

The US Obesity “Epidemic”: Metaphor, Method, or Madness?

Gordon R. Mitchell and Kathleen M. McTigue

In 2000, US Secretary of Health and Human Services Secretary Tommy Thompson mobilized the US public health infrastructure to deal with escalating trends of excess body weight. A cornerstone of this effort was a report entitled The Surgeon General’s Call to Action to Prevent and Decrease Overweight and Obesity. The report stimulated a great deal of public discussion by utilizing the distinctive public health terminology of an epidemic to describe the growing prevalence of obesity in the US population. We suggest that the ensuing controversy was fueled in part by the report’s ambiguous usage of the evocative term “epidemic.” In some passages, the report seems to use “epidemic” in a literal sense, suggesting that rising prevalence of excess body weight should be defined technically as a disease outbreak. Other passages of the report present the same key term metaphorically, leaving readers with the impression that the epidemic language is invoked primarily for rhetorical effect. Here, we explore dynamics and implications of both interpretations. This analysis sheds light on the ongoing public argument about the appropriate societal response to steadily increasing body sizes in the US population; likewise, it capitalizes on the accumulated knowledge that the field of public health has garnered from combating diverse historic epidemics. Our interdisciplinary approach deploys critical tools from the fields of rhetoric, sociology and epidemiology. In particular, we draw from metaphor theory and public address scholarship to elucidate how the Call to Action frames public deliberation on obesity. We turn to the applied public health literature to develop a reading of the report that suggests a novel approach to the problem—application of the Epidemic Investigation protocol to streamline the public health response and reframe the public argument about obesity.

Keywords: David Satcher; Epidemics; Epidemiology; Public Argument; Public Health; Rhetoric

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In response to the recent and dramatic rise in US obesity prevalence (Figure 1; Ogden et al. 2006; US Department of Health and Human Services [US HHS] 2001) and the shift toward younger onset of obesity (McTigue, Garrett and Popkin 2002; Lewis et al. 2000; Strauss and Pollack 2001), the US medical and public health systems have increasingly focused on the issue of body weight.¹ Major journals have devoted entire issues to the topic.² The US National Institutes of Health convened a working panel on overweight and obesity in 1997, which produced a summary of evidence supporting obesity diagnosis and treatment, as well as guidelines for clinicians (US HHS 1998).³ The US HHS continues to coordinate a wide array of intervention programs designed to prevent and treat obesity (US Centers for Disease Control and Prevention [US CDC] 2005c).

A small but vocal group of detractors has decried these initiatives, calling them part of a misguided “war on fat” (Campos et al. 2006a, 55), in which “much of the highest profile obesity research being done in America today turns out to be little more than propaganda masquerading as the results of disinterested scientific investigation” (Campos 2004a, xxii), and where “anti-obesity proposals will end up being like most diet plans: they will promise much but deliver little, and in some cases might even cause great harm” (Oliver 2006, 160; see also Campos et al. 2006b, 82).

According to J. Eric Oliver (2006, 177), the “first shot in the federal government’s current war on obesity” was the 2001 release of a report by Surgeon General David Satcher (US HHS 2001) entitled *The Surgeon General’s Call to Action to Prevent and*

