226 visits for analysis, 20 of which were used only for evaluating the priming effects of the survey. The main patient and visit characteristics are summarized in Table 1; 49% of the sample listed more than one concern in the pre-visit survey (Mean 1.7; SD 0.9; Range 1-6), and 63% of the Los Angeles sample and 36% of the Pennsylvania listed multiple concerns. In the recorded visit, 53% of patients presented more than one concern (Mean 1.9; SD 1.0; Range 1-5).

Aim 1. To investigate the extent to which patients arrive with multiple complaints and present those complaints to physicians.

Numbers of concerns

The main patient and visit characteristics are summarized in Table 1; 49% of the sample listed more than one concern in the pre-visit survey (Mean 1.7; SD 0.9; Range 1-6), and 63% of the Los Angeles sample and 36% of the Pennsylvania listed multiple concerns. In the recorded visit, 53% of patients presented more than one concern (Mean 1.9; SD 1.0; Range 1-5).

Compared to other controls, the patients who were not asked to list their reasons for the medical visit in the pre-visit survey did not significantly differ in the number of presented concerns, indicating that the pre-visit survey did not have a priming effect (p=0.998). Patient age was positively associated with both the number of concerns itemized in the pre-visit survey (0.8% for each year of patient age; SE .0036; p=.023) and the articulation of concerns in the visit (1.2% of a concern for each year of patient age; SE .004; p=.004). No other non-intervention variables predicted the number of concerns patients would list pre-visit or express in the visit.

Priming

Twenty pre-intervention (control) patients were not asked to list their concerns in the pre-visit survey. Compared to other controls, the patients who were not asked to list their reasons for the medical visit in the pre-visit survey did not significantly differ in the number of presented concerns, indicating that the pre-visit survey did not have a priming effect (p=0.998).

Aim 2. To determine whether a simple communication intervention can increase the raising of multiple concerns.

To examine this question we looked at (i) whether the interventions raised additional concerns, (ii) whether they reduced the numbers of unmet concerns (the concerns listed in the pre-visit survey that were not discussed), and (iii) whether they raised additional concerns not listed in the pre-visit survey.

i) Although both interventions raised additional concerns, they did so at very different rates. Considering only patients who listed two or more concerns in the pre-visit survey, 30% responded positively to the ANY intervention, while 71.4% responded positively to the SOME intervention (p=.001). Although we instructed the physicians to perform the intervention when the patient's presenting concern was established, they varied considerably in the timing of this event. Thus, in practice, the intervention was performed at moments varying from very close to the beginning of the visit to the last thing before the physical examination was initiated. These variations in the timing of the intervention did not influence its effects. There is evidence that the ANY intervention, despite the low rate of initial response, was also associated with a lower (31%) rate of expression of concerns later in the visit, while the SOME condition, despite the high rate of initial response, was associated with a higher (46%) rate of expression of concerns later in the visit. Perhaps because the study was underpowered, this difference only trended toward statistical significance.

ii) In relation to unmet concerns, the primary analysis of the intervention was restricted to patients who listed two or more concerns in the pre-visit survey (n=100). Here, the results are unambiguous. In the control condition (n=36), 42% of patients left the visit with at least one unstated concern, whereas only 24% of patients receiving the SOME intervention (n=29) did so. Forty-three percent of patients receiving the ANY intervention (n=35) left with unmet concerns. Table 2 summarizes the effects of the interventions among those treated and with intention-to-treat corrections (ITTC). The SOME condition halved the odds of unmet concerns (p=.028 without ITTC; p=0.036 with such corrections), whereas the ANY condition did not differ from the control condition (p>0.9 with or without ITTC).

Allowing for the major covariates of unmet concerns (patient age and number of previsit concerns), the effects of the SOME condition emerged with even greater clarity. The SOME condition reduced the odds of unmet concerns by more than 3 (p=.014). A test of the difference between the SOME and ANY interventions was highly significant (p=.004). In the multivariate models from which these results are extracted, only patient age and the total number of pre-visit concerns was associated with the incidence of unmet concerns (both positively). However, there were some indications of an interaction effect between the two interventions and physician gender. Whereas SOME is uniformly beneficial in reducing unmet concerns when used by both male and female clinicians, the ANY intervention tended to suppress additional concerns to a greater extent when used by female clinicians; however, these did not reach statistical significance.

iii) Thirty-one percent of patients raised concerns that they did not list in the pre-visit survey. In relation to these unanticipated concerns, neither the SOME nor the ANY condition raised significantly more unlisted concerns than the controls.

