Published in final edited form as:
Sociol Health Illn. 2013 July ; 36(6): 870–884. doi:10.1111/1467-9566.12115.

The Pursuit of Preventive Care for Chronic Illness: Turning Healthy People into Chronic Patients

Meta J. Kreiner and **Linda M. Hunt**
Department of Anthropology, Michigan State University

Abstract

Preventive health care has become prominent in clinical medicine in the United States, emphasizing risk assessment and control, rather than addressing the signs and symptoms of pathology. Current clinical guidelines, reinforced by evidence-based decision aids and quality of care assessment, encourage clinicians to focus on maintaining rigid test thresholds which are based on population norms. While achieving these goals may benefit the total population, this may be of no benefit or even harmful to individual patients. In order to explore how this phenomenon is manifest in clinical care, and consider some factors that promote and sustain this trend, we analyze observations of over 100 clinical consultations, and open-ended interviews with 58 primary care clinicians and 70 of their patients. Both clinicians and patients equated at-risk states with illness, and viewed the associated interventions not as prevention, but as treatment. This conflation of risk and disease redefines clinical success such that reducing the threat of anticipated future illness requires acceptance of aggressive treatments and any associated adverse effects in the present. While the expanding emphasis on preventive medicine may improve the health profile of the total population, the implications of these innovations for the well-being of individual patients merits careful reconsideration.

Keywords

Preventive Medicine; Risk; Chronic Disease; medical decision making; Pharmaceuticals

Clinical medicine in the United States has been transformed in recent years, to embrace an expanding emphasis on preventive care. Medicine's traditional focus on treating the signs and symptoms of existing disease is systematically being reframed in terms of risk assessment and control (Starfield, et al. 2008). Preventive health care is now a prominent part of medical education, and clinical guidelines in the U.S. increasingly call for risk management interventions intended to avoid the future development of disease (Kelley, et al. 2004).

Benign conditions which have been associated at a population level, with risk for developing serious illness— such as mildly elevated blood pressure, glucose or cholesterol—have received especially vigorous attention, and their control has become a public health priority

Address for correspondence: Linda M. Hunt, Department of Anthropology, 354 Baker Hall, Michigan State University, East Lansing, MI 48824. huntli@msu.edu.

(CDC 2010). Diagnostic and treatment criteria have been systematically expanded for these conditions and new categories of “borderline disease” or “pre-disease” have also been added. With these changes, risk factors for disease have been converted into disease entities themselves (Moynihan 2011; Yudkin, et al. 2011), and now as many as 45% of American adults have been diagnosed and are being treated for these conditions (Cory, et al. 2010; Foundation 2010).

Despite pervasive enthusiasm for preventive medicine, critics point out some serious concerns with these practices. For example, they note that research linking marginal blood pressure, glucose or cholesterol levels to serious illness is inconclusive, and that while most individual patients will experience no benefit from maintaining tight control of these levels, they are exposed to potentially serious harm from the medications (Aronowitz 2009; Brody and Light 2011; Greaves 2000; Light 2010; Moynihan 2011; Starfield, et al. 2008; Yudkin, et al. 2011).

Even so, these expanded diagnostic and treatment standards for chronic illness management are being rapidly institutionalized into clinical guidelines and medical practice, as they are incorporated into increasingly pervasive systems for monitoring of clinical performance and quality of care. Equating “quality” health care with managing risk factors in healthy individuals may reduce the incidence of disease and health care costs for the total population, but the value to each individual is uncertain. Rose (2001) has pointed out an inherent tension in such an approach, which he describes as the Prevention Paradox: “A preventive measure which brings much benefit to the population, but offers little to each participating individual.”(p.432). Such trade-offs are reasonable in terms of a public health agenda, but their implications for the clinical agenda are less straightforward.

While clinical success is being redefined in terms of reducing the threat of possible future illness, little is known about the consequences of equating risk prevention with disease management for individual clinicians and their patients. Drawing on qualitative data from a study of chronic illness management in primary care, this paper will explore how this phenomenon is manifest in clinical care, and consider some of the factors that promote and sustain this trend.

BLURRING OF PREVENTION AND DISEASE

The expansion of preventive medicine and its growing clinical dominance began with a number of theoretical and clinical innovations which developed synergistically in the 1950s in the United States. Prior to this time, diagnosis and treatment of chronic diseases such as diabetes and hypertension had been reserved for relatively rare cases where patients experienced symptoms of manifest pathology. Overtime, many chronic conditions were reconfigured to be understood as occurring on a continuum, with non-pathological test levels redefined as clinically relevant, indicating an early stage of disease or risk for future development of disease (Greene 2007).

