

# Papers

## The nature of medical evidence and its inherent uncertainty for the clinical consultation: qualitative study

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### Abstract

**Objective** To describe how clinicians deal with the uncertainty inherent in medical evidence in clinical consultations.

**Design** Qualitative study.

**Setting** Clinical consultations related to hormone replacement therapy, bone densitometry, and breast screening in seven general practices and three secondary care clinics in the UK NHS.

**Participants** Women aged 45-64.

**Results** 45 of the 109 relevant consultations included sufficient discussion for analysis. The consultations could be categorised into three groups: focus on certainty for now and this test, with slippage into general reassurance; a coherent account of the medical evidence for risks and benefits, but blurring of the uncertainty inherent in the evidence and giving an impression of certainty; and acknowledging the inherent uncertainty of the medical evidence and negotiating a provisional decision.

**Conclusion** Strategies health professionals use to cope with the uncertainty inherent in medical evidence in clinical consultations include the use of provisional decisions that allow for changing priorities and circumstances over time, to avoid slippage into general reassurance from a particular test result, and to avoid the creation of a myth of certainty.

### Introduction

Clinicians have access to a growing body of good clinical research evidence informing them about the effectiveness of many medical interventions. However robust the research, clinicians face the dilemma of applying this evidence to individual patients.<sup>1</sup> This is the uncertainty inherent in the nature of medical evidence. For example, epidemiology tells us that smoking is a risk factor for heart attack, but it does not tell us which individuals will be affected.<sup>2</sup> Randomised controlled trials of hormone replacement therapy<sup>3</sup> report on the number of extra breast cancers identified in a large number of women receiving treatment compared with those not receiving treatment, but they cannot tell us which women will develop the extra cancers. This dilemma between the nature of medical evidence and individual patient care is central to medicine's history and will not disappear, as they are essential to each other. Diseases always manifest themselves in patients' bodies and minds, and in seeking to understand, treat, and predict the outcome of disease, clinicians need to move their focus from the individual to more generalised research.<sup>4</sup>

Clinicians recognise this dilemma and have reflected on this in relation to their clinical practice<sup>5</sup> and the need for research methods that give more attention to the particular rather than to

the general.<sup>5</sup> The importance of this dilemma is discussed within related disciplines, including medical philosophy, ethics, and health policy.<sup>6-9</sup> Few studies, however, have examined what clinicians actually say to patients.<sup>10</sup> Studies have considered how clinicians communicate clinical evidence to patients, taking account of their preferences<sup>11</sup> and maintaining the clinician-patient relationship.<sup>12</sup> Studies have also acknowledged the difficulty of communicating about the risks and benefits of interventions.<sup>13</sup> These studies do not, however, examine communication in relation to the inherent uncertainty in the evidence. We examined how health professionals talk to patients about this uncertainty, and we provide a framework for reflecting on how they handle the dilemma of applying clinical evidence to particular patients.

### Methods

We examined consultations with health professionals in both primary and secondary care where there was discussion of one or more of the interventions of hormone replacement therapy, bone densitometry, or breast screening. Our study included healthcare sites in contrasting socioeconomic contexts in the Midlands and north east England. The collection of these data was part of a larger study, reported elsewhere.<sup>14 15</sup>

All women aged 45-64 attending one of seven general practices or three specialist clinics in the UK NHS were invited to participate in our study. After consent was obtained, the healthcare professional audiotaped the consultations. These were reviewed for their relevance to our study. We discarded those with no mention of the relevant interventions, and we retained all the others regardless of the extent of the discussion of the interventions. Table 1 lists the details of the clinics and surgeries and consultations recorded. The details of the research process, including analysis, are on [bmj.com](http://bmj.com).

Overall, 109 consultations were relevant: 73 from general practice and 36 from specialist clinics. Most women attending the clinics agreed to be recorded, whereas in general practice the consent rate was lower (20% in some practices).