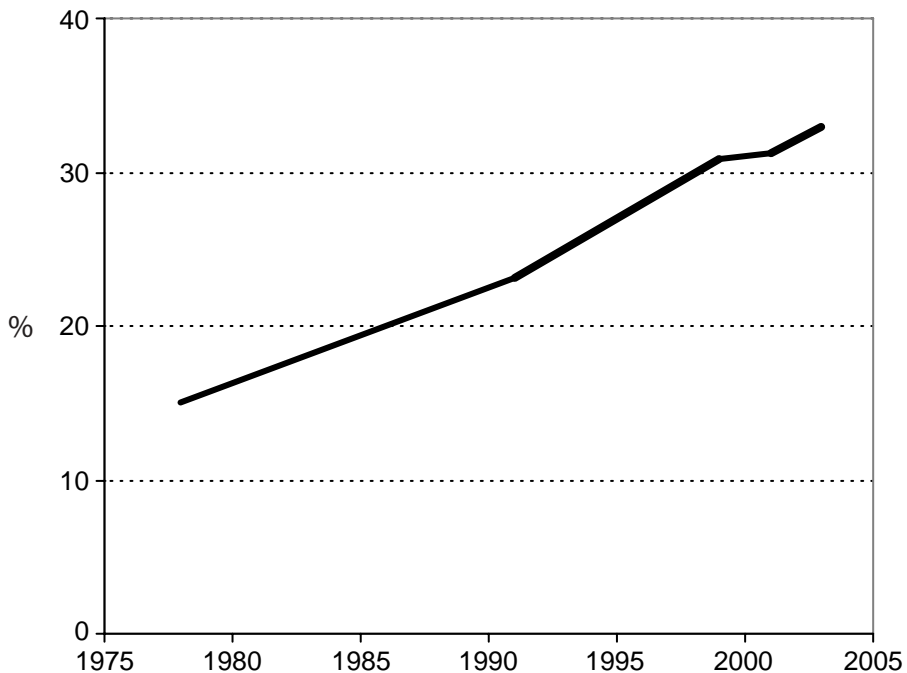


Figure 1 Prevalence of Obesity (BMI > 30 kg/m²) among US Adults Aged 20–74, Based on Age-adjusted Data of the National Health and Nutrition Examination Surveys: NHANES II 1976–1980, n = 11 207; NHANES III 1988–1994, n = 14 468; NHANES 1999–2000, n = 3603; NHANES 2001–2002, n = 3916; and NHANES 2003–2004, n = 3756 (US CDC 2006).

Decrease Overweight and Obesity (hereafter *Call to Action*). This report is particularly notable in that it applies the distinctive public health terminology of an epidemic to describe the growing prevalence of overweight and obesity in the US population. In the wake of this report, talk of the “obesity epidemic” swiftly intensified (Kersh and Morone 2005, 842), such that “a striking rhetorical marker of escalating policy concern with weight involves the now endemic use of *epidemic* to describe trends in body mass” (Schlesinger 2005, 793).

Since publication of the *Call to Action*, the term epidemic has engendered much discussion, with some claiming that it lacks validity in the obesity context (Campos et al. 2006a; Oliver 2006) and others asserting that it is an appropriate label to describe the situation (Kim and Popkin 2006; Mokdad et al. 2001; Stevens, McClain and Truesdale 2006). Meanwhile, US obesity rates have continued to trend upward to 17% among children and adolescents and 31% among men, and have remained approximately stable at 33% of women in 2003–2004 (Ogden et al. 2006). These updated data prompt us to re-evaluate the conceptualization of obesity as an epidemic. If the term epidemic is indeed important for developing an effective public health response to the obesity problem, we should understand why, and utilize this advantage to its full potential. Otherwise, it may be appropriate to consider alternative ways of thinking about the topic.

The framing of the obesity issue has significant consequences, both in shaping the manner in which public argument unfolds and in steering the trajectory of public health research. Because the term epidemic has a double quality—it is a medical term with a technical meaning, but it also functions as a metaphor in public discourse—an approach that blends epidemiology with rhetoric is particularly suited for this case study.

To this end, we re-examine the 2001 *Call to Action*, focusing on the report’s use of the word epidemic. We couple textual interpretation with analysis of supporting materials to understand how the evocative term works rhetorically to persuade certain audiences, but alienate others. We further consider how use of an epidemic frame for obesity, largely initiated by the *Call to Action*, has worked to shape public argument on overweight and obesity—and how metaphorical and literal deployments of the term introduce different dynamics into the conversation. This line of analysis leads to a key question: What does classifying obesity as a literal epidemic really entail? We work toward provisional answers by exploring the applied science of the Epidemic Investigation protocol, concluding with hypotheses about how such an approach may improve public health planning and restructure the public argument on obesity.

