

## “It’s Just a Likelihood”: Uncertainty as Topic and Resource in Conveying “Positive” Results in an Antenatal Screening Clinic

Alison Pilnick

*University of Nottingham*

Olga Zayts

*University of Hong Kong*

*The recognition of uncertainty as a pivotal issue for the sociology of medicine is longstanding. More recently, the widespread integration of new medical technologies into healthcare has led to a renewed analytic focus on uncertainty. However, there remains little work on the interactional manifestations of uncertainty. This article uses conversation analysis to examine how uncertainty is introduced and used in one specific setting: an antenatal screening clinic in Hong Kong. We focus on women who have received “screen positive” or higher risk results, and reflect on the ways in which uncertainty is an “essential tension” (Mazeland and ten Have 1996) in the activity of conveying these results to them. We conclude that as well as posing potential difficulties for interaction, the uncertainty of test results is also used here as an interactional resource in managing the institutionally defined category of “high risk.”* Keywords: uncertainty, risk communication, conversation analysis, antenatal screening, “screen positive” (high risk) patients, diagnosis delivery

### INTRODUCTION

The recognition of uncertainty as a pivotal issue for the sociology of medicine is longstanding. As Davis (1960) notes, the identification of its importance can be traced back to Parsons (1951), who describes it as a primary source of strain in the doctor’s role. This strain arises for two reasons: not only does it obscure definitive diagnoses and prognoses, but it also poses major issues for doctor/patient communication. In her analysis of how medical students are socialized, Fox (1957) distinguishes two aspects of uncertainty: the limitations of medical knowledge itself, and the limitations of any one individual’s mastery of that knowledge. In other words,

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Direct all correspondence to Alison Pilnick, School of Sociology and Social Policy, University of Nottingham, Nottingham NG7 2RD, United Kingdom; e-mail: Alison.Pilnick@nottingham.ac.uk. The copyright line in this article was changed on 07 November 2014 after online publication.

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there is a limit to what is known, and there is also a limit to what each doctor can know of what is known. As a result, Fox argues that a key skill for aspiring doctors is learning to manage these limitations. Davis (1960) develops this analysis further. He makes a distinction between uncertainty as a clinical and scientific phenomenon (what he calls “real” uncertainty, for example where existing medical knowledge does not allow a diagnosis to be found), and the uses to which uncertainty may be put in the management of patients (what he calls “functional” uncertainty). Davis notes that the uncertainty in this latter case may be either real or pretend, but invoking it serves a function for the clinician, for example, in promoting a particular course of action or treatment. He argues that doctors, as a matter of professional obligation, routinely seek to narrow the range of uncertainty for the patients they deal with.

More recently, the increased integration of new medical technologies into health-care has led to a renewed analytic focus on uncertainty. More recent work by Fox (1980, 2000) has gone so far as to argue that as technologies increase our ability to test and measure, the lack of clarity over what such results should be taken to signify means that uncertainty is becoming the hallmark of medicine. The consequences of this for patients has been speculated upon, with Timmermans and Angell (2001:356) suggesting that a perceived inadequacy of evidence might in fact lead to a greater validation of “humanistic concerns,” concentrating the focus on what is best in the context of a particular patient’s circumstances. They also, however, cite the view of Katz (1984), a psychiatrist who argues that propelled by uncertainty, the pendulum has swung too far in the opposite direction, and that strategies doctors have developed for coping with uncertainty lead them either to disregard or avoid it.

It is clear, then, that foundational medical sociological studies have recognized the inevitable impact of uncertainty on doctor/patient communication. While these studies provide a solid basis for investigating uncertainty, they have, however, largely ignored the ways in which uncertain information is *actually* introduced and negotiated in everyday healthcare practices through talk. Although predictions have been made about how interactions are likely to be affected, empirical investigations into how uncertainty is talked with and about are relatively rare.

In this article, we focus on talking with and about uncertainty in one specific context: explaining test results in antenatal screening. Antenatal screening is a service provided to pregnant women to identify the possibility of conditions affecting the fetus. Our interest in this setting is twofold. First, while antenatal screening has been the target of considerable sociological scrutiny in the last twenty years (Reid et al. 2009), it has not received much scrutiny from an interactional perspective. Second, antenatal screening provides a particularly interesting site for investigating uncertainty, as it raises a further issue of accuracy, in that the limitations of the tests themselves are well documented (e.g., Bewley et al. 1995; Driscoll 2003; Meier et al. 2002). Pregnant women and clinic personnel thus face a double uncertainty: not only do screening tests produce uncertain answers which are expressed in the form of probabilities or risk factors, but those results themselves are also of uncertain reliability. Antenatal screening, then, is an illustration of Fox’s (2000) argument that

uncertainty is becoming the hallmark of medicine. What this means practically is that clinicians dealing with these results have no recourse to any greater professional knowledge; it is not simply that they do not know with any certainty what the results mean, but that no one could know. Greater certainty about the results cannot be obtained unless invasive diagnostic testing, which carries a risk of miscarriage, is undertaken. Even then, there is no test that can detect *all* fetal abnormalities and some abnormalities, especially those of a nongenetic nature, can only be discovered at birth (Lee, Leung, and Tang 2009; Tang, Ghosh, and Chan 1991). The inescapable presence of uncertainty in this setting is a critical issue for both research and practice. As Maynard and Frankel (2006) note, a tendency for interactional research to be preoccupied with bad news delivery “has meant that other kinds of diagnoses, such as those that are . . . uncertain have received virtually no study” (248). An inevitable consequence is that there is not much of a basis upon which medical professionals can build standards of practice.

