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Contesting and Differentially Constructing Uncertainty: Negotiations of Contraceptive Use in the Clinical Encounter

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Abstract

Most women of reproductive age use highly effective contraception and all available methods are associated with side effects. Whether a woman will experience side effects is uncertain, however, which can pose challenges for clinicians who discuss the methods with patients. In this study, we analyze 102 contraceptive counseling visits to understand how clinicians discursively construct knowledge in the context of uncertainty. We find that while some present the uncertainty of side effects in a straightforward, patient-accessible way, others negotiate their predictions by: 1) differentially constructing uncertainty, suggesting that positive side effects are likely and negative side effects are unlikely and, 2) contesting uncertainty, presenting the risk of serious side effects as controllable. In the end, these strategies deemphasize consideration of negative side effects in women's contraceptive decision-making. Our results demonstrate the importance of elucidating the translation, instantiation, and construction of medical uncertainty—both in theory and in practice.

Despite calls to make some forms of hormonal birth control available over-the-counter (Grossman 2008), clinicians must prescribe most contraception, necessitating a contraceptive counseling visit for innumerable women every year.[1] In addition to describing birth control options, clinicians translate medical information during the visit as they explain the risks and benefits of contraception to their patients. Clinicians must counsel patients on aspects of contraceptive methods that are uncertain, however, especially when discussing highly effective contraception (i.e. the pill, the shot, intrauterine devices, the implant, the patch, and the ring).

The discussion of side effects is an area particularly rife with uncertainty because clinicians cannot predict whether a given woman will experience side effects, nor the severity or consequences of such side effects should they occur.[2] Uncertainty in predictions aside, women report wanting to receive information about the side effects of highly effective

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Notes:

1. Consistent with medical use, we define "highly effective methods" as those with a perfect use efficacy of preventing pregnancy over 95% (World Health Organization 2011).

methods (Dehlendorf et al. 2013), express concerns about hormonally-induced menstrual irregularity (Cheung and Free 2005; Newton and Hoggart 2014), and stop (or do not start) methods because they worry about side effects (Littlejohn 2012; Littlejohn 2013; Moreau, Cleland, and Trussell 2007; Raine et al. 2011; Reed et al. 2014). Research showing that contraceptive providers do not always discuss contraceptive side effects with patients (Dehlendorf et al. 2014) and that some believe that it is their responsibility to prevent pregnancy for women in some circumstances (Stevens 2015), suggests that discussions of side effects need not be as straight-forward as clinicians' simply stating the inability to predict them.

In this study, we analyze 102 contraceptive counseling visits using a constructivist framework to examine how clinicians construct knowledge about the possible side effects of highly effective contraception. While some clinicians presented medical information in a straightforward way, we show that others negotiated uncertain information. Specifically, we identify two ways that clinicians discursively constructed uncertain information: by *contesting* and *differentially constructing* it. In their discussion of less serious side effects (e.g. those that are nuisances but pose no threat to women's health), clinicians often differentially constructed uncertainty, describing inconvenient negative less serious side effects as improbable relative to positive side effects. In their discussions of serious side effects (such as those associated with morbidity and mortality), on the other hand, some clinicians contested uncertainty, presenting these outcomes as negligible and controllable. Our analysis contributes to the literatures on medical sociology, the sociology of knowledge, and science studies by uncovering two rhetorical strategies that medical professionals use to construct knowledge when drawing on information that entails uncertainty. Our constructivist framework demonstrates that clinicians' negotiation of information gives them flexibility in defining the likelihood and significance of side effects. As such, their predictions do not always comport with other sets of knowledge on side effects (e.g., scientific studies on effect frequencies). Their constructions, however, have important implications for women's health and reproductive autonomy.

Medical Uncertainty and the Contraceptive Counseling Visit

Doctor-patient interactions, including those around birth control, are often characterized by medical uncertainty. Some of the earliest research on medical uncertainty focused on the strategies that medical students and providers used to manage uncertainty (Fox 1957; Light 1979). Research has since expanded to examine the psycho-social effects of uncertainty on medical providers (Cranley et al. 2012; Gerrity et al. 1992) and has examined the ways that patients and doctors grapple with tests (like genetic screenings) that deal with uncertain information (Pilnick and Zayts 2014; Timmermans and Buchbinder 2010). While research in both medicine (Beresford 1991; Cristancho et al. 2013; Dalton et al. 2015; Farnan et al. 2008; Ringsberg and Krantz 2006) and sociology (Rafalovich 2005; Whooley 2010)

2. Although the medical literature has recently shifted to preferring the term "adverse events" over "side effects" to describe unintended medical outcomes from a treatment, the literature differs from clinical practice recommendations for contraception counseling (which continues to use "side effects")(Spencer, Bonnema, and McNamara 2009). Both clinicians and patients in our data overwhelmingly referred to "side effects," suggesting that this is also how these outcomes are framed and understood in practice. Following this usage, we primarily use the term "side effects" below.

documents the effect of uncertainty on clinical decision-making, the literature focuses much less on how medical providers construct knowledge for patients amid uncertainty.