A key emergent theme was uncertainty and how it is discussed between health professionals and women, particularly the uncertainty inherent in medical evidence when it is applied to particular patients. The data included 64 consultations with only a brief mention of the interventions. For example, a woman discusses with the practice nurse those symptoms she thinks are due to the menopause, and hormone replacement therapy is



Details of the research process are on [bmj.com](http://bmj.com)

**Table 1** Number of consultations recorded between health professionals and women at midlife in which hormone replacement therapy, bone densitometry, or breast screening was mentioned

Setting, health professional	No of health professionals	No of consultations
General practice 1:		
General practitioner	3	5
Practice nurse	2	3
General practice 2:		
General practitioner	3	9
General practice 3:		
General practitioner	4	6
Practice nurse	1	2
General practice 4:		
General practitioner	1	3
Practice nurse	3	3
General practice 5:		
General practitioner	4	10
Practice nurse	1	7
General practice 6:		
General practitioner	2	9
Practice nurse	2	13
General practice 7:		
General practitioner	1	1
Practice nurse	1	2
Hormone replacement clinic:		
Consultant	1	2
Specialist registrar	1	3
Breast clinic:		
Associate specialist	1	2
Consultant	1	4
Specialist nurse	2	2
Bone clinic:		
Consultant	2	11
Specialist nurse	1	1
Radiographer	1	11

mentioned only briefly (also see [bmj.com](http://bmj.com)). Owing to insufficient data, we did not include these consultations in subsequent analysis. Through a process of discussion and comparison of data, we developed categories for how uncertainty was dealt with in the remaining 45 consultations, which were recorded by 25 different health professionals (nine had more than one consultation in this dataset and of these, three had more than two). The categories were developed as a tool for understanding and reflecting on what was taking place in the consultations. The results of the analysis were presented to three university based focus groups—two of doctors and one of patients—which provided feedback on the validity of the categories from their own experience. In further comparative analysis we explored links between how uncertainty was dealt with and the healthcare issues and context.

## Results

The extract in box 1 provides an example of how uncertainty owing to the nature of medical evidence was managed within the consultations; the doctor knows what should make a difference to bone density based on medical research, but he does not know what has made a difference for this particular woman.

The three approaches to the uncertainty inherent in medical evidence in the consultations were certainty for now, the coherent story of certainty, and acknowledgment of the uncertainty.

### Approaches to uncertainty inherent in medical evidence

#### *Certainty for now*

The health professionals talked about certainty for now, or for this test—for example, the result of ultrasonography at the time

of the procedure. However, they also slipped into general reassurance.

#### *Coherent story of certainty*

The health professionals wove a coherent account of the medical evidence for risks and benefits—for example, a great deal of detail, including estimates of the size of risk, was included in a discussion of hormone replacement therapy for osteoporosis. The way in which this detail was delivered, however, gave an impression of certainty, even though the health professional may have used words implying uncertainty.

#### *Acknowledging uncertainty*

The uncertainty of outcome from using an intervention was acknowledged, including the inherent uncertainty of the medical evidence when applied to individuals. A strategy used to cope with this uncertainty was negotiating a provisional decision.

Most consultations included elements of each of the three categories. In all but four consultations, however, a dominant approach to uncertainty was identified. Of the nine health professionals who had more than one consultation, all except one (specialist registrar) used more than one approach to the uncertainty inherent in medical evidence.

### Certainty for now

Health professionals talked of certainty in relation to the results of the test they had carried out or were planning. Reassurance was given before the results were available, but with the proviso that the results were needed to be absolutely sure. For example, in two consultations women told their general practitioner about changes in their breasts. The women were examined and reassured that their breasts seemed “normal.” The women were referred to the breast clinic for further certainty from tests (see box 2, extract 1).

