Intervening With Conversation Analysis: The Case of Medicine

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CONVERSATION ANALYSIS AND INTERVENTION: REVIEWS

Intervening With Conversation Analysis: The Case of Medicine

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In this article, we discuss the notion of a ‘conversation analytic intervention,’ focusing on the role of conversation analysis in the major stages of intervention research, epitomized by the randomized controlled trial, the gold standard for intervention in the medical sciences. These stages embrace development, feasibility and piloting, evaluation, and implementation. We describe how conversation analytic methods are used as part of the first two stages and how a conversation analytic skill base and sensibility must be deployed in managing the last two stages. Through a review of practical requirements for successful, externally-funded intervention research, we provide suggestions for how to maximize the potential for basic, conversation analytic research to eventuate in intervention. Data are in American English.

The progressive expansion in the range, quality, and reliability of conversation analytic (CA) findings over recent years has increased confidence that these findings will find significance in real-world applications. These applications are, of course, various. As Antaki (2011) observed, there are numerous ways in which CA findings can be applied, such as toward the establishment of new areas of scholarship or toward a better understanding of macrosocial issues, communication problems, organic/psychological disorders, and the workings of social institutions. When CA is

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"applied to a practical problem as it plays out in interaction, with the intention of bringing about some sort of change" (Antaki, 2011, p. 1, emphasis added), we can say that CA is implicated in intervention. Thus, intervention is a subset of the more general category of application.

The term intervention can have a number of meanings. In this context we may distinguish in particular between ‘informal’ and ‘formal’ CA interventions. Many CA researchers in the field of medicine, including ourselves, have been involved in informal interventions. These involve describing basic CA findings to medical providers in the context of workshops, teach-back sessions, continuing medical education courses, etc., and frequently also involve the implicit or explicit recommendation of specific conversational practices as conducive to some preferred, medically consequential outcomes. One example involves research on ‘online commentary’ generally, and specifically the practice of describing ‘no-problem’ exam findings (Heritage & Stivers, 1999). Shortly after its initial discovery, we were prepared to recommend its use during physical examination in cases of upper respiratory tract infections as a means of shaping parents’ expectations away from the likelihood of physicians’ antibiotic treatment recommendations. The recommendation of this practice without the addition of cross-sectional data linking this practice to some outcome (e.g., lower incidences of patients resisting physicians’ nonantibiotic treatment recommendations or of patients’ postvisit reports of having expected antibiotics) is what defines this recommendation as being an informal intervention.

In the medical sciences, as well as the social-scientific subfields concerned with medicine (e.g., health communication, health psychology, medical sociology), the term intervention refers to a particular type of hypothesis-driven research study designed according to a coherent set of methodological ‘best practices’ that foster credible answers regarding causality. Perhaps the best-known type of intervention study is the randomized controlled trial or RCT (Begg et al., 1996; Craig et al., 2008; Kendall, 2003). Medical sciences recognize that research involving this type of intervention involves a complex of activities, which fall into two broad parts. The first part, which we will term ‘preintervention,’ comprises: (a) development (e.g., identifying the evidence base, identifying and/or developing theory, and modeling process and outcomes) and (b) feasibility and piloting (e.g., testing procedures, estimating recruitment and retention, determining sample size, and performing cross-sectional analyses). The second part, which we will term the ‘intervention,’ comprises: (c) evaluation (i.e., the intervention study) and (d) implementation (e.g., dissemination, surveillance and monitoring, and long-term follow up) (Kendall, 2003).

With this in mind, it is more correct to say that CA intervention is one in which: (a) the method of conversation analysis is used as part of the first two (i.e., preintervention) phases of the intervention research process, and in which the independent (i.e., predictor) variable and/or the dependent (i.e., health outcome) variable is theorized, conceptualized, and operationalized in CA terms; and (b) a CA skill base and sensibility is deployed in managing the intervention itself during the evaluation phase and in curating any subsequent implementation of findings.

We will refer to CA conducted in the preintervention phases of the intervention research process as ‘preintervention CA.’ Preintervention CA is not a traditional exercise in purely unmotivated looking (Sacks, 1984); rather, it is ‘sensitized’ by methodological considerations associated with intervention studies. Importantly, such considerations do not violate the process of conversation analysis (i.e., do not make the findings any less conversation analytic), although they may sometimes limit its scope (see the following).
CONVERSATION ANALYSIS IN THE PREINTERVENTION PHASE

Among many issues to consider during the preintervention phase, we will focus on three: (a) developing the phenomenon, (b) feasibility, and (c) cross-sectional analyses.

Developing the Phenomenon

Preintervention CA commonly involves noticing of discrete and contrastive practices that are deployed in some identifiable phase of (or medical activity within) the visit (Robinson, 2003, 2012) and that are most often located in some sequentially specific slot within that phase/activity. For example, Heritage and Robinson (2006) were interested in how patients and physicians co-construct the problem-presentation space immediately following physicians’ solicitations of patients’ chief concerns. Using inductive, CA procedures, they identified five recurrent practices used by physicians to solicit chief concerns. The most common were open-ended, general-inquiry questions (62%), as in Extract 1 (line 1), and requests for confirmation (27%), as in Extract 2 (line 1).