Aim 3. To determine whether this communication intervention will result in patients' multiple concerns being addressed fully and effectively.

To test this aim, we examined whether concerns that emerged responsive to the interventions were dealt with as completely as second concerns that emerged later in the control visits. Raters evaluated whether these concerns were the objects of history taking, diagnosis and treatment and/or referral for additional tests. When the additional concern was a request for information or for a prescription refill, raters determined whether that request was addressed. No statistically significant differences were found in the completeness with which intervention-generated concerns were dealt with in comparison to 'second' concerns in the control visits.

Aim 4. To determine whether this communication intervention will result in increased patient satisfaction with the medical visit.

We tested whether patient satisfaction was influenced by either of the interventions, relative to controls. No significant variation was found. Measured patient satisfaction was uniformly high, and we may have encountered a 'ceiling' effect.

Aim 5. To evaluate the impact of the number of concerns raised on visit length.

Each concern expressed during the medical visit raised the visit time by nearly 2 minutes, and the sum of expressed concerns was, together with self-rated poor patient health, the main predictor of visit length. Despite this, neither the SOME nor the ANY condition significantly raised visit length. In models that included significant covariates, SOME visits were about 6 seconds longer than controls (p=.89), and ANY visits were just over a minute longer (p=.113).

Aim 6. To determine the association between visit length and patients' visit satisfaction within the context of these variations.

No association was found between patient satisfaction and visit length.

Discussion

This is the first study known to the PI to implement an experimental intervention in physicians' communication conduct to reduce the incidence of patients' unmet concerns. The results will be discussed first in relation to the SOME form of the intervention and second in relation to the contrast between the SOME and the ANY form of the intervention.

In relation to the SOME form, the results are exceptionally clear. Relative to controls, the intervention in the SOME form roughly halves patients' unmet concerns. It does so without significantly increasing visit length or causing patients to describe additional concerns that were not listed in the pre-visit survey, and it does so without loss of completeness with which the concern was addressed. A likely interpretation of the SOME intervention is that it caused concerns that patients had in mind at the beginning of the visit to be raised earlier than they otherwise would be, thus facilitating a more effective allocation of consultation time to the concerns that had to be addressed.

This is also the first study known to the PI to test the 'negative polarity' of the word "any" in the context of questions. We hypothesized that the ANY intervention would be less effective than its SOME counterpart, but the relative failure of the ANY intervention relative to controls was genuinely surprising. Here, it appears that the negative polarity of this one word largely undermines the opportunity provided by the question itself to reduce the incidence of unmet concerns. It is also impossible to ignore the extent to which this result will likely generalize to other questions that are used in medical care (including the almost ubiquitous "Do you have any questions?").

Practice Implications

A number of the clinicians who participated in this study were enthusiastic about the intervention and informed us that they were resolved to continue it in their everyday practice. However, our results suggest that this continuation will only have been effective for those in the SOME arm of the study. Because the formulation "Do you have other concerns you'd like to address today?" (with neither SOME nor ANY) was not tested, we cannot evaluate the effectiveness of this potentially more comfortable formulation.

If the findings of this study are correct, however, those who embrace the SOME innovation will find that they are able to address more patient concerns with the same amount of completeness and in the same amount of time as a normal visit.

Table 1: Visit Characteristics (n=226, except when indicated)

	Los Angeles (n=109)	Pennsylvania (n=117)	Total (n=226)
Female Physicians	30%	37%	34%
Female Patients	67%	63%	65%
Non-Hispanic White Patients	60%	94%	77%
Mean Patient Age	43.6 Years (SD 16.2, Range 18-83) (n=108)	42.1 years (SD 16.6, Range 18-87) (n=115)	Mean: 42.9 years (SD 16.4, Range 18-87) (n=223)
Patient Education: High School or Less	52% (n=105)	65% (n=112)	59% (n=217)
Patient Household Income < $50,000	41% (n=103)	48% (n=99)	45% (n=202)
2 or more Concerns in Pre-Visit Survey	63% (n=99)	36% (n=107)	49% (n=206)
2 or more Concerns discussed in Medical Visit	72%	35%	53%
Any Unmet Concerns among those with Multiple Concerns in Pre-Visit Survey	29% (n=62)	50% (n=38)	37% (n=100)
Unanticipated Concerns*	43% (n=99)	19% (107)	31% (206)
Mean Total Visit Length	11.1 minutes (SD 4.6, Range 3.5-26.5)	11.6 minutes (SD 5.1, Range 3.5-29.5)	11.4 minutes (SD 4.8, Range 3.5-29.5)

*Limited to those given the pre-visit survey of concerns.