A doctor in the breast clinic (consultation 032) emphasised the need for certainty by saying “obviously we need to know for sure” and arranged a biopsy to try and achieve that. He followed this by saying that “often we biopsy things to prove that they’re nothing . . . we get so many surprises, we’re sort of duty bound to offer you the . . . chance of biopsy.” The type of certainty being talked about is a test result for the here and now—a particular

#### **Box 1: The uncertainty of medical evidence**

A follow up bone density reading shows that the patient is “holding her own”—that is, her bone density is not decreasing.  
 Patient: I’m still on the Didronel, should I continue with it, I, I thought possibly that you might have said come off it now, because I understood that my level was sort of normal for my age now.

Doctor: For your age, that’s correct.

Patient: Umm, so I wondered possibly if that’s why I was coming to see you today. You’d maybe say I had to come off it, but if you feel that I should continue with it I’m quite happy to do that.

Doctor: Umm, as long as there’s no problems with it.

Patient: If necessary, I don’t have any problems whatsoever.

Doctor: Umm, okay. My view would be take a belts and braces approach. By that I mean you’ve changed your diet, you’re doing more exercise, those two things are good for you. Err, taking the Didronel we know now is allowed on a long term basis.

Patient: Yes.

Doctor: Err and I am a little uncertain as to which of these three strands, the diet, the exercise or the medication, is making the difference, but something is. (Bone clinic, consultation 054)

### Box 2: Certainty for now and this test, with slippage into general reassurance

#### Extract 1: Woman mentions changes in her breasts

Patient: I just kept putting it to the back of my mind and then it was just, I thought well its not, it doesn't feel right you know it was like pulling and I thought hmmm.

Doctor: I'll sort you out a review at the breast clinic and then they'll be able to reassure you fully I'm, I'm sure ... (General practice, consultation 094)

#### Extract 2: Woman has ultrasonography of her breasts

##### *During ultrasonography*

Doctor: Here it is looking very clear that it is an innocent kind of, er, thing. That's why we don't need to do any biopsy.

##### *After ultrasonography*

Doctor: The thing is, it doesn't exclude you to getting something else some other place ... that's the thing. I can tell about what—what is happening today, and about these ones, which look innocent. (Breast clinic, consultation 003)

piece of tissue at this time. The mention of surprises indicates uncertainty, but only until the results of the biopsy are known.

In the second extract in box 2, the doctor talks about certainty provided by the ultrasound result for the breast tissue at this time and then goes on to explain to the woman the limited nature of this certainty. Other consultations in this category did not include such explanation. The health professionals took care to tell the women that the particular tissue examined was normal, but followed this up with a reassuring phrase which was rather general—for example, “it's perfectly normal, you're alright” (consultation 031).

### Coherent story of certainty

In some consultations, the health professional wove an account or explanation for the woman that was coherent, almost as a story. The intention seemed to be to provide information and explanation so that the woman could make her own decisions, although the overall tenor of the consultations was in favour of the intervention. In some of the consultations a great deal of detailed information was provided, including numerical estimates of risk and explanations of uncertainty. From the way women responded, however, it seems this formed an unfocused backdrop for their decisions.

In box 3, extract 1, both the doctor and the woman seemed to struggle with the uncertainty inherent in medical evidence. The doctor actually contradicts himself in the process of trying to provide a coherent account of the risk of osteoporosis. The woman also struggles to understand how the evidence applies to her. At one point the doctor links his explanation to the experience of the woman's mother, a reality they both know about. However, most of what the doctor says is drawn from evidence based on populations (much of this detail has been removed for brevity). The impression this creates is one of certainty about how the evidence applies to this particular woman despite the doctor using words and phrases that include uncertainty and probability. The doctor creates a myth about the certainty of the evidence for this woman.

Consultations in general practice tended to be shorter than those in specialist clinics, with less detail given of the risk and benefits. Some general practitioners expressed certainty about the effect of hormone replacement therapy. For example, in discussing hormone replacement therapy (consultation 008) a patient says “I don't really want to come off it, if it's not doing any

harm.” To which the doctor replies “Not, not any harm at all.” In box 3, extract 2, a different general practitioner gives quite a lot of information about the risks and benefits of hormone replacement therapy and the different factors to be weighed up for different individuals. However, the tenor of the consultation is of weaving a coherent account that indicates that it is possible for each individual to work out what is best for them with some certainty.

