



Communication During Patient-Provider Encounters Regarding Diabetes Self-Management

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BACKGROUND AND OBJECTIVES: Diabetes is a common chronic illness with potentially severe complications. The risk of complications is reduced through controlling blood sugar, lipids, and blood pressure. While medical intervention is important, substantial self-management on the part of patients is required to achieve good control. Patients often find self-management difficult, particularly diet and exercise modification. Clinicians face barriers as well, including lack of time, poor reimbursement, and difficulty changing their clinical practice patterns. We hypothesized that a strong focus on readily measured disease indicators competes with patients' agendas relating to symptoms and their day-to-day social context.

METHODS: We recorded clinical encounters to study communication about self-management in context. Recordings were transcribed verbatim and analyzed, primarily using a grounded theory approach.

RESULTS: We found that clinicians often focused their communication on quantitative measures such as blood pressure and glycosylated hemoglobin but that patients found it difficult to relate these measures to how they were feeling physically. Patients' social contexts influenced their self-management activities, in particular heavy caregiving responsibilities and work schedules.

CONCLUSIONS: Supporting self-management of patients with diabetes requires providers to link clinical measurements to patients' symptoms and likely outcomes. It is difficult for providers to know what support or assistance their patients need without knowledge of patients' social contexts.

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In 2010, 8.3% of all Americans had diabetes, both diagnosed and undiagnosed; of Americans 65 and older, 27% have diabetes and half have pre-diabetes.¹ The complications from diabetes can be severe, including amputation, vision loss,

cardiovascular heart disease, kidney failure, and stroke.² While controlling blood sugar, lipids, and blood pressure reduces the risk of complications,^{1,3-7} achieving this control requires sustained effort and lifestyle modifications by patients.^{1,8}

Patients are variably successful in developing the needed skills for managing their chronic illnesses.⁹ Of adults with diabetes who participated in the 2003–2006 National Health and Nutrition Examination Survey, 43% did not meet targets for glycosylated hemoglobin (hemoglobin A1c), and 54% did not meet targets for low density lipoprotein (LDL).¹⁰ Interviews of 14 patients with diabetes in a primary care setting revealed that patients understood the importance of self-care and knew what they were supposed to do, but external demands prevented them from placing a priority on self-management.¹¹ Most patients interviewed by Bissell¹² found it difficult to modify their diet and engage in regular exercise. Providers' roles in self-management support are complex, potentially including assessing patients' readiness to adopt behavioral change, providing information, identifying barriers, problem solving, and providing advice and support.¹³ Barriers to providers' promoting patient self-management include lack

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of time, poor reimbursement, and difficulty changing ingrained clinical practice patterns.¹⁴ Unfortunately, while promoting healthy self-care activities is an important part of caring for patients with diabetes, physicians are increasingly evaluated on process and outcome measures of care, including regular measurement of hemoglobin A1c and serum lipids and maintaining these measures below accepted limits.^{15,16}

Zulman and colleagues¹⁷ asked patients with diabetes and hypertension to rank their most important concerns and asked their physicians to rank the most important conditions that were likely to affect patients' health outcomes. Providers were most likely to rank hypertension as the most important condition, while patients were more likely to prioritize symptoms such as depression, pain, and breathing problems. Concordance decreased when patients reported that their health status was poor. Patients are more likely to notice and act on physical symptoms than asymptomatic health conditions even if they clearly indicate pathology. Patients' social contexts also exert considerable influence on their decisions on participating in self-care.¹²

From 2006–2009, we conducted a quality improvement intervention to increase health care providers' involvement in improving the ability of patients with diabetes to engage in self-care activities.¹⁸ While home blood glucose testing increased,¹⁸ incorporating goal setting into routine medical care proved difficult. It was unclear from this prior project how patients interacted with their health care team regarding self-care goals, to what degree monitoring disease indicators competed with providers' and patients' other priorities, and what facilitated or impeded better self-care.