This article aims to go some small way to redressing this by using conversation analysis to examine how uncertainty features in consultations with women who have previously undergone screening tests for fetal abnormalities and have received “screen positive” or higher risk results (falling outside an officially set “normal” range). Both the “normal” and the “screen positive” estimates are probabilistic rather than certain. Women who screen positive receive a telephone call inviting them to return to the hospital. This means that they can infer they are at higher risk before they arrive, since those whose results are deemed “normal” are not recalled in this way. However, they do not receive their actual results until they arrive at the clinic. These “screen positive” women are then seen by an obstetrician or an obstetric nurse to discuss both their results and the possibility of further diagnostic testing. In this article, we examine the ways in which uncertainty is talked both with (in relation to the results) and about (in relation to the tests themselves). We aim to show how uncertainty is not only a topic for discussion but also an interactional resource to be drawn on by participants.

## RISK COMMUNICATION AND THE DELIVERY OF DIAGNOSTIC NEWS

In this article, we draw on sociological, psychological, and discourse-based studies that focus on broader issues of risk communication, particularly in relation to the framing of risk information that provide a backdrop for our discussion of how uncertainty is talked with and about in this context. We also discuss conversation analytic studies that focus on diagnostic news delivery (that may include test results) as an interactional event in the context of primary care.

Previous research has ascertained that the ways in which risk is framed may have a significant impact on the clients’ understanding of their risk status and their subsequent decision-making (e.g., Hallowell et al. 1997; Marteau 1989; Michie and Marteau 1996; O’Doherty and Suthers 2007; Welkenhuysen, Evers-Kiebooms, and

d' Ydewalle 2001). One way of framing risk information is through a numeric presentation of a *probability* of a genetic condition, which has been shown to be a preferred format among professionals. This has been attributed to the impression of precision that numeric representations give to risk estimates, which allow professionals to maintain their authority in the face of uncertainty (Lobb and Gaff 2010). Clients, however, have been reported to have difficulties in understanding abstract/absolute risk presentations and to strongly prefer individualized risk assessments (for an overview see Sivell et al. 2008). Some studies that have compared numeric versus verbal formats of risk presentation have shown that clients display a better understanding of the latter (Marteau et al. 2000) and that they are more likely to take up genetic testing when presented with numeric risk information (Wilson, Ferguson, and Thorn 2011). What these studies have highlighted is that there is no one-to-one correspondence of specific numeric formats and particular verbal expressions of risk and that there is great variability in how risk can be framed. They have not, however, specifically addressed talk around uncertainty as a topic in its own right.

Discourse-based studies of genetic counseling have addressed both the issues of the framing of risk information and the management of uncertainty (Sarangi 2002, Sarangi and Clarke 2002; Sarangi et al. 2003). Sarangi and Clarke (2002) note that uncertainty in genetic counseling is manifested through hedging devices that may include, for example, various auxiliaries (e.g., *might*, *may*); adverbs (e.g., *approximately*, *probably*), and may be followed by illustrations and disclaimers (e.g., "I am not a neurosurgeon"). While this work is useful in highlighting specific interactional features associated with uncertainty, it also highlights a key difference between genetic counseling for hereditary disorders and the less specialized process of antenatal screening. As Sarangi and Clarke (2002) describe, in genetic counseling uncertainty is largely related to the limitations of the current state of knowledge in genetics. In their study this uncertainty impinges on diagnosis and the boundaries of uncertainty can be managed by referring the client to a different sort of specialist with a different sort of knowledge (in their case, a neurologist). In antenatal screening, however, as we have already noted, there is no such recourse to a different professional knowledge base and no possibility of a diagnosis being made purely on the basis of a screening test.

Given the imperfect fit with the literature on genetic counseling for our context, we have also drawn on studies of primary healthcare contexts in situating our analysis. In particular, there is a body of conversation analytic work that deals with diagnosis delivery, examining how diagnostic information is framed and explained (e.g., Maynard 1991, 2006; Maynard and Frankel 2003, 2006; Peräkylä 1998, 2006). Again, there are important differences between the two contexts, notably that a definitive diagnosis in primary care is likely to be more readily available. In addition, in our specific screening context, women are aware that a recall to the clinic indicates a high risk result, though they are not given the numerical formulation—the actual result—prior to their visit. Despite these differences though, these studies shed important light on how diagnostic news delivery is organized as an interactional

event. Maynard (2006), for example, describes how in a primary care context, doctors normally announce news and then follow this announcement with an elaboration of this news, which gives the patient some indication of how it should be interpreted. He describes a news delivery sequence in which doctors begin by citing or explicating the evidence, which is frequently, as is the case in our data, a test result. This is often done as a first turn announcement and is generally followed by a proposal of what that announcement means. Meaning-making, then, is commonly seen as part and parcel of diagnostic activity, following directly from the announcement of the result.

Peräkylä (1998, 2006) notes that, in Finnish primary care encounters, doctors tend to explicate the diagnosis in four particular circumstances: when the diagnosis is temporally detached from the physical examination; when the examination process is not clear to the patient; when there is uncertainty surrounding the diagnosis; and when the doctor and the patient have different ideas about the diagnosis. His findings that explication is linked to uncertainty are an empirical demonstration of the arguments put forward by Parsons (1951), Fox (1957), and Davis (1960) about the impact of uncertainty on doctor–patient communication. What remains unclear, however, is the extent to which these findings transfer to a setting such as antenatal screening, in which uncertainty is an inescapable component of the test results.

## DATA AND METHODS

This research is part of a large interactional study of antenatal screening in Hong Kong, on-going since 2006, which involves a close collaboration between the research team at the Universities of Hong Kong and Nottingham, and a Prenatal Diagnostics and Counseling Department of one public hospital.

