Questioning in Medicine

John Heritage, UCLA

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Introduction

Few medical visits pass without a significant number of physician questions. In a meta-analysis of the distribution of activities in the medical visit, Roter and Hall (2006, 119) estimate that physician information gathering occupies a little more than 20 percent of the total visit, and studies by West (1984, 81) and by Stivers and Majid (2007) report mean numbers of history-taking questions ranging between 20 and 33, with maximum totals of some eighty questions per visit.

Most physician questions emerge during the phase of the visit in which the physician asks about the present illness and takes the patient's medical history. These questions are developed in a branching structure through which specific clusters of diagnoses are successively pursued or ruled out in a process of hypothesis testing that begins early in history taking (Elstein, Shulman, and Sprafka 1978; Kassirer and Gorry 1978). Because illness can often be diagnosed simply through effective history taking (Hampton, Harrison, Mitchell, Prichard, and Seymour 1975), it is a critically important dimension of medical care for accurate diagnosis and appropriate treatment (Stoeckle and Billings 1987; Bates, Bickley, and Hoekelman 1995; Cassell 1997). This chapter describes recent conversation analytic research on questioning in these contexts, focusing primarily on the role of questioning in the management of the social relationship between doctor and patient.

The distinguished clinician and medical educator Eric Cassell has suggested that, during history taking, the physician may seek to become "a fixed measuring instrument," a kind of living questionnaire, neutral and consistent across patients (1985, 89). In pursuit of this objective, however, clinicians will not adopt the style of questioning to be found in social surveys and other kinds of "fixed measuring instruments" (Heritage 2002a). Medical inquiries directed to the marital status of patients do not take the form "What is your marital status? Are you single, married, divorced, separated, or widowed?" When the patient is a middle-aged woman living in the Midwest and with an adult daughter, questioning about marital status goes like this:

```
(1)  [Midwest 3.4.6]
 1  DOC:      Are you married?
 2            (.)
 3  PAT:      No.
 4            (.)
 5  DOC:      You're divorced (°cur[rently,°??)
 6  PAT:                          [Mm hm,
 7            (2.2)
 8  DOC:      Tl You smoke?, h
 9  PAT:      Hm mm.
```

Here the doctor invites a response to what is, given the patient's age and the existence of an adult daughter, discernibly a "best guess" about his patient's likely marital status.

Similarly, questions about a parent's mortality are not phrased in a "neutral" or an "unbiased" form, for example, "Is your father alive or dead?" Instead, when directed to the same middle-aged woman, they look like this:

```
(2)  [Midwest 3.4.4]
 1  DOC:     Tlk=.hh hIs your father alive?
 2  PAT:     (.hh) No.
 3  DOC:     How old was he when he died.
 4  PAT:     .hh hhohh sixty three I think.=hh
 5  DOC:     What did he die from.=hh
 6           (0.5)
 7  PAT:     He had:=uhm:: He had high blood pressure,
 8           (.)
 9  PAT:     An:d he 'ad- uh: heart attack.
10           (4.0)
11  DOC:     Is your mother alive,
```

In this case, the physician's questions are formed in an optimistic way, though not unreasonably so, about both the patient's father (line 1) and her mother (line 11).

These questions are framed in these ways rather than "neutrally" or "objectively" for good reasons. The designedly neutral social survey question conveys a stance of objectivized indifference toward the recipient's response and cumulatively instantiates an "essentially anonymous" or bureaucratic social relationship between questioner and respondent (Heritage 2002a; Boyd and Heritage 2006). To be effective, physicians cannot build relationships with patients in these terms. Instead, they must build questions that instantiate a caring relationship with patients. The primary means by which they can do this is "recipient design"—a term referring to the "multitude of respects in which the talk by a party in a conversation is constructed or designed in ways which display an orientation and sensitivity to the

particular other(s) who are the co-participants" (Sacks, Schegloff, and Jefferson 1974, 727). The consequence of recipient design in the medical context is not only a departure from "neutral" questioning but also, associated with this, the communication of the physician's reasoning, beliefs, and expectations. Thus, as Cassell (1985, 4) also notes, "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" (italics in the original).

The purpose of this chapter is to examine some aspects of medical questioning that contribute to this process of information exchange and to explore their contribution to the management of the social relationship between doctor and patient.

Dimensions of Question Design

Amid a multitude of features, four basic dimensions of question design, summarized in table 1, are important for the following discussion.

Table 1: Dimensions of Questioning and Answering

Physician Questions:	**Patient Responses:**
Set Agendas: (i) Topical agendas (ii) Action agendas	Conforms/Does not conform with (i) Topical agendas (ii) Action agendas
Embody presuppositions	Confirm/Disconfirm presuppositions
Convey epistemic stance	Display congruent/incongruent epistemic stance
Incorporate preferences	Align/Disalign with preferences

In what follows, we briefly review these major dimensions of question-answer sequences.

Agenda Setting

Our first dimension concerns the "agenda-setting" function of questions. Self-evidently, questions set agendas (Mishler 1984; Heritage 2002b; Clayman and Heritage 2002a, 2002b) that embrace both the kind of action that is required of a respondent and the topical content to which that action should be addressed. Although these two dimensions of agenda setting are not always easy to tease apart, perspicuous cases can be informative. For example in (3), the patient replies to a "where" question with a "where" response, but the two "wheres" have little in common save that they concern her mother:

```
(3)
 1  DOC:       Is your mother alive,
 2  PAT:       No:.
 3             (1.0)
 4  PAT:       No: she died- in her: like late (.) fifties: or:
 5             I'm not sure.
 6             ......
 7  DOC:   ->  Whe[re was her cancer.
 8  PAT:          [(  -)
 9  PAT:   ->  .hhh Well:- she lived in Arizona an:'- she::
10             wouldn't go tuh doctor much. She only went
11             to uh chiropracter. (h[u-)
12  DOC:                             [Mm [hm,
13  PAT: *->                             [An:d she had(:)/('t)
14       *->   like- in her stomach somewhere I guess but (.)
15             thuh- even- that guy had told her tuh go (into)
16             uh medical doctor.
17  DOC:       [Mm hm,
18  PAT:       [.hhh An:' she had- Years before her- (.) m- uh
19             hh mother in law: had died from: waitin' too-
20             or whatever ya know (on-) in surgery, .hh an'
```

Using Raymond's (2003) terms, the patient here conforms with the *type of action* the question solicits but not its *topic*. Evidently the patient designs this response to launch a narrative, and it is noticeable that, once the physician acknowledges the initiation of the narrative with a continuative "mm hm" (line 12), the patient responds to the question (lines 13–14) before continuing with the narrative she had previously started. Here the agenda-setting function of the physician's question is set aside, then briefly addressed within the narrative, and then sidelined as the patient proceeds with her story.