How medical providers should talk about side effects with patients is the subject of considerable discussion in the medical literature. Researchers most often suggest that providers discuss the risks and non-contraceptive benefits of using hormonal (and other) contraception (Minnis et al. 2014; Philipson, Wakefield, and Kasparian 2011). Clinicians, however, do not always discuss all side effects of all discussed methods and some clinicians have concerns about methods such as intrauterine contraception that do not align with the evidence-based recommendations available to them (Dehlendorf et al. 2014; Dehlendorf et al. 2010). Other researchers express concern that discussing non-specific side effects (i.e. effects that have not been directly linked to the known pharmacology of the drug) might lead to "nocebo" effects in which non-specific side effects increase because they were discussed before beginning medication (Barsky et al. 2002: 622). This has led some researchers to argue that clinicians should not even mention these side effects when discussing oral contraception unless their existence has been substantiated by randomized-placebo controlled trials (Grimes and Schulz 2011: 8).

The inability to predict side effects and the lack of consensus on how medical professionals should discuss side effects underscores the importance of contraceptive counseling visits as an interesting site to examine discursive flexibility using a sociology of knowledge framework. In situating the construction of ideas in contraceptive counseling visits within social context (Anspach 1988), we build on the work of Davis (1960) and Rapp (2004). Davis's (1960) ethnographic study of physician communication about children's polio prognosis demonstrates that medical uncertainty neither entirely explains what physicians communicate to patients, nor how they present that information (Davis 1960: 45). Davis finds that physicians maintained parents' uncertainty about the outcomes for their children even after the physicians themselves felt certain about the patients' prognoses given the medical knowledge available. While Davis's (1960) research interrogates how physicians deploy knowledge, Rapp's (2004) work raises important questions about the nature of medical knowledge itself. She argues that the genetics lab is a site for fact construction where scientists strive to routinize diagnoses on fetal anomalies that entail a great deal of ambiguity. Genetic counselors eventually deliver results to parents, but Rapp shows that the process of arriving at diagnoses involves both scientific regulation and interpretive negotiation and flexibility (Rapp 2004: 194). That is, alongside detailed scientific procedures for arriving at a diagnosis, there exists an interpretive space where technicians rely on their own judgment (and that of their peers) to make decisions and construct facts about genetic material. We build on these classic studies by examining how medical providers construct facts on side effects for *patients*, paying close attention to how they deploy information in the service of making predictions.

In this study, we ask: How do clinicians produce knowledge for patients in the context of uncertainty about side effects? And, what strategies do they use to negotiate information? In discussing our findings, we introduce the concepts of *contested* and *differentially constructed* uncertainty to elaborate on the ways that information is discursively used in the contraceptive counseling session to produce particular understandings of side effect

outcomes. In differentially constructed uncertainty, clinicians use uncertain information about less serious side effects to suggest that undesirable outcomes (e.g. irregular bleeding) are possible but that desirable outcomes (e.g. lighter menses) are probable. We adopt the commonly used term “less serious side effects” for clarity but draw the reader’s attention to the idea that side effects considered “less serious” by medical providers may be very serious considerations for users. In contested uncertainty, on the other hand, clinicians challenge the low, but uncertain risk that an individual woman will experience a serious side effect (e.g. a stroke). In the end, our analysis contributes to the literature by elucidating two mechanisms by which medical professionals generate meaning about ambiguous future outcomes, providing an exposition of discourse in contraceptive counseling visits that explains why the final presentation of medical information may not always align with what can be known based on evidence-based studies.

Data and Methods

To examine clinician negotiation of uncertainty, we analyze their discussion of side effects during contraceptive counseling visits with women seeking family planning services. Recruitment took place at six clinics that provide family planning services in the San Francisco Bay Area, an economically and racially diverse area. The six recruitment locations served different patient populations and included both safety net clinics that served primarily uninsured patients and large multi-site providers whose patient base was almost exclusively insured patients. All clinics were able to provide a range of contraceptive methods on site and clinicians at all sites could write prescriptions for all available methods. Licensed nurse practitioners, physician assistants, certified nurse midwives, and physicians conducted the contraceptive counseling. Women were eligible to participate if they spoke English, were not currently pregnant or trying to conceive, and self-identified as black, white, or Latina.

Recruitment for the study took place between August 2009 and January 2012. In addition to audio recordings of counseling visits, the study required both patients and clinicians to complete self-administered paper surveys. Patients completed pre- and post-visit surveys that included questions about their demographics, contraceptive method history, and post-visit contraceptive method chosen. Clinicians completed demographic surveys. Written consent was obtained from both patients and clinicians covering both the survey and audio recorded portions of the study. All study protocols were approved by the institutional review board at [redacted].

Visits were audio recorded for their duration, unless the patient requested the recorder be turned off for a portion. In a handful of visits, a friend or partner accompanied the patient and participated in the discussion. No member of the research team accompanied the recorder, however, allowing us to capture a “fly on the wall” perspective of the visit. The visits ranged from approximately 10 to 45 minutes, with most visits lasting 15 minutes. Participating patients were compensated for their time with a $25 gift card. A professional transcription company transcribed all recordings verbatim.

