Published in final edited form as:

Hum Organ. 2013 ; 72(3): 242–253.

Changing Diagnostic and Treatment Criteria for Chronic Illness: A Critical Consideration of their Impact on Low-Income Hispanic Patients

Linda M. Hunt, Ph.D., Meta Kreiner, MSc, and Fredy Rodriguez-Mejia, MA

Department of Anthropology, Michigan State University, East Lansing, MI

Abstract

Low-income Hispanics are often identified as especially at risk for common chronic conditions like diabetes, and targeted for aggressive screening and treatment. Anthropologists and other social scientists have extensively explored barriers and facilitators to chronic illnesses management in minority populations, but have not yet considered the impact of recently lowered diagnostic and treatment thresholds on such groups. In this paper, we critically review recent changes in diabetes, hypertension and high cholesterol diagnostic and treatment standards which have dramatically increased the number of people being treated for these conditions. Drawing on an ethnographic study of chronic illness management in two Hispanic-serving clinics in the Midwest, we examine how these new standards are being applied, and consider the resulting health care challenges these Hispanic patients face. Our analysis leads us to question the value of promoting narrowly defined treatment goals, particularly when patients lack reliable access to the health care resources these goals require. While improving the health of low-income Hispanics is a worthwhile goal, it is important to consider whether these efforts may be promoting over-diagnosis and over-treatment, drawing them into an expensive chronic patient role with uncertain benefit.

Keywords

Hispanics; Pharmaceuticals; Access to Health Care; Diabetes

Diagnosis of common chronic conditions has reached epidemic proportions in the U.S, with an estimated 45% of the population having been told they have diabetes, high blood pressure and/or high cholesterol (Cory, et al. 2010). Minority populations have been found to be especially at risk for these conditions (ADA 2011; Carroll, et al. 2012; CDC 2011; Fryar, et al. 2010). Anthropologists and other social scientists have extensively explored the vexing question of the causes and remedies for these disparities, and a good deal of effort is going toward identifying the barriers and facilitators of screening and management for these populations (Aroian, et al. 2012; Ferzacca 2012; Hunt, et al. 1998b; Maupin and Ross 2012;

Corresponding Author: Linda M. Hunt, Ph.D., Department of Anthropology, 354 Baker Hall, Michigan State University, East Lansing, MI 48824, Phone: 517/355-0114, Fax: 517/432-9952, huntli@msu.edu.

Linda M. Hunt is a Professor, Meta Kreiner is a Research Specialist and Fredy Rodriguez-Mejia is a Ph.D. Candidate, all in Anthropology at Michigan State University.

Smith-Morris 2005; Weller, et al. 2012). While such efforts have made important contributions to improving access to quality health care, recent changes in clinical diagnostic and treatment guidelines raise new sets of issues for social scientists concerned with chronic illness among marginalized populations.

An important, but little considered factor which directly affects the frequency of these diagnoses is that standards for diagnosing and managing such illnesses have changed over time, with systematically lower diagnostic criteria, and the addition of new “pre-disease” categories which are targeted for treatment as well (ADA 2010; Brody 2010; Rosendorff, et al. 2007; Vigersky 2012). This has resulted in millions of people being diagnosed with these conditions, as well as a dramatic expansion of the market for the pharmaceuticals used in their control (Brody and Light 2011; Hunt, et al. 2012; Welch, et al. 2011).

Hispanics have long been identified as of particular concern in chronic illness management, especially given the disparities in distribution of diabetes (Beckles, et al. 2011; Flegal, et al. 1991; Hunt, et al. 2011). Hispanics also receive poorer quality of care, have worse access to care than the general population (AHRQ 2012), and are the most likely group in the U.S. to be uninsured (Flores, et al. 2006; Harari, et al. 2008). Hispanics are therefore least likely to be able to effectively access health resources for management of these conditions. How Hispanics may be affected by recent changes in the diagnosis and management of common chronic diseases is not well understood. Toward promoting a more critical engagement by anthropologists with the context and implications of chronic illness management for this population (Manderson and Smith-Morris 2010), we will first consider the assumptions underlying recent changes in diagnostic criteria and clinical standards for diabetes, hypertension and high cholesterol. Then, drawing on an ethnographic study of primary care clinics in a Midwest state, we will explore some of the problems these more aggressive diagnostic and treatment standards present for a group of low-income Hispanic patients.

Changing Criteria for Diagnosis and Treatment

Over the last fifty years, criteria for diagnosing many chronic conditions have been steadily expanded. Changing standards of care for diabetes provide a noteworthy example of this trend. Throughout the past half-century, the diagnostic thresholds for diabetes and pre-diabetes have been repeatedly revised downwards. With each of these revisions, glucose levels that had previously been defined as normal were redefined as pre-diabetes or diabetes (ADA 1998; ADA 2003; ADA 2008; ADA 2010). At the same time, treatment recommendations have been expanded to include beginning medications earlier and a stepwise approach of adding different classes of anti-diabetic medications until goal glycemic levels are achieved (Nathan, et al. 2009).

Since the early 1990s, diagnostic and treatment thresholds for hypertension and high cholesterol, other conditions frequently cited as of epidemic concern, have also been systematically lowered (Chobanian, et al. 2003; JNC 1997; NCEP 1993; NCEP 2001). The revised treatment recommendations for these conditions encourage early introduction of pharmaceuticals and use of multiple medications to reach goal numbers (Boden 2003; Chobanian, et al. 2003). It is important to note that the thresholds for starting treatment for

hypertension and cholesterol are lower still for people diagnosed with diabetes. This multiplies the impact of the expansion of diabetes diagnostic criteria, resulting in not only many newly minted diabetes patients taking medications, but augmenting the number of people taking medications for hypertension and high cholesterol as well. Table 1 summarizes major changes to diagnostic standards for diabetes, hypertension and high cholesterol that have been set by national professional organizations in recent years.

These revisions have resulted in a dramatic increase in new diagnoses for each of these conditions. It is widely assumed that these increases are due to increasing rates of overweight and obesity especially in minority populations (Anderson 2005; Lin, et al. 2012; Vijayaraghavan, et al. 2011), while the impact of changing diagnostic criteria on diagnostic rates is rarely considered.

The lowering of diagnostic criteria has been accompanied by a pronounced increase in utilization of pharmaceutical therapy. Since 1990, pharmaceutical spending in the U.S. has increased nearly six-fold (Foundation 2010). Much of this growth is directly attributable to the very large number of people taking medications for common chronic conditions: The number of diabetes patients taking medications doubled between 1997 and 2007 (Sarpong, et al. 2012); and medications for diabetes, hypertension and high cholesterol together account for a majority of the nation's current expenditures on prescribed medications (Herper 2010; Soni 2012).