Through the 1960s, widespread screening arose as a strategy to reduce the population burden of chronic illness (Armstrong 2012), and new medications which were safer and more convenient were rapidly entering the market. Clinicians were increasingly screening

asymptomatic individuals for these conditions, in order that they be targeted for preventive treatments (Greene 2007). With these innovations, conditions like marginally elevated blood pressure and cholesterol came to be understood as existing somewhere between being a risk factor for developing cardiovascular disease and manifest illness itself. At the same time, the definition of diabetes was expanded to include those who are only at-risk for the disease, further blurring prevention and disease (Rosenberg 2009). This represents a fundamental alteration of the goals of clinical medicine from identifying and managing illness toward routine monitoring and management of risk in healthy people (Armstrong 1995; Fosket 2010).

RISK, POPULATION NORMS AND CLINICAL GUIDELNES

The idea of being "at-risk" is a construction based on statistical observations of the distribution of health-related states and events in the general population. When identifying and managing risk becomes the focus of clinical medicine, population level trends provide the basis for definitions of normal and abnormal, shifting attention away from attending to the condition of the individual patient (Bluhm and Borgerson 2011). Canguilhem (1989) has criticized this approach, for confusing statistical norms with biological norms, noting that while a certain range of test levels may be statistically defined as "normal" for a population, many individuals who fall outside that range will never experience any actual pathology. It may be of no benefit to a patient to bring their test levels into conformity with population norms, if their particular variation presents no potential harm to them. Because population norms are a probabilistic concept, they apply to an aggregate of individuals and cannot be simply translated into a single, correct test value appropriate for all patients (Hunt, et al. 2006; Lambert 2006; Rockhill 2001).

Nevertheless, population level norms have become a cornerstone of how risk and illness are defined and understood in medicine, and clinical goals and evaluation criteria for many conditions are increasingly informed by such data. When professional organizations first began publishing diagnostic and treatment guidelines in the 1970s, these emphasized numeric definitions of risk status, elevating statistical norms to a central place in medical practice (See for example: Davidson 2000; JNC 1977). Throughout the next forty years, in the name of improving disease prevention, the numeric thresholds defining diabetes, hypertension and high cholesterol have been repeatedly pushed downwards (Dumit 2012; Hunt, et al. 2012), and definitions of pre-diabetes and pre-hypertension are now set at numbers approaching population averages (ADA 2003; Chobanian, et al. 2003; Davidson 2000).[1] With diagnostic cut-points set near population averages, by definition of an average, it follows that nearly half the population will be above the cut-point, and therefor now eligible for such diagnoses.

It is noteworthy that each downward revision of diagnostic and treatment criteria has expanded the percentage of people being treated not for pathology, but for the chance that they might develop pathology in the future. This represents a true transformation of the

[1]Since 2010, pre-diabetes is defined as a fasting plasma glucose between 100–125 mg/dl or a Hb A1c between 5.7–6.4% (ADA 2011). Pre-hypertension is defined as blood pressure between 120/80 and 140/90 (or 130/80 for someone diagnosed with diabetes) (JNC 2003).

concept of “disease,” shifting clinical attention away from individual patients who are actually in decline from their disease, and instead to an as yet unaffected population (Aronowitz 2009; Starfield, et al. 2008). A key element of these evolving trends is the increasing reliance on the use of population based statistical modelling of risks and benefits to guide clinical decision-making, which gained momentum with the growth of “evidence-based medicine.”

While historically, evidence-based diagnostic and treatment guidelines had been followed by only a limited number of clinicians (Gallagher 2002), recent increases in the use of quality of care assessment has had a significant impact on guideline adherence. In the U.S., most quality of care assessment is carried out by one private, non-profit organization, the NCQA (National Committee for Quality Assurance), which ranks clinicians in part based on their adherence to professional practice guidelines, including calculation of the percentage of their patients reaching target test levels (NCQA 2010, 2012). This approach was designed initially for the needs of large health insurance plans and corporate employers (Berman 1999), and the focus on population level prevention is appropriate for such purposes. However, when such measurements are used to rank and reward individual clinicians, the provision of primary care may be redirected toward maintaining narrowly defined test threshold numbers, above other aspects of individual health status.

In order to better understand the ways the lens of preventive medicine may reconfigure the clinical agenda, we turn our attention to findings from an ethnographic study of chronic illness management in primary care clinics we have been conducting. We will contrast clinician and patient perspectives, examining the way they understand and enact preventive strategies, their concepts of risk and disease, and their criteria for evaluating treatment efficacy and defining clinical success.

THE STUDY

In 2009, we began conducting an ethnographic study in a Midwestern U.S. state, of how primary care clinicians and their patients interpret and apply genetic and racial concepts of risk in their approaches to management of common chronic illnesses. As the project developed, we were impressed with the intensity and uniformity with which clinicians responded to clinical indicators of disease risk. This began to make sense to us once we better understood the institutional context promoting clinicians’ attention to those indicators.