Because self-care is crucial to successful diabetes management, we conducted the current, qualitative follow-up study to investigate communication between providers and patients regarding self-management

by recording and analyzing patient-provider interactions. Qualitative research in the area of physician-patient communications, and self-management has tended to use interview methods.^{11,12,19} We believe examining actual provider-patient interactions may provide additional insights. Our current study therefore uses direct observation to provide an in-depth analysis of how conversations of self-care emerge during clinical encounters. We believe that analyzing such encounters may provide clinicians with strategies to improve communication and the quality of care. Our study addresses the following research questions: (1) How do patients with type 2 diabetes and their health care providers communicate about diabetes self-care activities during office visits? (2) What was identified during office visits as facilitating or impeding successful self-care?

Methods

Participant Enrollment and Data Collection

The study was approved by the Health Sciences Institutional Review Board at the University of Missouri. We asked five family medicine clinics in three communities in central Missouri to participate. Clinics were selected purposefully to provide variation on clinic size, number of physicians, rural location, practice type (academic or private), and presence of nurse partners who specifically coordinate care of patients with chronic illnesses. All clinics agreed to participate. We obtained informed consent from providers who agreed to have their patient encounters recorded.

We asked one nurse in each clinic to facilitate patient recruitment. They examined the patient schedule and noted patients of participating physicians with appointments for follow-up diabetes care. This same nurse introduced the study to the patient and obtained their consent to have their visit audiorecorded. The nurse asked each eligible patient to participate, stopping when

the target number of patients agreed to participate. Our initial target was eight patients per clinic; early analyses indicated that the later patients' transcripts yielded no unique information, and we reduced our target to five for the remaining clinics. The nurse left the recorder running in the examination room and retrieved it when the encounter was done. The patient's discussion with the nurse was often recorded as well.

We used arbitrary identification numbers on all study materials. After obtaining consent, nurses printed brief reports on patients' health measures (eg, latest hemoglobin A1c, body mass index), removed all identifiers, and added the study identification number to the report. Recordings were transcribed verbatim (except for names) and entered into NVivo 8 software for qualitative analysis (QSR International Pty. Ltd., Doncaster, Victoria, Australia).

Analysis

Grounded theory was the basis for our initial inquiries and helped define the broad themes present in the encounters.^{20,21} Grounded theory refers to a research method where understanding is developed from the data rather than collecting data to address a specific hypothesis. Studies using grounded theory generally proceed with concurrent data collection and analysis. The approach is to read the data several times, identifying, describing, and categorizing basic ideas in the text, eventually moving toward more complex theoretical categories that represent themes in the data.

The entire research team read and discussed several transcripts, reaching consensus on the major themes that emerged from the data, from which we then developed a coding scheme. Each transcript was coded by two team members. Regular meetings were held to discuss and compare results as the coding progressed to assure the credibility and dependability, or trustworthiness, of our findings. We modified the coding structure as needed and refined the

themes as we reviewed additional transcripts.

Successive passes through the data not only allowed us to discuss specific interactions but to make broader conclusions about the context in which the interactions occurred.²² We became sensitized to how the clinical context shaped the interactions, particularly because providers and patients occupy very different roles in the clinics. Patients often used personal examples (storytelling) to make sense of their ability to engage (or not) in diabetes self-management practices. We therefore took special note of how storytelling occurred and used narrative analysis²³ to connect what specifically was being said, who was saying it, and the way they related to the social context of the clinic.

Results

Characteristics of the five participating clinics are shown in Table 1. Three were located in two small rural communities, and the remaining two were in a small city. Four were part of an academic health system. Nine patients declined to participate. We recorded clinical encounters of 30 patients—19 women and 11 men. Patients ranged in age from 32 to 84 years, with 17 of 30 patients (57%) age 60 years or more. In two clinics, patients saw only a physician or a nurse practitioner, while in the other three clinics patients often also saw a nurse partner. Median visit time was 22.3 minutes. All encounters

had some discussion of self-care activities.

Several major themes were found throughout the data. These themes are described in detail below with examples from the encounters. The names used in the text are fictitious. In addition to patient-identified barriers to self-care activities, we identified contrasting communication styles that emphasized either medical measurements (“checklisting”) or a patient-centered approach.

Checklisting

In some encounters the provider (usually a nurse) had a specific set of diabetes-related items that were systematically addressed as if they were using a checklist. Sometimes an item sparked a more detailed conversation with the patient about the issue at hand, though frequently the items were addressed in quick succession. This was a common approach, particularly when a nurse spent time with a patient before the physician.