### Approaches to acknowledging uncertainty

In box 4, extract 1, the woman is concerned about the new evidence about hormone replacement therapy. She has concluded that the risks are small. The general practitioner backs up the woman's assessment of the risk and also explains the difficulty of applying population evidence to an individual: “It's very difficult to know whether if something happens to you whether it's this or more likely whether it would have happened anyway.” It then becomes clear that for the woman having energy for her “young lad” is important to her and given priority over the medical risk. A provisional plan is made whereby hormone replacement therapy will be used for now but then reviewed. It is through this provisional approach that the woman and doctor have achieved some integration of future risk from the intervention including the uncertainty inherent in the medical evidence, with how things are for the woman in the current time and place.

In another consultation (box 4, extract 2) there is agreement of a provisional plan for a reduction in the dosage of hormone replacement therapy, a suggestion that came from the woman. This plan integrates the concern about future risk from the therapy with the woman's experience of symptoms, so linking across the gap between the medical evidence and the woman's individual experience.

In a consultation with a practice nurse (box 4, extract 3) the risks of hormone replacement therapy are discussed and the woman describes feeling well. The nurse explains the risk of breast cancer, weaving a coherent story of the risks and benefits. The woman introduces the idea of a provisional decision “by then I might be okay we'll just have to wait and see.” They agree on continuing the therapy for now, aware of the potential risk and of the good quality of life for the woman.

In another consultation (005) the doctor tells a woman who has been receiving hormone replacement therapy for six years for relief of symptoms, has a family history of breast cancer, and has annual mammography, that her risk of breast cancer is going up: it is about “weighing the two up,” “it becomes personal choice.” The woman says “Will anybody sort of say ‘hey’ at a certain point? Or will that be up to me?” The doctor says “I think what you'll find is that there'll be conversations like this once in a while,” indicating that the decision is a provisional one.

### Use of the different approaches

Analysis of the consultations by role of the health professional and type of healthcare setting indicates a link between the approach used for the uncertainty inherent in medical evidence and the healthcare site (table 2). Certainty “for now” was found in the breast clinic. Weaving a coherent story of certainty predominated in the hormone replacement therapy clinic and bone clinic. General practice used all three approaches. The pattern of approach became clearer when explored in relation to the health concern discussed in the consultations (table 3). In all consultations where there was concern about a breast problem, health professionals used the approach of certainty for now with slippage into general reassurance. Where the result of bone densitometry and subsequent management was discussed, which in some consultations included use of hormone replacement

### Box 3: Weaving a coherent account of the medical evidence for risks and benefits, but with blurring of the uncertainty inherent in the evidence and an impression of certainty

#### Extract 1: Consultation after bone densitometry

Doctor: Your bone mineral density is following the course you would, we would expect.

Patient: Right.

Doctor: It is going down, you would expect that at this point in the menopause.

Patient: So it's not abnormal then or anything?

Doctor: It's not abnormal.

(The woman's mother has osteoporosis. The doctor explains:)

A woman with a close female relative has 30% chance of having osteoporosis just 'cos you know they're related . . .

(The doctor then suggests she considers taking calcium and vitamin D and taking hormone replacement therapy. The woman says "I've never really been very keen on HRT." The doctor then examines her and continues:)

With the constant, bone loss starts just round the very beginning that the hormones start to change, what we call the perimenopause and then you're likely to lose bone well totally predictably to lose bone for about 10 years after the menopause so it will start to gradually come down. At the moment the results are normal, you have normal bone mineral density but err after about 10 years it's going to drop into the below normal range, you can't be certain, but it's predictable, err, and it's obviously what's happened to your mum . . .

(A further detailed explanation followed of the role of hormone replacement therapy, its benefits and risks, including numerical expressions of risk, with the woman saying little until the doctor says:)

Effectively the choice is yours.