As we have previously described (Pilnick and Zayts 2012), the Hong Kong healthcare system is divided into public and private health sectors and patients can choose care from either sector, or to combine the two. Public hospitals have no catchment area and so patients may choose to attend any hospital. Research has found that 80% of Hong Kong residents prefer the private sector to public health care (Improving Hong Kong's Healthcare System 2009) and in many scenarios those accessing public health care tend to be those for whom private care is unaffordable. The hospital where the data were collected, however, represents an unusual case. It is a teaching/training hospital for a medical faculty of one of the universities in Hong Kong and as a result has extensive facilities and a substantial number of professorial staff. The University also subsidizes the services that are provided. The unusual nature of this public hospital means that it does not only attract a “typical” public clientele; while it still serves patients with low monthly incomes and with chronic illnesses who require frequent medical visits, it is also popular among higher income families because of its high reputation and facilities.

In the study site, as with other public hospitals in Hong Kong, antenatal screening is provided by obstetricians or obstetric nurses as part of routine antenatal services.<sup>1</sup> The screening is organized as a four-stage activity, though women may opt out at any

point and many women will take part in only the first two stages. First, women are introduced to the process through information leaflets and a 15-min video outlining the nature of Down's syndrome,<sup>2</sup> the available screening and diagnostic tests and some psychosocial aspects of screening. This video is watched in a private room on hospital premises and is followed by a face-to-face meeting with the hospital staff in which the information from the leaflets and the video and the woman's prescreening personal risks (typically maternal age and family history) are discussed. Women can then choose to undergo screening. Those women who opt to undergo screening and who receive a "high-risk" or "positive" screening report receive a phone call inviting them for a follow-up consultation, in which the option of amniocentesis and the timescale for a decision are discussed. If a client chooses amniocentesis, another consultation is scheduled if Down's syndrome is diagnosed to explain the diagnosis and to discuss subsequent management.

In this article, as in previously published work (Pilnick and Zayts 2012), our focus is on a particular group of women who have undergone initial antenatal screening procedures and have received high-risk results (in this setting a result of greater than 1 in 250 for the first or second trimester screening tests, and greater than 1 in 320 for the integrated test).<sup>3</sup> Hospital records show that between 2007 and 2009, 2062 women received antenatal screening services. The number of women receiving high risk results was 299 (11.5%). This is a higher proportion than would be expected in the general population and may be attributed to the fact that women  $\geq 35$  years were initially the target population for the screening, and these women have a higher risk of fetal abnormalities in comparison to younger women (Tang et al. 1991). Statistics for the period beginning July 2010, when screening was introduced for women of all ages, are not yet available. Of the 299 women, 145 (49%) opted for amniocentesis and the rest declined further testing. As we have noted elsewhere (Pilnick and Zayts 2012) this high declination rate is anecdotally attributed by medical staff to the fact that a significant proportion of these women are migrant workers who leave Hong Kong during their pregnancy.

The overall data set currently comprises 120 video recorded consultations. The subset used in this article, women receiving high risk results with consultations conducted in English, currently consists of twenty consultations each of approximately fifteen minutes in length. Consultations in this setting are scheduled fifteen minute apart, since providing antenatal screening services is only one aspect of obstetric provision the staff conducting the consultations are involved in. Ethics committee approval was obtained from both the University of Hong Kong and a Hospital Authority cluster overseeing the hospital where the data were collected. The recruitment procedure involved a study nurse approaching potential participants and introducing the research project to them before seeking consent to participate. The background of the recruited participants reflects the diversity of the client population at this particular hospital. Women originate from various parts of Asia (Hong Kong, Mainland China, Philippines, Thailand, and Indonesia), North and South America, Europe, New Zealand, and Australia. Their socioeconomic

background also ranges widely, from women employed as domestic workers to those in professional occupations. The age of the participants is from 35 to 41 years old.

Consultations in the clinic were conducted by four medical professionals (three doctors and one nurse), all of whom are Hong Kong Chinese and all of whom participated in this study. In the extracts that we have selected for this article, three doctors participate (who are referred to as D1, D2, and D3 in the transcripts; pregnant women and their husbands are referred to as W and H, respectively). In the consultations, either English or Cantonese are used as the first or the second language of the participants. While one of our research interests is in conducting a comparative analysis of consultations conducted in English and Cantonese, for the purposes of this article only English language consultations have been included. The analysis was conducted using conversation analysis, and extracts reproduced here employ standard CA transcription notation (ten Have 2007; Jefferson, as published in Atkinson and Heritage 1984).

## FINDINGS

### Conveying Results: Rendering Numbers Uncertain

Results from the screening tests are generated as a risk factor—“1 in X”—where anything greater than 1 in 250 (or 1 in 320 for the integrated test) is considered in this setting to be high risk or (to use the official term) “screen positive.” Women who have been invited back to discuss their results can therefore infer that they fall into this category, and the information leaflet given at the outset of the process makes this clear, but the actual risk factor is not given to them until the face to face appointment. Occasionally, the information which is given to pregnant women in these consultations does not go beyond this kind of numerical formulation, as the example below shows:

Extract 1<sup>5</sup>

*Context: The woman is a Filipina. She is 35 years old, and her risk is estimated at 1:235. She is employed as a domestic worker in Hong Kong and attends the consultation on her own.*

1. D1: So (name) (.) you understand that um we
2. tell you before the .h we told you before
3. that the blood test (.) comes back e: to be
4. uh positive
5. W: Yeh.=
6. D1: =That means the Down Syndrome
7. screening test is positive (.) Em it s about
8. em (0.2) one em: The- the risk is about (.)
9. the- the risk is about mm: one in two hundred thirty five (.)