**Extract 1**

01 → DOC: What can I do for you today.
02 (0.5)
03 PAT: We'll- (0.4) I fee:l like (.) there’s something wrong down underneath here in my rib area.

**Extract 2**

01 → DOC: Sounds like you’re uncomfortable.
02 (.)
03 PAT: Yeah. My ear, =an’ my- s- one side=of
04 my throat hurt(s).

Examining the sequences in which these questions occurred, Heritage and Robinson (2006) demonstrated that they embody different action agendas that have dramatically different consequences for patients’ responses. In Extract 1, the question “What can I do for you today.” is a wh-interrogative that encourages patients, as a first order of business, to present their chief concerns. Furthermore, as designed, this question takes a K– position (Heritage, 2010), articulating a relatively steep epistemic gradient and asserting that the physician lacks information about the patient’s concerns, thus inviting expanded problem presentation. In contrast, the question in Extract 2, “Sounds like you’re uncomfortable.” is a request for confirmation that, while an evidentialized B-event statement taking a K– position, encodes a relatively flat epistemic gradient that encourages patients, as a first order of business, to produce tokens of either confirmation or disconfirmation, which the patient does: “Yeah.” (line 3). Only then does the patient present her

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1When projects are commissioned by outside agencies, decisions regarding focal practices are sometimes strongly influenced by agency needs/interests, such as how to deal with requests for services that the agency does not currently offer (Hepburn, Wilkinson, & Butler, 2014/this issue), and other times less so, such as the design of new communication tools (Luff, Patel, Kuzuoka, & Heath, 2014/this issue).
chief concern: “My ear, an’ my side of my throat hurt(s).” These requests for confirmation tacitly claim that physicians possess at least some information about patients’ chief concerns (e.g., information previously solicited and documented by nurses), which discourages expanded problem presentation (Heritage & Robinson, 2006). In this context, the rules of turn taking (Sacks, Scheglof, & Jefferson, 1974) provide physicians with a formal opportunity to speak immediately after patients’ (dis)confirmations, which can result in patients losing the opportunity to present their problems according to their own agenda. This is what happens in Extract 3.

Extract 3
01 DOC: You’re having knee problems since June.
02 PAT: Yes.
03 DOC: Okay what have you done for that. (.) since then.

Here, in response to the physician’s request for confirmation, “You’re having knee problems since June.” (line 1), the patient produces a confirmation, “Yes.” (line 2), at which point the physician begins to take the patient’s medical history (line 3). Suppose that we believe that these different questioning practices may be associated with different provider characteristics (e.g., physician age and gender) and visit outcomes (e.g., length of problem presentation and patients’ postvisit satisfaction). Moving beyond the most ‘informal’ type of intervention, what are the next steps?

Feasibility

Thinking about feasibility involves two fundamental but related issues. First, how many data are required for a credible scientific finding that connects a choice among practices to antecedents and outcomes? Second, and relatedly, what is the likelihood that a grant-giving agency will fund the study to the extent necessary to do the science?

In general, large sample size is the central design strategy to minimize random error (Kendall, 2003), and there are statistical procedures for determining a necessary sample size that will ensure sufficient statistical power to make credible claims (Dattalo, 2008). However, let us assume, for the purpose of argument, that a rule of thumb is 100 visits per intervention ‘arm,’ including at least a control arm involving standard care (i.e., no intervention). Let us also assume a maximum of two intervention arms to contain the scope of the project and its associated funding (Heritage & Robinson, 2011). Under these conditions, researchers need to successfully recruit 300 eligible visits. If we conservatively assume a 70% patient-consent rate (Heritage, Robinson, Ellit, Beckett, & Wilkes, 2007), then researchers need to approach 430 eligible patients (430 × .7 = 301). In our experience, granting agencies (e.g., National Institutes of Health, Medical Research Council) that fund small-scale interventions (i.e., two–three year projects) tend to accept six–nine months of data collection and the affordance of two research assistants to collect data (Heritage et al., 2007). Assuming six months of data collection (i.e., 24 potential weeks of data collection) and two research assistants each collecting data two full days per week, then researchers have the potential for 96 full data-collection days. Thus, in order for such a project to complete data collection in six months, each data-collection day must provide an average of 4.5 (in effect, five) eligible visits, or three eligible visits per day, assuming nine months of data collection.
Whatever phenomenon is targeted in cross-sectional work (discussed further later), it must occur frequently enough in the target population so that its collection is practically feasible within an allocated time and budget. It is desirable that it occur at least once per visit. These types of phenomena are frequently part of a visit’s overall structural organization (Robinson, 2003, 2012), such as solicitations of patients’ chief concerns, practices of questioning during the physical exam, practices of treatment recommendation, etc.

