The Effect of Physician Behavior on the Collection of Data

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Determining the patient's major reasons for seeking care is of critical importance in a successful medical encounter. To study the physician's role in soliciting and developing the patient's concerns at the outset of a clinical encounter, 74 office visits were recorded. In only 17 (23%) of the visits was the patient provided the opportunity to complete his or her opening statement of concerns. In 51 (69%) of the visits the physician interrupted the patient's statement and directed questions toward a specific concern; in only 1 of these 51 visits was the patient afforded the opportunity to complete the opening statement. In six (8%) return visits, no solicitation whatever was made. Physicians play an active role in regulating the quantity of information elicited at the beginning of the clinical encounter, and use closed-ended questioning to control the discourse. The consequence of this controlled style is the premature interruption of patients, resulting in the potential loss of relevant information.

A FRUSTRATING OCCURRENCE for any practitioner is to conclude an office visit only to have the patient add "Oh, by the way, Doctor, I've been having this heavy feeling in my chest. Do you think that might be important?" In this situation the physician is confronted with the choice of re-opening the interview at the expense of the office schedule or deferring investigation of the concern until the next visit. A variation of this problem is the expression of patients' concerns after the history-taking segment of the interview is completed. In both cases the gathering of data and the testing of a hypothesis is disrupted, leaving a frustrated physician and, if the concern is not addressed, an angry patient. Perhaps more distressing is when a patient decides not to offer information as it becomes relevant and simply withholds concerns, questions, or opinions he or she feels are important.

A number of barriers to efficiency in the exchange of information about patient concerns have been reported (1-4). The barrier best described is the patient's decision to withhold psychosocial concerns until later in the visit. Barsky (1) calls these late announcements of concern "hidden agendas," and speculates that patients may feel that psychosocially sensitive topics are not appropriately shared at the outset of the office visit.

The term "hidden agenda" focuses attention on the patient and his or her decision to withhold or delay sharing relevant information. In this model, the patient's action is the product of individual volition and motivation. There is no focus on the physician's influence on the placement and flow of information provided by the patient. To assess the possibility that physicians actively influence or shape patients' initial expressions of concerns, we studied the linguistic structure of the opening segment of the clinical encounter. We studied not only what the patient said in response to the physician's opening query, but the timing and appropriateness of the physician's response as well.

Expanding the scope of analysis to include the physician's participation in the development of the patient's concerns has the advantage of providing an empirical basis for assessing the completeness of such concerns and providing a potential link between early termination or interruption by the physician and the so-called "hidden agenda." Using detailed transcriptions of actual visits to a primary care internal medicine practice, the role of the physician in soliciting and responding to information was evaluated. The results suggest that internists and internal medicine residents frequently, and perhaps unwittingly, inhibit or interrupt their patients' initial expression of concerns.

Methods

Between July 1980, and June 1982, 74 complete visits to the Primary Care Internal Medicine Practice at Wayne State University were audiotaped and transcribed using a coding method sensitive to the production and timing of dialog (5). During the study period 2 faculty internists and 13 internal medicine residents at all levels of training practiced in this setting; all participated in the study. Selection of the 74 visits was based upon the availability of equipment and research personnel. No specific selection controls were used. The project was approved by the Human Experimentation Committee at Wayne State University. Before taping, informed consent was obtained from both physicians and patients after the nature of the study was described. Characteristics of the encounters recorded were sex of patient, sex of physician, new or return visit, and physician level of training.

The segment of the encounter studied began with the physician's solicitation of the chief complaints. The solicitation was defined as a request for information such as "What brings you to the office or clinic?" or "What seems to be the problem?" If no solicitation occurred, and the physician opened by explaining the purpose of the visit ("I had you come back today to check your blood pressure"), the sequence was coded as "chief complaint not solicited." The segment was concluded when either the physician began to recount the history of the present illness, defined by three or more topically specific closed-ended questions (for example, "Tell me about the pain," or "How long have you been coughing up blood?"); or when the patient marked his or her own statement as completed. Completion was defined as an announcement ("That's all"); a concern-related question asked of the physician ("Is my chest pain serious?"); a pause of more than 1 second at the completion of a patient's turn at talk; or a negative response to a physician query, such as "Is there anything else you'd like to add?" The following example shows a completed statement.