Table 2: Unmet Concerns among Patients with Multiple Concerns, by Experimental Condition (n=100)

	Analysis of Treated			With Intention to Treat Corrections		
	% Unmet Concerns	Odds Ratio	95% CI	% Unmet Concerns	Odds Ratio	95% CI
Control (n=36)	42% (15)	(1)	(N/A)	42%	(1)	(N/A)
Any (n=35)	43% (15)	1.05	(0.53, 2.06)	43%	1.04	(0.61, 1.79)
Some (n=29)	24% (7)	0.45*	(0.22, 0.92)	29%	0.57*	(0.36, 0.89)

*p<.05

1. Ramsey, P.G., J.R. Curtis, D.S. Paauw, J.D. Carline and M.D. Wenrich (1998). 'History-taking and preventive medicine skills among primary care physicians: an assessment using standardized patients.' American Journal of Medicine, 104(2): 152-8.
2. White, J. , W. Levinson and D. Roter (1994). '"Oh, by the way ...": the closing moments of the medical visit.' Journal of General Internal Medicine, 9(1): 24-28.
3. White, J.C., C. Rosson, J. Christensen, R. Hart and W. Levinson (1997). 'Wrapping things up: A qualitative analysis of the closing moments of the medical visit.' Patient Education and Counselling, 30: 155-165.
4. Robinson, Jeffrey (2001). 'Closing Consultations: Two Physician Practices and their Implications for the Expression of Patients' Unstated Concerns.' Social Science and Medicine, 53: 639-656.
5. Kaplan, S., S.H. Greenfield and J.E. Ware (1989). 'Assessing the effects of physician-patient interactions on the outcomes of chronic disease.' Medical Care, 27: S11--S127.
6. Greenfield, S.H., S. Kaplan and J.E. Ware (1985). 'Expanding patient involvement in care: effects on patient outcomes.' Annals of Internal Medicine, 102: 520-528.
7. Greenfield, S., S.H. Kaplan, J.E. Ware, E. Yano and H.J.L. Frank (1988). 'Patients' participation in medical care: effects of blood sugar control and quality of life in diabetes.' Journal of General Internal Medicine, 3: 448-457.
8. DiMatteo, M.R. and R. Hays (1980). 'The significance of patients' perceptions of physician conduct: a study of patient satisfaction in a family practice center.' Journal of Community Health, 6: 18-34.
9. Roter, Debora L., Judith A. Hall and N.R Katz (1988). 'Physician-patient communication: a descriptive summary of the literature.' Patient Education and Counseling, 12: 99-109.
10. Hall, Judith A., Debra Roter and Barbara Katz (1988). 'Meta-analysis correlates of provider behavior in medical encounters.' Medical Care, 26(7): 657-675.
11. Roter, Debra and Judith Hall (1992). Doctors talking with patients/patients talking with doctors: improving communication in medical visits. Westport Conn: Auburn House.
12. DiMatteo, M.R. and D.D. DiNicola (1982). Achieving Patient Compliance. New York: Pergamon.
13. DiMatteo, R.M. (1994). 'Enhancing patient adherence to medical recommendations.' Journal of the American Medical Association, 271(79): 83.
14. DiMatteo, R.M. and H.S. Lepper, (1998). Promoting adherence to courses of treatment: Mututal collaboration in the physician-patient relationship, in Health Communication Research, Lorraine D. Jackson and Bernard K. Duffy, Editors. 1998, Greenwood Press: Westport Conn. p.75-86.
15. Entman, S.S., C.A. Glass, G.B. Hickson, P.B. Githens, K. Whetton-Goldstein and F.A. Sloan (1994). 'The relationship between malpractice claims history and subsequent obstetric care.' JAMA, 272: 1558-1591.
16. Hickson, G.B., E.W. Clayton, S.S. Entman, C.S. Miller, P.B. Githens, K. Whetten-Goldstein and F.A. Sloan (1994). 'Obstetricians' prior malpractice experience and patients' satisfaction with care.' JAMA, 272: 1583-1587.
17. Beckman, H.B., K.M. Markakis, A.L. Suchman and R.M. Frankel (1994). 'The doctor-patient relationship and malpractice: lessons from plaintiff depositions.' Archives of Internal Medicine, 154: 1365-1370.
18. Sherbourne, C.D. , R.D. Hays, L. Ordway, M.R. DiMatteo and R.L. Kravitz (1992). 'Antecedents of adherence to medical recommendations: results from the Medical Outcomes Study.' Journal of Behavioral Medicine, 15(5): 447-68.
19. Roter, D.L. and J.A. Hall (1992). Doctors Talking with Patients/Patients Talking with Doctors. Westport: Auburn House.
20. Marquis, M.S., A.R. Davies and J.E. Ware (1983). 'Patient satisfaction and change in medical care provider: A longitudinal study.' Medical Care, 21: 821-829.
21. Ware, J.E. and A.R. Davies (1983). 'Behavioral consequences of consumer dissatisfaction with medical care.' Evaluation and Program Planning, 6: 291-297.