The encounter with Linda in Table 2 is an example of checklisting. The nurse asks Linda a series of questions related to the patient’s diabetes status without delving deeply. In another case, Kevin (Table 3, Quote A) anticipated the checklist and was ready with his numbers. At least part of the visit had become a familiar review of numbers.

Numbers Versus Symptoms

Many patients did not engage in self-care activities (or did so well below

recommended levels) unless there were unpleasant physical symptoms present and/or a corresponding benefit from performing a given self-care action. Providers and patients typically used distinct styles for making sense of observations. Providers used the medical language of “measurables” to evaluate progress and guide treatment decisions. In contrast, patients drew upon the physical symptoms they experienced to drive self-care practices.

Meredith had a bad case of poison ivy that resulted in being put on steroids, which caused a substantial increase in her blood glucose level. She subsequently went camping during some very hot weather, and her high blood sugar caused a horrible headache and vomiting. When her physician asked her about her blood sugars and blood pressure during an office visit soon after this episode, Meredith reported that she doesn’t currently measure her blood sugar because she now feels fine and only measures her blood pressure if her head hurts (Table 3, Quote B). Jane didn’t have an acute episode like Meredith, but she demonstrated a similar attitude toward testing her blood sugar (Table 3, Quote C). Lisa reported that she didn’t even know what high or low blood sugar felt like (Table 3, Quote D).

Obstacles to Self-Management

Our data provided rich information about the obstacles faced by patients. While numerous obligations

Table 1: Characteristics of Participating Clinics

Clinic characteristic	Clinic Number (Number of Patients)				
	1 (5)	2 (5)	3 (8)	4 (5)	5 (7)
Number of non-resident physicians	4	1	4	5	2
Nurse dedicated to chronic illness management	No	No	Yes	Yes	Yes
Number of resident physicians	7	0	4	4	8
Part of academic medical center system	Yes	No	Yes	Yes	Yes
Community population*	12,800	2,700	102,000	102,000	2,700

* Clinics 2 and 5 and clinics 3 and 4 were in the same communities.

Table 2: Extended “Checklisting” Communication Between a Chronic Care Nurse and a Patient (Linda)

Nurse: Do you need any medications refilled today?
 Linda: I've got some in (pharmacy) now getting refilled.
 Nurse: Okay. How many times a day do you check your blood sugar?
 Linda: I take it about three times a day.
 Nurse: Okay. And what's your readings normally, do you know?
 Linda: Oh, my. Hmm. I can't, let's see.
 Nurse: Roughly.
 Linda: Okay. From 200 to 500.
 Nurse: Okay. So what was this, 2 to 5? Okay.
 Linda: Yeah, that's exactly right. Yep.
 Nurse: Okay. Now has that came down at all since he upped your insulin? Was it higher than that prior to...
 Linda: No. Huh uh.
 Nurse: No? Okay. You're okay on testing supplies and all that?
 Linda: Umm hmm. Yeah.
 Nurse: Let's see. When were your labs last done? You just had your labs done, and your A1C went up? Yeah.
 Linda: Umm hmm. Umm hmm.
 Nurse: Quite a bit.
 Linda: Yep.
 Nurse: We gotta work on that.
 Linda: Yep. Yep.
 Nurse: Okay. Now, are you, are you legally blind or . . .
 Linda: Umm hmm. Umm hmm.
 Nurse: Okay. And has anything changed about that? Has it gotten worse or anything?
 Linda: Huh uh. Well, let's see. I don't know. Seemed like, see, I had three strokes, and it affected the left side, and the left side was where I could see out of better. So I think it's affected a little bit, you know. Yeah. Umm hmm. Yep.
 Nurse: Okay. And when was the last time you had your eyes examined?
 Linda: Oh, let's see. About a month ago cause I go to (clinic name).
 Nurse: Okay. So it was in June then?
 Linda: Yes, probably. May or June. It just, that's fine.
 Nurse: Okay. How are your feet? Any problems with your feet that you know of?
 Linda: Nope. Nope.
 Nurse: No sores or anything?
 Linda: Nope.
 Nurse: Now did he look at your feet the last time he came in?
 Linda: Yes, he did. Yes, he did. He always looks at my feet.
 Nurse: Okay. And has he started you on any recently new medication?
 Linda: Let's see. The only thing he give me was antibiotics because I was having the elbow thing and all that, you know. So I don't, I would say no. The only thing he did was upped the insulin. That's the . . . yeah, yeah.
 Nurse: Okay. How do you do at meal time? Do you monitor your portions at meals?
 Linda: I watch what I eat, yes. I watch, see, I was supposed to be on a low fat, 60 milligram, 60 things of carbohydrate, and let's see what, no salt.
 Nurse: Okay. So you watch that real close, too?
 Linda: Yeah. Yes, I do. Yes, I do.
 Nurse: Good. How about fruits and vegetables? Do you get (inaudible) of those?
 Linda: Yes, I do. Yes, I do. I eat, I know I'm supposed to have fruits and, yeah, I watch it.
 Nurse: Good deal. How about activity? Do you get much exercise?
 Linda: Yeah, I think I get quite a bit. ...
 Nurse: Now, you don't smoke do you?
 Linda: No, I do not. I have, but I, I don't now. Like I don't know, 23 years or something like that.