Polypharmacy is also increasingly common with more than 40% of people over age 60 taking five or more medications (Gu, et al. 2010). This reflects treatment standards that recommend combining medications to reach the lower target numbers, as well as the multiplication of prescriptions which occurs when additional medications are used to control the side-effects of already prescribed medications (Rochon and Gurwitz 1997).

Chronic Illness and Marginalized Populations

Current diagnostic and treatment standards for these common chronic conditions routinely define minority groups as particularly at risk and recommend special consideration in frequency of screening and choice of management strategies. For example, the American Diabetes Association recommendations for diabetes testing lists minority racial/ethnic identity as an indication of high diabetes risk (ADA 2011), and the National Heart, Lung, and Blood Institute's JNC7 encourages consideration of race in assessing disease risk and in selection of medications for hypertension (Chobanian, et al. 2003).

Anthropologists have examined a number of issues impacting the management of chronic illness among minority groups. Notably, they have described Hispanic patients' interpretations and causal understandings of diabetes (Baer, et al. 2012; Mendenhall, et al. 2010; Smith-Morris 2005), and have identified differences between clinician and patient health beliefs which may lead to different management expectations or clinical miscommunication (Chavez 2004; Hunt, et al. 1998a; Maupin and Ross 2012; Weller, et al. 2012). Others have examined structural barriers to care which may negatively impact the health of Hispanics, such as inadequate translation services, lack of insurance,

undocumented immigrant status and poverty (Becker 2004; Castaneda 2010; Castaneda, et al. 2010; Durden and Hummer 2006; Handley and Joseph 2008; Hunt and Voogd 2007).

As yet, however, anthropologists have not attended to the implications of changing diagnostic and treatment criteria for this population. These trends may have an especially pronounced impact on the Hispanic population, who are considered to be particularly at risk for chronic illnesses, most notably for diabetes. Hispanics are about twice as likely to be diagnosed with diabetes as non-Hispanic whites (Adams, et al. 2011). By extension, with the lower diagnostic criteria for other conditions accompanying diabetes diagnoses, Hispanics are also at increased risk for being diagnosed with hypertension and high cholesterol (Carroll, et al. 2012; Ventura, et al. 2011).

While statistics are unavailable for the frequency of Hispanics being prescribed medications, it would be safe to assume they would likewise exhibit high rates of multiple prescriptions for these multiple diagnoses. At the same time, in addition to contending with language and immigration issues, Hispanics in the U.S. have especially high rates of poverty (Lopez and Cohn 2011), lack of health insurance (DeNavas-Walt, et al. 2011), and limited access to quality health care (AHRQ 2012) and to prescription medications (Frankenfield, et al. 2010; Winters, et al. 2010). How then, given these circumstances, might Hispanics manage the burden of these increasingly aggressive diagnosis and management standards?

The Study

In 2010, as part of a larger study of primary care clinicians' understandings and approaches to the management of chronic illness in minority patients, we conducted interviews and observations with clinicians and patients in two low-income primary care clinics serving a primarily Spanish speaking clientele in a Midwest state. (For further discussion of the larger data set see: Hunt, et al. 2012; Hunt, et al. 2013; Hunt and Kreiner 2013) Both clinics are owned by a large, private health care network, and are designed to provide basic health care to people with limited resources, including the uninsured, homeless, migrants, and other low-income individuals. They welcome all qualified patients, regardless of citizenship or migration status. Nearly all staff in both clinics speak at least some Spanish. The Trojan¹ clinic is in a small town and draws patients from the surrounding farming community, while the Saint Teresa clinic is in a mid-sized city, serving patients from that city and its outskirts. Many Spanish-speaking patients travel some distance to receive care at these clinics.

We observed 36 clinical consultations at these two clinics, with 6 clinicians, whom we also interviewed. They were 2 males and 4 females, who ranged in age from 27 to 48, and included three family practice physicians and 3 physician assistants. One identified as Hispanic, and the others as non-Hispanic white. They all spoke Spanish, although they varied in their level of fluency. In the course of these interviews, we recruited patients diagnosed with diabetes and/or hypertension to be interviewed, at a time a location of their choosing. We interviewed 19 Hispanic patients, 2 in English and 17 in Spanish. Some demographic characteristics of these patients are summarized in Table 2.

¹To protect the anonymity of study participants, all proper names in this report are pseudonyms.

We used standardized open-ended questions for these interviews, which were developed with guidance from a panel of expert advisers, piloted and revised. Patient interview questions were translated into Spanish, then piloted and revised for linguistic accuracy. Interviews focused on understandings and experiences in management of diabetes and hypertension, and concepts about the causes and consequences of these conditions. Interviews were conducted in English or Spanish, as preferred by the subject. The interviews averaged about one hour, and were tape recorded and transcribed. All study participants gave their informed consent, following IRB approved protocols.

The patients we interviewed were typical of those served by these clinics. Most struggled with poverty, low literacy levels, and language barriers. Many were foreign-born, and while we avoided discussions of individual migration status, according to clinic staff, many likely did not have legal documentation to be in the U.S. Most were uninsured, or relied on public insurance plans for access to health care.

In analyzing the data, we first identified main topical areas and themes covered in the interviews. These were then further refined, in an iterative process, into emergent thematic categories (Bernard 2006). All phases of data processing and analysis were cross-checked in conference sessions wherein the research team discussed each case, reviewed emerging findings, honed analysis strategies, and reached consensus about the application of coding categories.

Aggressive Diagnostic Practices

As we conducted this study, we were continually impressed at the amount of time and effort devoted in clinical encounters to identifying and managing marginally elevated glucose, blood pressure and cholesterol levels. In addition to the familiar clinical ritual of measuring blood pressure at each visit, because Hispanic patients are thought to be especially susceptible to diabetes, both clinics annually check the glucose of all their patients. They also employed an aggressive approach to glucose management, regularly prescribing medications for even slightly elevated glucose levels.