22. Levinson, W. (1994). 'Physician-patient communication: A key to malpractice prevention.' Journal of the American Medical Association, 272(20): 1619-1620.
23. Stewart, M. (1984). 'What is a successful doctor-patient interview? A study of interactions and outcomes.' Social Science and Medicine, 19: 167-175.
24. Buller, M.K. and D.B. Buller (1985). 'Physician's communication style and patient satisfaction.' Journal of Health and Social Behavior, 28: 375-388.
25. Szasz, P.S. and M.H. Hollender (1956). 'A contribution to the philosophy of medicine: the basic model of the doctor-patient relationship.' Archives of Internal Medicine, 97: 585-592.
26. McGee, D. S. and D. J. Cegala (1998). 'Patient communication skills training for improved communication competence in the primary care medical consultation.' Journal of Applied Communication Research, 26: 412-430.
27. Frankel, R., (1990). Talking in interviews: a dispreference for patient initiated questions in physician-patient encounters, in Interaction Competence, G.Psathas, Editor. 1990, University Press of America: Lanham, Md. p.231-262.
28. Frankel, Richard, (1995). Some answers about questions in clinical interviews, in The Talk of the Clinic: Explorations in the Analysis of Medical and Therapeutic Discourse, G.H.Morris and Ronal J. Chenail, Editors. 1995, Lawrence Erlbaum: Hillsdale, NJ.
29. Linell, P., L. Gustavsson and P. Juvonen (1988). 'Interactional dominance in dyadic communication: a presentation of initiative-response analysis.' Linguistics, 26: 415-442.
30. Mishler, E. (1984). The Discourse of Medicine: Dialectics of Medical Interviews. Norwood NJ: Ablex.
31. Peräkylä, Anssi (1995). AIDS Counselling; Institutional Interaction and Clinical Practice. Cambridge: Cambridge University Press.
32. Roter, D. (1977). 'Patient participation in the patient-provider interaction: the effects of patient question asking on the quality of interaction, satisfaction and compliance.' Health Education Monographs, 5: 281.
33. Fisher, Sue and Alexandra Todd eds. (1993). The social organization of doctor-patient communication. 1993, Ablex: Norwood NJ.
34. West, C. (1984). Routine Complications: Troubles with Talk between Doctors and Patients. Bloomington IN: Indiana University Press.
35. Barsky, A. J. (1981). 'Hidden reasons some patients visit doctors.' Annals of Internal Medicine, 94: 492-498.
36. Stoeckle, John D. and Arthur J. Barsky, (1981). Attributions: uses of social science knowledge for the 'doctoring' of primary care, in The Relevance of Social Science for Medicine, Leon Eisenberg and Arthur Kleinman, Editors. 1981, Reidel: Dordrecht.
37. Lipkin, Mack, Samuel Putnam and Aaron Lazare eds. (1995). The Medical Interview: Clinical Care, Education and Research. 1995, Springer Verlag: New York.
38. Barry, C. A., C. P. Bradley, N. Britten, F. A. Stevenson and N. Barber (2000). 'Patients' unvoiced agendas in general practice consultation: Qualitative study.' British Medical Journal, 320: 1246-1250.
39. Fisher, S. (1991). 'A discourse of the social: medical talk/power talk/oppositional talk?' Discourse and Society, 2(2): 157-182.
40. Larsson, U.S., R. Saljo and K. Aronson (1987). 'Patient-doctor communication on smoking and drinking: lifestyle in medical consultations.' Social Science and Medicine, 25(10): 1129-1137.
41. McWhinney, I. (1981). An introduction to family medicine. New York: Oxford University Press.
42. McWhinney, I., (1989). The need for a transformed clinical method, in Communicating with medical patients, M. Stewart and D. Roter, Editors. 1989, Sage: Newbury Park.
43. Sankar, A. (1986). 'Out of the clinic into the home: control and patient-doctor communication.' Social Science and Medicine, 22(9): 973-982.
44. Todd, A. (1984). 'The prescription of contraception: negotiating between doctors and patients.' Discourse Processes, 7: 171-200.
45. Todd, A.D. (1989). Intimate Adversaries: Cultural Conflict between Doctors and Women Patients. Philadelphia, PA: University of Pennsylvania Press.