In total, the study collected data on 342 contraceptive counseling visits, representing 342 patients and 38 clinicians. To keep our analytic sample manageable, we selected 102 visits

from the population of 342 recorded visits. Anticipating that a patient's current and/or previous experience with contraceptive methods might shape how clinicians discussed side effects, we sought to include the full range of experiences with contraception. Using responses from the patient surveys, we designed our sample to include visits in which patients 1) initiated a method that they had never used before, 2) continued the method they were already using at the start of the visit, or 3) reinitiated a method that they had used previously. To avoid over-representation of any single clinician, we limited the appearance of individual clinicians in the sample to no more than five sessions (<5% of the total sample). The final sample of 102 visits represents 34 clinicians.

In these 102 visits, most patients were between 20 and 30 years old (see Table 1). The patient sample was racially diverse, including black, Latina, and white women, and disproportionately low income, in part because many women were enrolled in college at the time of their visit. Although patients' annual household incomes ranged from zero to over $99,000, 80% (n=82) reported annual household incomes at or below $50,000. All participants had access to contraceptive methods at no or minimal cost through public programs, public insurance, or private insurance. The clinicians ranged in age from 41 to 74 years old and self-identified as Asian, Latina/o, white, or multiracial; no clinicians were black. All but one clinician was a woman. Twenty-two clinicians were nurse practitioners (NPs), eight were physicians, two were Certified Nurse Midwives (CNMs), and two were Physician Assistants (PAs). Both patient insurance type and provider type were clustered by site. To maintain clinician anonymity in the quotations below, we present information on race and age only for patients. Nonetheless, we selected the quotes included with attention to clinicians' race and age in order to represent the diversity of our sample. All proper names are pseudonyms.

Analysis

Our study was guided by a constructivist framework that treats meaning as fluid and subject to construction. Both authors reviewed transcripts and collaboratively developed an initial code list, using side effects as a sensitizing concept (Charmaz 2014). This list included codes for clinicians describing contraceptive methods, discussing the risks of the methods, and discussing the side effects of the methods, among other codes. We coded all transcripts using this initial list, co-coding 10% of the transcripts to confirm consistency of code use. Each author then took the relevant excerpts for serious side effects and less serious side effects (coded using the language of "risks" and "side effects" during analysis to reflect clinicians' descriptions) and created subcodes that attended to how these topics were discussed. Throughout the coding process, we consulted regularly about coding questions and decisions to resolve any disagreements and to refine the analysis.[3]

[3]One might consider conversation analysis another useful method for analyzing these data. While that method may offer future, supplemental insights, our discovery of the management of medical uncertainty as a theme arose only because of our constructivist methodological framework that was structured to capture emergent themes. In addition, we note that, while coding, we discovered that clinicians dominated the discussion of side effects (and other topics) with little substantive back-and-forth between clinicians and patients, potentially limiting the utility of conversation analytic techniques. Nonetheless, we include as much textual context as possible for all exchanges reported herein.

Results

Differentially Constructing Uncertainty

During the visits, women expressed concern about the possibility of less serious side effects and many made clear that this possibility figured into their contraceptive decision-making. Indeed, medical providers are encouraged to discuss the side effects that may occur for this very reason (Spencer, Bonnema, and McNamara 2009). Table 2 presents information on the side effects associated with the methods discussed in the counseling visits. Clinicians were largely responsive to this professional encouragement, mentioning less serious side effects, even if only briefly, in nearly every visit. In 25 visits, engagement was limited, with clinicians either only making general statements about less serious side effects (e.g. “any birth control method can cause side effects”), listening to women’s previous experiences with side effects with minimal discussion, or making only a short statement about a single side effect (e.g. “periods will be lighter on the pill”). In the other 77 visits, however, clinicians had detailed conversations about possible less serious side effects with patients. And, among these sessions, 62% of the time (n=48) clinicians negotiated the uncertainty around predicting women’s experiences of less serious side effects by differentially constructing uncertainty about perceived positive versus negative side effects.

Clinicians most often differentially constructed uncertainty about less serious side effects by suggesting that positive side effects were probable but that negative side effects were only possible. This occurred in 81% of all visits involving differential construction of uncertainty (n=39 of 48). For example, when Aiyana’s 24 year-old white patient says, “The only thing I wanted to ask you about was I’ve been curious about the IUD,” Aiyana responds by discussing the side effects of the Mirena, a brand of IUD. She tells her patient, “The pros of the Mirena are that after about 6 to 9 months, people stop having their periods completely because the Progestin thins out your lining so much that you just don’t have anything to bleed…the downside to it is in 6 to 9 months, you may have everyday spotting with the Mirena.” Diana takes a similar approach with her 35-year-old white patient right before she performs the IUD placement:

> Diana: And the other thing about the Mirena is it can make you have irregular spotting for the first few months. It says that in the brochure. I don’t know if you read that. Tell me if you do experience that, but it’s very, very normal. It [the Mirena IUD] will make your period go away.
>
> Patient: Ok, great.
>
> Diana: I hope that happens. Ok? Does that [the Mirena IUD] sound good?
>
> Patient: Ok, let’s get this over with.