The Surgeon General’s *Call to Action*

The Surgeon General of the US Public Health Service periodically releases high-profile “Calls to Action” that “[focus] the Nation’s attention on important public health issues” (US Surgeon General 2003). These reports have covered such topics as suicide, sexual health, and oral health. In 2001, US Surgeon General David Satcher issued a call to action on overweight and obesity (US HHS 2001). This 60-page report was designed to raise awareness of excess body weight as a public health problem and suggest possible interventions. Its four main sections are organized in a straightforward,

problem–solution format. The opening section presents data on the health risks and economic consequences of overweight and obesity, while subsequent sections propose remedial strategies to promote healthier living.

The first sentence contains a warning that sets an ominous tone for the report: “Overweight and obesity have reached nationwide epidemic proportions” (US HHS 2001, v). This move to frame the problem in terms historically reserved for describing infectious disease outbreaks was not the first effort to categorize the rising prevalence of obesity as a public health epidemic. For example, a World Health Organization report (World Health Organization 1998) utilized epidemic terminology to describe escalating global rates of excess body weight.⁴ However, the *Call to Action* was the first major statement by the US Government to that effect, and the considerable stature of the Surgeon General’s office redoubled the rhetorical cachet of Satcher’s pronouncement.

The *Call to Action*’s deployment of epidemic terminology is consistent with three of the key rhetorical objectives outlined in the text of the report. First, the document seeks to sound an alarm bell that warns readers of an emergency situation. Second, the *Call to Action* indicates that successful approaches to reducing overweight and obesity “should focus on health rather than appearance” (US HHS 2001, xiv). Third, the *Call to Action* highlights the prevalence of overweight and obesity as a society-wide concern that transcends personal interests implicated by individual cases: “[A]ctions aimed exclusively at individual behavioral change, while not considering social, cultural, economic, and environmental influences, are likely to reinforce attitudes of stigmatization against the overweight and obese” (US HHS 2001, 16). Accordingly, invocation of the epidemic terminology encourages readers to view the rising prevalence of excess body weight as a matter of common concern, not a condition afflicting a few isolated individuals.

The report outlines approaches for addressing the obesity problem, suggesting 21 “key actions” for schools, 30 for families and communities, 15 for healthcare, 17 for media and communications, and 12 for worksites. The sprawling list of 95 proposed solutions to the problem of excess body weight emphasizes the breadth of the problem, but risks appearing scattershot. Indeed, the *Call to Action* does little to disabuse readers of this notion, downplaying the prescriptive status of its recommendations and describing the suggestions as a “menu” that “should establish useful starting points as individuals and groups focus their own skills, creativity, and inspiration in addressing the problem” (US HHS 2001, 16). The open-ended orientation of the report is highlighted in the statement: “While the magnitude of the problem is great, the range of potential solutions is even greater” (US HHS 2001, 22).

The broad array of potential strategies for combating overweight and obesity reflects the methodology underlying the report, which employed a general “public health approach” conceptual model featuring a “a circle of activities” (US HHS 2001, 5) for tackling a wide range of problems ranging from industrial accidents to natural disasters. The “menu” of recommended “key actions” was compiled from a series of meetings, including a December 2000 “Public Listening Session,” a formal public comment period, and a May 2000 “National Nutrition Summit.” Items were included in the “menu” of “key actions” if they “received significant attention during one or more of these events” (US HHS 2001, 15).

Framing the Problem as an Epidemic

The *Call to Action* underscores the seriousness and urgency of the rising prevalence of excess body weight among Americans, by describing the phenomenon in terms of a public health “epidemic.” The word epidemic anchors the opening sentence of the report and then appears seven other times throughout the document. Closer examination of the text not only illuminates how the epidemic concept lends rhetorical power to the *Call to Action*; such analysis also begins to reveal the report’s nuances, some of which were subsequently exploited by detractors in the ensuing public argument.