Briefer departures from the agendas set by questions are illustrated in (4) and (5). In (4) the patient defers her type-conforming (ibid.) "no" response to a yes/no question in order to give a cautious qualification to her answer:

```
(4)
 1  DOC:      Do you have any drug aller:gies?
 2            (0.7)
 3  PAT:      .hh hu=Not that I know of no.
```

In (5) the patient uses a brief departure to intimate a "lifeworld" circumstance (Mishler 1984). The question concerns a restaurant that she owns and manages, and her prefatory "aside" ("How long has it had m*e*.") intimates the burden it imposes on her:

```
(5)
 1  DOC:      How long have you had that?,
 2            (0.8)
 3  PAT:      hhhuhhh How long has it had me.=[hh<No: it-
 4  DOC:                                      [(Yeah.)
 5  PAT:      We had it aba- - We built thuh building #abou:t#:
 6            ten years ago. [(I think.)
 7  DOC:                     [Mm.
```

And in (6) the patient's departure from the question's agenda gives the physician a clue, to which he quickly responds:

```
(6)
 1  DOC:      Do you have brothers 'n sisters?
 2  PAT:   -> Ah there was eight in our family. hh
 3  DOC:   -> How many are there now:.
 4            (.)
 5  PAT:      Ah: seven.
```

Looking at how questions set these action agendas and how patients respond to them gives us a window into the ways physicians and patients both cooperate and struggle with one another over "what matters" in a given medical context. In this process, each party becomes aware of the other's concerns and any "direction" or trajectory through which these concerns are evolving. Information, in Cassell's (1985) formulation, is being "exchanged."

The ways in which this agenda-setting function of questions conveys information is vividly shown in Robinson's (2006) analysis of the questions with which physicians open medical visits. Robinson compares questions such as "What can I do for you today?" with a second type, "How are you feeling?" He shows that a crucial difference between the two types of question is that, whereas the first indicates that the physician does not know why the patient is present at the office, the second conveys prior knowledge of the patient's condition. This is achieved through the question's progressive aspect,

which is sufficient for this format to be understood—both inside and outside the medical context (ibid.)—as requesting some kind of update. Thus, while physicians overwhelmingly use the first type of question to index the opening of an acute medical visit for a new problem, they use the second to show that they know the patient is there for a follow-up visit.

As Robinson also demonstrates, when physicians use an opening question form that is inappropriate, they may find themselves being corrected. In (7) the physician uses an opening question formatted for a new concern:

(7) [Robinson 2006: 42]

1	DOC:	An::d what brings you here to see us in the clinic?
2		(1.0)
3	PAT:	Well my (.) foot (1.0) uhm (1.0) I was in here on
4		Sunday night=
5	DOC:	=Mmkay
6	PAT:	It's actually a follow up
7	DOC:	Yeah I read over your report uh: that they dictated
8		from the emergency room on Sunday...

Here the patient treats the physician's question as failing to recognize that the clinic has dealt with her problem previously. She has considerable difficulty framing her response as an answer to his question (line 3) before indicating that this is a follow-up visit (lines 3–4, 6). At stake here may be whether the physician has access to or has read her chart. As it turns out, he has read the emergency room report (lines 7–8), though clearly his opening question conveyed otherwise to the patient.

The significance of the agenda-setting functions of questions may be quite far reaching. In a study of telephone conversations in which physicians working for an insurance company reviewed cases with attending physicians to determine whether pediatric surgery was appropriate and would be reimbursed, Boyd (1998) distinguishes between various kinds of opening questions. One type, which she calls "collegial," is exemplified by questions like "Could you tell me something about this youngster?" Evidently the question is very "open": It exerts virtually no constraints on what the attending might choose to talk about. By contrast, there were "bureaucratic" opening questions like "He has uh- (0.2) they i- I don't get any documentation of any problems at all in the last year. And I- from their office so I wanted to check with you." This question is very specific in its focus: The reviewing physician asks for

"documentation" of medical problems in the past year (a key condition for the insurance company to approve reimbursement for the surgery). When individual differences and a wide range of other factors impacting the outcome of the review process were controlled for, the odds of calls with "collegial" openings resulting in approval of the case were three times greater than their "bureaucratic" counterparts (ibid.). Here the agenda-setting function of the opening question clearly has an influence not only on the attending physicians' responses but also, through these responses, on the actual decision that is arrived at some minutes later.

Presupposition

Our second dimension of question design concerns the presuppositional content of questions. All questions embody presuppositions about the states of affairs to which they are directed. For example, in (8) the question linguistically presupposes that the patient uses contraceptives. Associated with this presupposition are some implied cultural assumptions: that the patient is sexually active, is still capable of bearing children, and does not want any more of them:

```
(8) [Cassell 1985, 101]
 1  DOC:      What kind of contraception do you use?
 2  PAT:      None, since my menopause.
```

The patient's response undercuts the question's presupposition and rejects the second of its associated assumptions (rendering the third one moot): It does not address the first one. In (9), by contrast, another physician is more cautious. His first question conveys his view that the patient might be using contraception but does not presuppose it:

```
(9)
 1  DOC:     Are you using any contraception? Is that
 2           necessary [for you?
 3  PAT:               [Huh uh (not now.)
 4  DOC:     °(Okay.)°
```

His second question ("Is that necessary for you?"), however, revises the position taken in the first question by inquiring into that question's assumptions (that the patient is sexually active, capable of

bearing children, etc.). It thus goes some way toward retracting the relevance of the assumptions mobilized in the first question.

A similar variation in the presuppositional weighting of "lifestyle" questions is reported by Sorjonen, Raevarra, Haakana, Tammi, and Perakyla (2006) in the Finnish primary care context. The questions concern alcohol use—an issue that has been a significant social problem in the Nordic countries. Whereas female patients are normally asked, "Do you use alcohol?" Finnish males are asked, "How much alcohol do you use?" Here patient gender is evidently the basis for questioning that clearly varies in terms of its presuppositional loading.

The openings of medical visits are also a context in which questions may or may not convey presuppositions about what is known about the patient's presenting concerns. In the United States, when nurses or medical assistants interview patients before the doctor enters the examination room, nurses frequently record the patient's presenting concern in the patient's chart. Physicians thus commonly confront a choice between beginning the visit as if in ignorance of this information ("What can I do for you today?") or conveying that they already have this information ("Sore throat and runny nose for a week, huh?"). A recent study indicated that about 16 percent of medical visits are opened in this second way and that patients' responses to them are very much briefer and contain less information (Heritage and Robinson 2006b).