Like other clinicians in the sample, Aiyana and Diana assert not having a period—an apparent benefit of the Mirena IUD—as a certainty for the patient but highlight irregular bleeding—likely a potential drawback—only as a possibility. While no one can precisely predict women’s individual experiences because of the limits of medical knowledge and a lack of data, clinicians’ framing of these Mirena IUD side effects is not in line with other information. For example, the manufacturer advises women that approximately 20% of users

will no longer have a period after one year, 32% will have unscheduled uterine bleeding, and 12% will have an increase in scheduled uterine bleeding (i.e. their monthly period)(Bayer HealthCare Pharmaceuticals Inc. 2014). This is consistent with research studies showing that many women do not stop having a period within the first year of Mirena use (Suvisaari and Lähteenmäki 1996) and many continue to have menses even with prolonged use (Varma, Sinha, and Gupta 2006). Thus, the scientific data suggest that clinicians could accurately assert that patients *may* have irregular bleeding and/or they *may* stop having a regular period. The disjuncture of clinicians' framing of certainty over the positive outcome and uncertainty over the negative outcome, especially when referencing material provided by the manufacturer, demonstrates clinician flexibility in discursively constructing the likelihood of these uncertain outcomes during the interaction.

De-emphasizing the severity of the negative less serious side effects that could occur, or suggesting that they were unlikely, arose in 40% of the visits where clinicians differentially constructed uncertainty (n=19 of 48). When discussing contraceptive method options with a 27 year-old white patient who wanted contraception that would allow her to skip menstruation, for example, Ananda says:

> The one that I haven't gotten too much into [is] called the Paragard, which is [an IUD] made out of copper laced around it. The main downside to that is that you're not skipping periods because you're gonna have a monthly period—so you're not gonna like that. It also can make your periods a little crampier, a little bit heavier.

Her patient immediately says, "No, I don't want that," and Ananda elaborates on the unlikeliness of negative experiences with Paragard before turning to a discussion of other methods. Though drug facts on the Paragard do not specifically refer to the severity of the cramping that the patient may experience (Teva Women's Health 2013), Ananda suggests that if these undesirable side effects do occur, the patient will just experience periods that are "a little crampier" or "a little heavier." Such hypothetical experiences sound more manageable and less undesirable than periods described, in contrast, as "a lot crampier" or "a lot heavier," though these experiences are also possible with use of the Paragard and were reported by several women in our sample.

The use of minimizing language around perceived negative side effects extended to other methods as well. In counseling a 19-year-old Latina patient who was considering switching from the pill to the ring, Nancy discusses what the patient might expect on the ring:

> Nancy: So let me go get a sample [of the ring for the patient to try] okay?
>
> Patient: Okay.
>
> Nancy: Alright. Same kind of side effects [as the pill], maybe a little breast tenderness, headache, you know, things like that, nausea, but you get used to all of that. Okay, so that's the hormone level. Then of course, you have condoms and diaphragm and all that. But it sounds like—yeah.

In addition to the side effects mentioned by Nancy, the manufacturer advises women about ten other side effects that are among the most commonly reported by women (Merck Sharp & Dohme B.V. 2014). Although it is impossible for clinicians to predict whether women will

have “a lot” of headaches or a “little” breast tenderness, our focus here is not on critiquing the clinicians’ use of descriptors but on identifying the wide latitude clinicians enjoyed in assigning descriptive terms because of uncertainty in predicting individual women’s experiences. We find that in the case of less serious side effects, those that might cause the patient physical discomfort are often presented as unlikely or surmountable.

Clinicians, on the other hand, used modifiers like “super,” “much,” and “a lot” in discussing side effects that might be understood as positive in 38% of visits where they differentially constructed uncertainty (n=18 of 48). Karen’s interaction with her 18 year-old black patient demonstrates this well:

> Karen: Okay. Have you ever been on birth control in the past?
>
> Patient: Yeah—I was actually on the Yaz [a pill].
>
> Karen: Okay—is that what you want to?
>
> Patient: It worked. I used it the first time. I don’t really know anything about other ones. Karen: Yes—it’s a great birth control. I like it a lot. It’s—you know. How long were you on it in the past?
>
> Patient: Probably around a year.
>
> Karen: Okay. So, it’s a low dose, and there’s very little side effects. It’s a 24-day pill. And, the periods get very light. You know, a lot of people take it for other reasons than sexual activity. ‘Cause it does have such few side effects. So do you do okay with taking the pill every day?

The manufacturer of the method suggests that “some” women may experience lighter periods, in line with research examining women’s experiences (Nakajima, Archer, and Ellman 2007). The notion that the pill *may* lead to lighter periods, then, is consistent with reports made by women themselves and the information provided by the manufacturer of the method. The notion that the pill *will* make an individual woman’s periods “very light,” however, is uncertain.

In constructing knowledge about side effects, clinicians often suggested that women could expect to experience positive side effects and perhaps not any negative side effects. Further, they differentially constructed the uncertainty about what effects a method would have on an individual patient to suggest that the likely—and positive—side effects would lead to very beneficial, if not drastic, changes while any negative side effects, if experienced at all, would mean little impact or only minimal discomfort. Taken together, clinicians minimized negative less serious side effects or accentuated dramatic changes with positive less serious side effects in 40% of all visits where they discussed these effects (n=31 of 77; they employed both techniques in 6 visits).

Contested Uncertainty

Clinicians also constructed knowledge about predicting whether women would experience a *serious* side effect by contesting uncertainty. Nearly every highly effective method offered in the counseling visits carries risks of serious side effects (e.g. blood clots) that are associated

with disability or even death, but comprehensive medical evidence demonstrates that only a small number of women using these methods will actually experience such side effects (World Health Organization 2011). Nonetheless, although the risk of experiencing a serious side effect is low, the uncertainty in predicting whether a particular woman will experience such an event may be unsettling for women making decisions about contraception.