In a prefatory message, Secretary Thompson uses epidemic terminology to explain how the *Call to Action* represents a rallying cry. As Thompson (2001, xi) explains, the report should prompt institutions to “consider how they can help confront this new epidemic.” Thompson’s usage parallels a passage in section two that calls on individuals and groups to “focus their own skills, creativity, and inspiration on the national epidemic of overweight and obesity” (US HHS 2001, 15). Section three discusses how “individuals can make the effort to combat the obesity epidemic both personal and relevant” (US HHS 2001, 27). Similarly, the acknowledgments section explains that the *Call to Action* is “part of a national commitment to combat the epidemic of overweight and obesity in the United States” (US HHS 2001, 41). In each case, the problem of excess body weight is labeled an epidemic.

The prominence of plague themes in history and literature illustrates how the word “epidemic” has deep resonance in society’s collective memory. For example, Albert Camus’ (1972) *The Plague* dramatizes how classifying a health problem as an epidemic can achieve dramatic rhetorical effects. In Camus’ novel, when Dr Bernard Rieux encounters a few mysterious cases of deadly febrile illness and notices several dead rats in the street, he dismisses them as anomalous. But the anomalies keep piling up. Only after a colleague, Castel, presses him to put a name to the constellation of symptoms he has been treating (“Come now, Rieux, you know as well as I do what it is”) does Rieux make a diagnosis. “Yes, Castel,” Rieux says, “It’s hardly credible. But everything points to it being plague” (Camus 1972, 36). In Camus’ telling, Rieux’s utterance of the word “plague” transforms the entire social situation. The veil of rationalization that enabled physicians to dismiss individual cases of Black Death is lifted, and, almost instantly, the medical profession is saddled with the overwhelming duty to contain an infectious disease that has the potential to wipe out society.

The *Call to Action* is set up to utilize the same rhetorical power of Dr Castel’s pivotal utterance in *The Plague*. The report’s labeling of Americans’ escalating body weight as a public health epidemic sounds an alarm bell. Additional layers of description warn that this is a “new” and “nationwide” epidemic, adding decibels to the warning. Indeed, it appears that the *Call to Action* succeeded in focusing attention on overweight and obesity. Although rates of excess body weight steadily increased in the USA during the 1990s, media coverage of the issue was sporadic; “Fewer than a dozen stories on obesity-related public policy appeared in major US media outlets during the final quarter of 1999” (Kersh and Morone 2005, 842). However, the number of articles in major US newspapers mentioning obesity spiked dramatically following release of the

Call to Action in 2001. “By the final quarter of 2002, the stack of obesity articles topped 1,200—a thousandfold increase. Over 1,400 stories appeared during the second quarter (April–June) of 2003, and the total has remained well over 1,000 stories per quarter since” (Kersh and Morone 2005, 842; see also Saguy and Riley 2005, 874–877).

To the extent that these data indicate the Surgeon General’s report stimulated public discussion of excess body weight, it appears that the invocation of epidemic terminology succeeded in its “alarm bell” function. A related indicator of success on this count can be found in a recent US CDC (2005a) analysis showing that the word epidemic “is now being used by medical professionals to describe the prevalence and rapid rise of obesity in the United States.” Textual analysis of the *Call to Action* reveals more about the way in which the report produced such responses and framed the US public argument on overweight and obesity.

The first four passages from the *Call to Action* analyzed in the beginning of this section use the word “epidemic” in noun form: Secretary Thompson refers to “this new epidemic”; section two urges efforts to control “the national epidemic”; section three refers to “the obesity epidemic”; and the acknowledgments section discusses “the epidemic.” This noun-form usage connotes that rising prevalence of excess body weight in America is *literally* a public health epidemic.