Physician: How you been doing?
Patient: Oh, well, I been doing okay, except for Saturday,

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well Sunday night. You know I been kinda nervous off and on but I had a little incident at my house Saturday and it kinda shook me up a little bit.
Physician: Okay.
Patient: And my ulcer, its been burning me off and on like when I eat something if it don't agree, then I'll find out about it.
Physician: Right, okay.
Patient: But lately I've been getting this funny, like I'll lay down on my back, and my heart'll go "brrr" you know like that. Like it's skipping a beat or something, and then it'll just start on back off beating like when I get upset it'll just start beating boom-bom-bom and it'll just go back to its normal beat.
Physician: Okay.
Patient: Is that normal?
Physician: That's, that's a lot of things. Anything else that's bothering you.
Patient: No.

Thus, the segment studied is what most textbooks on interviewing define as the first phase of the medical interview: the solicitation of the chief complaints or current concerns.

In addition to the patient's initial statement of concern, the timing and content of the physician's response to the information presented was assessed. Any response that physically disrupted the speech stream or inhibited further topical development was labelled an interruption. There are four types of interruptions. A closed question is an interrogative statement that narrows the range of the co-participants' appropriate responses to one or a limited set of options.

Physician: What brings you here today?
Patient: My head is killing me.
Physician: Have you had headaches before?
Patient: No.

An elaborator describes utterances used to encourage the patient to continue speaking on a topic or a particular aspect of a topic.

Patient: I've been quite nervous lately.
Physician: Tell me more about this nervousness.

A recompleter refers to an utterance that restates the content or sense of the content of the previous statement.

Patient: I'm out of breath all the time.
Physician: You're out of breath all the time.

A statement is a noninterrogative utterance that pertains to a patient's previous statement.

Patient: I've been having chest pain.
Physician: That sounds serious.

The impact of interruption on subsequent completion by the patient was then reviewed.

The segment studied was also evaluated for total number of patient concerns expressed, number of concerns expressed before interruption, time from onset of the study segment to the point of interruption if present, and the total time for the study segment.

At the completion of the transcription of the 74 encounters, a list of the 79 concerns expressed was generated. Four nonparticipating faculty general internists from the Division of General Internal Medicine, blinded to the nature of the study, were asked to rate each concern for clinical importance. Ratings ranged from one to four, one being very important and four being clinically unimportant. The internists were instructed to base their judgements on the relative importance they would assign the concern if it were elicited in their clinical practice. Mean scores were then computed for concerns expressed first, second, third, and fourth in the patient's opening statement to evaluate the relation between clinical importance and placement in the opening statement.

Inter-rater reliability was calculated using the kappa statistic for the occurrence of patient completion.

Table 1. Demographic Characteristics of the 74 Physician-Patient Clinical Encounters Involving 15 Different Physicians at Differing Levels of Training

	Number of Encounters	Percent
Patients		
Male	27	37
Female	47	64
Visits		
New	19	26
Return	55	74
Physicians*		
PGY 1 ($n = 7$)	35	47
PGY 2 ($n = 3$)	17	23
PGY 3 ($n = 3$)	8	11
Faculty ($n = 2$)	14	19

* PGY = postgraduate year.

Results

Characteristics of the encounters studied are shown in Table 1. The 74 encounters involved 74 different patients. No patients or providers refused to participate. The distribution of new and return visits is similar to that reported in the National Ambulatory Medical Care Survey (6).

In determining inter-rater reliability, the kappa statistic for completion was 0.81, suggesting excellent agreement beyond chance. Overall, patients completed their statements in only 23% of the visits analyzed ($n = 17$). In 41% of these completed statements the patient stated that there were no concerns and completed his or her turn to talk after a mean time of only 4.8 seconds.

The relationship of interruption to subsequent completion is most striking. Although all of the noninterrupted opening statements were completed, only 1 of 52 interrupted opening statements was subsequently completed. In the remaining 51 encounters the interruption marked the transition to physician-centered, directed questioning. This focus, defined as the history of present illness, occurred even though there was no audible evidence that the patient had finished answering the question "What problems are you having?"