Patient: Right.

Doctor: Err, it doesn't suit everybody, really the only way to know if it's going to suit you is to try for a time.

Patient: Mmmh, do you really think that I need to be on it then?

Doctor: Err.

Patient: Do you think that if I don't go on it I'm going to end up more with osteoporosis.

Doctor: I think you'll continue, you will continue to lose bone, it's quite a difficult decision to take because you're decision now, really you're trying to take a decision now to improve your health when you're in your 70s and 80s with osteoporosis.

(The doctor explains further. The consultation ends with the doctor saying:)

Anyway the choice is yours.

Patient: All right thank you for your time. (Bone clinic, consultation 001)

#### Extract 2: Woman mentions tiredness

(The doctor inquires about menopausal symptoms and after some discussion the woman asks:)

With HRT, can't you only go on that for so long, and then they take you off? Am I wrong?

Doctor: What happens with HRT is . . .

(The woman laughs)

Doctor: Right HRT . . . whilst you've got your own hormone you don't need HRT, so your bones are being protected by your natural hormone. Um, and HRT you get benefit from for your bones, for your heart point of view, from lots of different points of view. Now the longer you're on HRT from the bones point of view, the better. The problem is the longer you're on it from your breast point of view, people worry about the increase in breast cancer.

Patient: Mmm.

Doctor: And so what they try . . . it's a balance of risks. So you take everybody individually. So somebody who has, a, a, wor . . . a concern about breasts, maybe family history of breast cancer or something like that, you may be a bit more cautious on that side, but if somebody's got a dreadful history of thinning of the bones, and osteoporosis you sort of have to weigh that up, don't you. So you'd say "oh well perhaps you . . ." you know. So everybody's individual, you weigh it up individually. The basic thing is that if you're on HRT for, say, 10 years, say, there is definitely an increase in risk of breast cancer. At five years, less so. Seven-and-a-half, it . . . what . . . up to five years is thought to be fairly safe. So what . . . that, that's where this business about "you can only be on it a certain length of time."

Patient: Mmm.

Doctor: I've actually got ladies that have been on it 15 years. And are very very happy with it. I mean they wouldn't stop it because it makes . . . it keeps them well.

Patient: Mmm.

Doctor: So you, what you do is you balance up that good you're getting from it, with the downside.

(The consultation continues, returning to consideration of the woman's tiredness. Hormone replacement therapy is not prescribed, but the woman is asked to think about it as a possibility for the future.) (General practice, consultation 025)

therapy, most of the consultations used a coherent story of certainty. In the one consultation on this health issue that did not use this approach, further test results were awaited. A coherent story of certainty was also used for consultations where hormone replacement therapy was initiated for other reasons. The health issues were discussed in specialist clinics and in general practice and by both doctors and nurses.

When reviewing the use of hormone replacement therapy or restarting therapy after a break, acknowledging uncertainty predominated. Some health professionals, however, wove a coherent story of certainty (see table 3). The consultations on this health issue were all recorded in general practice. No pattern was apparent linking the category of the consultation and whether

the review was initiated by the woman or by the health professional.

## Discussion

To achieve good communication between health professionals and patients, health professionals need strategies for coping with the dilemma of applying medical evidence to individual patients. These strategies could include using provisional decisions that allow for changing priorities and circumstances over time, avoiding slippage into general reassurance from a particular test result, and avoiding the creation of a myth of certainty.

**Box 4: Acknowledging the inherent uncertainty of the medical evidence and negotiating a provisional decision****Extract 1: Woman is concerned about taking hormone replacement therapy**

Patient: I've been having 'em, HRT patches and in the middle of the year there was a new finding.

Doctor: Right, the scare.

Patient: Right, so when they've finished I thought, I'd try to do without them.

Doctor: Right.

Patient: And I've been considering it and considering it—what I want to know is do you think—what's your opinion on it—when we talked about—when we talked about it earlier we weighed up all the pros and cons.