These considerations additionally bear on preintervention CA in the following ways. The initial, preintervention phases of the research process typically include a cross-sectional study (i.e., a study that is neither longitudinal nor experimental, sometimes referred to in medicine as an observational or descriptive study) of a population expected to approximate that of the prospective intervention study; cross-sectional studies are a sort of ‘evidential bridge’ between informal and formal intervention. The vast majority of existing studies that have discovered a phenomenon with CA and then associated CA-informed variables to health outcomes are cross-sectional studies, not interventions per se (Robinson, 2011). Regarding preintervention CA, serious consideration needs to be paid to a prospective cross-sectional study’s target visit population in order to maximize the study’s validity as a pilot study for the eventual intervention. The rough benchmark of five (or three) eligible visits per full day of data collection allows the preintervention conversation analyst to determine the type of target visit population that would produce such capacity.

At least the following five issues—all of which begin to limit the target visit population—should be considered when determining a population for preintervention CA.

**Physician specialty.** On the one hand, providers of different specialties see similar patients for similar reasons. For example, close to half (42%) of women in the United States consult either a physician specializing in primary care or one specializing in obstetrics and gynecology (OB/GYN), but not both, for preventive care services involving reproductive health (e.g., screening and counseling) (Henderson, Weisman, & Grason, 2002; Scholle, Chang, Harman, & McNeil, 2002). On the other hand, providers of different specialties sometimes approach (e.g., communicate about and diagnostically assess) the same reason-for-visit in different ways, which has implications for the structure of associated practices of action. For example, there is evidence to suggest that, compared to primary care providers, OB/GYNs provide preventive care services much more frequently/regularly and counsel about them in different ways (Scholle et al., 2002).

**Physician subspecialty.** Even within a same specialty, different subspecializations can affect how physicians communicate and thus can affect practices of action. For example, there is evidence that, within the specialty of primary care, compared to providers subspecializing in family medicine, those subspecializing in internal medicine perform more extensive physical examinations and utilize more resources (e.g., order more lab tests) (Bertakis et al., 1998). Or again, compared to patients treated by surgeons who do not specialize in breast cancer, patients treated by those who do are more satisfied with the decision-making process and the surgeon–patient relationship (Waljee, Hawley, Alderman, Morrow, & Katz, 2007), strongly suggesting that breast cancer subspecialists communicate differently.

**Level of physician training.** The nature of physicians’ communication with patients changes as physicians’ training evolves from medical school through internship and/or residency and through full registration. Almost 40 years ago, Becker, Geer, Hughes, and Strauss...
ROBINSON AND HERITAGE (1976) documented the radical effects of the socialization process of medical school on students’ communication skills. Roter and Larson (2001) provided evidence that resident and attending physicians differ in terms of how they gather data, educate, counsel, and encourage patients to participate.

Visit type. Physician–patient visits are generally organized around different types of care, which can affect at least the overall structural organization of visits (Robinson, 2003, 2012). For example, primary care providers see patients for acute care (e.g., flu, rash, etc.), chronic routine care (e.g., depression, diabetes, etc.), follow-up care, and well examinations. General surgeons, and even subspecialty surgeons (e.g., in breast cancer), see patients for a variety of purposes, including initial treatment decision making, postoperative follow-up care, etc. These visit types are organized around distinctive agendas that strongly influence both the organization and content of visits, as well as associated practices of action. Visit type is typically documented on scheduling rosters and thus is usually determinable by data collectors in advance of visits.

Reason for visit. Although patients may raise a number of discrete concerns during visits, patients tend to visit providers to deal with a most important, specific, medical issue, which medicine refers to as patients’ presenting or chief concerns. For example, even within the specific primary care visit type of acute care, patients’ chief concerns can vary, ranging from upper respiratory concerns, to rashes, to joint/muscle pain, to depression, and so on. Because patients tend to declare a chief concern to nurses when making appointments, this concern (like visit type) tends to find its way into scheduling rosters and thus is usually determinable by data collectors in advance of visits. In some cases, researchers might expect that reason for visit is not tied to (and thus will not affect) the intervention-related, focal interactional practice. For example, while Heritage et al. (2007) were concerned with how providers solicited additional concerns beyond patients’ chief concerns during acute care visits, they were not concerned with the specific types of acute care problems involved. In other cases, though, researchers might expect that the reason for the visit is so tied. For example, Mangione-Smith et al. (Mangione-Smith, Elliott, Stivers, McDonald, & Heritage, 2003; Mangione-Smith et al., 2004; Mangione-Smith, Stivers, Elliott, McDonald, & Heritage, 2006) were interested in interactional practices associated with pediatricians’ inappropriate prescription of antibiotics for upper respiratory tract infections, which constitute only a subset (albeit a large one) of acute care visits.