Just over half (n=57) of sessions in our sample included discussion of serious side effects. The remaining 45 sessions where clinicians did not discuss serious side effects were not otherwise different from the 57 sessions where they did. That is, the sessions generally included discussion of pregnancy prevention mechanisms for various methods, how and when the patient could commence a method, and, in almost all cases, mention of less serious side effects. The visits were not consistently shorter nor did they exclusively discuss methods for which there are no serious side effects (e.g. the contraceptive implant). Thus, there were opportunities to discuss serious side effects in these sessions, but such discussion was simply missing. We do note that NPs more often brought up serious side effects than physicians (they were mentioned in 62% of the NP sessions compared to 39% in the physician sessions), but provider type was clustered by clinical site, making it difficult to determine whether this was related to site policies and practices or provider type, or both.

In the 57 sessions were clinicians did discuss serious side effects, they presented the uncertainty of experiencing these side effects in a straightforward, patient-accessible way about one-third of the time (n=20 of 57). They acknowledged, in other words, the possibility of serious side effects without suggesting that women were not truly at risk. For example, Susan discussed blood clots with a 19-year-old African-American patient who expressed interest in the patch but was reluctant to use it because she “heard people died from it.” She says, “You think you might wanna try the patch. Ok, so let’s go back to what you heard about people dying. The dangerous side effects with all the different types of hormone birth control that we’re talking about here have to do with a blood clot forming somewhere in an artery or a vein. And that is a teeny weeny, very, very low risk for any woman taking the pill.” Similarly, Amy mentioned the risk of serious side effects to her 23-year-old white patient in explaining how the pill and the patch differ, noting that “The patch has a slightly higher risk of blood clots than the pill. But both have a risk of blood clots, which is very, very rare. But it can kill you, so you just need to be aware of that.” Such mentions of serious side effects conveyed that using contraceptive methods carries risks, that the risks are very low, but that women should be aware of these risks as they select a method. These discussions aligned with information published by the World Health Organization (2011) on the rates of serious side effects.

More often, however, when clinicians discussed the potential for serious side effects, they *contested* uncertainty. In 65% (n=37 of 57) of the visits where clinicians discussed serious side effects, they told patients about the possibility of serious side effects and then challenged the uncertainty around the patient herself experiencing such an outcome by offering reasons why women need not even worry about the low risk discussed. Ultimately, the contestation of uncertainty suggested that the risk of serious side effects was a relatively minor concern that should not interfere with a woman’s adoption of a highly effective contraceptive method. As with mentioning serious side effects at all, NPs more often

contested uncertainty in their sessions than did physicians, with NPs contesting uncertainty in 41% of their sessions and physicians contesting uncertainty in only 22% of their sessions. Nonetheless, the clustering of provider type by clinical site makes this finding difficult to interpret.

Most commonly, clinicians contested the uncertainty of experiencing a serious side effect by asserting that this patient is simply not at risk. In 35% of the discussions of serious side effects (n=20 of 57), clinicians straightforwardly told their patients that they did not have to worry about serious side effects. After a 30-year-old Latina patient decided she wanted to start using the pill, Kim gave her an informational handout that included description of serious side effects:

> Kim: [Here's a handout] for the pill. It's informational. We'll go ahead and read this: you want to know that there are risks that you can get blood clots, stroke, increased blood pressure and [headaches]. As long as you don't smoke, then you should be okay. Okay?
>
> Patient: I don't smoke.
>
> Kim: Go ahead and read, sign, and date.
>
> Patient: Okay.

Kim never tells the patient how to recognize the signs of a serious side effect during the visit, nor what to do if she believes that she is experiencing one. Although Kim tells her patient to read the (presumably) more detailed information about these risks in the handout, the exchange rapidly moves into the patient signing the consent form after Kim asserts that the patient "should be okay." Other clinicians cited their patients' young age (usually for those under 35 years old) as the reason they did not have to be concerned with the possibility of serious side effects. Though smoking and older age are indeed risk factors for experiencing blood clots on the pill, women can still experience a serious side effect even without having these risk factors (World Health Organization 2011). Her lack of discussion of these possible side effects further underscores the construction of serious side effects as inconsequential.

Clinicians also contested uncertainty by citing their own lack of personal experience with a patient experiencing a serious side effect. This happened in 21% of discussions (n=12 of 57) of serious side effects (in 10 of these 12 sessions, clinicians cited their own lack of experience in conjunction with citing a lack of risk factors as in the above examples). For instance, Nancy and her 19-year-old Latina patient discuss the risks of the pill after Nancy asks her patient if she smokes:

> Patient: Mm, not, no.
>
> Nancy: Okay, so maybe occasionally at a party or something?
>
> Patient: Yeah.
>
> Nancy: Yeah, okay. When you're on birth control, it's best not to smoke, because that increases your risk of a blood clot. That's the main risk with any kind of hormonal methods is blood clots. Okay?

Patient: Even on the shot? Really?