and preferences could reduce time and resource allocation to self-care, two common obstacles—caregiving and work—are included below.

Caregiving

Many patients were caregivers for sick or elderly family members. Patients' caregiving activities tend to create stress as well as push focus

away from their own self-care goals. In Carla's case (Table 3, Quote E), almost 11 minutes of her 42-minute visit was devoted to discussing her husband's health issues, insurance

Table 3: Patient-Provider Conversations That Illustrate Major Themes

Quote ID Patient	Text of Quote
Theme: Checklist	
A Kevin	Nurse: All right. So you got your glucometer out? How are you? Kevin: Yeah. Well, I thought I had to ... I thought I had the new—oh, I've got the test results and everything. Nurse: Great. Kevin: I brought the glucose test. You can look at 'em.
Theme: Numbers versus symptoms	
B Meredith	Doctor: How's the blood sugar been doing since? Meredith: I haven't been, I don't really take mine a lot, but I'm functioning pretty good and I don't feel crummy. Doctor: How often do you check your blood pressures, though? Meredith: My blood pressure? If my head starts hurting.
C Jane	Doctor: Okay. Just out of curiosity, do you check your, how often do you check your blood sugars? Jane: Well, usually I [uninterpretable] come to see you I check it all week before I come, but I didn't get it done this time. So I really honestly haven't checked them since you started me on that new medication. Doctor: Are there any other times you check it? Jane: No, unless I feel bad. Doctor: Okay, you do check it if you... Jane: And I haven't felt bad. Yeah.
D Lisa	Nurse: Depending on where the blood sugar is, of course, if it's real low, you're probably gonna feel it. If it's real, if it's very high, you're probably gonna feel it. But if it's in that middle range, you may not know from one day to the other if it's 110 or if it's 140, if your body... Lisa: No. And I never know if it's low or high. Nurse: Have you ever had a blood sugar less than 80 that you were aware of? Lisa: No. But I can't, I don't know what it feels like to have either end of the spectrum.
Theme: Caregiving	
E Carla	Carla: It's hard for me to get out of the house. Doctor: So this would be a good time? Carla: Umm hmm. ... And, and if we have to go off Medicaid we probably won't be seeing you very much, because I think that, James and I have been talking about that right now, so. Doctor: But tell me about that, that sounds like, why, why would you go off Medicaid? Carla: We're just having so many...our spend-down's over a thousand dollars again. We have a couple of choices. It's going off Medicaid or getting a divorce. And the last 3 weeks we've had so many problems with [agency] that we're just about ready to. James said he doesn't want to deal with it anymore. Doctor: Okay. Well, so, so just because, not to dwell on that, but so, you, James would be able to stay on Medicaid if it was just James? Carla: Yeah, he'd get more services.
F Sue	Nurse: You know we can schedule that if you like. Maybe you could do it the same day as your eye appointment. Sue: Any day but Monday. ... I had to reschedule. I had to schedule around his appointments because right now he is having a lot of appointments. Nurse: Yeah. So what's umm... What are they telling you? Sue: He has Alzheimer's or the beginning of it. Nurse: Mmm hmm. Now did they say he had some cancer? Sue: No, but he has crippling arthritis. And he can't walk. They think his bones are too brittle for surgery. But they are leaving it up to him. And right now, he doesn't want it. Nurse: So you need to keep you in good shape since you are one of the main people taking care of him. Sue: Right. Nurse: Yeah alright. Well, let's work on that.