Among the linguistic devices that produced interruption, closed-ended questions were most frequent (46%), followed by recompleters, (35%), elaborators (10%), and statements (10%). The location of the interruptions in relation to the number of concerns expressed was also determined. Most interruptions, 54% ($n = 28$), occurred after the first expressed concern. Interruption occurred after the second expressed concern in 15% ($n = 8$) of the visits; after the third expressed concern in 14% ($n = 7$); and after the fourth expressed concern in 6% ($n = 3$). In 12% ($n = 6$) of the visits, interruption occurred before a single concern was expressed. In these cases, which were all return visits, the interruption involved the physician asking questions relating to concerns identified from previous visits. Similarly, in an additional 6 of the 74 encounters, the physician neglected to

Table 2. Relationship Between Interruption and Elapsed Time For the 52 Interrupted Opening Statements

Concerns Expressed Before Interruption	Encounters	Mean Elapsed Time to Point of Interruption
n		*s*
0	6	6.83
1	28	16.48
2	8	25.00
3	7	37.50
4	3	37.00

ask if there were any problems. In these encounters, also return visits, the physician addressed issues related to earlier encounters.

The relationship between interruption and elapsed time was also examined. The results are shown in Table 2. For the total group, interruption occurred, on average, 18 seconds after the patient began to speak, a surprisingly short time, particularly for new visits. No completed statement of concerns took more than 150 seconds.

Discussion

We began with an interest in the ways in which physician participation in soliciting and responding to the patient's major concerns influenced the expression of those concerns. There is little doubt that the physician response and, in particular, early termination or interruption of patients during their initial expression of concerns, at a time in the visit specifically reserved for such discourse, inhibits further patient identification of additional concerns. Our data show that physicians in the study setting did not usually permit patients to express a full range of concerns at the outset of a visit. Characteristically, after a brief period of time (mean, 18 seconds), and most often after the expression of a single stated concern, the physicians in our study took control of the visit by asking increasingly specific, closed-ended questions that effectively halted the spontaneous flow of information from the patient.

If facilitation of the opening statement is beneficial in providing the necessary information from which to set and negotiate the agenda for the remainder of the interview, this study provides some insights into the techniques that help accomplish this objective. The data show that any utterance that encourages the elaboration of a previously expressed concern inhibits the expression of subsequent concerns. Once interrupted, only 1 of 52 patients went on to complete his or her statement.

One surprising observation was that recompletion statements, frequently described as facilitators of open-ended interviewing, acted as interruptions in the opening moments of the encounters we studied. In the context of soliciting an initial statement of concerns, repetition of a patient's last statement serves to encourage specific elaboration of the information supplied rather than encouraging or eliciting additional topics or concerns. In contrast, physician responses such as "mmh hmh," "go on," and "I see," known linguistically as continuers, were found to facilitate completion. Although generally considered to be inert, these types of neutral utterances produced open-ended patient continuation that included new topics and concerns. Far from being inert, these linguistic devices appear to play a major role in facilitating all patient concerns at the beginning of the visit.

In casual conversation violations of etiquette such as interruptions do not necessarily result in a takeover of the floor by the interrupting speaker or the loss of information being supplied at that time (7, 8). However, the findings for casual conversation do not appear to be characteristic for physician-patient dialog. In a recent study, Frankel (9) found that 94% of all interruptions concluded with the physician obtaining the floor. Additionally, neither the physician nor the patient referred to or recycled the information being produced at the point of interruption. This pattern suggests that one consequence of interruption is the loss of patient information. The fact that only 1 of 52 patients went on to complete a statement of concerns attests to the power of interruption in physician-patient discourse.

Premature termination of the patient's opening statement shifts the focus of information gathering from a patient-centered to physician-centered format and, in effect, treats the earliest pieces of clinically relevant information as the patient's primary concern or chief complaint. A recent study by Burack and Carpenter (10) suggests that there may be a disparity between the initial identification of a patient's chief complaint and the principal problem ultimately defined by the physician at the conclusion of the visit. When viewed as a diagnostic test, the patient's chief complaint agreed with the practicing physician's determination of the patient's primary problem in 76% of somatic but only 6% of psychosocial problems. This observation suggests that a singular cost of early hypothesis testing is a loss of potentially relevant information from the patient and the associated risk of prematurely developing a clinical focus based on incomplete data. A partial solution to this problem is to periodically resolicit additional concerns throughout the visit.