10. .hh yeah, that means in two hundred and four-
11. thirty four babies will be normal. (.) And eh:
12. ah one of the- out of the two hundred
13. twenty five could be having the Down syndrome
14. (0.5) ((W nods slightly in response to gaze of physician))
15. D1: .hh Okay? To- to confirm whether there is-
16. your baby is eh Down syndrome or not (.)
17. so we need to put a needle in
18. ((W nods))

In this extract the risk is presented numerically as 1 in 235. This presentation occurs over lines 7–9, and is produced after hitches, perturbations and restarts which suggest some difficulty in producing the actual number, and according to Sarangi and Clarke (2002), some uncertainty over this result. While there is clearly interactional delicacy here, there may however be alternative explanations to that offered by Sarangi and Clarke, such as the difficulty in delivering bad news. However, we note that the numerical formulation is softened by the use of the word “about” directly beforehand: though the paper from which the doctor reads contains a precise number, the doctor diminishes this precision, and hence the certainty, in his presentation. The doctor continues his turn in lines 10–13 to explain this number as a population risk, by extrapolating it to a context wider than this pregnancy. In this extrapolation, the term “could” is used (line 13), rather than the evidential “would,” which also emphasizes uncertainty. As previous studies in genetic counseling contexts have noted, clients may face difficulties in understanding their risk status presented to them in generic formats such as these, and report a preference for individualized risk assessments (Sivell et al. 2008). In this particular example, the pregnant woman does not respond immediately to the doctor’s utterance, and gives a slight nod only when the doctor holds her gaze, which would suggest that she anticipates further talk from him. However, in contrast to Maynard’s (2006) work and to examples we will subsequently examine, no further “meaning making” of the results occurs in this instance. Instead, the doctor produces a proposal for confirmation of the results through diagnostic testing (and therefore achieving certainty), using the imperative formulation “we need” in line 17.

Another factor worthy of note in this extract is the extremely minimal nature of the pregnant woman’s responses. As we will see in subsequent extracts, such minimal responses are by no means unusual in these data, which may at first glance seem surprising. These responses, however, are in line with the way patients typically respond to the diagnostic phase of GP consultations (e.g., Heath 1992, Peräkylä 1998; 2006), where there is also often a reluctance to give any extended response. We will return to this issue later in the article.

We should note that this kind of presentation which contains only the citing of the risk factor and population risk is relatively rare in the data (two out of twenty cases).



More usually, the doctor or nurse makes some attempt to go beyond a quantitative figure, and to also give some qualitative explanation of how this figure may be understood or what it means. Such qualitative explanations also invoke uncertainty. An example of this can be found in Extract 2.

### Making Meaning from Uncertainty

#### Extract 2

*Context: The woman is a Filipina, she is 35 years old, and her risk is 1:200. She is employed as a domestic worker and attends the consultation on her own. The consultation is conducted in English, which is a second language for both participants.*

1. D2: Screen positive. (.) Okay? But no. (.) Don't be too worry, (.) okay?
2. .h um nah, there are two um problems with the result.
3. Um:m one is the mm: AFP is: a bit high Okay?
4. ((looking at W)) [this is Alpha fe ]toprotein.
5. W: [°>What is it mean?<] Okay°
6. D2: I'll explain to you, okay?
7. (0.2)
8. D2: The other is the .h HCG (.) which is the
9. placental hormone (.) which is also a bit high, okay?
10. W: °Umm.°
11. D2: .h if we base on these blood test result and
12. your age=
13. W: °Um hmm.°
14. D2: =to calculate the chance that your baby have
15. Down syndrome=
16. W: °Um hmm.°
17. D2: =The chance that the baby have Down
18. syndrome is (.) about one in two hundred.
19. W: °(exclaims in Tagalog)°, okay.
20. D2: Okay? Not- not a very high [risk.]
21. W: [Yeh,] °I know.° ((while nodding))
22. D2: So it's:: sort of less than point five percent
23. W: °Yeh.° [°Yes. Sure.°]
24. D2: [So less than] one percent
25. W: Yeh, yeah,
26. D2: Okay?
27. ((W nods))
28. D2: .h so um it's up to you. (.) We- we- we still
29. call it screen positive because there is a small
30. possibility that the baby might have Downs
31. W: Um hmm
32. D2: Em but it's up to you whether you want the
33. amniocentesis emm to check if [the baby] has Downs
34. W: [is it the ] (.) the one
35. to put inside?
36. D2: Yes. (.) Yes ((while nodding))