(continued on next page)

Table 3: continued

Quote ID Patient	Text of Quote
Theme: Working	
G Penny	<p>Nurse: All right. In the past month, how often would you say you've had a low?</p> <p>Penny: Well, let's see. I had one yesterday. ... I have them sort of, and I have them around 4, 4:30 on a routine basis because I don't get to supper, you know, what that's like.</p> <p>Nurse: I know. I know, with the schedule you guys keep.</p> <p>Penny: And I usually throw some candy in my mouth at that time to get around it. And usually we're eating about, and that, let me tell you something. Real estate has picked up, and usually we're eating around 8 or 9 o'clock. ... They're pretty much asymptomatic except for I just get this funny feeling and I get cranky as hell. Dennis says, "Eat something," before I kill him.</p> <p>Nurse: Okay. What would be the barrier to taking some kind of a snack like cheese and crackers or peanut butter and crackers or something like that instead of the candy?</p> <p>Penny: Nothing.</p> <p>Nurse: I think you'd feel better in the long run 'cause really, with the sugar, what we're doing is we're spiking that glucose and then it's gonna come back down; and if you had a little crackers and protein, it would make it a little bit...</p> <p>Penny: Actually, I probably could do that very easily... That's not a hard thing to do.</p>
H Wanda	<p>Wanda: I miss lunch.</p> <p>Doctor: Lunch. Because you're too busy at work or?</p> <p>Wanda: Yeah, I get too busy. Like today I've been really busy 'cause I had to fix...Wednesday is my busy day cause I gotta bake with Joanne.</p> <p>Doctor: Okay. And when you, when, when you're working, do you try to take lunch to work or do you eat what they're having or, if you have a chance to eat?</p> <p>Wanda: Sometimes I eat. Richard usually goes and gets me a cheeseburger or something from Casey's. But like today I didn't eat anything.</p> <p>Doctor: Okay. So you don't normally take your lunch to work?</p> <p>Wanda: Huh uh. No.</p>
I Kevin	<p>Kevin: My glucose is a little high. I think it's a little high, especially in the morning. Usually around 160, 155 to 160 in the morning.</p> <p>Nurse: You've been running that high?</p> <p>Kevin: Yeah. Doesn't get, I think the highest is 219, something like that, in the daytime. But I'm concerned about the 160, 150 to 160 in the morning.</p> <p>Nurse: Yeah. They are running higher. You work evenings?</p> <p>Kevin: Yes.</p> <p>Nurse: OK. When do you eat? When's your...</p> <p>Kevin: After I got off from work.</p> <p>Nurse: Oh. So it's late.</p> <p>Kevin: So it'd be the night. I don't get off till around 9:00. So it'd be around 9:30, about 10:00. Something like that is when I eat.</p> <p>Nurse: OK. And you're going to bed when?</p> <p>Kevin: Oh, probably around 10:30, 11:00. I do take a Glucophage before I go to bed, but...that's usually every night is when I eat at late.</p> <p>Nurse: Yeah. I'd say that's probably... if you're eating your main meal late at night—that's probably related to the higher fasting blood sugars. You know, they kind of recommend you eat at least two hours before you go to bed, your main meal. So that's hard for you to do.</p> <p>Kevin: That'd be hard for me to do because I work from 5 to 9. Right now, it's 5 to 8:30. I mean 4:30 to 8:30 but it was 4 to 9. ... The blood sugars are good all day long, it's just that blood sugar in the morning that concerns me. ...I hadn't thought about the— 'cause I do eat a four course meal at night, so.</p> <p>Nurse: Yeah. Well, that's a choice, you know. [laugh]</p> <p>Kevin: That's a nice way of putting it.</p> <p>Nurse: It is a choice. But you will see your, probably if you experimented a little and did cut out some carbs or did some adjusting at night, ate a little less, or more vegetables, less bread, less carbs, you might start seeing some lower blood sugars in the morning. Just something to think about.</p>

problems, and difficulties with getting home health services. Getting adequate care for her husband consumed a great deal of time and energy in Carla's life, making it difficult for her to focus on caring for herself. Sue (Table 3, Quote F) found herself in similar circumstances, having to schedule her own appointments around her caretaking responsibilities. Patients often identified very real and difficult obstacles to maintaining a consistent self-care routine as these obligations require considerable time, energy, and emotion.