Indeed, all of the Hispanic patients with pre-diabetes diagnoses in this study reported they had been immediately prescribed medications. In every case, they were diagnosed during a single clinical appointment, and prescribed medications on the-spot, even though clinical standards for diabetes diagnosis call for a second, confirmatory test result at a later date (ADA 2011). The following case example illustrates how cursory these encounters often were:

Tomas, a patient at the Trojan clinic, is a middle-aged farm worker from Mexico. A medical assistant drew his blood when he arrived, and after a few minutes wait, the physician assistant (PA) enters the consultation room announcing in rudimentary Spanish, that Tomas has diabetes. Scribbling a prescription for metformin (an oral anti-diabetes medication), he tells Tomas he'll give him a machine to test his glucose levels, and that he should ask a relative who uses one to show him how to use it. The PA tells him to watch what he eats: To eat fresh vegetables and avoid soda and pastries. Tomas says he doesn't eat sweets, and the PA repeats that he

needs to watch his diet. The PA leaves the room, and looking worried, Tomas turns to the researcher and says: “This is really hard!” He wonders how he can check his blood sugar, control his diet and take medications while he works in the fields. “It will be hard to tell my family,” he says. The PA returns and gives him the glucose machine, some test strips and medication samples, and then asks: “Questions?” Tomas just shrugs his shoulders. The PA shakes his hand, then leaves. The consultation lasted 8 minutes.

We found this to be a common scenario at these clinics: The patient is abruptly confronted with a devastating diagnosis, given virtually no information, vaguely instructed to make lifestyle changes, then handed a prescription for a medication that he may well be taking for the rest of his life. We often observed patients being diagnosed with diabetes after a single test, many at pre-disease or borderline test levels; that is at levels which only a few years ago would have been considered within normal range.

The impact of these aggressive diagnostic practices quickly multiply because, as we have noted earlier (see Table 1), with a diabetes diagnosis, hypertension and high cholesterol are diagnosed at lower levels— levels that otherwise would be acceptable. Indeed, nearly all those we interviewed who had been diagnosed with diabetes had also been diagnosed with both hypertension and high cholesterol (87%, 13/15), including all six who had been diagnosed only with pre-diabetes.

Many patients told us they were alarmed at receiving these multiple diagnoses, and overwhelmed with the burden of pursuing their prescribed treatments. The experiences of the patient in the next case, provides an example of how these events often surprised and confused patients:

Marcos is a U.S. born, laid-off construction worker who lost his health insurance when he lost his job. He first came to the Saint Teresa clinic for a general checkup, and had no symptoms or particular health concerns. His random glucose test showed marginally elevated levels. During that first visit, he was diagnosed with diabetes, hypertension and high cholesterol, and prescribed three generic medications. The drugs cost him about \$100 per month, which he finds difficult to afford given his unemployment. Marcos was clearly upset when he talked about this experience, saying: “When I came in I was perfectly fine, when I left, I left with all of that. Imagine what it’s like to hear in one day that I have high blood pressure, high cholesterol and diabetes!” He said he was especially concerned about the diabetes because he had a friend with advanced diabetes who needed to have a foot amputated, and then died. “When I found out that I had diabetes, well, that really scared me,” he said.

Like Marcos, many we interviewed who had been diagnosed at only pre-disease test levels, equated their own condition with what they had heard about complications from advanced disease. In our observations, clinicians promoted this confusion because they did not distinguish pre-disease conditions from actual disease. Instead they encouraged patients to act vigorously through medications and diet, to bring marginally elevated test results to goal levels, as though they faced imminent danger should they fail to do so.

Aggressive Prescribing Practices

In the consultations we observed there was a heavy emphasis on pharmaceuticals. These consultations were devoted almost exclusively to selecting and adjusting medications toward forcing metabolic indicators into goal ranges. Polypharmacy was the norm among the patients we interviewed. They were taking, on average, 4.8 medications each, with some taking as many as nine different drugs. Most of these were for diabetes, hypertension and high cholesterol. In Table 3 we can see the number of medications each patient was taking for each condition. Many of the medications listed as “other” were prescribed to address side effects of these medications.

In the following case, we see a rather typical example of the consultations we observed, with the doctor focused intently on adjusting medications to reach target test numbers.

Angela, nearly 50, emigrated from Mexico 15 years ago and works as a babysitter. The doctor comes into the consultation room at the Trojan clinic, announcing that Angela’s sugar is high. Flipping through her chart, he remarks that she has improved quite a bit since she was diagnosed three months ago, with her A1c² dropping from 10.3 to 8.1, but he says: “It needs to be below 7.0.” He recommends adding a fast-acting insulin to help bring it down. Angela mentions that her legs have been aching at night, and asks if she should be concerned about that. The doctor doesn’t respond, and leaves the room to get samples of the new insulin for her.

In this example, the doctor has opted to add an additional diabetes medication despite the clear improvement that was reported with her current prescription. This is not because the patient’s disease is out of control or not responding to treatment, but because the doctor is intent on achieving goal test numbers. Clinicians often told us that they believed the A1c test reliably captures the patients average blood glucose level over several months, and can be used to define a patient’s progress, independent of other indications of the patient’s overall health.

The aggressive use of medications had a variety of unintended effects on patients in this study. Patients struggled with multiple burdens associated with multiple prescriptions: to purchase them, take them as prescribed, and to manage side effects. In the next example, we see a patient’s difficulty in trying to comply with a complicated medication regimen.

Antonia, who does not speak English, works as a housekeeper in exchange for room and board. She has no income. Her mother died of diabetes and Antonia takes her own diabetes very seriously. In the Trojan clinic, she tells the PA that that her blood sugar has been very low in the mornings—sometimes as low as 49³—and that she’s been having headaches, she gets weak and her knees buckle. The PA says she feels that way because her body is used to having blood sugar that’s too high,

²The “A1c” refers to a measure of glycated hemoglobin concentration in the blood which is used to identify the average plasma glucose concentration over prolonged periods of time.

³According to the National Library of Medicine blood glucose below 70 mg/dL is defined as too low (hypoglycemia), and may be harmful (U.S. National Library of Medicine 2011).

and assures her she'll get used to how she feels when her sugar is lower. Antonia hands the PA a bag with all seven of her medications, which he reviews one-by-one with her. She mentions that she's been having bouts of diarrhea and of constipation. The PA says this is due to the metformin, tells her to take it with food, but reminds her she should take her insulin 20 minutes before she eats. He also tells her to test her blood sugar at different times of day, not just in the morning: "One day in the morning, the next at night, the next before you eat, the next after you eat." At Antonia's request the PA makes a note in Spanish on each prescription label, indicating what it is for. He writes renewals for some the prescriptions, gives her samples of others. Later in her interview, Antonia tells us she only takes the prescriptions she can get for free or at a very low cost, otherwise, she has to skip them.