Epistemic Stance

The design of questions communicates the questioner's epistemic stance toward the response, particularly in relation to the questioner's access to the information solicited. Although questions ordinarily solicit information and convey a relatively unknowing (or K-) stance toward the respondent, we can distinguish questions in terms of the epistemic gradient they establish between questioner and respondent (Heritage and Raymond forthcoming). Consider the following three questions:

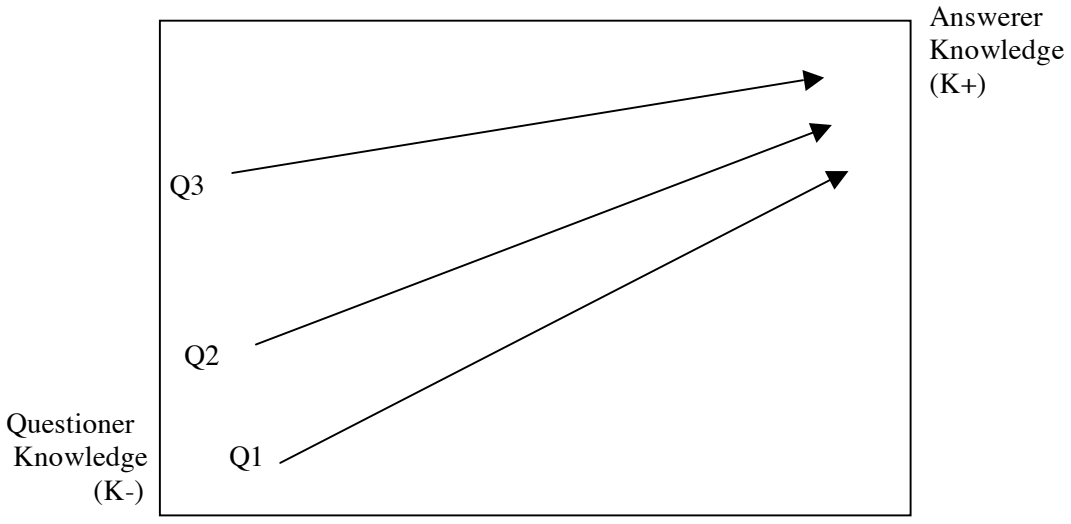
Q.1) Yes/No Interrogative: Are you married?

Q.2) Statement + Interrogative Tag: You're married aren't you?

Q.3) Yes/No Declarative Question: You're married.

Each of these questions addresses information that is properly known by the recipient. That is, the recipient has primary epistemic rights to this information (Sharrock 1974; Heritage and Raymond 2005), or, in Labov and Fanshel's (1977) terms, the information being addressed here is "B event" information. Nonetheless, the three questions propose difference stances toward it. The first proposes that the questioner has no definite knowledge of the respondent's marital status and indexes a deeply sloping epistemic gradient between an unknowing (K-) questioner and a knowledgeable (K+) respondent (see figure 3.1). The second, by contrast, conveys a strong hunch as to the likelihood of a particular response and a shallower "K- to K+" epistemic gradient. The third declarative question proposes a still stronger commitment to the likelihood that the respondent is married and a correspondingly shallow "K- to K+" epistemic gradient. This latter format is predominantly used when the speaker has already been told (or independently knows) the information requested and merely seeks to reconfirm or alternatively to convey inferences, assumptions, or other kinds of "best guesses" (Raymond, this volume; Turner 2008).

Figure 3.1. Question designs and epistemic gradients.



The significance of these question designs is twofold. First, taking the "unknowing" stance of a Y/N interrogative (Q.1) can invite elaboration and sequence expansion, while the "knowing" Y/N declarative form (Q.3) merely invites confirmation of known information by the recipient, who is projected as an authoritative source. These differences are clear in the following sequence involving a British community nurse (known as a health visitor [HV]) and a new mother. The nurse's first question (line 1) about the father's work as a painter is in interrogative form and attracts an expanded response (lines 2 and 4) from the mother:

```
(10) (5A1:9)
 1   HV:     Has he got plenty of wo:rk on,
 2    M:     He works for a university college.
 3   HV:     O:::h.
 4    M:     So: (.) he's in full-time work all the ti:me.
 5   HV:     °Yeh.°
 6           (0.4)
 7   HV:  -> And this is y'r first ba:by:.
 8    M:     Ye(p).
 9           (0.3)
10   HV:  -> .tch An' you had a no:rmal pre:gnancy.=
11    M:     =Ye:h.
12           (1.1)
13   HV:  -> And a normal delivery,
14    M:     Ye:p.
15           (1.4)
16   HV:     °Ri:ght.°
```

The nurse's subsequent questions (lines 7, 10, and 12) are in declarative form and attract unexpanded confirmations, whose brevity in some cases is accentuated by the labial stopped ("yep") variant of "yes," which underscores that the mother will not continue.

Thus, second, as Raymond (this volume) shows, these question designs index the complex choices about conveying the relative information states of the parties at any particular moment. In (11), from an after-hours call to a doctor's office (Drew 2006), a caller who claims to be pregnant is experiencing vaginal bleeding. After his inquiry about when the pregnancy test was done, the doctor is evidently concerned that the test could be a "false positive," perhaps associated with faulty test administration:

```
(11) [DEC 2:1:8]
 1  Doc:     ˙hhhhh! Aum:: (.) i::when didju actually have your: (.)
 2           t! eh:m: pregnancy test.
 3  Clr:     Eh:n: las' Thurs- Thursday, just gone.
 4  Doc:     The doctor did that, [or:
 5  Clr:                          [No, I ha- took a: a sample
 6  Clr:     intuh the chemist an' they done it.
 7  Doc:  -> ˙hhhhh Ri:ght. <Ehm: (.) an' they- i' was definitely
 8           positive then.
 9  Clr:     Yeah, yeah. [(Zuh) ('cause) the doctor didn' want me to
10  Doc:                 [(°Well,)
11  Clr:     do another one (an') 'e said no, (as) 'e said they're
12           not wrong when they're positive, it's only when
13           they're negative that it- (   ) can be wrong.
```

Having discovered that the test was performed at a pharmacy, the doctor formulates this line of questioning in declarative form: "i' was definitely positive then." In this context, interrogative syntax would put either the pharmacy's expertise or the caller's veracity into question (Turner 2008). And, as the data show, even the declaratively formed comment is sufficient to galvanize the caller into a defense of her diagnosis (lines 9–13). It is evident that complex socioepistemic issues are in play here, and ones that index the social relationship between doctor and caller, as well as the doctor's view of professional and lay-administered pregnancy tests.