Clinicians and patients were drawn from 44 primary care clinics, which included a wide variety of practices: suburban, urban and rural; private and public; large health system clinics, as well as small charitable clinics. We interviewed a purposive sample of 58 clinicians and 70 patients. We also observed 12 clinicians in over 100 of their clinical consultations with patients in treatment for diabetes or hypertension. The patients we interviewed were drawn from the consultations we had observed. (See Tables 1 & 2).

Interviews were open-ended and semi-structured, focusing on concepts of clinical risk, and on strategies for managing diabetes and hypertension. They lasted about one hour, and were recorded and transcribed. We also recorded careful notes of the clinical consultations we observed, capturing these interactions as fully as possible. All study participants gave

informed consent, following IRB approved protocols. Names and personal details of the case material presented in this paper have been changed to assure anonymity.

We developed quantitative and descriptive databases of demographic and open-coded variables, and used qualitative analysis software to code and analyse interview transcripts. To minimize investigator bias, the research team discussed and reviewed coding strategies and emerging findings throughout the project, reaching consensus about coding procedures and honing analysis foci. Spot checks were also conducted to assure consistency in coding and classification procedures.

RISK AS A TREATABLE CONDITION

In our study, we were struck by how avidly and consistently the clinicians pursued narrowly defined test thresholds for their patients. They were well aware that guideline diagnostic criteria were subject to frequent revision, but did not question these changes. They instead routinely incorporated the revised goals into their practices. The perspective of one physician who had been in practice throughout the various phases of these revisions is especially noteworthy. Dr Shields, who worked in a charity clinic in a large city, had practiced medicine for more than forty years. In discussing current criteria for diabetes diagnosis and management, he remarked:

> Today standards are much more aggressive. The days are gone when we'd say to someone with pre-diabetes, "Okay, let's try behaviour modification for a few months." Now we just start them on metformin and other things, because the bulk of the damage is done early. So getting someone's blood sugar down after they've been diabetic three years is not enough. …. It makes sense. I mean, we know a lot more.

Dr Shields' certainty of the value of early, aggressive intervention reflects an important transformation in the way preventive medicine is practiced. While when first appearing in practice guidelines, the diagnosis of "pre-disease" was presented as a wake-up call for individuals to pursue more healthy lifestyles, it has been converted into a treatable disease category. For example, in 2003 clinical guidelines did not recommend pharmaceuticals for pre-hypertension (Chobanian, et al. 2003), but now the use of medications is promoted for such patients (Fuchs 2010; Julius, et al. 2006). Similarly, the 2003 American Diabetes Association guidelines (ADA 2003) stated that pre-diabetes should be treated only with lifestyle modifications, not medications. However, the 2008 ADA guidelines recommend medications for pre-diabetic individuals who have other risk factors such as obesity, family history or certain racial/ethnic identities (ADA 2008).

Most of the clinicians we interviewed agreed that marginally elevated test results require immediate action. For example, when asked about diabetes management, over half (60%, 35/58) began their response referring to pre-disease, and almost one third (29%, 17/58) said they begin hypertension treatment for patients in the pre-hypertensive range. Dr Morgan, a 56 year old physician practicing in a private family medicine clinic in a suburban neighbourhood, described his approach for patients with pre-diabetes test results this way:

> They may not meet the definition of diabetes, but we need to treat them like they are a diabetic, and get more aggressive—starting on medications like metformin—And that may keep them from meeting the definition of diabetes for years.

Our study included a diverse group of clinicians—recently trained and well-seasoned; physicians and other health care professionals; those in suburban private practices and in low-income clinics— yet they all cited nearly identical diagnostic criteria, and detailed very similar treatment plans. Why would they respond so emphatically and uniformly to the ever-changing guideline criteria, above other indicators of patients' health status and needs?

MECHANISMS PROMOTING THE TREATMENT OF RISK

One factor behind this consistency seems to be the clinicians' heavy reliance on evidence-based electronic information sources in treating individual patients. Nearly three fourths (71%, 41/58) said they regularly use online subscription services as their primary source of information for making clinical decisions. Those we observed routinely turned to their computers in the course of clinical consultations—either a laptop during the consultation itself, or returning to their desktop computer briefly while the patient waited. Many (41%, 24/58) remarked that such information sources helped them to keep up with the latest standards and treatment practices. It is also noteworthy that nearly three fourths (74%, 30/41) were using the same website—UpToDate (UpToDate 2013). This is an international evidence-based clinical decision support resource, which is widely subscribed to by health care institutions as well as private, independent clinicians. Heavy reliance on such information sources may contribute to the level of homogeneity we found in clinicians' interpretation and response to even marginal test results.

Quality of care monitoring, which assesses clinician performance based on tight adherence to clinical guidelines, seems to further encourage clinicians to respond to risk as though it were pathology. The NCQA, the organization currently responsible for setting most quality of care standards in the U.S., defines specific numeric targets for diabetes and hypertension as the basis of clinician evaluation for management of these conditions. A clinician's score is calculated annually as a percentage, dividing the number of "good control" patients over the total number of patients diagnosed with that condition (NCQA 2010).