Antonia's case illustrates how difficult and complicated managing these treatments can be. Keeping her glucose levels very low is causing her bouts of hypoglycemia. But the PA is unconcerned, focusing instead on reaching goal test numbers. Antonia is also juggling a complicated regimen of self-monitoring activities and numerous prescriptions. She is supposed to take some medications with food and others before or after eating; she also needs to check her glucose at different times on different days. She has only partial access to the medications and test supplies she's been prescribed. All of this confusion is further complicated by lack of English competency.

As in this case, in many cases we observed, despite patients' inability to access and comply with prescribed regimens, clinicians were unwavering in their commitment to reaching goal metabolic levels with increasingly complicated sets of drugs and treatment recommendations. While clearly done with the best of intentions, aggressive diagnosis and treatment draws people into an expensive and difficult chronic patient role, requiring resources which many low-income and uninsured Hispanics are not able to access over the long-term.

Negotiating Health Care Coverage

The management of chronic illness is an ongoing undertaking, and requires consistent access to health resources. The Trojan and Saint Teresa clinics are designed to provide primary care services to Hispanic patients at low-cost. They also assist patients in applying for various health coverage plans. Both clinics have staff devoted to helping patients in determining what plans they may qualify for, and helping them fill out applications. Even with this help, as illustrated by many of the cases we've reviewed, accessing health care and medications remained a difficult and confusing prospect for most everyone in this study.

While the two clinics provide primary care services to documented and undocumented patients alike, most services beyond primary care, even within this healthcare network, are available only to those legally in the U.S. This is also true of most of the health coverage plans for which clinic staff help patients apply. The federal programs, Medicaid and Medicare, are only available to legal residents. The County Health Programs, which are designed to provide access to basic primary care and generic medications for those ineligible for the federal programs, are only sometimes available to the undocumented.

Struggles and confusion with health coverage plans was a major topic of concern for everyone we interviewed. Table 2 includes the health insurance status of the patients we interviewed, but it is important to recognize that this is only a snapshot of an every-changing landscape. Being insured or uninsured is not a static category. Patients' stories underscored their experiences with having and losing health coverage, being covered by different plans at different times and frequent changes in what is and is not covered by their current insurer.

Various rules and requirements made it difficult for many patients to maintain coverage. Some lost County Plan coverage because they had not completed the required annual renewal, either because they moved and did not receive the documents, or could not read the English language forms. Some lost federal coverage due to changes in qualification rules, or because they had an increase in income. In the following case example we see an especially concerning illustration of how federal coverage could be lost.

As a U.S. citizen, 74 year old Puerto Rican born Josefa, had been relying on both Medicaid and Medicare to cover the costs of managing her diabetes, hypertension and high cholesterol. She doesn't speak or read English, and has been living on less than \$10,000 a year since retiring from agricultural work. Several months before her interview a salesman came to her home, and told her that the government was going to terminate Medicaid, and that she needed to sign up for a different health plan. "He told me that the new plan would cover medicine, dental care, glasses, and this and that. And I said, 'Well, if that is the situation, I have no choice but to accept this.'" She signed up for the plan, which disqualified her for Medicaid. Now she believes she has made a terrible mistake. "They don't accept my new insurance card anywhere, not even for my glasses or for my dental care. The gentleman said that they cover everything, but when it is time to use it, they don't pay. Medicaid used to send me a document that said 'This is not a bill' [said in English]. It was already paid. But now what they send me is bills and bills and bills and bills."

Even the handful who were on private insurance plans moved in and out of coverage, due to changes in their employment, or changes in their employer's insurance contract. Several patients were unable to access their health coverage because they didn't understand the plan or how to apply for reimbursement. For example, consider the experiences of the following patient.

Mercedes, 45, who with two years of college is among the best educated and has one of the highest incomes in our sample, had moved from her native Dominican Republic to the U.S. eight years ago, but still does not speak English very well. She had been on Medicaid, but got a better job, and now has private insurance through her employer. She said, "Honestly, we don't understand the insurance. I don't know what they will pay for. Now I have to send a letter to find out if they'll cover all of my bills, or most of them, or whatever they will pay for." She says she stopped filling most of her prescriptions since she's had to pay for them herself.

While private insurance may be the gold standard for U.S. health care, it presents a complicated and difficult terrain for patients unfamiliar with a given plan, especially those not fluent in English. Regardless of their type of insurance, many patients, even patients with higher levels of education and income, found accessing health coverage confusing and

frustrating, and many struggled to be able to keep taking their prescribed medications. While accessing health care for chronic conditions was challenging for those with health coverage, for the many uninsured patients in this study these challenges were sometimes insurmountable.

Accessing Prescribed Medications

All the patients in this study had been prescribed multiple medications which they are meant to take indefinitely. Factors affecting access to medications are especially important to consider in understanding their management of these conditions. Health coverage not only affected whether patients could afford prescribed medication, but also had an important influence on the specific treatments that were prescribed. Clinicians routinely selected and altered prescriptions based on whether a patient had insurance, the type of insurance they had, or on the specific medications covered by a given plan.

While Medicaid and Medicare cover most medications, the assistance patients got from those programs was limited. Medicaid pays outright for most pharmaceuticals, but only two patients were able to use this program for any length of time. Medicare provided long-term coverage for several, but requires high co-pays, which many found prohibitive. Co-pays were more manageable for those using the County Plan, but coverage was mostly limited to generics, excluding brand-name drugs, and most types of insulin.

In order to work around these limitations, both clinics employed a number of strategies to help patients access preferred medications. They distributed drug company samples, assisted patients in enrolling in pharmaceutical company Patient Assistance Programs (PAPs), and directed them to local pharmacies with discount prescription plans. While useful for starting patients on a new medication, all of these strategies are unsustainable for the long-term: PAPs provide patients with free medication, but limit patients to one year's supply, samples are only sometimes available, and the drugs offered by discount pharmacies are often still prohibitively expensive or arbitrarily become unavailable.

For example, consider Angela's experience in using samples of Lantus, a popular long-acting insulin. She said:

"The insulin is hard to get. I call the Trojan Clinic, but they don't always have it. One time I didn't have any insulin for two weeks and I was calling and calling and there wasn't any. So I went to look for it at Wal-Mart, but the little bottle costs \$210. It is very expensive. *Very expensive!*"

Like Angela, many in this study were prescribed a drug that they obtained through samples, PAPs and discount programs, which they came to depend on. When it was unavailable through the program, they would discover how expensive it was, and couldn't keep taking it. Their clinician would substitute other, less effective drugs, sometimes with negative health consequences.