Working for a Living

Among the most common obstacles patients identified were those associated with work schedules. These types of issues may require specific problem solving on the part of providers. As a real estate agent, Penny works long hours and eats a late dinner (Table 3, Quote G). She eats candy late in the afternoon to treat low blood sugar; the nurse discusses better alternatives with her. Wanda's work schedule causes her to frequently miss lunch (Table 3, Quote H). Kevin (Table 3, Quote I) takes his blood sugar readings on a regular basis and notices that his morning levels are high. The nurse links the late-night work schedule that causes Kevin to take his last meal late at night with his high blood sugar readings in the morning. She attempts to help him think about a solution to help work around this problem. The nurse points out that the patient's dietary choices could be better but does so in a way that accounts for his work schedule, something over which he does not have complete control, and suggests alternatives regarding that which he does control, namely his last meal of the day.

Conclusions

We examined how self-care is discussed during actual clinic visits. While self-care activities were discussed in every encounter, the length and breadth of the discussions varied widely. We found a distinct

dissonance between a communication style that focuses on medical information compared with a patient-centered communication style that focuses on patients' priorities, obstacles to self-management, and strategies for overcoming obstacles. Providers often engaged in checklisting—a rapid review of several diabetes indicators, treatments, and practices. While numbers such as hemoglobin A1c play an important role in diabetes management, patients seemed unable to relate them to how well or poorly they felt, perhaps leading to reduced interest in some self-care activities. Barriers to improved self-care performance were highly individual, requiring substantial time and effort on the part of patients and providers to find workable solutions.

In our study, checklisting was both a helpful strategy and a distraction. In one sense, it ensures that providers address important indicators of high-quality care. By reviewing the list, physicians can easily determine if a patient needs a blood test or if medications should be adjusted. Moreover, providers are accountable for these measurements, not only to define the health of a particular patient but also in aggregate to indicate the provider's performance caring for all of his or her patients with diabetes. During Linda's interaction (Table 2), the nurse addressed medications, blood sugar testing and values, testing supplies, laboratory tests, vision, eye examination, foot issues, diet, exercise, and smoking in 4.5 minutes. Presumably, this allowed the ensuing discussion with the physician to focus on discussing a treatment plan and other important issues. But checklisting as a style of patient-provider interaction can become so routinized as to pull the conversation away from other concerns. For example, Linda's worsening hemoglobin A1c wasn't discussed in any detail despite her assertions that she was regularly measuring her blood sugar, eating a healthy diet, and exercising. This illustrates a discord between

efficiently addressing the myriad of issues involved in diabetes management and helping patients determine how to improve or maintain their health. While checklisting highlights relevant diabetes indicators, it does not necessarily lead to an in-depth conversation about the relationship between self-care and the measures. The benefits and shortcomings of these two approaches are highlighted in Table 4. Physicians might have more time to solve problems if health care teams designated specific individuals to collect self-management data using a checklist, organize the data, and present it to the physician before a patient encounter.

Physicians may be held accountable for specific measurements and performance indicators by the health care system,^{15,16} but patients don't attach the same importance to these "measureables." Drummond and Mason's interviews with 47 patients with diabetes highlighted the contrast between medical and patient perspectives. They found that while medicine focuses on maintaining blood glucose levels within an acceptable range, the constraints recognized by patients "are more diverse than those recognized by practitioners and include family relationships, self-image, and emotional equilibrium."²⁴ (p. 46) Patients are motivated by how they feel. The importance of the numeric measures that represent their disease process might not be evident if they are feeling well, making it difficult for the physician to link numeric data with how the patient could eventually feel. In our study, Meredith became very ill when her blood sugar levels became abnormally high but didn't test her blood sugar level once she felt well. Similarly, Jane reported that she only tested her blood sugar when she felt bad or in the week before she saw her physician for diabetes care. These encounters highlight the contrast between how patients and providers view and use measurable indicators.