So powerful is declarative syntax that, as Turner (2008) has shown, it can also be used to confirm that something has been specifically and relevantly *not* mentioned. For example, in (12) another after-hours caller is concerned about a child's extensive vomiting:

```
(12) [DEC 1:1:12]
 1  Clr:     U::h we:ll basically since dinner i-tha' 'e's
 2           actually bringin'the milk up,
 3  Doc:     [Right,
 4  Clr:     [(    while), you know, it's sort'us: () comin'
 5           up all the while at the minute,
 6  Doc:  -> Is it? What-w: it's just milk coming up, no: ˙hhh
 7        -> no blood or anyt'ing gree[n or anything¿
 8  Clr:                             [No:,
```

The doctor's declarative question (lines 6–7) about what the child is "bringing up" invites confirmation that the caller's previous account has relevantly *not* mentioned "blood or anything green" (line 7) and that he was relevantly informed by these omissions. Because the question designs described here also communicate the strength of expectations for a particular response, epistemic stance is closely related to preference, to which we now turn.

Preference

Our final dimension of question design concerns the preference organization of questions. The conversation analytic term *preference* is used to describe the bias or tilt of questions that are designed for, favor, or suggest an expectation of an answer of a particular type. A majority of physicians' questions are yes/no, "closed," "polar," or "alternative" questions (Roter and Hall 2006; Roter, Stewart, Putnam, Lipkin, Stiles, and Inui 1997), and the grammatical design of these questions unavoidably favors one or another of the alternatives that the question problematizes (Heritage 2002a; Boyd and Heritage 2006). Thus the following grammatical designs favor 'Yes' responses:

Straight interrogatives, e.g., "Are you married?"

Statement + negative tag, e.g., "You're married, aren't you?"

Declarative questions "You're married currently."

Negative Interrogatives, e.g., "Aren't you married?" (Bolinger 1957; Heritage 2002c; Heinemann 2006)

Similarly, there are a set of grammatical designs that favor 'No' responses:

Negative declaratives, e.g., "There's no blood in the diarrhea."

Negative Declaratives + positive tag, e.g., "There's no blood in the diarrhea is there?"

Straight interrogatives with negative polarity items (any, ever, at all etc.), e.g., "Was there ever any blood in the diarrhea at all?"

In addition to conveying a questioner's orientation toward potential responses, these designs can exert a significant influence on how recipients may respond to them. A recent study of the question Are there [some/any] other concerns you would like to talk about today? investigated responses to these questions among patients who had indicated in a previsit survey that there were additional concerns that they wanted to discuss. While 90 percent responded affirmatively to the "some" version of the question, only 53 percent responded affirmatively to the "any" version (Heritage, Robinson, Elliott, Beckett, and Wilkes 2007). Strikingly, there were no social covariates, for example, age, gender, ethnicity, that were significant predictors of response.

Aligned and Cross-Cutting Preferences

Of course, in addition to their grammatical design, the content of questions frequently indexes desired (or at least desirable) outcomes. For example, in a patient's medication request to a doctor that runs "Do you have some samples?" the very fact that the question is asked suggests that the questioner is looking for a "yes" response and that the question is asked in the service of getting free samples of medication. In this instance, the grammatical polarity of the question, which favors a "yes" response, is *aligned* to the objective of the question, which is the hope of obtaining free medication. However, a question with the same objective could have been designed with negative polarity (e.g., "You don't have any samples, do you?") This format grammatically respects the recipient's right to reject the request and embodies negative politeness (Brown and Levinson 1987). It does so by deploying what Schegloff (2007) describes as "cross-cutting preferences": The action is designed for a "yes," but its grammatical format is designed for a "no." The choice between aligned and cross-cutting preferences is a key resource through which physicians communicate, and patients apprehend the communication of information in questioning.

Optimization in Medical Questioning

Looking at history-taking questions in primary care, it is easy to find sequences like those in (13), which involve the following pattern. Where a "yes" response is a favorable health outcome, the question is grammatically designed for a "yes" (e.g., lines 1 and 9). Conversely, where a "yes" response would represent an unfavorable health outcome for a patient, the question is grammatically designed for a "no" (line 5):

```
(13)
 1  DOC:  -> Are your bowel movements normal?
 2           (4.0) ((patient nods))
 3  PAT:     °(Yeah.)°
 4           (7.0)
 5  DOC:  -> Tlk Any ulcers?
 6           (0.5) ((patient shakes head))
 7  PAT:     (Mh) no,
 8           (2.5)
 9  DOC:  -> Tl You have your gall bladder?
```

We refer to this pattern of alignments, which favors responses embodying positive health outcomes, as expressing the *principle of optimization*, which is a fundamental "default" principle of medical questioning (Heritage 2002a; Boyd and Heritage 2006). This principle embodies the notion that, unless there is some specific reason not to do so, medical questioning should be designed to allow patients to confirm optimistically framed beliefs and expectations about themselves and their circumstances. It is for this reason that patients are more frequently asked questions that grammatically prefer positive outcomes. "Is your father alive?" is the normal form for this question about mortality. "Is your father dead?" is comparatively rare and asked only in circumstances where death is the probable state of affairs.

The following case—this time involving a community nurse (HV) and a new mother—embodies the same pattern:

```
(14) [4A1:17]
 1  HV:  -> Uh::m (.) .hh So your pregnancy was perfectly
 2       -> normal.
 3   M:     Yeh.
 4  HV:  -> And did you go into labor (.) all by yourself?
 5   M:     No: I was started o[ff because uh:m (0.8) the blood
 6  HV:                        [Induced.
 7   M:     pressure (0.7) went up in the last couple of weeks.
 8          ...
 9          ... [Segment dealing with why mother was induced]
10          ...
11  HV:  -> And was he alright when he was born.
12   F:     Mm[:.
13   M:       [Yeah.
14  HV:  -> He came down head fi:rst.
15   F:     Mm h[m,
16  HV:  ->     [No:rm- no:rmal delivery?=
17   M:     =Ye:h.
18          (2.2)
19  HV:  -> And did he stay with you all the time.=
20       -> =He didn't go to special care baby unit.
21   M:     No:.
```

Here all six of the community nurse's questions are designed to favor responses that depict a normal pregnancy and an unproblematic delivery. The questions at lines 19 and 20 are particularly interesting: Both the initial *yes*-preferring interrogative and the subsequent, stronger *no*-preferring declarative versions of the question embody the principle of optimization—it would be better for the baby to have stayed with the mother and not gone to a special unit.

Optimization is a default feature of medical questioning: Unless the physician has reason to believe something to the contrary, a question should be optimized.