In our experience, the more that research teams select data in terms of these five issues, the more quickly and easily conversation analysts are able to identify systematic and differential practices of action. This selection should, first and foremost, be dictated by the clinically significant population in which the intervention will ultimately be tested. For example, Opel et al. (2012, 2013) were interested in how fully registered (vs. less-trained) pediatricians discuss and recommend vaccination to parents with the hope of linking practices of action to the outcome of parents accepting recommended vaccines. Clinically, this process—which involves one specific reason for visiting—occurs most frequently and consequentially during health-supervision visits for children ages 1–19 months. At least one tradeoff of selection is that, as the target population becomes more specified, it becomes increasingly difficult to collect enough data in a timely and cost-efficient manner. In fact, some phenomena, while potentially clinically significant, such as
how older, primary care patients and/or their internists initiate and discuss religion (Robinson & Nussbaum, 2004), may simply occur too infrequently to warrant a cost- and time-efficient intervention.\(^2\)

Cross-Sectional Analyses

Having identified the phenomena using the techniques of conversation analysis, collected the appropriate data, and coded it to identify the interactional practices of interest, the next task is to examine potential associations between CA-derived interactional practices (transformed into variables) with outcomes, which can include more proximal interactional conduct, more distal features of the subsequent interaction, and/or postinteraction measures (see the following examples). Part of this examination will include the investigation of the relationship between the focal interactional practice and potential covariates, such as physicians’ and patients’ sex and age, medical practice characteristics, extent of relationship between providers and patients, etc. (see the following example). For example, in the context of well-child visits between new parents and pediatricians, one focal interactional practice might be how pediatricians initiate the vaccine-adoption conversation (Opel et al., 2012, 2013). In developing the phenomenon with CA, researchers identified two classes of initiation format that seemed promising for the identification of different pathways for parents’ responses: (a) presumptive formats, which are designed so as to presuppose parents’ acceptance, as in Extract 4; and (b) participatory formats, which are designed to solicit parents’ views on immunization without such presuppositions, as in Extract 5.

Extract 4 [MB02]

01 PED: Alright, well let me take a look at her.
02 \(\rightarrow\) hh and then: uh: m (.) she gets her second
03 \(\rightarrow\) hepatitis ‘B’ today.
04 DAD: >Okay<
05 (.)
06 PED: .h And yh did you get thuh thing in thuh mail . . .

Extract 5 [BH05]

01 \(\rightarrow\) PED: L:et’s see: so how are you feeling as far as
02 \(\rightarrow\) what you wanna do for immunizations.
03 (0.4)
04 MOM: Goo::d uh:m: (0.3) (!) talked tuh: (.)
05 (.)
06 Sharon ((nurse)) .hh wé’re- I (w’s) jus’ cuh-
07 ca:rrying th(oo)- thuh: Sh:ar’àn vacc]ine thing
08 PED: [Mm hm, ]

\(^{2}\)Although these feasibility considerations have been discussed in terms of contexts of physician–patient interaction (another example of which is found in Jenkins & Reuber, 2014/this issue), they are applicable to many other environments in which there are a variety of practitioner specialties, subspecialties, levels of training, reasons for interacting, etc., such as speech and language therapy (Wilkinson, 2014/this issue), government employment service interviews (Drew, Toerien, Irvine, & Sainsbury, 2014/this issue), and telephone helplines (Hepburn et al., 2014/this issue).
In this study, one proximate outcome was parents' answers to pediatricians' initiations. For example, in Extract 4, the father immediately accepts the medically recommended vaccination schedule with “>Okay<” (line 4), and in Extract 5, after an initial delay at line 3, the mother essentially resists a medically recommended vaccine schedule by invoking a nontraditional vaccination schedule (i.e., the Sears plan) that either omits shots, or delays them, or spaces them further apart. Although apparently favorable toward vaccination, the response favors an approach to vaccination that is neither reviewed nor approved by accrediting bodies in American medicine. Opel et al. (2013) found a significant association between pediatricians’ participatory initiation formats (as in Extract 5) and parents’ resistive responses to medically recommended vaccination schedules.

Relative to parents’ immediate responses, one relatively distal outcome is whether or not parents accept all recommended vaccinations by the end of visits. Opel et al. (2013) also found a significant association between pediatricians’ presumptive initiation formats (as in Extract 4) and parents’ ultimate acceptance of pediatricians’ recommendations.

Finally, an even more distal, postvisit outcome is parents’ visit satisfaction. Interestingly, Opel et al. (2013) found that, for any given initiation format, there was an inverse relationship between parents’ acceptance of vaccines on the one hand and parents’ satisfaction on the other.

Interactional practices in the medical visit, as well as their associations with medical outcomes, may be independently influenced by a variety of characteristics that are exogenous to the interaction per se. Absent the investigation of these covariates, claims about the association between focal interactional practices and outcomes may be questioned due to unmeasured, potentially confounding variables. The characteristics in question may include patient and physician demographics (e.g., sex, age, ethnicity, education, income), other physician characteristics (e.g., specialty, years of training), medical practice characteristics, the historical relationship between physicians and patients, a variety of psychological states and traits (e.g., trust in physicians, locus of control, etc.), and so on. In the studies by Opel et al. (2013), covariates included a previsit measure of parents’ hesitancy toward vaccination, patients’ demographics (e.g., ethnicity, age, and household income), and clinic site. It turned out that physician and patient demographics and clinic site were not significantly associated with parents’ immediate responses to pediatricians’ initiation formats. On the other hand, parents’ levels of vaccine hesitancy were significantly associated with responses that resisted medically recommended vaccine schedules; however, after statistically controlling for this association, that between pediatricians’ initiation format and parents’ responses remained significant.