Our interviews and observations indicate that clinicians are particularly concerned with the very specific numbers set out in this ranking system. For example, in their discussions of diabetes care, all but one who named specific goal numbers (98%, 47/48) said they strive to keep patients' test values below the current NCQA numeric threshold for "good control" (HbA1c below 7.0). Similarly, nearly all who named specific goal numbers for hypertension (95%. 42/44) cited numbers consistent with current NCQA values (140/90 mmHg) (NCQA 2010).

To be clear, these clinicians did not express interest in pursuing these numbers in a cynical way, but instead, viewed the threshold numbers as clinically meaningful goals. For example, regarding hypertension, Dr Shields said: "Every millimetre above 140/90 translates into a percentage risk for a stroke or heart attack." Similarly, Dr Jordan, a 58 year old internal medicine physician made this observation about diabetes management:

> Anybody can get you down from a 12 to 9 [HbA1c], but we know that unless you are below 7, that the damage to the eyes, kidney, and heart continues. Getting you from 14 to 8.5 is no good. There's no merit in decreasing the numbers. Close only counts in horseshoes.

It is interesting, and concerning that in these examples the clinicians interpret the goal numbers as definitional of health for all patients, dismissing the value of lowering test levels for those with significantly elevated results, if they still remained outside the target range. In this way, quality monitoring systems may promote the conflation of risk and disease, encouraging clinicians to focus on at-risk patients who are diagnosed below the NCQA cut-point and can readily remain on the "controlled" side of the equation. Ironically, to maximize their ranking, clinicians do well to prescribe medications to individuals with only marginal diagnoses, and not focus on those who are more ill.

Because NCQA rankings are calculated annually, they appear to be incentivizing reaching goal numbers quickly and thereby encouraging clinicians to rely on medications to achieve a rapid response, rather than wait for the much slower effects of lifestyle modification. For example, 28% (15/54) of clinicians with whom we discussed treatment plans for hypertension made no mention of lifestyle modification at all. A clear majority of those who mentioned a time frame for diet and exercise to have an effect (86%, 24/28) allowed their patients less than three months for this or started medications simultaneously. Consider, as illustration, the remarks of Dr Jones, a M.D. practicing in a private urban clinic, who explained her approach for patients who want to try diet and exercise rather than medications:

> I tell them, "I'll see you back in one month, and in that time you should have lost at least six to eight pounds."… If their test results have not improved, I tell them they have failed, and that I cannot allow them to walk around like that, and I put them on a low-dose, once-a-day pill.

What seems to be totally lost in this avid pursuit of lower test results is that, in all but the most extreme cases, these treatment efforts are not aimed at addressing a current disease, but rather are preventive care, meant to reduce risk of developing disease sometime in the future (Saukko, et al. 2012). Thus far, we have considered how the distinction between risk reduction and disease treatment becomes blurred in the ways that clinicians understood and addressed these conditions. Next we turn our attention to the patients we interviewed, to consider how they perceived and experienced this phenomenon.

THE URGENCY OF EARLY DIAGNOSIS

Researchers have reported that widespread screening, diagnosis and treatment of states of "risk" and "pre-disease" is creating a new category of patient experience, that of being a "partial patient" –one who is neither diseased nor well, but exists in a liminal state between illness and health (Gillespie 2011; Greaves 2000). This framing, however, does not fully capture what we found with the 70 patients we interviewed. Rather than perceiving themselves to be suspended between illness and health, they clearly understood themselves

as ill—equally so for those diagnosed only in the borderline end of the continuum as for those with more elevated test results.

While a substantial number of those we interviewed had been diagnosed at borderline levels —33% (18/55) of hypertensives and 41% (23/56) of diabetics—none, regardless of their test numbers, described their condition as “pre-diabetes” or “pre-hypertension.” Rather than indicating they are at-risk for developing diabetes or hypertension in the future, all described themselves as currently having disease. Consider for example, the comments of Cindy, a retired school teacher in her early sixties, who has never had test results above the pre-diabetes range:

> When they discovered I was diabetic, I was in shock. I heard my doctor say “diabetic” and I could see his mouth moving, but I didn’t hear another word he said that whole session. … It’s not easy, I’m diabetic.

That the patients we interviewed so consistently equated being at-risk with having disease appears to be due, at least in part, to the way clinicians responded to their condition and how information was provided to them. Consider for example, the experiences of Stanley, a 59-year-old automobile engineering consultant. During his interview, he showed the researcher a lab printout he had received in the mail, which reported he had fasting plasma glucose of 103 mg/dL, which, while just over the pre-diabetes boundary of 100 mg/dL, was well below the current diagnostic boundary of 126 mg/dL. On the report, the glucose level was labelled “diabetes.” Stanley said he had received a phone message from his primary care clinic telling him he had diabetes and needed to lose weight, watch his sugar intake and return to the clinic for a diabetes appointment.