Notably, the word “epidemic” receives slightly different treatment in other passages of the report. For example, the foreword, written by Surgeon General Satcher, declares that overweight and obesity have “reached epidemic proportions” (Satcher 2001, xiii). Here, epidemic appears as an adjective, used to modify a plural noun (proportions). With this construction, Satcher suggests that the large number of Americans with excess body weight is comparable with the large number of people who are afflicted by major disease outbreaks. Stopping short of classifying the rising prevalence of overweight and obesity as an epidemic proper, Satcher moves into the realm of metaphor by comparing a property of literal epidemics (widespread affliction) with the large “proportions” of the US population that are overweight and obese. Metaphors work by implying that something is equivalent to another thing that is not usually associated with it (Lakoff and Johnson 1980, 3–9). This logic appears in the first part of the sentence that opens Satcher’s foreword: “Overweight and obesity *may not be infectious diseases*, but they have reached epidemic proportions in the United States” (Satcher 2001, xiii; emphasis added).

According to C. K. Ogden and I. A. Richards (1930), the structure of a metaphor contains three parts: the *tenor*, the thing to which the metaphoric word or phrase refers; the *vehicle*, the metaphoric word or phrase; and the *ground*, the specific quality of the vehicle that informs the tenor (see Figure 2 for an illustration of how this schema applies to the metaphor “surgical strike”). In Ogden and Richards’ schema, Satcher uses “epidemic” as a *vehicle* to inform the *tenor* “rising prevalence of overweight and obesity.” Satcher’s construction *grounds* the metaphor by transferring one property (quantity) from the vehicle to the tenor, while blocking transfer of another property (infectiousness).⁵

Other elements of the *Call to Action* echo Satcher’s metaphorical usage of the term “epidemic.” For example, the opening line of the report features the same adjectival

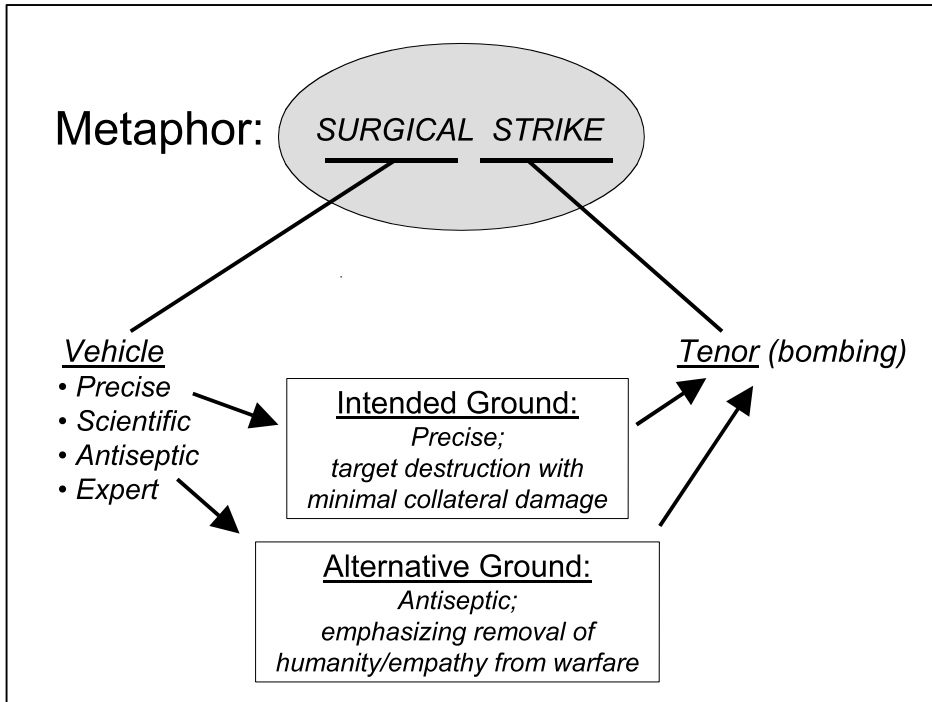


Figure 2 Elements of a Metaphor (Ogden and Richards 1930).

form used in Satcher's foreword: "Overweight and obesity have reached nationwide epidemic proportions" (US HHS 2001, v). Additional cues steer readers to interpret "epidemic" in a metaphorical sense. The general nature of "the public health approach" conceptual model early in the report (US HHS 2001, 3),⁶ which does not contain information on the protocol used for Epidemic Investigations, implies that application of an Epidemic Investigation method may not be the appropriate public health strategy for tackling the problem of overweight and obesity. This reading underscores the metaphorical status of the term "epidemic" in the Surgeon General's report, where the term functions figuratively to highlight the seriousness and urgency of the situation.