Problem Attentiveness

If the principle of optimization is the default principle of medical questioning, there are still many occasions in which it is clearly inappropriate—most prominently, when the questioning concerns the symptoms that are the patient's reason for seeking medical care. It would clearly be inappropriate to ask "You don't have a fever, do you?" of a patient presenting with cold and sinus symptoms. Stivers (2007), focusing on acute care visits, has formulated this as the principle of problem attentiveness. Drawing on Levinson's (2000) account of generalized conversational implicature, Stivers observes that "doctors appear oriented to the assumption that if the parent did not mention particular symptoms, they are not likely to exist (Q principle). And, if particular symptoms were mentioned, then questions broadly in line with those symptoms should be designed to presuppose a problem (I principle)."[1]

The principle of problem attentiveness makes it inappropriate for physicians to question patients about their primary symptoms using optimized questions (Stivers 2007). In (15) an eleven-year-old patient presenting with pain in her left ear is asked a series of questions that invites affirmative responses to pain symptoms (lines 1, 9, 13):

```
(15) [Heritage and Stivers 1999: 1511]
 1  DOC:  ->  Which ear's hurting or are both of them hurting.
 2            (0.2)
 3  GIR:      Thuh left one,
 4  DOC:      °Okay.° This one looks perfect, .hh
 5  ( ):      (U[h:.)
 6  DOC:        [An:d thuh right one, also loo:ks, (0.2) even more
 7            perfect.
 8  GI?:      (            )
 9  DOC:  ->  Does it hurt when I move your ears like that?
10            (0.5)
11  GIR:      No:.
12  DOC:      No?,
13  DOC:  ->  .hh Do they hurt right now?
14            (2.0)
15  GIR:      Not right now but they were hurting this morning.
16  DOC:      They were hurting this morning?
17            (0.2)
18  DOC:      M[ka:y,
19  MOM:  =>   [(You've had uh- sore throat pain?)
```

The child's negative responses at lines 11 and 15 are substantially delayed and clearly reluctant. Moreover, her response to the doctor's positively polarized follow-up question at line 13 (".hh Do they

hurt right now?), while confirming a "no pain" scenario, incorporates additional detailing that defends the decision to go to the clinic (Drew 2006; Heritage forthcoming; Stivers 2007; Stivers and Heritage 2001). Note that the child's mother introduces a new symptom at the end of this sequence (line 19), most likely to defend the decision to make the medical visit.

A similar case described by Stivers (2007) involves a child presenting with a cough. The parents have heard about a local meningitis outbreak on the television news, which they allude to in lines 7–8:

```
(16)
 1  Doc:      Has he been coughing uh lot?
 2            (0.2)
 3  Mom:      .hh Not uh lot.=h[h
 4  Doc:                       [Mkay:?,
 5  Mom:  ->  But it- it <sound:s:> deep.
 6            (1.0)
 7  Mom:  ->  An' with everything we (heard) on tee v(h)ee=hhhh
 8        ->  £we got sca:re'.£
 9  Doc:      Kay. (An fer i-) It sounds deep?
10            (.)
11  Mom:      Mm hm.
```

Here again, the question at line 1 is polarized in a problem attentive direction, and the mother, finding herself responding in the negative at line 3, defends the significance of the symptom with an account of the sound of the cough and the collateral concern that the media had stimulated.

In ordinary acute care situations, there is often an alternation between problem attentiveness and optimization in the way symptoms are addressed. Such a case is (17), where an evening after-hours caller (Drew 2006) describes her child's extensive bouts of vomiting and diarrhea:

```
(17)
 1  Doc:     .hh Fine. ˙h So: ho:w ho:w: this was: all just started tonight,
 2           is it?
 3  Clr:     Yes.<Well I didn't [come in from wo:rk unti:l uh:] ten past=
 4  Doc:                        [˙h  h  h  h        h  h  h  h]
 5  Clr:     =[seven and she'd already been sick three] times,
 6  Doc:      [˙h   h   h   h            h   h   h   h]
 7  Doc:     ˙hhh Ri:gh[t,
 8  Clr:               [(And) since then, (.) [been sick [another three
 9  Doc:                                      [˙hhhh     [mYeah,
10  Clr:     ti[mes,
11  Doc:  ->   [Another three time ˙hh What's she bringing up?=
12        -> =any[thing exciti°n-]
13  Clr:         [(like just)    ] [Just fluid rea[lly,
14  Doc:                           [˙hhh          [hhh  Just fluid.
15  Clr:     [Nothing now. I don['- obviously I don't know what it was=
16  Doc:     [Nuh-              [˙hhh
17  Clr:     =earlier on,  I wasn't her[e, you know,=
18  Doc:                               [˙hh˙hh
```

```
19  Doc:  -> =Right, but the: th I mean- n:othing nasty no blood er
20        -> anything ˙hhh and the diarrhea: you say is quite (0.9)
21  Clr:     Very strong, yeah.
```

Having established that the onset of the child's illness is recent, the doctor proceeds to question the caller about the content of the vomiting and diarrhea. As he moves toward symptoms that might be indicative of a serious medical condition, his questions (e.g., "What's she bringing up?==anything exciti˚n-" [lines 11–12] and "but the: th I mean- n:*o*thing nasty no blood er anything" [lines 19–20]) become negatively polarized. Though the parent has not described any symptom that suggests the presence of blood in the child's vomit, the negative polarization of this declarative question is somewhat optimized (compare "Is she bringing up blood?") and hence becomes a marker (among several) of the seriousness of these symptoms. Here even a recipient who has little grasp of medical reasoning could recognize, from the question's negative polarity alone, that something more serious is being addressed. In Cassell's (1985) terms, once more, information is being "exchanged" via question design.

Recipient Design

In circumstances such as "well visits" and information-gathering medical interviews, where there is no specific medical problem to drive the principle of problem attentiveness, the principle of optimization may nonetheless be tempered by more general considerations of recipient design. This, as noted earlier, concerns the display of an "orientation and sensitivity to the particular other(s) who are the co-participants" (Sacks, Schegloff, and Jefferson 1974, 727). It is this principle that, directed to a patient who works sixty-hour weeks in her owner-managed restaurant and has gained eleven pounds since her last medical visit, mandates a *no*-preferring, and hence nonoptimized question about exercise:

```
(18)
 1  DOC:  -> Tlk Do you exercise at all?
 2           (2.5)
 3  PAT:     N::o, uh huh huh huh (.hh-[.hh) huh [huh (.hh huh huh)
 4  DOC:                                 [Hm       [£Not your thing
 5           [ah:,]
 6  PAT:     [.hh ] £Would you believe me if I sai(h)d y(h)e(h)s,=
```

That the physician's nonoptimized design of this question was appropriate is very thoroughly validated by

the patient's response (especially line 6).