Nancy: The shot, no. The shot, no because it doesn't have estrogen. So anything that doesn't, that has estrogen, there's a risk of blood clots. It's very small, extremely small, like one in half a million, something like that, but it rarely happens. I've only seen it one time in my 17 years and that was someone who was overweight, smoked, didn't exercise, recently traveled, she had like every risk factor. So it's really, really rare.

In this case, Nancy mentions the risk of blood clots but immediately qualifies that risk by telling her patient that she has only ever witnessed it once—and that was a very high-risk case, unlike this patient. After this statement, she begins telling the patient about other methods that she might be interested in and they have no interaction about the serious side effects just mentioned. Like Nancy, the vast majority of clinicians who drew on personal experience mentioned "never seeing a patient" with a serious side effect immediately after discussing risks, ending discussion of serious side effects and effectively dismissing the idea that concerns about the risk of serious side effects might merit further discussion.

Drawing on previous experience allowed clinicians to not only suggest that women should not worry about serious side effects because other patients had never had problems, but to also assert that serious side effects were simply not going to occur. For example, when a 29-year-old black patient voiced concern about the health warning printed on the informed consent sheet of her oral contraceptive pill, Helen quickly sought to assuage her fears:

Helen: That's [that warning is] only for women who actually have conditions, much older women who already have conditions. We have to state any possible thing that can happen. I've never had a patient where that happened.

Patient: Oh, okay. But if I notice anything like strange –

Helen: You're not going to.

Patient: What does it do? Like would it give me a warning? Or would it build up to that? Or would it just kill me?

Helen: No, no, no, no, no. Don't worry about that.

Asserting her experiential authority over the scientific evidence of risk, Helen explicitly tells her patient not to worry about health risks. Despite Helen's assertion that her patient need not worry, her on-the-ground wisdom does not increase medical certainty in determining whether her patient will actually experience a serious side effect.

A third way clinicians contested the uncertainty of experiencing serious side effects was by challenging the consequences of such experiences. In 11 of the 57 sessions (19%), clinicians framed the experience of serious side effects as obvious and common sense, emphasizing that any problems would be easily recognizable and remedied so that patients could seek medical care and avert serious consequences. This way of contesting the uncertainty of serious side effects occurred along with another contesting frame in most instances (seven of eleven sessions). Counseling a 38-year-old black patient planning to use the ring, Dorothy explains:

> If you feel like you have this terrible ache in your chest and your head, in your legs, in your abdomen, anywhere else—it's a terrible pain, and it's not going away with an aspirin, or Tylenol, or Advil—just come to the hospital. And say, "I've been on the NuvaRing, and I have this terrible pain." And they'll check and make sure you don't have any blood clots anywhere. So that's the danger with any estrogen. But it's a very low dose estrogen, and you shouldn't get into any trouble with it.

Dorothy mentions the risk of blood clots itself only briefly but speaks expansively about how such an event could be recognized and what the patient should do, positioning seeking medical counsel as the solution. In constructing knowledge about serious side effects, Dorothy's framing suggests that the important issue to focus on is not the serious side effect itself, but what to do in the event of one. This framing leaves the possible consequences unmentioned. Dorothy follows this engagement about seeking medical care for a serious side effect with an extensive discussion of *less* serious side effects, including the possibility of weight gain, steering the conversation away from risk. Her patient responds that her weight "fluctuated" on a previous method and they both then turn to a lengthy discussion of the patient's weight.

Building on their experience and medical expertise, in 21% of discussions of serious side effects (n=12 of 57), clinicians suggested that the uncertainty of serious side effects could be eliminated by their own actions, such as appropriate patient screening and proper technique. In effect, clinicians asserted that specific practices could negate the uncertain risks of highly effective contraceptive methods. Counseling a 16-year-old white patient, Elizabeth, for example, says: "There's a risk of infection, but I use this special soap made from iodine to clean off your cervix on the inside to prevent infection. And we use all sterile instruments." By immediately following information about the health risks of a method with information about specific, replicable practices presented as eliminating risk, clinicians framed health risks and complications as controllable even though uncertainty about what might happen to the patient remained. In these ways, they marked patient concerns about the risks of these methods as incidental, rather than integral, to their contraceptive decision-making. After contesting the uncertainty of serious side effects, Elizabeth continued on to describe the IUD placement procedure. Her patient simply responded, "Sure," after Elizabeth finished. As in other cases, after the clinicians' statement regarding serious side effects, there was no further exchange on the subject.

In sum, despite the rarity of serious side effects, they do happen and disclosing information to women choosing a contraceptive method about potential side effects is recognized as integral to patient-centered counseling (Dehlendorf et al. 2013). Although some clinicians delivered medically-accurate information on the low rate of serious side effects with given methods and encouraged patients to be aware of these risks, we find that others negotiated the uncertainty of experiencing serious side effects, contesting the idea that the individual patient is actually at risk. For all clinicians, including those who report on serious side effects without constructing them as unproblematic, the temporal location of these discussions underscores the linkage between contested uncertainty and conceptions of the methods as risk-free. We find that clinicians generally mention serious side effects only *after* a method has been selected, unless otherwise prompted by a patient. And, as previously

discussed, clinicians only discuss the potential for serious side effects in roughly half of the sessions in our sample.