Of course, given the high cost of health care in the US, these experiences are certainly not unique to low-income Hispanics. However, Hispanics contend with a number of special circumstances that together compound these issues. The following case illustrates how

various factors—low income, limited education, language barriers, lack of insurance and problematic migratory status-- may act jointly to affect chronic illness management.

Sonia, 32, who speaks no English, has worked cleaning houses since coming undocumented to the US from Guatemala ten years ago. She had been paying about \$100 a month for five generic medications, for diabetes, hypertension, high cholesterol and depression, but her diabetes remained uncontrolled. It was only when she began taking samples of Lantus insulin that her glucose fell within target levels. When the samples ran out a month ago, she tried to buy more at a discount pharmacy, but could only afford enough for one week and has gone without the medication since then. In her consultation, the doctor tells her that her glucose is high again. The doctor wants her to sign up for the Lantus PAP, but because Sonia has no social security number, she won't qualify. The doctor suggests going back to cheaper insulin, but Sonia says the Lantus works much better, and she'll find a way to buy it. As the doctor reviews her various prescriptions with her, it becomes clear that she doesn't understand which medicine is for which condition, and is confused about how to take some of them. The doctor, in limited Spanish, tries to clarify. Sonia starts to describe a pain in her arm, but the doctor says they're out of time, and they'll have to talk about it at the next visit.

Like Sonia, many in our study had no health coverage, had difficulty understanding their complicated treatment regimens, and were limited in their options by their immigration status. But, like Sonia, nearly all accepted their diagnoses unquestioningly, and tried earnestly to find ways to follow their prescribed treatment regimens.

Discussion

In this study the clinicians and patients alike fully embraced aggressive diagnostic and treatment practices, wherein marginally elevated test results were readily defined as pathological, and medications quickly prescribed. They all worked hard to find strategies for reaching goal test numbers; an especially difficult challenge given that, like many low-income Hispanics in the US, patients in this study faced a variety of important barriers to accessing health resources: limited, ever-changing and confusing health coverage, low literacy and English proficiency levels, and problems related to immigration status.

In many ways, these clinics represent the best case scenario for Hispanic patients. They provide care in Spanish, charge only minimal fees, are open to all regardless of immigration status, and assist patients with accessing health programs and obtaining pharmaceuticals. These clinics offer yet one example of the many earnest, on-the-ground efforts currently being undertaken nationally to address health disparities among US minorities.

Responding to the widely held notion that Hispanics are particularly susceptible to diabetes, we saw that the clinicians in this study employ especially aggressive approaches to diabetes diagnosis and management for their Hispanic patients, with annual diabetes screenings for all, early introduction of medications for even marginally elevated test results, avid pursuit of rigidly defined goal numbers, and heavy reliance on polypharmaceutical regimens.

Case examples illustrate that following recommended treatment plans over the long-term was extremely difficult for many of these patients. A number of anthropologists have examined diabetes management among Hispanics, and have suggested a variety of factors that may be important to understand in improving illness management in this population. Such efforts have produced many valuable insights that have contributed to better treatment for patients with clear pathology. However, our literature review and ethnographic findings lead us to question the prudence of presuming that facilitating these clinical goals for Hispanics is always in their best interest.

Lower diagnostic and treatment thresholds have quickly become the gold standard for clinical care, and Hispanics are routinely singled out for aggressive efforts to meet these goals. Nevertheless, expanding diagnostic criteria to lower and lower numbers is in fact controversial. Critics question whether such standards are indeed based on scientifically neutral evidence, noting both lack of systematic literature reviews, and the heavy influence of the pharmaceutical industry in conducting and interpreting research, and on the committees producing these standards (Brody 2007; Elliott 2010; Vigersky 2012).

At the same time, recent studies indicate that pursuing increasingly tight control of blood glucose and blood pressure, especially for patients at so-called pre-disease test levels may result in serious negative health effects. Tight control may expose these otherwise healthy people to serious sometimes even fatal harm, from hypoglycemia, hypotension, organ failure and adverse drug effects, while providing no real health benefit (Arguedas, et al. 2009; Choe, et al. 2010; Diao, et al. 2012; Johnston, et al. 2011; Montori and Fernandez-Balsells 2009; Montori, et al. 2007)

As goal numbers are lowered, it becomes increasingly necessary to employ multiple medications to not only achieve these goals, but also to control side effects of already prescribed medications, resulting in a “prescribing cascade” where patients, like those in this study, quickly find themselves taking a large number of drugs (Critser 2005; Hunt, et al. 2012; Rochon and Gurwitz 1997). Critser (2005) further points out that most patients who are on multiple medications are taking unique combinations of drugs whose safety when taken together has never been tested and whose joint effects are thus largely unknown.

While anthropologists and other social scientists have made important contributions to improving screening and management of chronic illnesses such as diabetes for Hispanics and other minorities, we may do well to think more critically about the clinical agenda we are helping to promote. As the criteria defining these chronic illnesses is shifted downward and management of pre-disease prioritized, clinical attention is being monopolized by efforts to manage hypothetical future risk of illness, drawing scarce resources away from addressing the current health concerns of patients (Welch 2004). Low-income Hispanics are particularly vulnerable to the hazards of such an approach. Patients placed on complicated drug regimens require close oversight, and regular reassessment of treatment goals and effects, but this is particularly unlikely for patients like those in this study. While anthropologists have begun to think critically about the influence of the pharmaceutical industry over emerging definitions of health and illness (Applbaum and Oldani 2010; Dumit 2012; Oldani 2009), these critiques presume a well-educated and well-insured patient

population who are advised to consider resisting the over-medicalization of their lives. As yet the impact of these trends on already disempowered individuals like those in this study, have not been seriously considered. Stepping back from the urgency to provide low-income Hispanics access to care, it is important to consider whether such efforts are indeed addressing real illness, or whether they may instead be promoting over-diagnosis and over-treatment, drawing them into an expensive chronic patient role that they are ill-equipped to fulfill.

Acknowledgments

The research was supported by NIH grant #HG004710-03. We wish to thank the clinicians, clinical staff and patients who participated in this study, whose kind cooperation made this research possible. Amanda Abramson, Kristan Ewell, Linda Gordon, Heather Howard, Lynette King, Isabel Montemayor, Kimme Rovin and Nichole Truesdell provided invaluable assistance with a variety of data collection, analysis and literature review tasks. We would also like to thank two anonymous reviewers for their very helpful comments.