In (19), an even more pointed dilemma confronts the community nurse, whose questions are directed to the completion of checklist information about a mother's recent birthing experience. This sequence follows a lengthy period of conversation in which both parents described how the baby's shoulders had become stuck in the birth canal. The nurse has reached a point in her preprinted checklist where the text reads "Type of delivery," and there is a blank space to be written in: The choices are, broadly speaking, "normal," "forceps," "caesarian," and so on. The nurse's turn at line 1 was likely headed toward an optimized declarative version of this question, "So you had a normal delivery?" which is the normal form of the question asked at this point (see [14] above, line 16; [23] below, line 13; and, more generally, Heritage 2002a; Bredmar and Linell 1999; Linell and Bredmar 1996):

```
(19) [1A1:14]
 1  HV:     =So you had a- uh:
 2          (1.0)
 3  HV:  -> You didn't- Did you- You didn't have forceps you had a:
 4   M:     =Oh [no:: nothing.
 5   F:         [(   )
 6  HV:     An- and did she cry straight awa:y.
 7   M:     Yes she did didn't sh[e.
 8   F:                          [Mm hm,
 9          (1.0) ((Wood cracking))
10  HV:     Uhm (.) you didn't go to scboo: you know the
11          spe[cial care unit.
12   M:        [Oh: no: no:.
```

Belatedly recognizing the possible inappropriateness of this question just at the point that the word *normal* would be due, the nurse stops for a whole second and then (line 3) tries to rephrase the question in order to acknowledge the possibility of a forceps delivery but in an optimized, declarative fashion: "You didn't- [have forceps]." She then does an about-face from the (optimized) negative polarity of that question and begins with a positively polarized, interrogative replacement: "Did you- [have forceps]." Finally, she returns to the initial declarative formulation, which is worded to be doubly optimized: "You didn't have forceps you had a:." The possibility of forceps is acknowledged with negative polarity, while its alternative—a normal delivery—starts to be developed with positive polarity. Once again, however, the nurse hesitates at the point where the word *normal* is due, and the mother steps in with a strong

confirmation that forceps were not used (line 4) with an oh-prefaced response (Heritage 1998) and a repeated "No" (Stivers 2004). Here, in a situation of true uncertainty about the real facts, the nurse repeatedly hesitates between question forms organized by the principles of optimization and problem attentiveness. (See Raymond, this volume.)

Dimensions of Question Design in Special Situations

Routine Checklists

Medical questioning in "well visits" and in information-gathering interviews normally does not involve the forensic pursuit of a differential diagnosis but is instead aimed at achieving a routine overview of the patient's health or social information. This questioning is often styled in ways that exhibit this routine "checklist" objective.

For example, over the course of a sequence of questions, each successive question may be contracted relative to its predecessor in a process of ellipsis, as in (20). In this case, the first question (line 1) is a fully formed sentence. The second (line 5), by contrast, is shortened to a noun phrase with the negative polarity item "any." And in the third (line 8), the polarity item is deleted, though its relevance, in part assisted by the etiologic and semantic collocation of "chest pain" with "shortness of breath," is clearly still in play:

```
(20)
 1  DOC:  ->  Tlk You don't have as:thma do you,
 2            (.)
 3  PAT:      Hm mm.
 4            (1.1)
 5  DOC:  ->  (hhh) .hh Any chest type pain?,
 6  PAT:      Mm mm.
 7            (3.4)
 8  DOC:  ->  Shortness of brea:th,
 9            (1.0)
10  PAT:      Some: but that's: cuz I should lose weight (I know that,)
11            (.) I thin'.=<Not much.
```

Here, through successive reductions, a series of brief, checklist questions rules out a variety of medical problems. This understanding is clearly indexed by the patient's responses at lines 3 and 6. These are nearly immediate and completely "closed mouthed" and are among the most minimal and pro forma

responses that can be used to execute a "no" response in English. Through their use, the patient treats the questions and the relevances they invoke as involving pro forma matters that can be dismissed out of hand.

At line 10, by contrast, the patient delays a full second before responding to a negatively polarized question that, by content and design, is fully optimized. Her initial response is not type conforming and is designed to mitigate the significance of an affirmative response. The subsequent expansion of her response is designed to show insight into the causes of her condition and to link it to her weight gain, which has already been topicalized in the visit (Stivers and Heritage 2001).

Another feature of question design that emerges in these kinds of contexts is *and*-prefacing (Heritage and Sorjonen 1994). *And*-prefacing is typically used to link a series of question-answer sequences as elements of a common task or activity. For example, in (21) the task is entering a newborn baby's name on a chart:

```
(21) (3B1:2)
 1  HV:     What are you going to (.) call her?
 2   M:  -> Georgi:na.
 3          (1.0)
 4  HV:  -> An:d you're spelling that,
```

In these kinds of sequences, which embody a convergence between medical interaction and social surveys (Heritage 2002a), the *and*-preface clearly links the two questions and elements in a common task. Furthermore, in (22) the activity link might be construed in terms of gathering basic social information about a husband:

```
(22)  (1C1:25)
 1  HV:     Okay so that's that's your clinic fo:rm.
 2   M:     (          )
 3  HV:     An' all I put on here is you:r (0.7) there's a
 4          bit about you:, (0.7) it sa:ys here that you're
 5          twenty o:ne is that ri:ght?
 6   M:     That's ri:ght.=
 7  HV:  -> =How old's your husba:nd.
 8   M:     Twenty s- uh twenty six in April.
 9          (0.5)
10  HV:  -> And does he wo:rk?
11   M:     He wo:rks at the factory yes.
```

These task or activity lines can be substantially extended. In (23), for example, a community nurse links a

sequence of seven questions by using *and* to preface six of them. Though these questions are somewhat linked in a broad topical sense, they do not embody referential continuity:

```
(23) (5A1:9)
 1  HV:     Has he got plenty of wo:rk on,
 2   M:     He works for a university college.
 3  HV:     O:::h.
 4   M:     So: (.) he's in full-time work all the ti:me.
 5  HV:     °Yeh.°
 6          (0.4)
 7  HV:  -> And this is y'r first ba:by:.
 8   M:     Ye(p).
 9          (0.3)
10  HV:  -> .tch An' you had a no:rmal pre:gnancy.=
11   M:     =Ye:h.
12          (1.1)
13  HV:  -> And a normal delivery,
14   M:     Ye:p.
15          (1.4)
16  HV:     °Ri:ght.°
17          (0.7)
18  HV:  -> And sh'didn't go into special ca:re.
19   M:     No:.
20          (1.8)
21  HV:  -> °An:d she's bottle feeding?°
22          (1.2)
23  HV:  -> °Um:° (0.4) and uh you're going to Doctor White
24          for your (0.6) p[ost-na:tal?
25   M:                     [Yeah.
```

All of the questions in (20) are linked to a single data-entry page in a chart that the nurse is completing (Heritage 2002a). This linkage, which is in plain sight of the mother, is verbally formulated as a single, task-coherent activity in this sequence of *and*-prefaced questions.