Stanley’s experience was by no means unique. Without exception, the pre-disease patients we observed were subject to the same clinical management strategies as were patients clearly above diagnostic thresholds. They received the same screening and diagnostic tests, the same patient hand-outs and pamphlets, the same clinical follow-up plans and home monitoring instructions, and the same medications. At every juncture, the urgency of bringing test results below rigidly defined target levels was stressed.

Patients were deeply concerned about what they had been told could happen to them if they failed to get their test levels under control. All but two (97%, 68/70) listed a set of very serious complications including death (54%, 37/70), heart attack or stroke (67%, 47/70) and specifically for diabetes—blindness (46%, 26/56) and amputations (38%, 21/56). Patients in the pre-disease range expressed these same concerns, and none mentioned development of diabetes and/or hypertension as the outcome they were trying to prevent.

In some cases, this tendency to anticipate imminent danger from even marginally elevated metabolic levels clearly came from things clinicians told patients. For example, when we asked Marta, an elderly woman receiving care in a rural low-income clinic, what she thought could happen if she failed to keep her hypertension within the target range told us: “Well I could have a heart attack, or it could kill me. The doctor has told me that this is really bad.”

We also found that patients may draw on the experiences of others they know to interpret their own at-risk state, without distinguishing between preventive care and management of

advanced illness. This was especially true for diabetes, where almost half (48%, 27/56) recounted such a story. For example, Jamie, a 58 year old factory worker, told us: "Years ago my doctor told me—these are his words. They used to call it 'borderline', but now they say you are or you isn't. So I guess since I'm a little bit over the border, that I am." Still, in Jamie's mind knowledge that his was a marginal diagnosis and that the diagnostic guidelines were subject to revision did not mitigate the weight of the diagnosis. He equated his own risk state with the condition of people he knew who had advanced disease. When asked what can happen when glucose levels are not controlled, he said:

> Man, you can go blind, a lot of stuff. …It's really like my uncle. He started off with one toe [amputated] … next thing you know they went to the ankle and then up to the knee. Then they started on the other leg…Pretty soon he's six feet under. Diabetes took him right out of here.

Fear of the pain and suffering described in stories like this provides strong motivation for patients to follow treatment regimens. It was common in the consultations we observed, for clinicians to encourage treatment compliance with remarks like this one, made by a physician to an elderly male patient: "Your diabetes is controlled right now but you need to keep on top of it, to avoid heart problems, stroke, and kidney problems." Equating the dangers of an at-risk state with imminent illness in this way promoted a sense of urgency for patients.

PREVENTIVE MEDICATION: IS TREATING RISK CAUSING HARM?

The urgency and intensity of the treatment efforts we observed for managing risk, even for marginal tests results, were impressive. Nearly all the patients interviewed (96%, 67/70), including those with "pre-disease" diagnoses, had been prescribed medications for hypertension and/or diabetes, and most (87%, 61/70) had been given these prescriptions immediately upon diagnosis.

While heavy reliance on medications certainly can lower test results, it also may initiate a wide range of unintended health effects. Patients at the pre-disease end of the continuum are in particular danger of experiencing such effects. Because their metabolic levels are only marginally elevated, medications may cause these levels to fall dangerously low (Dumit 2012; Hunt, et al. 2012; Welch, et al. 2011). Indeed, half of the patients we interviewed (52%, 36/70) reported suffering from symptoms of hypoglycaemia and/or hypotension, such as dizziness, headache, nausea, heart palpitations, and blurred vision. In at least four cases, these were very serious episodes, for which the patient had to be hospitalized. However, patients rarely recognized that their medications might be the cause of these symptoms. In fact, most who had experienced episodes of hypoglycaemia and/or hypotension (68%, 24/36) thought these were symptoms of the condition itself, and did not consider them to be due to their medications.

Another concern with relying on medications to quickly achieve goal numbers is the rapid accumulation of prescriptions. This is especially true for diabetes because with this diagnosis, the guidelines set lower goal numbers for blood pressure and cholesterol. Once diagnosed with diabetes, patients are often prescribed new or additional medications to

achieve goal levels for these other conditions. Most patients we interviewed (83%, 57/69[2]) had some combination of diabetes, hypertension and high cholesterol, and more than half (55%, 38/69) had been diagnosed with all three. Nearly all (89%, 62/70) were taking multiple drugs for these conditions. While these multiple diagnoses were routine for the clinicians, they were often overwhelming for patients.

For example, Marcos, a 34 year old father of two, who was unemployed and uninsured, told us about his experience receiving marginally elevated test results when he went to a new doctor for a routine check-up. By the time he left he had been told he had diabetes, hypertension and high cholesterol, and given prescriptions for each. He said, “Imagine what it’s like to hear all of that in one day! When I came in I was perfectly fine and when I left, I had all of that.”