Discussion

Our results highlight the importance of thinking about the mechanisms involved in the discursive construction of medical information, underscoring doctor-patient interactions as a social process involving the translation and presentation of uncertain information. While it is impossible to predict 1) whether an individual woman will experience side effects, and 2) the intensity and consequences of such experiences, the medical information that clinicians drew on did not always determine how they framed the potential side effects associated with highly effective contraceptive methods. Instead, as we show, many clinicians helped construct the meaning of medical knowledge about side effects by contesting and differentially constructing uncertainty based on the side effect discussed.

In discussions about less serious side effects, which clinicians had at least nominally with nearly every patient, they often differentially constructed uncertainty. They suggested that women could expect an outcome when discussing positive side effects (as in the case of lighter periods), but positioned an outcome as only possible when discussing negative effects (as in the case of more painful periods). Interestingly, clinicians did not even discuss serious side effects in nearly half of the sessions. And, when they did discuss whether a woman would experience a serious side effect that might lead to morbidity or mortality, many clinicians contested the uncertainty inherent in making such a prediction. They told women about the small chance of experiencing such an event and then challenged the uncertainty around an individual woman's risk.

Our focus has been on the contraceptive counseling session but our study advances the broader literature in medical sociology, the sociology of knowledge, and science studies by elucidating two processes involved in the discursive construction of medical knowledge. Building on research that considers how medical providers share and withhold information about uncertain predictions (Davis 1960; Pilnick and Zayts 2014; Timmermans and Buchbinder 2010), we show that as part of a communicative process, medical knowledge does not simply exist, but is framed, negotiated, and contested using multifaceted strategies that depend on the context and goals of the interaction. While the literature shows that information may be actively used and challenged during clinical interactions, our study demonstrates two pathways by which this occurs.

In examining the discursive construction of knowledge on side effects, our study demonstrates the value of sociological frameworks for moving us away from investigating *whether* providers should communicate particular information to an understanding of *how* such information is communicated. Most women in our sample received at least some information about the possibility of side effects associated with contraception, but our analysis reveals that such a narrow focus on whether women receive information obscures the social processes whereby uncertain information is subject to construction, deconstruction, and synthesis. Understanding *how* uncertainty is discursively constructed, challenged, and maintained offers insight into how medical providers shape knowledge

during interaction, which has consequences not only for patient decision-making, but also for patient health.

Our analysis elucidates two strategies that medical professionals use to construct knowledge amid medical uncertainty but it also underscores the importance of reflecting on how these strategies might affect the women that providers counsel. Clinicians themselves debate how to discuss side effects with patients (Grimes and Schulz 2011) and there are many reasons why providers might construct knowledge as they do in the sessions that we examined. Situating the construction of knowledge within context (Anspach 1988) means considering that providers' construction of knowledge about side effects may result from a public health initiative that focuses on reducing unintended pregnancy. Reducing unintended pregnancy is considered a central goal of contraceptive counseling (Gee et al. 2011) and providers' normative understandings of childbearing (Mann 2013; Stevens 2015) may directly shape how they frame side effects for patients. The strategies that we uncover here may encourage the uptake of highly effective contraceptive methods by framing health risks as features that should not deter women from using highly effective methods and by circumscribing women's likely satisfaction with the methods. That serious side effects, though rare, were only discussed in about half of the sessions may also mean that women do not get all of the information that they should rightfully have to make informed decisions about contraception. Thus, how clinicians discuss side effects given uncertainty may be an overlooked, but important area of research in efforts to improve women's reproductive autonomy.

Whether the strategies uncovered here result from larger frameworks that treat unintended pregnancy as a social problem, clinicians' own beliefs that non-specific side effects may not result from the methods themselves (Grimes and Schulz 2011), or a tension between experiential and scientific knowledge, the findings have implications for women's health. For example, a woman may discontinue a method if she finds that the in-visit assertions about side effects—such as that it will "make her period go away" or only cause "a little bit of spotting"— do not match her experience. More seriously, a woman may dismiss the signs of a serious side effect, even if she had been counseled to seek medical attention for symptoms during her counseling visit, because she has been told that she has nothing to worry about or does not have any of the risk factors. Thus, our analysis of the construction of medical knowledge amid uncertainty not only builds on the important work by Davis (1960) and Rapp (2004), but also contributes to the empirical literature on challenges in reproductive health.

Of course, our findings are not exhaustive. Future research should examine how information on uncertain outcomes is constructed in other ways, especially depending on the type of outcome discussed. It is reasonable to expect that medical providers might use similar strategies to those we document here when discussing the potential side effects of other medical treatments and procedures, but the specific ways that some clinicians contest and differentially construct uncertainty, as well as the broader implications of their strategies, may be vastly different. Scholars should also investigate how patients understand these uncertain outcomes in light of their own values and needs. For instance, while patients might

be generally comfortable with the drawbacks associated with medical procedures aimed at remedying illness, the same may not be true of procedures understood as cosmetic.

Future research should also examine how institutional and structural factors may contribute to the discursive practices that we identify. Our data hinted at variation in discussing serious side effects and contesting uncertainty by provider type, but clustering of provider type by clinical site makes it difficult to disentangle these effects. Indeed, clinic policies, standard practices, clinician training, patient insurance status, and provider type may all influence how clinicians construct knowledge for patients. Their respective effects are particularly salient given that clinics often serve very different patient populations. If, for example, the contestation and differential construction of uncertainty is patterned by clinical site, the use of these discursive strategies themselves may contribute to the production and perpetuation of structural inequalities.