Just as the progressively truncated questions in (17) conveyed a routine activity to which the patient responded with abbreviated responses, so in (20) the patient's responses are also abbreviated. Each question formulates a "candidate answer" (Pomerantz 1988) as an item for patient agreement (or acquiescence) ancillary to the entry of the information into the chart. Each of the mother's responses is a single word, sometimes completed with a labial stop (lines 8 and 14), which appears to indicate that the response will not be elaborated. Here both the *and*-prefacing and the declarative format of the questions favor abbreviated responses. Thus, these questions treat the information being solicited as part of a task-focused, pro forma, bureaucratic activity and as unindicative of any real interest or concern—as close, in fact, as we get in medicine to a "social survey" style of questioning.

Lifestyle Questions

Lifestyle questions are a major exception to the principle of optimization sketched earlier. Little linguistic intuition is required to see that a question like "You don't smoke, do you?" is unlikely to elicit a "yes" response. The alignment of sociomedical and grammatical preference in such a question is surely too tempting, especially for the smoker who anticipates an exhortation to quit or a reproach for not having done so. Accordingly, lifestyle questions are rarely optimized. At the same time, nonoptimized questions may permit nonsmokers and nondrinkers to present their virtuous behavior quite emphatically. Thus, in (24) a nonoptimized question about smoking receives the flattest of rejections:

```
(24) [Halkowski 2007]
 1  DOC:     Are you a smoker?
 2           (.)
 3  DOC:     Or a past smoker?=
 4  PAT:     =Never.
```

Here the grammatical (*yes*-inviting) form of the question cross-cuts its negative sociomedical preference. The patient's emphatically negative response is both enabled by and rebuts the question's grammatical preference. In this way, the patient is able to construct himself as an upstanding, health-conscious, right-living member of the community. A similar effect can be achieved through minimized response:

```
(25)
 1  DOC:     tch D'you smoke?, h
 2  PAT:     Hm mm.
 3           (5.0)
 4  DOC:     Alcohol use?
 5           (1.0)
 6  PAT:     Hm:: moderate I'd say
 7           (0.2)
 8  DOC:     Can you define that, hhhehh ((laughing outbreath))
 9           (0.2)
10  DOC:     Can you define that, hhhehh ((laughing outbreath))
11  PAT:     Uh huh hah .hh I don't get off my- (0.2) outa
12           thuh restaurant very much but [(awh:)
13  DOC:                                   [Daily do you use
14           alcohol or:=h
15  PAT:     Pardon?
16  DOC:  -> Daily? or[:
17  PAT:               [Oh: huh uh. .hh No: uhm (3.0) probably::
18           I usually go out like once uh week.
```

Here the patient's response at line 2 is dismissively minimal, though her designedly considered response to the companion question is quite the reverse (Stivers and Heritage 2001). Note also that the elliptically

designed question at line 4—"Alcohol use?"—seems to be equivocal between the alternatives deployed in the Finnish consultations mentioned earlier: "Do you use alcohol?" and "How much alcohol do you use?" The physician's subsequent pursuit of a quantity via the left-dislocated "D*a*ily do you use alcohol or:=h" is also nonoptimized and is resisted with a repair initiation at line 15 (Drew 1997) and a subsequent *oh*-prefaced response (Heritage 1998), which treats it as inapposite (Stivers and Heritage 2001).

A more nuanced version of this kind of lifestyle question is the following alternatively formatted case. Here the first half of the alternative conveys (with *still*) that the doctor is aware that the patient has smoked in the past, while the second half elaborates on this by presenting the patient with an opportunity to affirm having quit:

```
(26) [Halkowski 2007]
 1  Doc:     Are you still smoking now or have you [quit.
 2  Pat:                                           [No
 3           (.)
 4  Pat:     I'm not smoking now.
 5  Doc:     Okay.
 6           (3.0)
 7  Pat:     (.hhh) But I ain't gonna tell ya no lie- I have a
 8           cigarette e::v'ry once in a while.
 9  Doc:     (°Mm hm:°,)
```

The patient's initial response (line 2) emerges as a flat denial. However, after a brief pause, he expands this answer with an emphatic repeat of the terms of the question. However, at the end of line 4, he has not yet affirmatively embraced the question's alternative formulation that he has quit. Moreover, as it turns out from his further remarks at lines 7 and 8, such a claim would have been false in a strict sense. Note that, in his design of this response, the patient is able to emerge as careful, honest, and accurate in his responses to the question.

Transitioning from Problem Presentation: A Shift in Agenda Control

We conclude this brief survey of special situations with a very specific one indeed: the transition into medical questioning that occurs at the conclusion of a patient's presentation of the reason for the visit.

As a number of authors have noted, the patient's problem presentation is the main and perhaps only phase of the medical visit in which the patient may freely describe a problem and thus controls the interactional agenda (Beckman and Frankel 1984; Halkowski 2006; Heritage and Robinson 2006a, 2006b). At some point this phase of the visit is ended by the physician's initiation of a course of questioning that is directed at the history of the present illness (Marvel, Epstein, Flowers, and Beckman 1999; Robinson and Heritage 2005). At this point, the interactional initiative (Linell, Gustavsson, and Juvonen 1988) passes from the patient to the physician, and control over the topics and trajectory of the visit likewise shifts.

In a study of movement away from troubles telling, Jefferson (1984) observed a two-stage process. First, the recipient of such information asks an "other-attentive" question that is heavily focused on and often requests confirmation of what the troubles teller has just described or at least implicated. Subsequently, the questioner asks a second question that starts to move the topic away from the trouble being reported and in the direction of some matter selected by the questioner. This process, then, involves a two-step loss of the interactional initiative (Linell and Luckmann 1991): First, a shift takes place in who has the *interactional, agenda setting* initiative, and second, a shift occurs in who has the *topical* initiative.