In this way, the deployment of epidemic terminology itself constitutes a call to action, since metaphors not only "structure our experience" (Lakoff and Johnson 1980, 158), but "the framing of problems often depends upon metaphors underlying the stories which generate problem setting and set the directions of problem solving" (Schön 1993, 138). In other words, "by organizing reality in particular ways, our selected metaphors also prescribe how we are to act" (Foss 1989, 189). The *Call to Action* asks citizens and health professionals to act with great vigor and urgency on obesity and overweight, *as if* they were fighting an epidemic. A key aspect of this appeal involves a move to frame the rising prevalence of excess body weight as a universal problem requiring collective response. Indeed, the word "epidemic" derives from the ancient Greek term *demos*, or "the people." This jibes with the Surgeon General's categorization of the problem as "a community responsibility" (Satcher 2001, xiii), where "[e]ffective action requires the

close cooperation and collaboration of a variety of organizations and individuals” (Satcher 2001, xv). As the report explains further in a section discussing remedial strategies: “We must collectively build on existing successful programs in both the public and private sectors” (US HHS 2001, 27). In contrast, actions “aimed exclusively at individual behavioral change ... are likely to reinforce attitudes of stigmatization against the overweight and obese” (US HHS 2001, 16).⁷

Metaphors play a significant role in shaping understanding and steering discussion of public health issues (Condit et al. 2002; Segal 1997). The preceding interpretation of the *Call to Action* shows how the report deploys “epidemic” terminology metaphorically to frame the problem of escalating US body weight trends. Elements of the text that provide support for this reading include the repeated appearance of “epidemic” in adjectival form, and the absence of technical references to the formal protocol used in public health circles to deal with actual epidemics. Interpreting the *Call to Action*’s usage of “epidemic” terminology in a metaphorical light elucidates aspects of the report’s rhetorical strategy (social construction of a universalistic problem frame) and rhetorical impact (success in ringing the social alarm bell). However, metaphors are inherently open to multiple interpretations and usages. As Abigail Saguy and Kevin Riley (2005, 892) point out, “In the case of obesity, which is frequently treated as a disease but is not literally contagious, it is often ambiguous whether the term *epidemic* is being used literally or metaphorically.” In the next section, we will see how this fact opened space for counter-discourse to challenge the *Call to Action*’s prescriptions in public debate.

Metaphor ... or Madness?

Release of the *Call to Action* in late 2001 stimulated a great deal of discussion on the topic of overweight and obesity in US public spheres of deliberation. In one respect, the Surgeon General’s team could take heart in this result, since the report highlights “communication” as a key element of the public health strategy to promote healthier living. However, while the “epidemic” metaphor added decibels to the public health warning issued by the *Call to Action*, it also stirred detractors to reply that the report sounded a false alarm. Many of these arguments were based on a metaphorical interpretation of “epidemic.” Donald Schön (1993) explains how “generative metaphors” in public discourse create “frames” for understanding social policy issues. The public discussion that ensued in the wake of the *Call to Action*’s publication featured what Schön calls a “frame conflict”—controversy regarding the appropriateness of a given metaphor to organize understanding and shape discussion of social policy. Since metaphors are inherently elastic figures of speech that are open to multiple interpretations, their deployment often creates conditions ripe for frame conflicts.