Table 4: Benefits and Drawbacks for Two Communication Styles Used in Encounters Between Patients With Diabetes and Their Health Care Providers

	“Checklisting”	Patient-Centered Approach
Benefits	<ul style="list-style-type: none"> • Allows provider to quickly address a number of important indicators of high-quality care. • Gives a snapshot of a patient’s overall health. 	<ul style="list-style-type: none"> • Allows the provider and patient to come up with solutions that fit the patient’s situation. • Emphasizes the patient’s role as participant in collaborative process. • Gives provider insight into patient’s decision-making processes and priorities.
Drawbacks	<ul style="list-style-type: none"> • Doesn’t cover any one issue in any detail. • It is a one-size-fits-all approach that may not be meaningful for a particular patient. • Draws patients into formulaic discussions in which they merely provide answers rather than truly participate. • Removes patient from their social context. 	<ul style="list-style-type: none"> • Can be very time-consuming, particularly for patients with multiple barriers. • Focus on a small number of issues may cause other important problems to be ignored. • Patients may not be used to the collaborative process. Socialization only occurs over time.

In the course of conversations about self-care activities, our patients’ storytelling contrasted markedly to providers’ emphasis on measurable outcomes. The language of the clinic allows access to the inner workings of the body but doesn’t see beyond the body to patients’ social worlds. Without attention to patients’ contexts, providers may not know what type of support or assistance they need. For example, while Kevin and Meredith both had hemoglobin A1c levels that were too high, Meredith almost never measured her blood glucose while Kevin noted a troubling trend in his measurements. Clearly, they need very different advice and support from their health care team.

The demands of self-management compete with a multitude of other demands of daily life.¹¹ Despite knowing the importance of maintaining a healthy diet and regular exercise, patients generally find these to be the most difficult areas of self-management.²⁵ A number of our participants were caregivers for family members, making it more difficult to focus on their own self-care needs. Others engaged in lengthy problem-solving with their providers about specific barriers such as work schedules.

Patients and providers may disagree on the relative importance of barriers. Shultz and colleagues²⁵ surveyed patients and diabetes educators about barriers to following diet and exercise plans. Dietitians placed more importance on portion control, while patients considered food selection and having to eat differently than others as bigger barriers. Helping patients deal with their self-care in a social context is an important strategy, an invaluable component of diabetes management, and a skill that physicians would do well to master.

Our analysis of these interactions points to “parallel play” in which providers and patients articulate what is essentially the same problem (dealing with diabetes) in different ways. Providers use a standard medical vocabulary to discuss health outcomes such as the commonly used A1c, daily blood sugar, blood pressure, and so forth. Patients learn and, over time, respond to this medical vocabulary through repeated clinical interactions but when they leave the clinic, the vocabulary that is so salient in the clinical setting does not resonate in everyday activities and concerns. Our data indicate that what patients tend to rely upon to make sense of health challenges are

the physical symptoms that they are experiencing at a given time.

Our study is subject to some limitations. We observed only one encounter for each patient. A longitudinal study may provide insight into topics that are addressed in detail over several visits. We analyzed recordings of encounters and therefore lacked the ability to further probe participants about specific remarks. Finally, we did not specifically address factors such as provider skills, education, and years in practice; how long patients have had diabetes; and patient characteristics such as education and health literacy.

Successful support of self-management may require providers to create a “bridge” between providers’ technical vocabulary and patients’ physical symptoms, the former of which does not follow patients outside the clinic. Many patients require help linking medical measurements, symptoms, and eventual outcomes. This is particularly difficult when the severity of measurements don’t align with the symptoms the patient is feeling. While we focused on patients with diabetes, other diagnoses such as hypertension, high cholesterol, and heart disease would likely be subject to the same misalignment. Clinicians must go

beyond inventories of patients' test results to provide self-management support that treats patients within their individual social contexts, a difficult task that may well require changes in how care is organized within clinics.