Doctor: Yes. Yes.

Patient: Is there a history of cancer, is there a history of heart problems—no history of cancer—but a history of heart problems so we decided it offered some a sort of protection to—but it seems to have taken a change—and then when I sort of thought about it later the percentage is quite small really isn't it.

Doctor: Yes.

Patient: When we, sort out how many people we're talking about it isn't large so I think that, I think that I'll go ahead with some more. Is that what, is that what you would advise, do you think it isn't—it isn't a big risk.

Doctor: No. It's certainly not a big risk—how long were you been on HRT for?

Patient: Oh not long—less than a year.

Doctor: OK, that's important because there's also risks associated with time that you're on HRT, so basically the longer you're on, the risk goes up, particularly if you're looking at breast cancer, but having said that you're absolutely right, the risk is still very small so any risk that there is only affects a very tiny minority of women and of course it's very difficult to know whether if something happens to you whether it's this or more likely whether it would have happened anyway.

Patient: And I was thinking of the quality of my life as well—my young lad I really need a bit more energy.

Doctor: Well that's important too (laughing).

(The discussion continues and blood pressure is checked. Towards the end of the consultation the doctor says:)

So I'll just give you some more now—and then what we do . . . if you're happy with them you can either come and see one of us or see (practice nurse) in six months for the next lot. (General practice, consultation 072)

**Extract 2: Consultation to review hormone replacement therapy**

Patient: Err my Estraderm patches, I'm getting a new prescription today, now the last time I saw the nurse, she said this would be my last prescription and I wouldn't be able to have any more.

Doctor: Did she mean because . . .

Patient: Because of my age or something—and I thought well I'll come and see you, because I did funnily enough try to come off patches myself, and I still got very flushed, so I thought I better just pop in and see you while I'm here anyway.

Doctor: Yes, I mean you're 62 and therefore, sort of 10 years beyond a natural menopause but you had a pretty dramatic menopause—you've had your ovaries taken out.

Patient: Oh I've had all sorts.

Doctor: I guess, she may have been thinking in terms of osteoporosis prevention, in that 10 years would be adequate for that and also as you also will know, a longer term use of HRT is associated with breast cancer, however, if you feel that you'd rather carry on, bearing in mind you know the increased risk of breast cancer.

Patient: Yes.

Doctor: You know the big one, then I don't have any particular problem with this.

Patient: What about after this six months I mean obviously it's—would it—if I only say tried one a week instead of two how would that—or don't you do that with HRT.

Doctor: Well, or else what you could well. I'm just looking to see if they come in 25s—if you put one a week on, you'd be fine for the first half of the week and then . . .

Patient: Sure enough.

Doctor: Yes, they come in 25s so one option might be to draw three months of the 25s to see how you get on.

Patient: Yes, yes.

Doctor: You might find that when you decide to stop you have no hot flushes or you know whatever you got when you last decided to stop. But I think she probably just felt that that she would flag it up about breast cancer. (General practice, consultation 002)

**Extract 3: Consultation with practice nurse**

The woman and nurse have discussed the increase in breast cancer risk from taking hormone replacement therapy long term as shown by the US study reported in the media. The woman is feeling well while receiving hormone replacement therapy.

Nurse: But there is still a risk of breast cancer—but there again there is a risk of breast cancer in this age group anyway, but it is increased with long term use of . . .

Patient: Well when you say long term use of . . .

Nurse: Long term—10 years plus.

Patient: Oh, I'm getting up to that one now aren't I—8 years isn't it?

Nurse: Yes, that's right—they advise five years, fine, up to 10 years is okay and then to rethink about it.

Patient: Well I mean by then I might be okay we'll just have to wait and see.

Nurse: That's right—blood pressure's fine—but it is something that you've got to be aware of.