For another example of the relationship between focal interactional practices and proximal and distal outcomes, Heritage and Robinson (2006) demonstrated that, relative to requests for confirmation (as in Extract 2), general-inquiry questions (as in Extract 1) resulted in patients...
presenting their concerns for longer periods of time and presenting more discrete medical symptoms. Furthermore, they found that patients are significantly more satisfied with physicians’ listening behavior and positive affective-relational communication when physicians initiate problem presentation with general-inquiry questions (vs. requests for confirmation) (Robinson & Heritage, 2006).

CONVERSATION ANALYSIS IN THE INTERVENTION PHASE AND BEYOND

Whereas in preintervention phases of intervention research we used CA as a primary method of inquiry to identify practices of action and their valid transformation into variables, once we move into the intervention phase, we are necessarily deploying the standard practices of a randomized controlled trial, including randomization of subjects to experimental and control arms of the study, training participants in the implementation of the intervention, and utilizing the whole range of parametrical statistical analyses necessary to assess relationships. However, this does not mean that CA has no role in the intervention phase. In the following, we distinguish five essential aspects of this role.

Participant Resistance and Ethics

The finding of a practice of action and its potential relationship to outcomes does not, in itself, make it self-recommending as an intervention. For example, in recommending that physicians implement the question “Are there some/any other issues that you would like to deal with today?,” Heritage and Robinson (2011) encountered a range of difficulties, the most important of which was physician anxiety that the question would open Pandora’s box, unreasonably extending visit length in ways that would be damaging to their practice. We also anticipated that the ‘some’ version of the question might feel awkward due to its preferential bias toward the expression of medical concerns, together with its expression of a nonoptimized stance (i.e., that patients would have additional problems; Heritage, 2010, 2011). Indeed, this was a source of difficulty that, with the help of a physician-educator on the study (Dr. Michael Wilkes), we worked hard to overcome. We also anticipated that, relative to the ‘some’ version of the question, an even more presumptive version (e.g., What other concerns do you have?) might be even more productive of additional concerns. However, we also anticipated that physicians would resist the use of this question and that this resistance might be justified on ethical grounds. Specifically, we (including our physician educator) were concerned that strongly presumptive formats might lead to patients inferring that their already-presented chief concerns were insufficient to justify the visit and that they should have additional concerns. Our study was designed to minimize this possibility. We may add that this kind of issue is almost always present when recommending physicians to implement presumptive questions. As noted earlier, in relation to immunization conversations, Opel et al. (2013) found that, although presumptive initiation formats were associated with increased vaccine acceptance, they were also associated with decreased parent satisfaction with pediatricians’ communication. This study also raised the wider ethical issue of whether it is appropriate to train physicians to deploy pressure tactics, even in a context where maximizing vaccination rates is an unambiguously beneficial health outcome.
Training Participants to Implement Intervention

There is a substantial literature on how to design training components of interventions so as to effectively change participants’ behavior, including building their knowledge, motivation, and efficacy through both instruction and role play (Cegala & Broz, 2002). In this context, CA researchers can work with physicians to create both plausible framings and efficacious implementations of specific interventions and to create ways in which behavior change can be grafted onto existing physician behaviors. For just one example, in our experience, a CA skill set has proven invaluable in training physicians to role-play interventions ‘correctly.’ For instance, when training physicians to solicit patients’ additional concerns, at least according to Heritage et al. (2007), it is important for a variety of reasons having to do with overall structural organization (Robinson, 2003, 2012) that physicians do so immediately after having solicited, and having received, patients’ chief concerns. During continuing medical education courses, when physicians role-play a directive to “solicit patients’ additional concerns at the beginnings of visits,” when left to their own interpretive devices, physicians sometimes deviate from our recommended protocol in subtle ways, and do not orient to such deviations as being consequential. For example, physicians sometimes begin by stating patients’ chief concerns and then, without allowing patients an opportunity to present them, solicit additional concerns (e.g., “I know you’re in for a sore throat, but are there some other issues you’d like to discuss today?”). Alternatively, physicians sometimes solicit additional concerns too late—for example, after asking one or two history-taking questions.

Monitoring the Validity of the Intervention Implementation

There is no question that physicians can be trained to change their communication behavior, even involving highly granular details of conduct (Heritage et al., 2007; Rao, Anderson, Inui, & Frankel, 2007). However, participants do not always find it easy to ‘talk to order,’ and adjustments, mistakes, and omissions are not infrequent. Moreover, as numerous studies have documented, from Waitzkin (1985) onward, neither physicians nor patients are reliable reporters of their communicative behavior (DiMatteo, Robinson, Heritage, Tabbarah, & Fox, 2003). For these reasons, it is crucial that researchers tape-record interventions and monitor them for correct implementation. Absent this check, researchers will not be able to determine that the intervention was implemented properly and thus that the hypotheses under investigation were appropriately tested. In the context of behavioral interventions involving language, the evaluation of the adequacy of the implementation can involve quite-detailed judgments that can only be performed by trained conversation analysts. For example, we earlier mentioned that the ‘some’ version of the question was difficult for physicians to implement; they sometimes omitted the question, sometimes mistakenly asked the ‘any’ version of the question, and sometimes overtly stumbled over the wording of the question (e.g., vacillating between ‘any’ and ‘some’). Our monitoring of cases where physicians failed to perform the intervention correctly allowed us to replace ‘faulty’ cases with new ones. For example, in Extract 6, while the physician was trained to ask the ‘some’ version of the question and did so during many previous intervention visits, here he accidentally uses the ‘any’ version—“Are there any other issues you’d like to discuss?” (line 1)—and thus this case had to be replaced.
Extract 6 [MC:13:15]