Not surprisingly, as medications accumulate, associated adverse drug reactions often accumulate as well. Patients can quickly be drawn into a “Prescribing Cascade” (Rochon and Gurwitz 1997), taking more and more drugs to control the effects of already prescribed drugs. Indeed, this was often the case for patients in our study. For example, more than half of those taking medications for additional conditions (57%, 24/42) had been prescribed drugs for respiratory and/or gastric symptoms, both well-known side-effects of the most common hypertension and diabetes medications.

The clinicians we interviewed were clearly aware of the potential harms of the medications they prescribe, resigned to managing these effects as a necessary step in managing these conditions. More than half (55%, 32/58) noted specific drug side effects they need to consider in prescribing medications, but discussed these as unfortunate but acceptable costs of attaining goal test results. For example, consider the remarks of two family practice physicians, referring to commonly used drugs for diabetes and for hypertension, respectively: “There’s a lot of intolerance to metformin--gastro-intestinal side effects. It’s unfortunate because it is a really good drug.” And: “At higher doses the beta blockers cause bronco-spasm. That we treat with bronchodilator inhalers.”

Like the clinicians, nearly all patients also viewed the use of medications as necessary for managing a life-threatening condition. Only two directly questioned the use of medications that cause adverse health effects. Cindy, the retired school teacher we introduced earlier, remarked: “The side effects are worse than what you’re trying to cure. I mean, the drugs might help you control it better, but what do you develop in the meantime from being on the stupid things?” And Eva, a 48 year old who is also a teacher commented: “My concern is, you know, all these chemicals…I’m afraid of these medicines. How is it that diabetics have all this kidney failure. Is it because of diabetes or is it because of all the medicine?”

Still, these two, like most everyone else in our study, patients and clinicians alike, saw attaining goal numbers as so important that they did not feel adverse reactions to the drugs warranted stopping them. Throughout the consultations we observed, we were struck by how much time and attention was devoted to adjusting medications, changing dosages or

[2]Information on the cholesterol status was missing for one patient, so n=69 for these calculations.

trying different combinations of medications, toward achieving goal numbers and managing negative drug effects, without questioning the urgency of pursuing preventive medicine in the first place.

DISCUSSION

When patients walk into the doctor's office, they might reasonably expect that the clinician will make diagnostic and treatment decisions by assessing their symptoms and medical history. In the primary care clinics where we conducted this study, it seems that the principles of preventive medicine have come to dominate the clinical agenda, above more traditional clinical concerns. The clinicians in this study were largely focused on achieving rigidly defined treatment goals to manage risk as defined by clinical guidelines, evidence-based decision aids and quality of care assessment measures. At the same time, the patients accepted the treatments used to reach these goals, and all of the treatments' attendant burdens, believing they had a serious illness.

Despite the widespread belief that preventing illness is surely superior to treating it, it is not clear that the practice of allowing the logic of prevention to subsume the clinical agenda is necessarily in the best interest of individual patients. In recent years, clinical goals have been steadily revised downwards for conditions like diabetes and hypertension, and pre-disease has been elevated into a treatable condition based on population risk models. The clinicians received a consistent message that helping patients reach these numeric thresholds constitutes the best care they can provide.

Because both clinicians and patients equated at-risk states with actually being ill, they viewed the associated interventions not as prevention, but as treatment. Such conflation redefines the notion of clinical success in a way that makes it difficult to evaluate benefit or harm. When prevention is equated with treatment, harms which might have been deemed unacceptable as a preventive strategy are transformed into the costs of a necessary life-saving treatment. In assessing the value of intervention, clinicians and patients alike must navigate a complicated terrain where risk is equated with illness, the goal of treatment is reducing the threat of anticipated future illness, and treatments and any associated harms in the present appear to be necessary for protecting future health.

When prevention is the goal of treatment, criteria for assessing the treatment efficacy are recast as "positive deviation from a projected downhill trajectory" (Aronowitz 2009: 429). This places the diagnosis and treatment of at-risk and pre-disease conditions in an interesting light, wherein accuracy can never be denied. Should the patient experience increasingly poor health, it is taken by both clinician and patient as confirmation that early or incipient disease had been identified. On the other hand, should the patient never develop illness, it is viewed not as diagnostic error, but as a triumph of preventive medicine over disease.

Our analysis leads us to question the increasingly common practice of aggressively treating at-risk conditions as though failing to meet population norms presents real and immediate health threats to individual patients. This does more than create the illusion that healthy people are sick. It may in actuality be making them sick. There is growing evidence that

tight control of blood glucose and blood pressure, especially at pre-disease levels, can have serious negative health consequences, while providing little or no health benefit to the individual (See for example: Arguedas, et al. 2009; Choe, et al. 2010; Johnston, et al. 2011; Montori and Fernandez-Balsells 2009; Montori, et al. 2007). For example, in conducting a systematic review of studies of tight glycaemic control, Montori & Fernandez-Balsells (2009) observed that such efforts may expose many individuals to interventions "with still-uncertain benefits and certain harms."(p. 805).