Once again, this extract begins with confirmation of the woman's official status at the clinic—"screen positive." Despite this official categorization and before the actual test results are delivered she is immediately given a degree of reassurance (*But no. (.) Don't be too worry (.) Okay?*, line 1). This reassurance appears to be linked to the woman's reaction immediately as she enters the consultation in the few moments before the sound on the video recording begins where she clasps her hand to her face, indicating an emotional reaction. Maynard (2006) notes how in cases where patients show emotional reactivity to news, affirming positive aspects of it and disconfirming negative aspects are ubiquitous devices which respond to this reactivity. The doctor's continued turn then begins to separate the two different blood test components of the calculation on which the risk figure is based, delivering the first part over lines 3–4. The woman's initial question in line 5 is an insert expansion (Schegloff 2007); it signifies that there are matters of understanding to be dealt with before the sequence can continue and she can align as a recipient of this news, though it is unclear at this stage whether the expansion required is the specific meaning of the term "AFP" or the wider meaning of the results. This question overlaps with the doctor's expansion of the term "AFP" and the woman then produces the receipt marker "okay," though the doctor's subsequent utterance, "I'll explain to you, okay" seems to indicate the hearing of a wider need. The second component of the results is then delivered over lines 8–9, receiving a minimal acknowledgement. As in line 3, where the grading particle "a bit" is used to moderate the presentation of the high finding in relation to AFP levels, so in lines 8–9 the HCG level is described in the same way. The use of these particles seems to index that, although there is a problem here in the sense of "screening positive," the import of this result is not yet settled. Alongside the prior exhortation "Don't be too worry," they work to counter assumptions the patient could be held to be making, given her emotional reaction. The doctor then presents the overall result as a "1 in x" figure (*about one in two hundred*, line 18). Once again, although the results print out from which the doctor takes the information gives a definitive risk factor (1 in 200), this is transformed by the doctor into something less certain, an estimate, through the use of the mitigator "about." The woman's utterance in response to this is minimal, is partly in Tagalog, her native language, and is followed immediately by the doctor's qualitative assessment that this is "not a very high risk" (line 20). Again, the negation contained in this assessment counters any implicit assumptions that might be made about a "screen positive" result. In giving this assessment the doctor draws on the notion of range (Sarangi 2002), which situates this specific risk in the context of the doctor's wider knowledge of risk factors and thus reduces its impact (Michie et al. 2003). In this instance, then, the news delivery sequence is followed by an explication of what this news means. In response to this assessment, the response from the woman is once again not extensive (line 21). The doctor follows this up in lines 22–24 by producing what O'Doherty and Suthers 2007 refer to as a "loss framing" (411), where the risk factor is converted to a percentage chance of the undesired event occurring, but where in this instance such framing serves to emphasize its unlikely nature. Notably, this framing is still

approximate, and avoids attributing a precise percentage chance. Over the course of this extract, then, we have moved from an opening statement that conveys potential problems—the woman’s result is “screen positive”—to a position where the risk is subsequently framed both qualitatively and quantitatively as both uncertain and small. Again, this is minimally acknowledged by the woman over lines 23–27. This apparent contradiction—of “screen positive” versus “not very high risk” is itself addressed in lines 28–30, where the doctor offers an explanation of why it is still classed as screen positive, i.e., how the official status relates to the context in which she has placed the result. This is also linked to uncertainty, because although on the one hand the woman has been told not to worry, the result cannot rule out a “small possibility.” Amniocentesis is then topicalized as an option (lines 32–33).

As we have noted in the analysis of this extract above, the way in which the doctor provides her account of the results orients to the emotional reaction of the pregnant woman. Uncertainty is actively displayed by the doctor in this consultation, and provides a resource for dealing with this emotion by minimizing the problem that has been presented. While such emotional displays do not always feature in this setting, a tendency to use uncertainty as a minimizing resource is much more widespread. In his analysis of diagnostic news delivery, Maynard (2006) identifies the phenomenon of “auspicious interpretation” (1905), so that even where news is bad clinicians tend to produce interpretative proposals which emphasize the positive. The transforming of the 1 in 200 to “not a very high risk” and “less than one per cent” are examples of this auspicious interpretation, but here have the added mitigation of uncertainty. In other words, there are good interactional reasons for the way in which the test results are delivered in this extract. The corollary to this, however, and what we see by comparing Extracts 1 and 2, is that the meaning supplied by clinicians, and hence the proposed way of dealing with uncertainty, is not necessarily objectively derivable from the test results. In Extract 1 the risk is presented as an estimate of 1 in 235, yet it is apparently assumed that amniocentesis will automatically be necessary in order to confirm what the results leave uncertain. In Extract 2, the woman’s risk is a more likely estimate—about 1 in 200—but this estimate is qualitatively described as “not very high” and amniocentesis is presented as a possible option which *could* be chosen if the woman wishes to address the “small possibility” of Down’s. In other words, uncertainty is used to two different ends in these two consultations; in the former it is used as a rationale for further testing (“uncertain results must be confirmed”), and in the latter it is used to suggest there may be no problem (“uncertain results can be discounted”). This contrasting presentation highlights the difficulties of an “official” threshold which is applied to everyone for screening positive, and also the way in which meaning assessment by doctors may attempt to personalize this (see Silverman (2007) for a similar discussion in relation to HIV testing and “people in a high risk class”). It also begins to show how uncertainty in this setting is not just an issue to talk about, but also an issue to talk *with*; an interactional resource that can be drawn on to support quite different interpretations of “high risk” results and hence quite different courses of future

action . What is also becoming clear is the amount of interactional work required by clinicians to render apparently precise numerical values (1 in X) less certain. Extract 3 is a further example of both these phenomena.

Extract 3

*Context: The woman is 36 years old, and her risk result is 1:170. Both the woman and her husband are British.*

1. D2: But this time, um (.) the result comes back to
2. be positive.
3. H: Right.
4. D2: °Okay?° Um: (.) it doesn't mean that your baby
5. have Downs (.) It just means that um, the
6. chance that your baby has Downs is slightly
7. higher (.) okay? Uh um, what we estimate, the
8. estimation is based on your age (.) .hh um,
9. on the um (.) nuchal um translucency
10. measurement that we did (.) um on the fifth
11. of May.
12. H: Um huh
13. D2: And um also based on the blood test that
14. you had done on that day (.) Okay? And um
15. based on these, we estimated that (.) the
16. chance that this particular baby have Downs
17. syndrome is one out of hundred seventy.
18. H: Right.=
19. D2: =So that's actually less than one percent
20. H: [Yeh]
21. W: [Yeh]