References

- ADA, (American Diabetes Association). Report of the Expert Committee on the Diagnosis and classification of Diabetes Mellitus. *Diabetes Care*. 1998; 21(Supplement 1):S5–S19.
- ADA, (American Diabetes Association). Standards of Medical Care for Patients with Diabetes Mellitus (Position Statement). *Diabetes Care*. 2003; 26(Suppl 1):S33–50. [PubMed: 12502618]
- ADA, (American Diabetes Association). Standards of Medical Care in Diabetes—2008. *Diabetes Care*. 2008; 31(Supplement 1):S12–S54. [PubMed: 18165335]
- ADA, (American Diabetes Association). Standards of Medical Care in Diabetes-2010. *Diabetes Care*. 2010; 33:S11–S61. [PubMed: 20042772]
- ADA, (American Diabetes Association). Standards of Medical Care in Diabetes—2011. *Diabetes Care*. 2011; 34(Supplement 1):S11–S61. [PubMed: 21193625]
- Adams PE, et al. Summary health statistics for the U.S. population: National Health Interview Survey, 2010. Vital and health statistics. Series 10, Data from the National Health Survey. 2011; (251):1–117.
- AHRQ, (Agency for Healthcare Research and Quality). The National Healthcare Disparities Report 2011. 2012. www.ahrq.gov/qual/qdr11.htm
- Anderson JB. Unraveling health disparities: Examining the dimensions of hypertension and diabetes through community engagement. *Journal of Health Care for the Poor and Underserved*. 2005; 16(4 Suppl A):91–117. [PubMed: 16327099]
- Applbaum, Kalman; Oldani, Michael. Special Issue for Anthropology & Medicine -- Towards an era of bureaucratically controlled medical compliance? *Anthropology and Medicine*. 2010; 17(2):113–127. [PubMed: 20721751]
- Arguedas JA, Perez MI, Wright JM. Treatment blood pressure targets for hypertension. *Cochrane database of systematic reviews*. 2009; (3):CD004349. [PubMed: 19588353]
- Aroian KJ, et al. Hypertension prevention beliefs of Hispanics. *Journal of transcultural nursing: official journal of the Transcultural Nursing Society / Transcultural Nursing Society*. 2012; 23(2): 134–42. [PubMed: 22294336]
- Baer RD, et al. Ethnomedical and Biomedical Realities: Is There an Epidemiological Relationship Between Stress-Related Folk Illnesses and Type 2 Diabetes? *Human Organization*. 2012; 71(4): 339–347.
- Becker G. Deadly inequality in the health care “safety net”: Uninsured ethnic minorities’ struggle to live with life-threatening illnesses. *Medical Anthropology Quarterly*. 2004; 18(2):258–275. [PubMed: 15272807]
- Beckles GL, Zhu J, Moonesinghe R. Diabetes - United States, 2004 and 2008. Morbidity and mortality weekly report. *Surveillance summaries*. 2011; 60(Suppl):90–3. [PubMed: 21430631]
- Bernard, HR. *Research Methods in Anthropology*. New York: Alta Mira Press; 2006.

- Boden WE. Therapeutic implications of recent ATP III guidelines and the important role of combination therapy in total dyslipidemia management. *Current opinion in cardiology*. 2003; 18(4):278–85. [PubMed: 12858126]
- Brody, Howard. *Hooked: Ethics, the medical profession, and the pharmaceutical industry*. Lanham: Rowman & Littlefield; 2007.
- Brody, Howard. *The Commercialization of Medical Risks: Physicians and Patients at Risk*. In: Light, DW., editor. *The Risks of Perscription Drugs*. New York: Columbia University Press; 2010. p. 70-91.
- Brody, Howard; Light, Donald W. The Inverse Benefit Law: How Drug Marketing Undermines Patient Safety and Public Health. *American Journal of Public Health*. 2011; 101(3):399–404. [PubMed: 21233426]
- Carroll MD, Kit BK, Lacher DA. Total and High-density Lipoprotein Cholesterol in Adults: National Health and Nutrition Examination Survey, 2009–2010. *NCHS Data Brief*. 2012; (92):1–8.
- Castaneda H. Immigration and Health: Conceptual, Methodological, and Theoretical Propositions for Applied Anthropology. *NAPA Bulletin*. 2010; 34:6–27.
- Castaneda H, Kline N, Dickey N. Health concerns of migrant backstretch workers at horse racetracks. *Journal of Health Care for the Poor and Underserved*. 2010; 21(2):489–503. [PubMed: 20453352]
- CDC, (Centers for Disease Control and Prevention). *National Diabetes Fact Sheet: National Estimates and General Information on Diabetes and Prediabetes in the United States, 2011*. Atlanta, Georgia: U.S. Department of Health and Human Services; 2011.
- Chavez LR. A glass half empty: Latina reproduction and public discourse. *Human Organization*. 2004; 63(2):173–188.
- Chobanian AV, et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: The JNC 7 Report. *Journal of the American Medical Association*. 2003; 289(19):2560–72. [PubMed: 12748199]
- Choe HM, et al. New Diabetes HEDIS Blood Pressure Quality Measure: Potential for Overtreatment. *American Journal of Managed Care*. 2010; 16(1):19–24. [PubMed: 20148601]
- Cory, Stella, et al. Prevalence of Selected Risk Behaviors and Chronic Diseases and Conditions- Steps Communities, United States 2006–2007. *Morbidity and Mortality Weekly Report*. 2010; 59(SS08):1–37. [PubMed: 20075837]
- Critser, Greg. *Generation Rx: How prescription drugs are altering American lives, minds, and bodies*. Boston: Houghton Mifflin; 2005.
- DeNavas-Walt, Carmen; Proctor, Bernadette D.; Smith, Jessica C. *US Census Bureau, Current Population Reports. U.S. Government Printing Office; 2011. Income, Poverty, and Health Insurance Coverage in the United States: 2010*.
- Diao D, et al. Pharmacotherapy for mild hypertension. *Cochrane database of systematic reviews*. 2012; 8:CD006742. [PubMed: 22895954]
- Dumit, Joseph. *Drugs for life: how pharmaceutical companies define our health*. Durham, NC: Duke University Press; 2012.
- Durden TE, Hummer RA. Access to healthcare among working-aged Hispanic adults in the United States. *Social Science Quarterly*. 2006; 87(5):1319–1343.
- Elliott, Carl. *White coat, black hat: adventures on the dark side of medicine*. Boston: Beacon Press; 2010.
- Ferzacca, Steve. Diabetes and Culture. *Annual Review of Anthropology*. 2012; 41(1):411–426.
- Flegal KM, et al. Prevalence of diabetes in Mexican Americans, Cubans, and Puerto Ricans from the Hispanic Health and Nutrition Examination Survey, 1982–1984. *Diabetes Care*. 1991; 14(7):628–38. [PubMed: 1914812]
- Flores G, Abreu M, Tomany-Korman SC. Why are Latinos the most uninsured racial/ethnic group of US children? A community-based study of risk factors for and consequences of being an uninsured Latino child. *Pediatrics*. 2006; 118(3):e730–40. [PubMed: 16950964]
- Foundation, Kaiser Family. *Publication #3057-08*. Menlo Park, CA: Kaiser Family Foundation; 2010. *Prescription Drug Trends*.