Patient: Oh yes, I realise that—yes. (General practice, consultation 083)

We studied how health professionals and women have been dealing with the dilemma of uncertainty inherent in medical evidence in relation to medical interventions focused on women at midlife. These interventions offer prevention, screening, and relief of symptoms, so the results may inform other areas of medicine where the type of evidence base is similar, such as pre-

vention and treatment of chronic diseases. Further research may be needed to examine consultations about acute illness. The recorded consultations include examples where the doctor was attempting to communicate risk in ways that are known to be unhelpful to patients,<sup>16</sup> particularly when weaving a coherent story of certainty. Training in clinical communication, including

**Table 2** Categories of approaches to uncertainty inherent in nature of medical evidence by role of health professional and type of healthcare setting

Healthcare setting and professional	Focus on certainty for now and this test, with slippage into general reassurance	Weaving coherent account of medical evidence for risks and benefits, but with blurring of uncertainty inherent in evidence and impression of certainty	Acknowledging uncertainty of outcome from using intervention including inherent uncertainty of medical evidence, and coping with this uncertainty through negotiated provisional decision	Not categorised
Breast clinic:				
Doctor	4	—	—	—
Nurse	1	—	—	—
Hormone replacement therapy clinic:				
Doctor	—	3	—	—
Bone clinic:				
Doctor	—	5	1	—
Radiographer	—	1	—	1
General practice:				
General practitioner	2	7	8	—
Practice nurse	—	3	6	3
Total	7	19	15	4

how to communicate risk, is important. Many successful models exist for such training. Our research does not suggest a new model, but highlights the importance of including in existing models an awareness of the dilemma involved in applying medical evidence to individual patients and strategies to cope with this.

The health professionals expressed an understanding of the evidence about the risks and benefits of the interventions more or less in line with the prevailing medical consensus at the time. During data collection, however, new evidence on the risks of hormone replacement therapy was published,<sup>3</sup> so the content of some of the consultations would be different with less positive accounts of hormone replacement therapy.<sup>17</sup> However, it is the way the accounts of the medical evidence were interwoven that produces the impression of certainty rather than the detail.

The data reveal a danger of creating a myth of certainty around what is inherently uncertain through the way the medical evidence is presented and discussed. This seems to be particularly so when there is a test result, such as for bone densitometry, or where an intervention such as hormone replacement therapy is being initiated. This way of presenting evidence about a medical intervention reinforces the idea of medicine as a precise science independent of context and people with the ability to predict outcome, which has become incorporated into lay models of illness.<sup>18</sup> Apparent certainty can be persuasive and can lead to health professionals changing their understanding of the evidence to fit the story they are presenting to the patient. Part of learning to communicate well about risks and benefits of health interventions, and so truly to include patients in decision making, may be to fully recognise the uncertainties inherent in clinical evidence and not to hide this from patients. Health professionals would then stop reinforcing the myth of medicine as a

science of certainty and prediction and could work creatively with its uncertainties alongside patients.

In consultations where hormone replacement therapy was being reviewed or restarted, a provisional decision was often agreed. This avoided the danger of further reinforcing the myth of certainty. The women interpreted the medical evidence for their current situation,<sup>19</sup> including their physical symptoms, hopes and fears, social situation, and priorities.<sup>14</sup> They may have been more able to do this at a review appointment as by then they had some experience of hormone replacement therapy. They may also have sought information themselves about the medical evidence, and through this process developed their ability to assess the evidence.<sup>20</sup>

Time is an important dimension in this analysis. The clinicians in the breast clinic struggled to stay with the here and now in their desire to reassure the women. Consultations at the bone clinic and hormone replacement therapy clinic included mention of review of treatment in three, four, or five years. Mention of this time added to the impression of certainty rather than implying something provisional. The use of time, by making provisional plans, was the striking feature of the category of acknowledging the uncertainty. This fits in with reality for women, as their context, experience, and level of risk changes over time. The consultations in this category may provide useful examples of using time in health related decisions for use in the teaching of communication skills, as they show how a conditional decision can be reached and be a satisfactory outcome for a consultation.