In this extract, following the statement of the “official” status in lines 1–2, the first thing that the doctor says is what this result does not mean, i.e., a certainty. In other words the “screen positive” status is immediately mitigated and attenuated over lines 4–7. The figure is also explicitly classed as an estimate in lines 7–8 before the “1 in x” figure is produced in line 17—in this case 1 in 170. Here again, this is transformed into a percentage using “loss framing” (O’Doherty and Suthers 2007:411). The emphasis on the gradal particle “less” in this particular case serves to highlight the numerically small value of this risk, indexing that the problem which has been presented in this case does not necessarily reach a level where a problem-occasioned reaction is necessary. In other words, a rationale is presented here that would readily allow the couple to decline further testing, should they so wish. Once again in this extract, there are minimal responses from the couple themselves. The preference for “auspicious interpretation” (Maynard 2006:1905) is again evident here, in that what is officially “bad news” has the positive aspects of it emphasized by the doctor, and

once again these positive aspects explicitly include the uncertainty of the result. On a different but related theme, Lobb and Gaff (2010) have highlighted the certitude that clients may attach to numerical results in genetic counseling. However, taken together, Extracts 1–3 demonstrate the interactional work that clinicians do in this setting to avoid making these results hearable as having a precise and definite status.

### THE INESCAPABILITY OF UNCERTAINTY: UNCERTAIN TESTS

As we suggested at the outset, part of the difficulty that clinicians and prospective parents face in this setting is that not only are results probabilistic, but the tests from which the results come are of contested reliability. In talking with and about uncertainty, this test-related uncertainty is a significant component. The way in which the consultation reproduced in Extract 3 above continues shows how this aspect of uncertainty becomes bound up with the clinician's situating of the results. The couple in this consultation are experiencing their fourth pregnancy and there is a subsequent intervening discussion about how the results from this time compare to last time and also about the timescales for diagnostic testing. At the end of this sequence, a question from the husband topicalizes a discussion of the limitations of the test.

#### Extract 4

303. H: Em, (.) is there (.) any benefit in redoing [blood tests?]  
 304. D2: [Blood tests]  
 305. Right.  
 306. H: For in case (.) I mean I am not- basically I would say  
 307. that we are both committed to [do] a test no matter what  
 308. D2: [°Do. °] °Right. ° ((nods))  
 309. H: But just, just to see if perhaps there was a slight (0.2)  
 310. emm (0.6) unusual result (.) or you think that [the over ]all  
 311. W: [The thing is]  
 312. we've already got a positive,  
 313. D2: [Yeh.]  
 314. W: [So, ] we're not gonna (.) even if we get a negative  
 315. next time we could go well, [oh! ] last time,  
 316. D2: [Yeh] exactly.  
 317. W: I [mean] (.)=  
 318. H: [I] suppose  
 319. W: =our peace of mind.  
 320. D2: Yes. ((nods))  
 321. W: That's not gonna be.  
 322. D2: [Yes]  
 323. H: [Yeh]  
 324. W: until we do a s- a (.)  
 325. D2: Yes.  
 326. W: diagnostic test.

327. D2: Yes. ((nods))  
328. W: I think.  
329. D2: Yes. Because I mean this is what we call a screening test.  
330. H: [Yeh] ((nods))  
331. D2: [So ], you- you- you sometimes=  
332. W: =it's a likelihood isn't it? [XX ]  
333. D2: [Yes,] it's just a likelihood.  
334. H: Yeh.  
335. D2: So even if you do another test (.) it's going to  
336. give you another likelihood. (.) Maybe higher  
337. than this one, or- or .h lower than this one.  
338. H: Right.  
339. D2: But it will not still be able to tell you for sure  
340. that the baby doesn't have a problem.  
341. H: Yeh.  
342. D2: Okay.

An implicit reference to the limitations of the blood tests can be inferred here from the husband's question whether his wife should take the blood tests again to see if the initial report was "slight[ly] unusual" (lines 303, 309–310). The overlap and the interruption by his wife (line 311) signal her resistance toward the husband's suggestion. As Hutchby (1996) notes, interruptions challenge the right of a current speaker to take his or her turn to a completion point. Goldberg (1990) describes how interruptions may be either affiliative or disaffiliative, and in this instance of the latter, the pregnant woman goes on to explain that a subsequent negative result would not put their mind at rest because it will not eliminate the previous positive result (lines 311–312; 314–315; 317; 319; 321). She suggests that a definitive result in the form of a diagnostic test is needed (lines 324–326). While the woman is not affiliating with her husband's suggestion to redo the test, she is however aligning with the problem: uncertain reliability of the screening tests. This problem means that a subsequent test can be no more reliable than the current one. In line 327, the doctor concurs with the woman's proposal as to how certainty can be achieved and in line 329, she begins an account of the nature of the results that can be obtained from the test the woman has already undergone. When the woman offers the candidate understanding "It's a likelihood" followed by the tag question "isn't it?" (line 332), the doctor's response downgrades this understanding even further with the mitigator "just"—"it's just a likelihood" (line 333). The doctor then expands this answer over lines 335–340 to include an explanation that goes further than this—it is not even a consistent likelihood, so that the result may be different on different occasions. The only thing that is presented as certain in this interaction, then, is that another screening test cannot give certainty, and that certainty can only be gained from diagnostic testing.