46. Robinson, Jeffrey, (frth). Soliciting patients' presenting concerns, in Practicing Medicine: Structure and Process in Primary Care Encounters, John Heritage and Douglas Maynard, Editors. frth, Cambridge University Press: Cambridge, England.
47. Bates, Barbara, Lynn S. Bickley and Robert A. Hoekelman (1995). Physical examination and history taking. 6 ed. Philadelphia: J. B. Lippincott Comany.
48. Beckman, H. and R. Frankel (1984). 'The effect of physician behavior on the collection of data.' Annals of Internal Medicine, 101: 692-696.
49. Robinson, Jeffrey D. (frth). 'An Interactional Structure of Medical Activities During Acute Visits and its Implications for Patients' Participation.' Health Communication.
50. Seidel, Henry M., Jane W. Ball, Joyce E. Dains and G. W. Benedict (1995). Mosby's guide to physical examination. 3 ed. St. Louis: Mosby Year Book.
51. Swartz, Mark H. (1998). Textbook of physical diagnosis: History and examination. 3 ed. Philadelphia: W. B. Saunders Company.
52. Zoppi, Kathleen A., (1997). Interviewing as clinical conversation, in Introduction to clinical skills: A patient-centered textbook, M. B. Mengel and S. A. Fields, Editors. 1997, Plenum Medical Book Company: New York. p.41-55.
53. Cohen-Cole, Steven A. (1991). The medical interview: The three function approach. St. Louis: Mosby Year Book.
54. Beckman, H., R. Frankel and J. Darnley (1985). 'Soliciting the patient's complete agenda: a relationship to the distribution of concerns.' Clinical Research, 33: 714A.
55. Marvel, M. Kim, Ronald M. Epstein, Kristine Flowers and Howard B. Beckman (1999). 'Soliciting the patient's agenda: Have we improved?' JAMA, 281(3): 283-287.
56. Robinson, Jeffrey D. (2001). 'Closing medical encounters: Two physician practices and their implications for the expression of patients' unstated concerns.' Soc. Sci. Med.
57. Byrne, P.S. and B.E.L. Long (1976). Doctors Talking to Patients: A Study of the Verbal Behaviours of Doctors in the Consultation. London: Her Majesty's Stationary Office.
58. Schegloff, Emanuel A. (1995). Sequence organization. Unpublished Ms: UCLA Department of Sociology (mimeo).
59. Maynard, D., (1992). On clinicians co-implicating recipients' perspective in the delivery of diagnostic news, in Talk at Work: Social Interaction in Institutional Settings, P.Drew and J.Heritage, Editors. 1992, Cambridge University Press: Cambridge. p.331-358.
60. Maynard, Douglas (1996). 'On 'realization' in everyday life.' American Sociological Review, 60(1): 109-132.
61. Fowler, Floyd J. Jr. (1995). Improving Survey Questions: Design and Evaluation. Thousand Oaks, CA: Sage.
62. Sheatsley, Paul B., (1983). Questionnaire Construction and Item Writing, in Handbook of Survey Research, Rossi Peter H., James D. Wright, and Andy B. Anderson, Editors. 1983, Academic Press: New York. p.195-230.
63. Sudman, Seymour and Norman M. Bradburn (1982). Asking Questions: A Practical Guide to Questionnaire Design. San Francisco: Jossey-Bass.
64. Sudman, Seymour, Norman M. Bradburn and Norbert Schwarz (1996). Thinking About Answers: The Application of Cognitive Processes to Survey Methodology. San Francisco: Jossey-Bass.
65. Tourangeau, Roger, Lance J. Rips and Kenneth Rasinski (2000). The Psychology of Survey Response. Cambridge: Cambridge University Press.
66. Sacks, Harvey, (1987). On the Preferences for Agreement and Contiguity in Sequences in Conversation, in Talk and Social Organisation, Graham Button and John R. E. Lee, Editors. 1987, Multilingual Matters: Clevedon, England. p.54-69.
67. Raymond, Geoffrey (2000). The structure of responding: conforming and nonconforming responses to yes/no type interrogatives. Unpublished PhD dissertation: University of California, Los Angeles.
68. Goodwin, Charles and John Heritage (1990). 'Conversation Analysis.' Annual Review of Anthropology, 19: 283-307.