- Frankenfield DL, et al. Prescription medication cost-related non-adherence among Medicare CAHPS respondents: disparity by Hispanic ethnicity. *Journal of Health Care for the Poor and Underserved*. 2010; 21(2):518–43. [PubMed: 20453354]
- Fryar CD, et al. Hypertension, high serum total cholesterol, and diabetes: racial and ethnic prevalence differences in U.S. adults, 1999–2006. *NCHS Data Brief*. 2010; (36):1–8. [PubMed: 20423605]
- Gu Q, Dillon CF, Burt VL. Prescription drug use continues to increase: U.S. prescription drug data for 2007–2008. *NCHS Data Brief*. 2010; (42):1–8.
- Handley, Anna; Joseph, Mary Allison. A Study of Medical Interpretation for Monolingual Spanish-Speaking Patients in South Carolina. *Practicing Anthropology*. 2008; 30(2):37–41.
- Harari N, Davis M, Heisler M. Strangers in a Strange Land: Health Care Experiences for Recent Latino Immigrants in Midwest Communities. *Journal of Health Care for the Poor and Underserved*. 2008; 19(4):1350–1367. [PubMed: 19029757]
- Herper, M. America's Most Popular Drugs: A Narcotic Painkiller Tops Forbes' List of the Most Prescribed Medicines. New York, NY: Forbes.Com; 2010.
- Hunt KJ, et al. Diabetes is more lethal in Mexicans and Mexican-Americans compared to Non-Hispanic whites. *Annals of epidemiology*. 2011; 21(12):899–906. [PubMed: 21840730]
- Hunt, Linda M.; Arar, Nedat H.; Larme, Anne. Contrasting patient and practitioner perspectives in type 2 diabetes management. *Western Journal of Nursing Research*. 1998a; 20(6):656–76. discussion 677–82. [PubMed: 9842286]
- Hunt, Linda M.; Kreiner, Meta; Brody, Howard. The Changing Face of Chronic Illness Management in Primary Care: A Qualitative Study of Underlying Influences and Unintended Outcomes. *Annals of Family Medicine*. 2012; 10(5):452–460. [PubMed: 22966109]
- Hunt, Linda M.; Truesdell, Nicole; Kreiner, Meta J. Race, Genes and Culture in Primary Care: Racial Profiling in the Management of Chronic Illness. *Medical Anthropology Quarterly*. 2013; 27(2): 253. [PubMed: 23804331]
- Hunt, Linda M.; Valenzuela, Miguel A.; Pugh, Jacqueline A. Porque me toco a mi? Mexican American diabetes patients' causal stories and their relationship to treatment behaviors. *Social Science & Medicine*. 1998b; 46(8):959–969. [PubMed: 9579748]
- Hunt, Linda M.; Voogd, Katherine B. Are Good Intentions Good Enough?: Informed Consent Without Trained Interpreters. *Journal of General Internal Medicine*. 2007; 22(5):598–605. [PubMed: 17443367]
- Hunt, Linda M.; Kreiner, Meta J. Pharmacogenetics in Primary Care: The Promise of Personalized Medicine and the Reality of Racial Profiling. *Culture, medicine and psychiatry*. 2013; 37(1):226–235.
- JNC, (Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure). The Sixth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Archives of Internal Medicine*. 1997; 157(21):2413–2446. [PubMed: 9385294]
- Johnston SS, et al. Evidence linking hypoglycemic events to an increased risk of acute cardiovascular events in patients with type 2 diabetes. *Diabetes Care*. 2011; 34(5):1164–70. [PubMed: 21421802]
- Lin PH, et al. Blood Pressure-Lowering Mechanisms of the DASH Dietary Pattern. *Journal of nutrition and metabolism*. 2012; 2012:472396. [PubMed: 22496969]
- Lopez, Mark H.; Cohn, D'Vera. Hispanic Poverty Rate Highest In New Supplemental Census Measure Mark. Washington, D.C: Pew Hispanic Center; 2011.
- Manderson, Lenore; Smith-Morris, Carolyn. Chronic conditions, fluid states: Chronicity and the anthropology of illness. New Brunswick: Rutgers University Press; 2010.
- Maupin, Jonathan; Ross, Norbert. Expectations of Similarity and Cultural Difference in Conceptual Models of Illness: A Comparison of Medical Staff and Mexican Migrants. *Human Organization*. 2012; 71(3):306–316.
- Mendenhall E, et al. Speaking through Diabetes: Rethinking the Significance of Lay Discourses on Diabetes. *Medical Anthropology Quarterly*. 2010; 24(2):220–239. [PubMed: 20550094]
- Montori VM, Fernandez-Balsells M. Glycemic Control in Type 2 Diabetes: Time for an Evidence-Based About-Face? *Annals of Internal Medicine*. 2009; 150(11):803–8. [PubMed: 19380837]