01 DOC: .hnh Are there any other issues you’d like to discuss.
02 (1.6)
03 PAT: Mm:: no.

While miscues such as that in Extract 6 are relatively easy to spot (that is, if someone is spotting), others are more subtle and thus less easily caught (or even suspected) by someone not trained in CA. For instance, in Extract 7, although the physician begins his turn with the ‘any’ version—“are there any:-” (line 1)—he cuts himself off (symbolized in the transcript by the dash) and restarts his turn, now using the ‘some’ version: “are there some other issues (. ) we need to discuss.”

Extract 7 [MC:13:16]

01 DOC: Eh- are there any:- (0.2) are there some other issues (. ) we
02 need to discuss.
03 (0.9)
04 PAT: N::ot that I know of.

Insofar as wording errors can affect the nature of action even when self-repaired midturn (Jefferson, 1974), this case also had to be replaced.

Assessing Interactional Outcomes in Terms of Practices and Actions

Many intervention outcomes do not require CA surveillance, such as questionnaire-derived (i.e., self-report) outcomes (e.g., postvisit satisfaction) and medical-record-based outcomes (e.g., physicians’ prescription decisions). However, intervention outcomes that themselves involve practices of action must definitely be monitored as described previously. For example, in their study of physicians’ solicitations of patients’ chief concerns described earlier, one outcome involved the number of distinct symptoms that patients presented. The assessment of this outcome involved analytical work that integrated features of the symptoms themselves together with the turn-constructional units in which they were housed (Robinson & Heritage, 2005).

Curating the Intervention Moving Forward

Successful intervention studies are likely to be replicated and implemented in a large-scale fashion. This kind of implementation cannot, of course, be curated at the level of detail described previously. However, large-scale implementations can be sampled, and samples can be examined for the adequacy with which they represent the original research. In the ways described previously, conversation analysts can play a significant role in monitoring the quality control of larger-scale projects (Craig et al., 2008).
FROM OBSERVATION TO INTERVENTION: TWO CASE STUDIES

In this section, we review the emergence of CA findings from basic observations to cross-sectional, preintervention CA that show significant promise for a full intervention study. Our aim here is to illustrate the road from unmotivated looking to research fully focused on the relationship between interactional practices and medically relevant outcomes. Our two case studies are drawn from research into pediatric medical visits conducted by Tanya Stivers, with a primary focus on reducing inappropriate antibiotic prescribing.

Online Commentary

In 1998, Stivers described a veterinary practice that she termed *prediagnostic commentary*, which “is typically delivered during the physical examination [and involves] diagnostically relevant statements that describe what the physician is seeing or feeling . . .” (p. 241) and which is used (at least) to forecast good/bad news, with implications for how veterinarians and patients negotiate treatment. Stivers’s discovery was immediately apparent in, and applicable to, general practice medicine, where textbooks of medical interviewing recognize practical problems associated with diagnosis-implicative comments made during physical examination (see Heritage & Stivers, 1999, p. 1515). There was, then, fertile ground for preintervention CA. That is, there was: (a) the possibility of a provider practice, (b) that was linked to a routine medical activity (i.e., physical examination), (c) that had implications for patients’ acceptance of treatment recommendations, and (d) that had potential implications for more distal medical outcomes involving patients’ utilization of treatment recommendations.

Although different from prediagnostic commentary, Heritage and Stivers (1999) discovered what they termed physicians’ *online commentary*, or communication that is produced while examining patients and that “describes or evaluates what the physician is seeing, feeling or hearing” (p. 1501). Online commentary affords patients at least some access to physicians’ diagnostic reasoning. As such, online commentary has the capacity to foreshadow the existence of medical problems (or lack thereof) and thus, ultimately, whether or not physicians will provide treatment (or not).

Online commentary can be generally categorized as that which foreshadows ‘no problems,’ versus that which foreshadows ‘possible problems.’ For an example of no-problem online commentary, see Extract 8 (drawn from Heritage & Stivers, 1999).