69. Heritage, John (1998). 'Oh-prefaced responses to inquiry.' Language in Society, 27(3): 291-334.
70. Boyd, Elizabeth (1998). 'Bureaucratic authority in the "company of equals:" the interactional management of medical peer review.' American Sociological Review, 63(2): 200-224.
71. Boyd, Elizabeth and John Heritage, (frth). Taking the Patient's Medical History: Questioning During Comprehensive History Taking, in Practising Medicine: Structure and Process in Primary Care Encounters, John Heritage and Douglas Maynard, Editors. frth, Cambridge University Press: Cambridge, England.
72. Heritage, John, (2001). Ad hoc inquiries: two preferences in the design of 'routine' questions in an open context, in Standardization and Tacit Knowledge: Interaction and Practice in the Survey Interview, Douglas Maynard, Hanneke Houtkoop-Steenstra, Nora Kate Schaeffer, and Hans van der Zouwen, Editors. 2001, Wiley Interscience: New York. p.313-333.
73. Stivers, Tanya and John Heritage (2001). 'Breaking the sequential mold: answering "more than the question" during medical history taking.' Text, 21(1/2): 151-185.
74. Cross, R. (1974). Evidence. London: Butterworths.
75. Atkinson, J.M. and P. Drew (1979). Order in Court: The Organisation of Verbal Interaction in Judicial Settings. London: Macmillan.
76. Drew, P., (1990). Strategies in the contest between lawyers and witnesses in court examinations, in Language in the judicial Process, J.N.Levi and A.G.Walker, Editors. 1990, Plenum Press: New York. p.39-64.
77. Drew, P., (1992). Contested evidence in a courtroom cross-examination: the case of a trial for rape, in Talk at Work: Social Interaction in Institutional Settings, P.Drew and J.Heritage, Editors. 1992, Cambridge University Press: Cambridge. p.470-520.
78. Clayman, S. (1993). 'Reformulating the question: a device for answering/not answering questions in news interviews and press conferences.' Text, 13(2): 159-188.
79. Clayman, Steven (2001). 'Answers and evasions.' Language in Society, 30: 403-442.
80. Clayman, Steven and John Heritage (frth). The News Interview: Journalists and Public Figures on the Air. Cambridge: Cambridge University Press.
81. Clayman, Steven and John Heritage (frth). 'Questioning Presidents: Journalistic deference and adversarialness in the press conferences of Eisenhower and Reagan.' Journal of Communication.
82. Heritage, John and David Greatbatch, (1991). On the Institutional Character of Institutional Talk: The Case of News Interviews, in Talk and Social Structure, Dierdre Boden and Don H Zimmerman, Editors. 1991, University of California Press: Berkeley. p.93-137.
83. Heritage, John and Andrew Roth (1995). 'Grammar and institution: questions and questioning in the broadcast news interview.' Research on Language and Social Interaction, 28(1): 1-60.
84. Heritage, John, (frth). Designing questions and setting agendas in the news interview, in Studies in language and social interaction, Philip Glenn, Curt LeBaron, and Jenny Mandelbaum, Editors. frth, Erlbaum: Mahwah, NJ. p.000-000.
85. Heritage, John (frth). 'The Limits of Questioning: Negative Interrogatives and Hostile Question Content.' Journal of Pragmatics.
86. Stivers, Tanya (frth). "Symptoms only' and 'Candidate diagnoses': Presenting the problem in pediatric encounters.' Health Communication, 14(3).
87. Stivers, Tanya, Rita Mangione-Smith, Marc Elliott, Laurie McDonald and John Heritage (under submission). 'What Leads Physicians to Believe that Parents Expect Antibiotics? A Study Of Parent Communication Behaviors and Physicians' Perceptions.' Medical Care.
88. Cassell, Eric (1985). Talking with Patients, Volume 2: Clinical Technique. Cambridge MA: MIT Press.
89. Horn, Laurence (1989). A Natural History of Negation. Chicago: University of Chicago Press.

List of Publications and Products

Heritage J, Robinson JD. Physicians' Opening Questions and Patients' Satisfaction. *Patient Education and Counseling* (in press).

Heritage J, Robinson JD, Elliott M, Beckett M, Wilkes M. Reducing Patients' Unmet Concerns in Primary Care: A Trial of Two Question Designs. *JAMA* (under review).