The major cost of initiating closed-ended questioning in the beginning of the visit is that it limits patient participation options. A number of authors (11-13) have shown that control in the medical encounter is exerted principally by the use of questions. Overwhelmingly it has been shown that physicians ask and patients answer questions. In two studies (11, 12), physicians were found to control 91% and 99% of the questions asked in routine office visits to internists and family practitioners, respectively. Roter (14) has shown that both patient satisfaction and adherence were positively related to an intervention designed to teach patients to ask more questions. Early hypothesis testing in the form of closed-ended questioning by the physician not only interrupts the flow of information from the patient but also restricts the range of what counts as an appropriate response. In terms of a proper place to share information, the patient with several concerns faces a practical problem, because the specific form of the physician's question (such as, "Can you tell me more about your chest pain?") does not include additional concerns and information as a pre-

ferred response. Instead, the most appropriate response to a direct question is a direct answer. Once hypothesis testing has begun, it is difficult for a patient to get a word in edgewise.

Why would a physician request information from a patient about reasons for seeking care and then interrupt the answer? The first possibility is based on the rules of conversational etiquette that define a complete patient response. When asked a direct question such as "What problems are you having?", the questioner may assume that a direct answer such as "chest pain" completes the exchange. Under a strict interpretation of the rule by the physician, the patient with several concerns is inadvertently blocked from sharing all but a small portion of the information he or she is prepared to report.

A second possibility is the assumption by the physician that the first expressed concern is the most important because it occurs immediately after the question. However, there is no empirical evidence that supports the hypothesis that the ordering of concerns is positively related to medical importance or severity.

A third explanation is efficient use of time. Most of the interruptions in our sample occurred between 5 to 50 seconds of the physician's initial request for information. It is possible that the interviewers assumed that any concerns that were truly important would be delivered within that period of time. In contrast, most completed statements took less than 60 seconds and none took longer than 150 seconds. Physicians may overestimate the length of time that patients will talk if given the opportunity. This finding, however, will need to be corroborated in more varied populations and in samples with much higher completion rates.

Finally, a most intriguing possibility is that the actual model of data gathering itself is responsible for the frequency of interruption. Students are taught that the clinical encounter may be segmented into a set of discrete tasks. The first is to identify the chief complaint (15-17). Patients, however, are not medically trained and may be seeking a physician's services to help identify or extract major concerns or risks from a set of undifferentiated health and health-related activities. In addition, according to the National Ambulatory Medical Care Survey (6), 86.1% of visits to office-based physicians in 1981 were return visits. Seventy-five percent of these visits were for "old problems." In interviewing such patients there is no presenting complaint. The patient comes to the office because the visit has been requested by the physician. In such visits, a suitable alternative strategy to pursuing the presenting complaint is the solicitation of interim concerns before the follow-up of previous problems is begun.

Several limitations of the current study are worth noting. First, the physicians were relatively inexperienced clinicians, most being residents in training. Second, the patient population is fairly homogeneous, being composed of elderly persons, chronically ill, and of lower socioeconomic status. Our results need to be confirmed in more varied populations and with more experienced clinicians. We are conducting such a study. Third, although the data clearly show how physicians control the collection of information and limit the time for patients to talk, no data were collected on the number of concerns that surfaced later in the visit, or the impact of resoliciting for additional concerns later in the encounter. Such information is necessary to test the hypothesis that facilitating completion by the patient at the outset of the visit results in a decrease in additional concerns being expressed later in the visit. Such a study will also facilitate an evaluation of the total time cost for this approach to interviewing. We are currently collecting such data as well. Finally, as outlined by Wasserman and Inui (18), a limitation of this study is that it evaluates only verbal communication. The role of nonverbal behavior is an important dimension that remains to be explored.

Physician participation in the opening moments of the clinical encounter is far from neutral and has a substantial effect on the type and quality of information obtained. Our data, although preliminary, suggest that over-directed interviewing at the beginning of the visit may result in premature termination of opportunities for patients to present the very concerns that the initial segment of the visit is designed to capture.

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