What is also noteworthy in this extract is the more extensive nature of the couple's participation. We have previously noted that in primary care encounters,

patients commonly withhold any assessment of diagnostic informations. Heath (1992) suggests, however, that diagnoses that are presented as uncertain are much more likely to elicit an extended response from patients and Peräkylä (2006) has extended this work by demonstrating that extended responses are more likely when doctors account for their findings. We would suggest that where medical knowledge is definitive, or is presented as definitive, patients may perceive there is nothing to discuss. Equally, where uncertainty is presented straightforwardly as something which needs to be definitively resolved through further medical action, as in Extract 1 here, there may be little to say. However, where medical science itself is known to be uncertain and this uncertainty is topicalized, either the findings it produces or the uncertainty itself may be the subject of discussion.

Our final example shows how the uncertainty of the test itself is raised in a more specific way. In the extract below, maternal age arises as an issue in interpreting test results, but this then leads into a topicalization of the limitations of the test in quantitative terms.

Extract 5

*Context: The woman is 39 years old, and her risk is 1:117. She is from Mainland China, and attends the consultation on her own. She is employed as a teacher. The consultation is conducted in English, the second language for both participants.*

125. D3: .h so it is not that when we scan the  
 126. neck folds –er very high (0.2) um (.) that’s  
 127. causing (.) the suspicion  
 128. W: uh uhh it’s my age  
 129. D3: .hh it’s probably related to the – to the age  
 130. P: Mm  
 131. D3: ((clears throat)) But then um (0.3) you m-must  
 132. understand that this (.) cannot be hundred percent  
 133. W: Yeah  
 134. D3: It’s about seventy percent detection,  
 135. W: Mmm=  
 136. D3: = So (0.2) it’s (.) to see how concerned we are and  
 137. whether we would (.) prefer to (.) move on to other tests  
 138. W: Yeah [yeah]  
 139. D3: [to ] [confirm.]  
 140. W: [I will] yeah yeah (.) I want to do another test.

At the beginning of this sequence, following the delivery of the “1 in X” result (not shown here for reasons of space) the doctor has been giving an “auspicious interpretation” (Maynard 2006:1905) of the test results. She does this by focusing on one key factor in the calculation—the nuchal fold measurement—which is in the

normal range (lines 125–127). As Maynard (2006) notes, troubles can arise when a clinician affirms the positive aspects of results, but the patient subsequently takes this positive interpretation too far. In this case, the pregnant woman produces a candidate explanation (Pomerantz 1988) for the results—her age (she will be forty by the end of her pregnancy)—but this explanation is produced as a certainty. In response, the doctor reformulates this specific statement more tentatively in line 129, with hedging and the use of “probably.” In her subsequent turn, she then introduces the general uncertainty of the tests as an explanation—that the results cannot be 100% accurate. Through use of the formulation “you must understand,” the doctor explicitly addresses the perceived assumption from the patient that medical knowledge can be certain about this. Her talk makes clear that such certainty cannot be guaranteed and so deciding on any further action requires an acceptance of this uncertainty. An approximate figure is then put on the accuracy of the test in line 134—about 70%. The use of the upshot marker “so” (Robinson 2006) acts as a topic modifier in that it shifts the discussion towards a formulation of a summary of what should happen next (Heritage and Watson 1979). The uncertainty surrounding the screening test is alluded to again here by framing the diagnostic testing as a way of *confirming* the diagnosis (lines 137–139), though in contrast to Extract 1 this is treated here as a matter of preference rather than necessity. What “should happen next” is decision making about diagnostic testing and the pregnant woman subsequently makes this decision in line 141. The issue as presented here, then, is whether this level of certainty is sufficient for the woman, and the balance between level of concern and level of uncertainty. In other words, it is localized (Sarangi et al. 2003) to her particular situation. As a result of this localization, however, the responsibility for choice in this situation is clearly shifted to the pregnant woman.

## DISCUSSION AND CONCLUSION

In this article, we have presented a number of different ways in which uncertainty is talked about and with, but we would suggest that bringing them all together highlights some key points.

First, and most obviously, uncertainty is a key issue pervading these data and this uncertainty has to be interactionally managed. The way that results are produced for antenatal screening tests means that all of the medical uncertainty surrounding the test is initially brought to bear in one single “1 in x” figure, which may potentially be hearable as having a very precise status (Lobb and Gaff 2010). In the consultations in our corpus, doctors and nurses do a great deal of work to make sure that the “1 in x” result is not heard in this way, for example, through the use of hedging or explicitly describing the result as an estimation.

Second, we have identified different ways in which uncertainty manifests itself in these interactions. Imprecise and noncommitting formulations are routinely used by clinicians to signal the fact that the screening test results cannot be taken as definitive; here uncertainty is talked *with*. These formulations can contribute



to reassuring patients, or to indicating that the problem presented by a “screen positive” result may not be of sufficient magnitude to require a problem-occasioned response. However, uncertainty can also become a topic in its own right, and is talked *about* in discussions over the limits of what medical science can provide in this context, or in a more explicit addressing of the significance of the problem that is presented by a screen positive result. What is particularly interesting is that this uncertainty can be marshaled on different occasions by clinicians as a resource either to indicate a need for further testing, or more commonly to indicate that not to test further would be a reasonable response.

Third, in some consultations clinicians could be said to be taking an expert position to evaluate numerical evidence in the context of the case at hand by describing things as “not so high,” or “a bit high,” or telling clients not to worry—this provides meaning by placing these specific results in the context of their wider experience of these *kinds* of results. Research in other settings has suggested that one way clinicians manage uncertainty is with recourse to the boundaries of their own medical specialty, i.e., by suggesting that what is uncertain to a geneticist might be better be answered by a neurologist or other specialists (Sarangi and Clarke 2002). In this setting, however, there is no-one better placed to manage the uncertainty and so we would argue that a significant part of clinicians’ professionalism in this setting is demonstrated through conveying the grounds for uncertainty in terms of the limitations of the tests. At the same time as conveying that it is a lack of medical knowledge per se (rather than a lack of their own knowledge) that is the issue, doctors draw on a variety of resources in locating this uncertainty within what is medically known. These resources include notions of range and normalcy in describing the test results, and localization to a woman’s specific circumstances. However, as we have shown, a consequence of this emphasis on uncertainty as an inescapable part of knowledge in this setting means that the burden of responsibility for decision making may be shifted to the pregnant woman, on the grounds that the essential issue to be decided on is how much uncertainty she can tolerate.