Rather than assuming that the available scientific knowledge completely determines clinical counseling, our research underscores how medical providers can *translate* the unknown into the known and adjudicate between the two. Our focus on how clinicians discursively construct the possible side effects of highly effective contraception provides a useful case. Like Davis (1960), we find that some clinicians actively construct uncertainty during encounters with patients, not only by withholding information to maintain uncertainty (Davis 1960), but also by negotiating the content of uncertain information. Building on the work by Rapp (2004), we elucidate two approaches that medical providers use to construct knowledge amid ambiguity. As new medical technologies and procedures continuously challenge the limits of medical knowledge, our analysis suggests that a fruitful approach might be examining how clinicians manage information to accomplish their goals, rather than assuming that the level of scientific knowledge circumscribes its presentation for patients. The results of such an approach have implications not just for contraception, but for all medical technologies and procedures within the clinical sphere.

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Table 1:

Sample Characteristics

	Clinicians (n=34)	Patients (n=102)
Gender		
Woman	33	102
Man	1	--
Age (in years)		
<20	--	10
20-30	--	68
31-40	7	22
41-50	10	2
51-60	10	--
61-74	7	--
Race		
Asian or Pacific Islander	2	--
Black	--	30
Latina/o	6	30
White	14	42
Multiracial	2	--
Education		
<HS or equivalent	--	8
HS or equivalent	--	25
Some college or AA	--	36
4-year college degree	--	18
More than 4-year college degree	34	15
Annual household income *		
<$14,001		36
$14,001-$25,000		25
$25,001-$50,000		21
$50,001-$99,000		12
>$99,000		8

* Income not collected on clinician participants.

Table 2:

Highly Effective Contraceptive Methods and Their Reported Side Effects (sorted alphabetically)*

Method & Typical Use Efficacy**	Reported Serious Side Effects	Reported Less Serious Side Effects***
Combined Hormonal Contraceptive Pill (aka "the pill") *8% failure*	• Blood clots in deep veins of legs or lungs • Heart attack • Increased blood pressure • Stroke	• Acne (increased and/or reduced) • Breast tenderness • Change in bleeding patterns, including no bleeding, lighter bleeding, and breakthrough bleeding • Dizziness • Headache • Mood changes • Nausea • Weight change
Contraceptive Patch *8% failure*	• Blood clots in deep veins of legs or lungs • Heart attack • Increased blood pressure • Stroke	• Abdominal pain • Breast tenderness and pain • Change in bleeding patterns, including no bleeding, lighter bleeding, prolonged bleeding, and breakthrough bleeding • Flu symptoms/upper respiratory infection • Headache • Irritation, redness, or inflammation of the vagina • Nausea • Skin irritation at placement site • Vomiting
Contraceptive Ring *8% failure*	• Blood clots in deep veins of legs or lungs • Heart attack • Increased blood pressure • Stroke	• Change in bleeding patterns, including no bleeding, lighter bleeding, prolonged bleeding, and breakthrough bleeding • Headache • Irritation, redness, or inflammation of the vagina • White vaginal discharge
Contraceptive Implant *0.05% failure*	No known serious side effects	• Abdominal pain • Acne • Breast tenderness • Bruising, pain, and/or infection at insertion site • Change in bleeding patterns, including no bleeding, lighter bleeding, prolonged bleeding, and breakthrough bleeding • Dizziness • Headache • Mood changes • Nausea • Reduced acne • Weight change
Contraceptive Injection ("the shot") *3% failure*	No known serious side effects	• Abdominal bloating and discomfort • Change in bleeding patterns, including no bleeding, lighter bleeding, prolonged bleeding, and breakthrough bleeding • Dizziness • Headache • Loss of bone density • Mood changes • Reduced sex drive • Weight gain

Method & Typical Use Efficacy**	**Reported Serious Side Effects**	**Reported Less Serious Side Effects*****
Mirena IUD *0.1% failure*	• Uterine Perforation	• Acne • Breast tenderness or pain • Change in bleeding patterns, including no bleeding, lighter bleeding, prolonged bleeding, and breakthrough bleeding • Dizziness • Headache • Mood changes • Nausea • Weight gain
Paragard IUD *0.8% failure*	• May contribute to anemia • Pelvic Inflammatory Disease (PID) • Uterine Perforation	• Change in bleeding patterns, including prolonged bleeding, heavy bleeding, and breakthrough bleeding • More cramps and pain during monthly bleeding
Progestin-Only Pill *8% failure*	No known serious side effects	• Abdominal pain • Breast tenderness • Change in bleeding patterns, including no bleeding, lighter bleeding, prolonged bleeding, and breakthrough bleeding • Dizziness • Headache • Mood changes • Nausea

*Compiled from *Family Planning: A Global Handbook for Providers* (2011)

**Typical use efficacy based on Trussell's (2004) estimates of percentage of women who will experience an unintended pregnancy during one year of typical use of a method. Typical use estimates are generally lower than "perfect" use, which entails correct and consistent use of a method.

***Less serious side effects are included regardless of whether they may be perceived as positive, negative, or neutral.