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References

- Centers for Disease Control and Prevention (CDC). National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States, 2011. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, 2011.
- Stratton IM, Adler AI, Neil HA, et al. Association of glycaemia with macrovascular and microvascular complications of type 2 diabetes (UKPDS 35): prospective observational study. *BMJ* 2000;321(7258):405-12.
- Vijan S, Hofer TP, Hayward RA. Estimated benefits of glycemic control in microvascular complications in type 2 diabetes. *Ann Intern Med* 1997;127(9):788-95.
- Vijan S, Hayward RA, American College of Physicians. Pharmacologic lipid-lowering therapy in type 2 diabetes mellitus: background paper for the American College of Physicians. *Ann Intern Med* 2004;140(8):650-8.
- Mooradian AD. Cardiovascular disease in type 2 diabetes mellitus: current management guidelines. *Arch Intern Med* 2003;163(1):33-40.
- Snow V, Weiss KB, Mottur-Pilson C, Clinical Efficacy Assessment Subcommittee of the American College of Physicians. The evidence base for tight blood pressure control in the management of type 2 diabetes mellitus. *Ann Intern Med* 2003;138(7):587-92.
- Vijan S, Hayward RA. Treatment of hypertension in type 2 diabetes mellitus: blood pressure goals, choice of agents, and setting priorities in diabetes care. *Ann Intern Med* 2003;138(7):593-602.
- Norris SL, Engelgau MM, Narayan KM. Effectiveness of self-management training in type 2 diabetes: a systematic review of randomized controlled trials. *Diabetes Care* 2001;24(3):561-87.
- Bayliss EA, Steiner JF, Fernald DH, Crane LA, Main DS. Descriptions of barriers to self-care by persons with comorbid chronic diseases. *Ann Fam Med* 2003;1(1):15.
- Cheung BM, Ong KL, Cherny SS, Sham PC, Tso AW, Lam KS. Diabetes prevalence and therapeutic target achievement in the United States, 1999 to 2006. *Am J Med* 2009;122(5):443-53.
- Greenfield C, Gilles M, Porter C, Shaw P, Willis K. It's not just about the HbA1c, doc! understanding the psychosocial is also important in managing diabetes? *Aust J Rural Health* 2011;19(1):15-9.
- Bissell P, May CR, Noyce PR. From compliance to concordance: barriers to accomplishing a re-framed model of health care interactions. *Soc Sci Med* 2004;58(4):851-62.
- Koenigsberg MR, Bartlett D, Cramer JS. Facilitating treatment adherence with lifestyle changes in diabetes. *Am Fam Physician* 2004;69(2):309-16.
- Bodenheimer T, Lorig K, Holman H, Grumbach K. Patient self-management of chronic disease in primary care. *JAMA* 2002;288(19):2469-75.
- Scholle SH, Roski J, Adams JL, et al. Benchmarking physician performance: reliability of individual and composite measures. *Am J Manag Care* 2008;14(12):833-8.
- O'Connor PJ, Bodkin NL, Fradkin J, et al. Diabetes performance measures: current status and future directions. *Diabetes Care* 2011;34(7):1651-9.
- Zulman DM, Kerr EA, Hofer TP, Heisler M, Zikmund-Fisher BJ. Patient-provider concordance in the prioritization of health conditions among hypertensive diabetes patients. *J Gen Intern Med* 2010;25(5):408-14.
- Vetter-Smith M, LeMaster J, Olsberg J, Kruse R, Day T, Mehr D. Providing diabetes self-management support in rural primary care clinics with nurse partners. *West J Nurs Res* 2012;34(8):1023-42.
- Schoenberg NE, Amey CH, Coward RT. Stories of meaning: lay perspectives on the origin and management of noninsulin dependent diabetes mellitus among older women in the United States. *Soc Sci Med* 1998;47(12):2113-25.
- Charmaz K. *Constructing grounded theory: a practical guide through qualitative analysis*. London; Thousand Oaks, CA: Sage Publications, 2006.
- Suddaby R. From the editors: what grounded theory is not. *Academy of Management Journal* 2006;49(4):633-42.
- Altheide DL. *Qualitative media analysis*. Thousand Oaks, CA: Sage Publications, 1996.
- Riessman CK. *Narrative analysis*. Newbury Park, CA: Sage Publications, 1993.
- Drummond N, Mason C. Diabetes in a social context: just a different way of life in the age of reason. In: Cunningham-Burley S, McKegane NP, eds. *Readings in medical sociology*. London; New York: Tavistock/Routledge, 1990: 37-54.
- Shultz JA, Sprague MA, Branan LJ, Lambeth S. A comparison of views of individuals with type 2 diabetes mellitus and diabetes educators about barriers to diet and exercise. *J Health Commun* 2001;6(2):99-115.