As Josef Stern (2000) shows, the meaning of any given metaphor pivots as different grounds highlight or downplay certain aspects of the tenor.⁸ Critics of the *Call to Action* challenge the report’s metaphorical usage of epidemic terminology by advancing counter-arguments that re-interpret the ground of the metaphor. This counter-discourse exploits apparent tensions between the vehicle and tenor of the metaphor,

pointing to the fact that overweight and obesity are not infectious diseases, to discredit the notion that the problem should be treated as a public health epidemic. For example, in a section of an article entitled “Health Hazards of Metaphors,” Sheldon Richman (2002) argues that “obesity is not really an infectious epidemic. You can’t catch obesity.” Here, the obvious mismatch between the vehicle (obesity) and one possible ground (infectiousness) of the epidemic metaphor is exploited to challenge the *Call to Action*’s public health frame. This initial move lays the groundwork for a second, harder-hitting counter-argument, which extends the logic of Richman’s observation that you can’t “catch obesity.” “So why act as if you can?,” Richman (2002) asks. His answer reveals a key element of the counter-discourse: “Because doing so is consistent with the doctrine that all problems are health problems and all health problems are the business of the government.” Russell Roberts (2002) makes a similar point in an Op-Ed published in the *St. Louis Post-Dispatch*: “The government should stay out of personal choices I make ... my eating habits or yours don’t justify the government’s involvement in the kitchen.” In its most dramatic version, this counter-argument positions the government’s invocation of epidemic terminology as a manifestation of institutional psychosis, comparable with “moral panics” such as “reefer madness,” the “hysterical” campaign against marijuana usage in the early-20th-century America.

At bottom, the obesity myth is both a cause and a consequence of what sociologists call a “moral panic.” It is a particularly tenacious example of the same sort of impulse that fuelled hysteria about demon rum, reefer madness, communists in the State Department, witches in Salem, and many other instances of our eternally recurring search for scapegoats, who can be blamed for the decadent state of American culture in general, and of the younger generation in particular (Campos 2005).⁹

The argument formation that recasts the “menu” of public health interventions suggested in *The Call to Action* as a recipe for “reefer madness” is reinforced by a series of technical challenges that aim to undermine the soundness of scientific data underwriting the campaign to combat US overweight and obesity. For example, a Center for Consumer Freedom (2004) report that opens with the statement “Overblown rhetoric about the ‘obesity epidemic’ has itself reached epidemic proportions,” questions the validity of epidemiologic data establishing the incidence and health harms of obesity. Skeptics of the *Call to Action* trade on the apparent scientific uncertainty created by these technical challenges to bolster their claims that overbroad and unfocused government approaches to combating excess body weight are driven by paternalistic political agendas and personal financial gain, not a genuine interest in public health (Campos 2004a, 41–54).

Has this counter-discourse been effective in reframing the epidemic metaphor and neutralizing the impetus for government action generated by the *Call to Action*? There is conflicting evidence on this point. Opinion surveys indicate a slight drift toward greater public acceptance of government programs to address the rising prevalence of excess body weight.¹⁰ However, it seems that, years after the Surgeon General’s report, “Americans are split between those who see obesity as mainly a private issue and those who believe it is a public health issue that requires societal intervention” (Lake et al. 2003).

Perhaps this split in public opinion reflects the polarizing “frame conflict” introduced by counter-discourse that portrays the obesity controversy in stark, zero-sum terms. Such Manichean renderings receive full-throated expression in forums ranging from the US Congress to local radio. Marshall Manson, Vice-president of the Center for Consumer Freedom, offered this black-and-white assessment in testimony before the House Government Reform Committee: “It is time for these zealous anti-food advocates to understand that it is not the federal government’s job to save us from ourselves by making our choices for us” (Manson 2004). Manson’s organization carries a more roughly-hewn version of the same message to the airwaves, where a Center for Consumer Freedom radio advertising campaign recasts the essence of public health campaigns designed to combat obesity in especially unflattering terms: “You should be ‘forced to wade through red-faced picketers wielding pointed wooden sticks with signs that read “eat tofu or die” on the way to your classic cheeseburger and fries” (quoted in Ness 2002, A3).