Extract 8

<table>
<thead>
<tr>
<th>Line</th>
<th>DOC</th>
<th>Line</th>
<th>DOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>DOC: J’s gonna check yer thyroid right no:w,</td>
<td>04</td>
<td>(9.5) ((physician examines patient))</td>
</tr>
<tr>
<td>05</td>
<td>→ DOC: hh That feels normal?</td>
<td>06</td>
<td>(0.8)</td>
</tr>
<tr>
<td>07</td>
<td>→ DOC: I don’t feel any: lymph node: swelling, hh in yer neck area,</td>
<td>08</td>
<td>DOC: hh Now what I’d like ya tuh do . . .</td>
</tr>
</tbody>
</table>

After explaining the imminent examination procedure, “J’s gonna check yer thyroid” (line 3) and after examining the patient (line 4), the physician produces online commentary: “That feels
normal? . . . I don’t feel any: lymph node: swelling, .hh in yer neck area,” (lines 5–8). Insofar as lymph node swelling is commonly recognized as a sign of infection (or at least a medical problem), the physician’s online commentary contributes to foreshadowing at least “no treatable problem,” and at most “no problem at all.” No-problem commentary is used to tacitly build a case, prior to physicians’ official diagnoses, that patients’ medical problems are not in need of medical treatment (e.g., antibiotics) and functions as part of an evidence-formulating approach to the diagnosis of minor ailments (Peräkylä, 1998, 2006). In contrast, problem commentary (e.g., There’s inflammation there) may project the likelihood of prescription treatment.

Heritage, Elliott, Stivers, Richardson, & Mangione-Smith (2010) found that, compared to physicians’ provision of problem online commentary, the provision of exclusively no-problem commentary significantly reduced the likelihood of patients subsequently resisting or challenging physicians’ treatment recommendations, which is important because such resistance can lead to physicians’ inappropriate prescription of antibiotics. With this last finding, the scene is set for an intervention into inappropriate antibiotic prescription focused on online commentary among other provider behaviors.

Treatment Recommendations

In her dissertation research, Stivers (2007) identified a range of practices associated with discussions of the treatment plan. She demonstrated that pediatricians’ treatment recommendations invite acceptance, which is a precondition to progress to the next medical activity (i.e., closing the visit; Robinson, 2001, 2003). For example, just prior to Extract 9 (drawn from Stivers, 2005b), the pediatrician diagnoses the child with a cold and here produces the treatment recommendation (RX>). The patient accepts the recommendation with “Oh okay” (line 5) and “Okay” (line 8).

Extract 9 [Stivers (2005b)]

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>01</td>
<td>RX&gt;</td>
<td>DOC:</td>
<td>.hh So wha- what I can do is give her uhm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>&gt;</td>
<td>.h(ml) cough medication ‘t=has a little bit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>&gt;</td>
<td>of combination of uhm .h decongestant, and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>&gt;</td>
<td>also clearing up the [.hh</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>MOM:</td>
<td>[Oh okay.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>DOC:</td>
<td>nose, dry it up uh little bit so .h at night</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>MOM:</td>
<td>she can: sleep a little better .h</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>08</td>
<td></td>
<td>[Okay.</td>
<td></td>
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</tbody>
</table>

Alternatively, Stivers (2005b) found that patients can ‘resist’ physicians’ treatment recommendations by withholding the preferred response of acceptance. Resistance can be passive, as in the case of patients’ silences and unmarked acknowledgement tokens (see also Heritage & Sefi, 1992), such as Mm hm and Yeah, or active, as in the case of patients questioning or challenging the appropriateness or effectiveness of the treatment recommendation (e.g., What I’m worried about is . . . , Are you going to give her antibiotics?). Both practices are illustrated in Extract 10. At lines 1–3, the physician recommends ‘watchful waiting’ without any affirmative symptomatic treatment recommendations: “Unfortunately like most viruses we have to watch i:t?” (line 1).
Extract 10 [Stivers (2007)]

01 DOC: Unfortunately like most viruses we have to watch it.
02 DOC: .hh because you know she (can)/(could) have uh fever:
03 for another few days, and nothin’ else.
04 
05 DOC: and jus- an’ be fine,
06 DOC: .hh Or else if she got uh fever an’ got wor:se,
07 and started limping actually at that time we’d
08 probably need ’er tuh come ba:ck,
09 DOC: .hh But at this moment since there’s no swelli:ng?,
10 or there’s no .hh you know <nothing else>,
11 th-uh most important thing
12 t’ do is tuh watch her.
13 DOC: .hh So we’ve had a fe: w people right no:w that have had-
14 uh few of our kids are having th: fever:s, for a few
15 days, and not much other symptom:s.
16 ⇒ DAD: So can she go to preschool now?
17 .
18 . ((9 lines omitted))
19 .
20 DOC: She: doesn’t have anything right no:w,
21 any symptoms of mucus
22 or vomiti[ng]ng that’s contagious.
23 ⇒ DAD: [Are you gonna give her ana- antibiotics?
24 DOC: Yeah- uh No: I don’t have anything tuh treat right now
25 for antibiotics. Her ears look really goo:d, .hh she has
26 ⇒ no sign of bacterial infection right no:w?,

After the father withholds response at line 4, the pediatrician expands his prognosis (lines 2–3) with an increment (line 5) and an alternative prognostic scenario (lines 6–8). In the absence of uptake at the new completion points at lines 8 and 12, the physician pursues response with a renewed justification of his ‘watchful-waiting’ proposal (lines 9–12) and again with an epidemiological justification for his recommendation respectively. Finally, whereas the father had previously tacitly resisted the treatment recommendation by withholding response, at line 16 he more actively challenges the recommendation by asking whether the child, who currently does have a fever (lines 2–3) and is infectious, can nonetheless “go to preschool now?” (line 16) and, still later (line 23) whether the doctor is “going to give her antibiotics?” (line 23).