- Montori, Victor M.; Isley, William L.; Guyatt, Gordon H. Waking Up from the DREAM of Preventing Diabetes with Drugs. *British Medical Journal*. 2007; 334:882–884. [PubMed: 17463460]
- Nathan DM, et al. Medical management of hyperglycemia in type 2 diabetes: a consensus algorithm for the initiation and adjustment of therapy: a consensus statement of the American Diabetes Association and the European Association for the Study of Diabetes. *Diabetes Care*. 2009; 32(1): 193–203. [PubMed: 18945920]
- NCEP, (National Cholesterol Education Program). Summary of the second report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel II). *JAMA: Journal of the American Medical Association*. 1993; 269(23):3015–23.
- NCEP, (National Cholesterol Education Program). Executive Summary of The Third Report of The National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, And Treatment of High Blood Cholesterol In Adults (Adult Treatment Panel III). *JAMA: Journal of the American Medical Association*. 2001; 285(19):2486–97.
- Oldani MJ. Beyond the naive “no-see”: ethical prescribing and the drive for pharmaceutical transparency. *Physical Medicine and Rehabilitation*. 2009; 1(1):82–86.
- Rochon PA, Gurwitz JH. Optimising Drug Treatment for Elderly People: The Prescribing Cascade. *British Medical Journal*. 1997; 315(7115):1096–1099. [PubMed: 9366745]
- Rosendorff C, et al. Treatment of hypertension in the prevention and management of ischemic heart disease - A scientific statement from the American Heart Association Council for High Blood Pressure Research and the Councils on Clinical Cardiology and Epidemiology and Prevention. *Circulation*. 2007; 115(21):2761–2788. [PubMed: 17502569]
- Sarpong EM, Bernard DM, Miller GE. Changes in pharmaceutical treatment of diabetes and family financial burdens. *Medical Care Research and Review: MCRR*. 2012; 69(4):474–91. [PubMed: 22513449]
- Smith-Morris CM. Diagnostic Controversy: Gestational Diabetes and the Meaning of Risk for Pima Indian Women. *Medical Anthropology*. 2005; 24:145–177. [PubMed: 16019569]
- Soni, A. Statistical Brief #363. Rockville, MD: Agency of Healthcare Research and Quality; 2012. Expenditures for the Top Five Therapeutic Classes of Outpatient Prescription Drugs, Medicare Beneficiaries, Age 65 and Older, U.S. Civilian Noninstitutionalized Population, 2009.
- U.S. National Library of Medicine. Hypoglycemia. Rockville, MD: National Center for Biotechnology Information; 2011.
- Ventura H, Pina IL, Lavie CJ. Hypertension and antihypertensive therapy in Hispanics and Mexican Americans living in the United States. *Postgraduate medicine*. 2011; 123(6):46–57. [PubMed: 22104453]
- Vigersky RA. A review and critical analysis of professional societies’ guidelines for pharmacologic management of type 2 diabetes mellitus. *Current diabetes reports*. 2012; 12(3):246–54. [PubMed: 22422437]
- Vijayaraghavan M, et al. The association between housing instability, food insecurity, and diabetes self-efficacy in low-income adults. *Journal of Health Care for the Poor and Underserved*. 2011; 22(4):1279–91. [PubMed: 22080709]
- Welch, H Gilbert. Should I be tested for cancer?: Maybe not and here’s why. Berkeley: University of California Press; 2004.
- Welch, H Gilbert; Schwartz, Lisa M.; Woloshin, Steven. Overdiagnosed Making People Sick in the Pursuit of Health. Boston: Beacon Press; 2011.
- Weller SC, et al. Explanatory models of diabetes in the U.S. and Mexico: the patient-provider gap and cultural competence. *Social Science & Medicine*. 2012; 75(6):1088–96. [PubMed: 22703883]
- Winters KP, et al. Race, stability of health insurance coverage, and prescription medication use. *The ABNF Journal: Official Journal of the Association of Black Nursing Faculty in Higher Education, Inc.* 2010; 21(1):21–6.

Table 1

Changing Diagnostic Criteria for Diabetes, Hypertension and High Cholesterol

	Prior to 1993	1993	1998	2001	2003	2007	Post 2010
Diabetes [*]							
	140(FPG) [†]		126(FPG)			126(FPG)	126(FPG)
<i>Pre-Diabetes</i>	None		110(FPG)		100(FPG)	7.0 (A1c) [‡]	6.5 (A1c)
							100(FPG)
Hypertension [§]							
	160/95	140/90					140/90
<i>Pre-Hypertension</i>	None				120/80		120/80
<i>with diabetes</i>					130/80		130/80
High LDL Chol. ^{**}							
	190			160			160
<i>Borderline High</i>	160			130			130
<i>with diabetes</i>	130			100			100

^{*} ADA 1998; ADA 2003; ADA 2008; ADA 2010

[†] FPG = Fasting Plasma Glucose

[‡] A1c = Hemoglobin A1c

[§] Chobanian, et al. 2003; JNC 1997

^{**} NCEP 1993; NCEP 2001

Table 2

Selected Characteristics for 19 Hispanic Patients Interviewed

	No.	%
Sex		
Male	6	32
Female	13	68
Place of Birth		
USA	4	21
Mexico	8	42
Other Latin America	7	37
Years in the US		
10 yrs	5	26
10 yrs +	12	63
Doesn't Apply (Entire Life)	2	11
Language at Home		
English	1	5
Spanish & English	3	16
Spanish	15	79
Age (mean 55.4; range 32–81)		
32–44	7	37
45–64	4	21
65 +	8	42
Education		
6 th grd	11	58
7 th grd to H.S. Grad.	4	21
Some College	4	21
Income		
\$20, 000	15	79
\$21–50,000	1	5
\$51,000	2	11
Not Available	1	5
Insurance		
No Insurance	4	21
County Health Plan ^{††}	6	32
Medicare/Medicaid	6	32
Private	2	11
Missing	1	5
Diagnoses^{†††}		

	No.	%
HTN Only	2	11
DM + HTN	1	5
(DM or HTN) + CHOL	3	16
DM + HTN + CHOL	13	68

^{††} The County Health Plan is not insurance, only providing coverage for some basic primary care services and generic medications.

^{††} HTN= Hypertension; DM= Diabetes; CHOL=High Cholesterol

Table 3
Number of Prescriptions by Diagnosis for 19 Hispanic Patients Interviewed^{§§***}

Case #	DM	HTN	CHOL	Other	Total
1	1	1	1	0	3
2	2	0	1	3	6
3	2	2	1	4	9
4	5	1	1	1	8
5	-	1	-	1	2
6	-	1	1	2	4
7	2	-	1	1	4
8	2	1	1	3	7
9	-	2	-	3	5
10	2	3	-	0	5
11	1	3	1	0	5
12	1	1	1	0	3
13	2	2	1	0	5
14	-	2	1	2	5
15	2	1	1	1	5
16	1	1	1	2	5
17	1	1	1	0	3
18	1	1	1	0	3
19	2	1	1	0	4
N	15	18	16	19	19
Mean	1.8	1.4	1.0	1.2	4.8

^{§§} HTN= Hypertension; DM= Diabetes; CHOL=High Cholesterol

^{***} A hyphen (-) appears for those not diagnosed with a given condition.