We have also seen that responses by pregnant women and/or their partners to the delivery of screening results may be very minimal, as is also the case in primary care diagnostics (Heath 1992; Peräkylä 2006). Both Heath and Peräkylä have noted that there is an association between the presence of uncertainty in consultations and more extended patient responses, and this is also evident in these data. We would suggest that this is in part because it allows the nature of the uncertainty itself to become a topic for discussion, as well as the nature of the results.

Lastly, Maynard (2006) has noted a tendency for what he calls “auspicious interpretation” in medical settings—downplaying the negative aspects while emphasizing the positive ones. In part, this deals with the difficulty of intersubjectivity that clinicians face, in that what they might perceive as ordinary or routine might be perceived as an emergency or crisis by a patient (Hughes 1951). Such auspicious interpretation is commonly seen when dealing with the uncertain nature of results in this setting. However, we began by noting that Davis (1960) has also suggested that uncertainty

can be used by doctors to serve functional purposes and the data presented here clearly illustrate how uncertainty can indeed be a useful interactional resource in practice; it can be talked *with* as well as about. Whilst it can be used to underline the case for testing, it is more commonly used in this setting to facilitate positive framing: since the result is uncertain, it can always and truthfully be claimed that it *might* be nothing to worry about. As we have shown, there may be good interactional reasons for this kind of presentation, but there remains a practical problem in the clinic. The cutoff point for what are considered “high risk” results in this setting are 1 in 250, or 1 in 350, depending on the combination of tests. This equates to percentages of approximately 0.4 or 0.29, and as the doctors in Extracts 2 and 3 suggest, figures of this magnitude (less than 1%) may generally be viewed as small. The “essential tension” (Mazeland and ten Have 1996) is that women are placed in a high risk category and recalled to the clinic on the basis of these figures, but the same figures are then used interactionally to emphasise the small mathematical nature of the risk. At the outset of this article we noted Katz’s (1984) view that strategies doctors have developed for coping with uncertainty lead them to disregard or avoid it. By contrast, what seems to occur in this setting is that doctors foreground uncertainty as a means to deal interactionally with the fact that these women have been officially placed into an institutional category of high risk. It would be interesting to consider the functional role uncertainty plays in women with screening results of a much greater magnitude, e.g., 1 in 30, and to explore whether it is afforded such a prominent interactional role.

We have taken an interactional perspective in the analysis presented here, and as we noted at the outset, there is little work on the interactional manifestations of uncertainty. However, it is also important to note that the phenomena we identify are not only of interactional interest. We would argue that these differences in the use of uncertainty as an interactional resource can also be critical for practice, and for the wider sociological and ethical debate about the role and function of antenatal screening (Pilnick 2008). As Maynard and Frankel (2006) have noted, whether diagnostic information is marked as good, bad or uncertain matters not only for delivery but also for receipt: what these women will make of what they are told and whether they will subsequently decide to pursue diagnostic testing. Women’s choices are likely to be influenced not only by the screening test results themselves but also how those results are presented to them (Michie et al. 2003). In examining this issue, a continued focus on talk about and with uncertainty is needed.

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## NOTES

1. In genetic counseling, a nondirective approach is adopted as a standard of professional practice. It calls for nonimposing presentation of information to clients in order to enable them to make an autonomous and informed decision.
2. We use the term Down's syndrome (as opposed to Down syndrome) in line with the practices of the hospital where this research has been conducted.
3. A first-trimester screening test is offered to women between 11 and 13.6 weeks of gestation. It includes the measurement of the fetal nuchal translucency and a blood test for two serum markers (hCG and PAPP-A) and has a detection rate of 80–90%. A second-trimester test is performed between 16 and 19.6 weeks of gestation and includes a blood test for two serum markers (hCG and AFP) with a detection rate of 60–70%. An integrated test includes the measurement of the fetal nuchal translucency in the first trimester and blood test for hCG and AFP in the second trimester. It offers the same detection rate as the first-trimester screening test, but with a lower false positive rate (Lam et al., 2000; Leung et al., 2004).
4. In all data extracts, the names of the participants and other identifiers have been removed.

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### ABOUT THE CONTRIBUTOR(S)

**Alison Pilnick** is Professor of Language, Medicine and Society in the School of Sociology and Social Policy, University of Nottingham. She has a longstanding interest in communication between professionals and their clients in health and social care settings. She is particularly interested in the ways in which health and social care policy initiatives are managed through talk-in-interaction at the point of care delivery. She has published widely on healthcare interaction, is a past co-editor of the journal *Sociology of Health and Illness*, and is currently an Advisory Editor for *Social Science and Medicine*.

**Olga Zayts** is an Assistant Professor at the School of English, the University of Hong Kong. She leads the Health Communication Research Cluster at the Centre for the Humanities and Medicine. Her research interests broadly include interdisciplinary approaches to professional communication, in particular in healthcare contexts. She has published widely on communication issues in genetics and genetic counselling in the multicultural context of Hong Kong. She is a co-editor of *Medical Communication in the Asia Context* (*Journal of Asian Pacific Communication*).