Building on her observations about preference organization, Stivers began to observe contexts in which patients seemed to resist more than others. A key element here was a distinction between positive and negative treatment recommendations. In the latter case, treatment recommendations are formulated “to announce the action negatively: what the condition is not or what is not recommended” (Stivers, 2007, p. 167). It was this latter format that Stivers observed to be more frequently associated with resistance. For example, in Extract 11, the pediatrician’s treatment recommendation includes an announcement that the condition is viral (lines 1–2) and proceeds to rule out the use of antibiotics (line 4). At line 6, the father’s “Well-” begins what will become a resistant response (lines 10, 12). This response progresses into an account in which, he claims
(at lines 23, 25, 27), that his similar symptoms (line 10) were resolved with antibiotics. By this point, the father has not only resisted the pediatrician’s no-antibiotic treatment recommendation but also has actively and assertively lobbied for their use.

Extract 11 [Stivers (2007)]

01 DOC: I th:ink from what you’ve t
d:ell me (0.2) that this is
02 probably uh kind of (0.2) virus infec\tion,
03 DAD: Uh huh,
04 DOC: (0.4) th:at I don’t think antibiotics will ki:ll,
05 (0.2)
06 → DAD: Well-
07 DOC: [Thee other-
08 DAD: (

09 DOC: >Go=ahead_<_
10 → DAD: Yeah. hh ( ) I had it- I had thuh symp\toms
11 DOC: I understand.
12 → DAD: Three weeks ago.

23 → DAD: and (. ) I start taking thuh antibiotic (0.5)
24 KID: eh he ((cry))
25 → DAD: Yesterday.
26 DOC: Right,
27 → DAD: And it (. ) seemed to take care of the problem.
28 DOC: [(Well) that’s why we’re doin’ a throat |culture.
29 DAD: [( ) Yeah.
30 DOC: [is TUH SEE if they need antibiotics.
31 DAD: [( ) Yeah yeah.
32 (0.2)
33 DOC: Cause <I don’t th:\ink they do.
34 DAD: O\kay,
35 ⇒ DOC: [Now if you (. ) absolutely insist_ I will give you
36 ⇒ antibiotics_ but [I don’t think that’s the right=
37 INF: [#eh:#
38 ⇒ medicine for ‘em,

Although the pediatrician resists the father’s claims (lines 28, 30, 33), he does ultimately offer to prescribe them if the father ‘absolutely insists’ (lines 35, 36, 38). Both the observation that pediatricians work to achieve acceptance of treatment recommendations, and that resistance is more likely when such recommendations are ‘negative,’ turned out to be quite general. Further, the incipient reversal of the pediatrician’s stance toward prescribing antibiotics (visible at lines 35–38), which turned out to be relatively frequent, suggested that patients’ resistance can lead to pediatricians inappropriately prescribing antibiotics.

Two lines of cross-sectional investigation developed from this research. The first examined the association between two different practices of treatment recommendation and parent resistance. In particular, Mangione-Smith et al. (2014) compared negative treatment recommendations with what Stivers termed **affirmative announcements** (Stivers, 2007, pp. 164–167), which affirmatively
discuss what patients can do to treat the problem symptomatically in a context where antibiotics are not prescribed (e.g., administering fluids, using a humidifier in the child’s bedroom, raising the child’s pillow, using over-the-counter analgesics, etc.; this can be seen in Extract 10, lines 1–4). Mangione-Smith et al. (2014) found that parents were significantly more likely to question the treatment plan when providers used negative treatment recommendations. Since questioning the treatment plan is, in turn, associated with physician perceptions that parents are seeking antibiotics, and these perceptions are themselves associated with greater levels of inappropriate prescribing, there is a clear, albeit indirect, link between negatively formulated treatment recommendations and inappropriate prescribing (Mangione-Smith et al., 2006).

The second line of inquiry examined sequences in which pediatricians combined positive and negative treatment recommendations. One possibility was that any negative treatment recommendation would attract resistance by formulating the parent as seeking antibiotics (Heritage, 2011). Another possibility was that the ordering of positive and negative treatment recommendations would prove significant (Stivers, 2005a). Here, the hypothesis was that, if negative treatment recommendations preceded positive ones, they might immediately attract resistance, whereas if they followed positive treatment recommendations, they might prove more palatable to parents. As it turned out, Mangione-Smith et al. (2014) demonstrated that, by comparison with only positive or only negative formats, a combination of both positive and negative formats was most effective in reducing the likelihood that pediatricians would prescribe inappropriately. In this particular study, results about the ordering of positively and negatively formatted recommendations were inconclusive. Clearly, both these sets of preintervention CA findings provide roadmaps for future interventions.

CONCLUSION

The demands of intervention studies take us far afield from the practices of basic CA. Nonetheless, as we hope to have demonstrated, fundamental CA observations have resulted in significant findings about physician–patient interaction that have proven robust in the context of cross-sectional, preintervention studies. We also hope to have demonstrated the very significant role that CA can play in the process of intervention itself and in curating the dissemination of successful intervention studies in the wider context of medical care.

REFERENCES