This process, in which other-attentive initial questions ease the transition into further questioning, is very common in doctor-patient interaction. In this context, they are used to manage the shift of control from problem presentation (under the patient's control) to history taking (which is controlled by the physician), as in (27):

```
(27)
 1  Doc:     What's the proble[m. (°with Mary°)
 2  Mom:                      [eh::m .tch (0.2) She's been vomitin (.)
 3           and had diarrhea since Thursday.=
 4  Doc:     ˙hhhhhhhh ((Looks at child, animating surprise 1.0))
 5  Mom:     Today she's s- she hasn't ac- she's not eaten anything. .hh
 6  Doc:     R[ i : : g h t ]
 7  Mom:      [Absolutely no]thing she's had. She's drinkin well but
 8  Mom:     [(eatin') absolutely nothing.
 9  Doc:     [Good
10  Mom:     ˙hhhh [eh:: she's been alright today so far: (0.5) but usu'ly
11  Doc:           [o::ka::y
12           around lunchti:me she- (0.9) start's vomitin.
13  Mom:     And all: the ti:mes the diarr[hea.
14  Doc:                                  [Ri:::ght o:ka::y,=
```

```
15  Mom:     =But she's alright in herself:.
16           {(0.5)/(˙hhhhh)
17  Doc:  -> So it's (.) four da:ys? isn't i[t?
18  Mom:                                     [Yeah.
19           (0.7)
20  Doc:     mtch.=˙hhh O:ka:y
21           (.)
22  Doc:  -> A::nd (.) no blood with the diarrhea.
23  Mom:     No.
```

This pediatric visit, which occurred on a Monday, begins with an extensive description of a child's symptoms and culminates with the mother's generalized comment that the child is "alright in herself." At this point the transition to history taking is initiated by the physician's question "So it's (.) four da:ys? isn't it?" This question reaches back to line 3 of the mother's problem presentation, when she referred to the child as having been sick since "Thursday," and performs a simple arithmetic reformulation of that reference (Heritage and Watson 1980) prefaced by the upshot marker "so" (Schiffrin 1987; Raymond 2004). By this apparently redundant other-attentive request for confirmation, the physician is able to show that she has been listening to the mother's account. Subsequently (line 22), she starts to move on to her own trajectory of questioning with the optimized inquiry about blood in the child's diarrhea.

A similar pattern is apparent in the following case, in which a wife telephones a doctor's office about her husband's condition:

```
(28)
 1  Doc:     How can I help,
 2  Clr:     .hhh Well- (0.3) all of a sudden yesterday evening, having been
 3           perfectly fit for (.) you know, ages, [.hh
 4  Doc:                                          [Ye:[s,
 5  Clr:                                              [My husband was taken
 6           ill: (wi') th'most awful stomach pains, and sickness, h[h
 7  Doc:                                                            [Ye:s,
 8  Clr:     .hh An' it's gone on a:ll night. He has vomited once. hh!
 9           .hh[h
10  Doc:        [Righ[t,
11  Clr:             [An' also had some diarrhea,hh!
12  Doc:     Right,=
13  Clr:     =Uh: a:nd hh! You know he seems >t'be< almost writhing in
14           a:gony, h .hhh eh-hhh! ˙h[h (He's had) 'is appendix ouhht! hhh=
15  Doc:                              [°(Ruoh,)
16  Clr:     =.hhh!
17  Doc:     Ye:s. ((smile voice?))
18  Clr:     Uhm: (.) an:d (.) you know he just feels he ought to see a
19           doctor, hhh [˙hh
20  Doc:                 [(b)R:ight, ih- h[e's actch-
21  Clr:                                  [He's ly:ing in be:d, really
22           absolutely wre:tched, hhh
23  Doc:  -> And he's had thuh pain in 'is tummy all night, (h)as ['e?
24  Clr:                                                          [Y:es,
25           in the lower part of his hh
```

```
26            (1.0)
27  Doc:      tummy.h
28            (0.3)
29  Clr:      abdome[n. Yes,
30  Doc:  ->        [ˈhhh Does the pain come and go:? or:
```

Again the physician's apparently redundant summarizing of the duration of the patient's condition "sugars the pill" of transition from the caller's extensive account, replete with "lifeworld" concerns (Mishler 1984), to questioning driven by a narrower, more technical-medical agenda (line 30). In addition, in this case the other-attentive question is prefaced with the connective "and" in a design that builds an explicit connection between the caller's account and the physician's question, which indeed purports to be an extension of it.

Conclusion

Insofar as we have evidence of the effects of question design on patient responses, a central finding is that these effects are pronounced and generally exceed the significance of other, more contextual factors such as patient and health care provider characteristics, the medical practice, social attitudes, and other less proximate characteristics of the medical visit. These findings reaffirm a core tenet of conversation analysis about the nature of context: An immediately prior action is the most important aspect of context with which a current action engages. Question design in all of its specificities is such a context, and as such it mediates both the many medically specific particularities of doctor-patient interaction and the broader social contexts of medical visits. The result is that many of these elements of context exert their influence *through* features of talk such as question design rather than independently of them (Heritage, Robinson, Elliott, Beckett, and Wilkes 2007).

Perhaps the central tenet of conversation analysis is that the analyst should, for every aspect of an utterance, ask "why that now?" The analyst should ask this question because it raises the concerns that participants address as and when they construct responses. The central theme of this chapter is that for precisely this reason, and regardless of whether questioners like it or not, their questions are unavoidably

communicative. Questions communicate through their topical and action agenda-setting properties: Why *that* question on *that* topic? They communicate through their presuppositions: Why was *that* presupposed? And they communicate through their preference design: Why was *that* question made *yes*-preferring rather than *no*-preferring?

In the medical context, these elemental features of question design cluster in ways that are structured by the institution of medicine, the nature of medical knowledge, the purposes of a medical visit, and the stage it has reached. In a well visit, should this question be *yes*-preferring or *no*-preferring, optimized or recipient designed? In an acute visit, should this question be problem attentive, or should it be optimized? As the visit is winding down, should it be a matter of "Do you have any questions?", "What questions do you have?", or just "Questions?"

However, though these choices in question design are clustered and filtered through the institution of medicine, this does not exhaust their significance. Through these choices knowledge is conveyed, relationships are forged, identities are asserted, validated, and rebuffed, and risks are taken. Indeed, because physicians are without a hiding place in these matters, the risks *must* be taken. Thus, when considering Goffman's (1959) famous assertion that "life may not be much of a gamble, but interaction is," it is safe to say that question design cannot be excluded from that claim.

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Notes

[1] In the theory of generalized conversational implicature (Levinson 2000), the quantity (Q) principle states both that speakers should provide the strongest possible statement of knowledge that they can and that recipients will assume that what their interlocutor says is the strongest possible statement/description. The informativeness (I) principle states that speakers should say as little as necessary to achieve communicative ends. The corresponding recipients' corollary assumes this and therefore allows recipients to assume the richest description possible consistent with what is taken for granted.