Reassurance is appropriate where there are high levels of anxiety, such as in breast clinics (see box 2, extract 1); however, it is also possible to be clear about the temporary and tissue specific nature of the test result. Patients may seek certainty from

**Table 3** Categories of approaches to uncertainty inherent in nature of medical evidence by health issue

Health issue	Focus on certainty for now and this test, with slippage into general reassurance	Weaving coherent account of medical evidence for risks and benefits, but with blurring of uncertainty inherent in evidence and impression of certainty	Acknowledging uncertainty of outcome from using intervention including inherent uncertainty of medical evidence, and coping with this uncertainty through a negotiated provisional decision
Concern about breast lump or positive screening result	7	—	—
Bone densitometry result and subsequent management	—	9	1
Starting hormone replacement therapy	—	4	—
Review of hormone replacement therapy or restarting after break	—	5	13
Requesting information or referral for screening (mammography or bone densitometry)	—	1	1

Table excludes four consultations that were not categorised.

### What is already known on this topic

Uncertainty about outcome for an individual patient is intrinsic to the nature of medical evidence

This creates a dilemma that will always be present

Communicating evidence to patients is a key part of clinical consultations, with a growing evidence base of how it is best achieved

### What this study adds

A dilemma for health professionals is creating a myth of certainty around what is inherently uncertain

This may be avoided by negotiating provisional decisions

health professionals because they feel vulnerable at that time or because they believe the myth of medical certainty. Health professionals are in a position of influence with patients, so in responding to a desire for certainty they should critically reflect on the effect this may have on their patient now and in the future, such as building an expectation of certainty of outcome from medical interventions. The assessment of how much to emphasise certainty or not for each patient should be explicit in the training of medical communication skills.

In the consultations where a provisional decision was made, negotiation was present between the health professional and woman. How much it was guided by the woman and how much by the health professional varied (see box 4). Data from the study shows that women vary in their preference for involvement in decision making with health professionals, and that this varies according to their circumstances.<sup>15</sup> It is the provisional nature of the decision, rather than the woman's involvement in the decision, that seems to allow the decision to sit comfortably with acknowledging the uncertainty inherent in medical evidence.

In general practice in the United Kingdom, it is possible to make provisional decisions with patients and to review them. It provides continuity of care for individuals,<sup>21</sup> of which this decision making process is one aspect. In contrast, specialists may see patients only once or review their treatment only at infrequent intervals making it more difficult to negotiate provisional decisions. The challenge for health professionals is to develop the skills to acknowledge uncertainty and to negotiate provisional decisions, including when considering test results or starting new interventions.

The major types of evidence used in clinical medicine cannot be directly applied to an individual, so health professionals will continue to face the dilemma this creates. Through the teaching of training in communication skills and the design of healthcare systems it is important to enable health professionals to make provisional decisions with individual patients. This approach to decision making has the most potential for a continuing acknowledgment of the inherent uncertainty in medical evidence, an uncertainty which will remain even with progress in basing medical interventions on robust research evidence.

We thank the participants for their time, the Leicester Warwick Medical School GP Lecturer Group, the University of Warwick Academic GP Registrar Group, the University of Warwick Primary Care Research User Group for their contribution to the study, and the reviewers for their suggestions.

Contributors: FG was principal investigator for the study. EG was coapplicant on the study funding proposal, managed a study field site, and contributed to each stage of the study development, process, analysis, and reporting. Gillian Bendelow and Kathryn Backett Milburn were coapplicants on the study funding proposal, contributed to the design of the study, advised on the conduct of the study, and contributed to analysis and reporting. Di Thompson and MT undertook the data collection and contributed to analysis and reporting. Pamela Lowe and Antje Lindenmeyer contributed to analysis.

Funding: Economic and Social Research Council project grant (L218252038); part of the innovative health technology programme.

Competing interests: None declared.

Ethical approval: Warwickshire local research ethics committee and Hartlepool and North Tees local research ethics committee.

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(Accepted 9 December 2004)

doi 10.1136/bmj.38336.482720.8F

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