In terms of a public health agenda, these may be viewed as acceptable costs for achieving societal gain: By managing risk factors in healthy individuals, the incidence of disease, disability and health care costs will be lower for the total population. Clinical guidelines and quality assessment criteria are increasingly defined by interests that lie outside of clinical medicine, such as health insurers, public health agencies, large health system employers, and the pharmaceutical industry (Conrad 2005; Dumit 2012). While for large institutions of this sort, lowering the disease burden across a population may be an appropriate goal, it is not equivalent to promoting quality of care for individual patients.

A person walking into a doctor's office does not come there with the intention of improving the health profile of a population, but is there to pursue betterment of their own health. To enlist them unwittingly into the project of prevention, while exposing them to potential harm, in the absence of institutionally sanctioned mechanisms for tailoring clinical goals to individual patients, raises serious ethical concerns (Skrabanek 1990). While the expanding emphasis on preventive medicine may well improve the health profile of the total population, the implications of these innovations for the well-being of individual patients merits careful reconsideration.

Acknowledgments

This 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, Fredy Rodriguez, Kimberly Rovin and Nichole Truesdell provided invaluable assistance with a variety of data collection, analysis and literature review tasks. We also wish to thank two anonymous reviewers for their very helpful comments.

References

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]

Arguedas JA, Perez MI, Wright JM. Treatment Blood Pressure Targets for Hypertension. Cochrane database of systematic reviews. 2009; 2010:CD004349. [PubMed: 19588353]

Armstrong, David. The Rise of Surveillance Medicine. Sociology of Health and Illness. 1995; 17(3): 393–404.

Armstrong, David. Screening: Mapping Medicine's Temporal Spaces. Sociology of Health & Illness. 2012; 34(2):177–93. [PubMed: 22369579]

Aronowitz, Robert A. The Converged Experience of Risk and Disease. The Milbank Quarterly. 2009; 87(2):417–442. [PubMed: 19523124]

Berman, Henry S. Performance Measures: The Destination or the Journey? Effective Clinical Practice. 1999; 2(6):284–286. [PubMed: 10788027]

Bluhm, Robyn; Borgerson, Kirstin. Philosophy of Medicine. BV: Elsevier; 2011. Evidence-Based Medicine; p. 203-238.Handbook of the Philosophy of Science

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]

Canguilhem, Georges. The Normal and the Pathological. New York: Zone Books; 1989.

CDC, (Centers for Disease Control and Prevention). Chronic Diseases and Health Promotion. Atlanta, Georgia: U.S. Department of Health and Human Services; 2010. Chronic Diseases and Health Promotion.

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]

Conrad, Peter. The shifting engines of medicalization. Journal of Health and Social Behavior. 2005; 46(1):3–14. [PubMed: 15869117]

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]

Davidson, John K. Clinical Diabetes Mellitus A Problem-Oriented Approach. New York: Thieme; 2000.

Dumit, Joseph. Drugs for life: how pharmaceutical companies define our health. Durham, NC: Duke University Press; 2012.

Fosket, Jennifer. Breast Cancer Risk as Disease: Biomedicalizing Risk. In: Clarke, AE.; Mamo, L.; Fosket, JR.; Fishman, JR.; Shim, JK., editors. Biomedicalization: Technoscience, Health and Illness in the US. Durham, N.C: Duke University Press; 2010. p. 331-352.

Foundation, Kaiser Family. Prescription Drug Trends. Menlo Park, CA: Kaiser Family Foundation; 2010. Publication #3057-08

Fuchs, Flávio Danni. Prehypertension: the Rationale for Early Drug Therapy. Cardiovascular Therapeutics. 2010; 28(6):339–343. [PubMed: 20553286]

Gallagher EJ. How Well Do Clinical Practice Guidelines Guide Clinical Practice? Annals of emergency medicine. 2002; 40(4):394–398. [PubMed: 12239494]

Gillespie, Chris. The Experience of Risk as ‘Measured Vulnerability’: Health Screening and Lay Uses of Numerical Risk. Sociology of Health and Illness. 2011:1–14.

Greaves, David. The Creation of Partial Patients. Cambridge Quarterly of Healthcare Ethics. 2000; 9:23–37. [PubMed: 10721467]

Greene, Jeremy A. Prescribing by Numbers: Drugs and the Definition of Disease. Baltimore: Johns Hopkins University Press; 2007.

Hunt, Linda M.; Castaneda, Heide; De Voogd, Katherine. Do Notions of Risk Inform Patient Choice? Lessons from a Study of Prenatal Genetic Counseling. Medical Anthropology. 2006; 25(3):193–219. [PubMed: 16895827]

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]

JNC, (Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure). Report of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure. A cooperative study. Journal of the American Medical Association. 1977; 237(3):255–61. [PubMed: 576159]

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]

Julius S, et al. Feasibility of Treating Prehypertension with an Angiotensin-Receptor Blocker. New England Journal of Medicine. 2006; 354(16):1685–97. [PubMed: 16537662]

Kelley E, et al. Prevention Health Care Quality in America: Findings from the First National Healthcare Quality and Disparities Reports. Preventing chronic disease. 2004; 1(3):A03. [PubMed: 15670424]

Lambert, Helen. Accounting for EBM: Notions of Evidence in Medicine. Social Science and Medicine. 2006; 62(11):2633–2645. [PubMed: 16387399]

Light, Donald W. Bearing the Risks of Prescription Drugs. In: Light, DW., editor. The Risks of Prescription Drugs. New York: Columbia University Press; 2010. p. 1-39.

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]

Moynihan R. Surrogates Under Scrutiny: Fallible Correlations, Fatal Consequences. British Medical Journal. 2011; 343(aug15 1):d5160–d5160. [PubMed: 21844159]

NCQA, (National Committee for Quality Assurance). 2010 Technical Specifications for Physician Measurement. National Committee for Quality Assurance; 2010. HEDIS.

NCQA, (National Committee for Quality Assurance). [Date Accessed: 01/30/2013] Health Insurance Plan Rankings 2012–2013. 2012. Available at: http://www.ncqa.org/SearchResults.aspx?Search=Health+Insurance+Plan+Rankings\

Rochon PA, Gurwitz JH. Optimising Drug Treatment for Elderly People: The Prescribing Cascade. British Medical Journal. 1997; 315(7115):1096–1099. [PubMed: 9366745]

Rockhill B. The Privatization of Risk. American Journal of Public Health. 2001; 91(3):365–368. [PubMed: 11236399]

Rose G. Sick Individuals and Sick Populations. International journal of epidemiology. 2001; 30(3): 427–32. discussion 433–4. [PubMed: 11416056]

Rosenberg C. Managed Fear. Lancet. 2009; 373(9666):802–3. [PubMed: 19278033]

Saukko, Paula M., et al. Beyond Beliefs: Risk Assessment Technologies Shaping Patients' Experiences of Heart Disease Prevention. Sociology of Health and Illness. 2012; 34(4):560–575. [PubMed: 22017639]

Skrabanek, Petr. Why is preventive medicine exempted from ethical constraints? Journal of Medical Ethics. 1990; 16(4):187–190. [PubMed: 2287014]

Starfield B, et al. The Concept of Prevention: A Good Idea Gone Astray? Journal of epidemiology and community health. 2008; 62(7):580–3. [PubMed: 18559439]

UpToDate. [Date Accessed: 06/12/13] Evidence-Based Clinical Decision Support Resource. 2013. Available at: http://www.uptodate.com/index

Welch, H Gilbert; Schwartz, Lisa M.; Woloshin, Steven. Overdiagnosed Making People Sick in the Pursuit of Health. Boston: Beacon Press; 2011.

Yudkin JS, Lipska KJ, Montori VM. The Idolatry of the Surrogate. British Medical Journal. 2011; 343:d7995. [PubMed: 22205706]

Table 1

Selected Characteristics for 58 Clinicians Interviewed, 2009–2010

Characteristic	No.	%
Sex		
Male	26	45
Female	32	55
Race/Ethnicity		
Non-Hispanic White	37	63
African American	10	17
Native American	2	3
Pacific Islander	2	3
Asian	5	9
Hispanic	2	3
Age		
Range: 27–77, Median: 43		
24–34	12	21
35–44	19	33
45–55	16	27
>55	11	19
Degree		
MD (Doctor of Medicine)	34	59
DO (Doctor of Osteopathic Medicine)	17	29
PA (Physician Assistant)	2	3
NP (Nurse Practitioner)	5	9
Graduation Year		
< 1984	13	22
1985–1994	16	27
1995–2004	22	38
2005 +	7	12
Type of Clinic		
University	3	3
Hospital/Health System	21	36
Physician Owned	21	36
FQHC	8	14
Other	5	9
Location of Clinic		
Urban	40	69
Rural	7	12
Suburban	11	19

Table 2

Selected Characteristics for 70 Patients Interviewed, 2009–2010

Characteristic	No.	%
Sex		
Male	38	54
Female	32	46
Race/Ethnicity		
Non-Hispanic White	27	38
African American	19	27
Native American	4	6
Pacific Islander	0	0
Asian	0	0
Hispanic	20	29
Age		
Range: 32–85, Median: 58		
24–34	2	3
35–44	9	13
45–54	17	24
55–65	20	29
>65	22	31
Diagnosis		
Diabetes	15	21
Hypertension	14	20
Both	41	59
Interview Language		
English	53	76
Spanish	17	24
Income Level Reported		
<$10, 000	21	30
$11–20,000	16	23
$21–50,000	15	21
$51–70,000	4	6
$71–90,000	4	6
$90,000+	4	6
Unreported	6	9