Skeptics of the *Call to Action* are confident that their critique of the “epidemic” metaphor will eventually produce a burst of lucidity that reverses the drive toward heavy-handed government intervention: “We can be sure that, one day, the ‘obesity epidemic’ will go the way of all witch hunts. What we cannot know is how long it will take for the public health establishment to come to its senses” (Campos 2004b). Our analysis suggests that the fate of Campos’ prediction hinges on the outcome of what Schön (1993) calls a “frame conflict” (see also Saguy and Riley 2005). In this symbolic tug-of-war that unfolds in spheres of public argument, those sympathetic with the *Call to Action* are forced to juggle the twin rhetorical imperatives of raising awareness of the problem (the “alarm bell” function) and developing coherent frameworks for public health interventions that persuade a wide array of audiences to accept a prominent government role. Ultimately, success in this endeavor requires advocates to come to grips with the potentially powerful counter-discourse that seeks to reframe public understanding of the problem in ways that make the *Call to Action*’s recommendations seem “hysterical.”

The prominent role of metaphor in framing public policy arguments has been studied in analyses that explore how rhetorical strategies shape public discussion on policy topics such as global warming (Moser and Dilling 2004), international development (Judge 1991), and nuclear weapons policy (Ausmus 1998). These analyses show how framing choices have a significant effect in determining whether public policy initiatives are successfully implemented (see also Mio 1997). In the obesity context, a problem arises from the fact that the frame conflict is often characterized by dueling absolutisms: “When competing frames represent opposing dualities—such as alarmist claims about the dire consequences of even a little extra weight versus arguments that body weight, no matter how high, is never a health problem—it may be difficult to capture a more nuanced view of the situation” (Saguy and Riley 2005, 874). In the following sections, we explore how an alternative reading of the *Call to Action* may transcend the current “frame conflict” on obesity by transforming the terrain of public discourse through a process of “frame restructuring” (Schön 1993, 150).

Taking Epidemics Literally

Friedrich Nietzsche compared “dead” metaphors with coins that lose value when their markings wear off from overuse. In an era when the epidemic metaphor is invoked to describe everything from graffiti to plagiarism, if this figure of speech is not dead yet, it is at least tired. When a tired metaphor is stretched thin to describe an ever-widening array of phenomena, it becomes increasingly difficult to focus audience attention on the metaphor’s *vehicle*—the original meaning of its primary referent. In the public health context, this complicates efforts to explain non-infectious disease outbreaks using a conceptual vocabulary originally developed to handle the rapid spread of communicable diseases. As the previous section illustrated, detractors use the tiredness of the epidemic metaphor to challenge the public health frame for combating overweight and obesity. They argue that since “you can’t catch obesity” (Richman 2002), it makes little sense to think of the rising prevalence of excess body weight as an epidemic.

An alternative reading of the Surgeon General’s *Call to Action* interprets the term “epidemic” literally. This interpretation bolsters the report’s deployment of “epidemic” in noun form, with data analysis that technically justifies classification of escalating body-weight trends as an epidemic. An epidemic is “the occurrence in a community or region of cases of an illness, specific health-related behavior, or other health-related events clearly in excess of normal expectancy” (*Stedman’s Medical Dictionary* 2000; see also Last 1995). The term applies precisely to the startling trends of the US prevalence data (see Figure 1). Thus, criticisms of its application based on claims that because obesity may not be a disease it cannot be considered epidemic (Oliver 2006, 37) or that the term’s use “implies an exponential pattern of growth typical of epidemics” (Campos et al. 2006a, 55) are inconsistent with the technical definition of an epidemic. Such misinterpretations may stem from popular knowledge that, historically, epidemics often have been characterized by acute and infectious spread of disease (Richman 2002). However, the concept of an epidemic has evolved as dominant health problems have shifted from infectious to non-infectious disorders.

The important distinction between the historical and current understanding of epidemics presents challenges for commentators striving to grasp the complex dynamics of contemporary epidemic phenomena. For example, even as one paper (Saguy and Riley 2005) works perceptively to understand the obesity epidemic by comparing metaphorical and literal dimensions of the epidemic concept, the paper confines its analysis to historical case studies of pathogenic outbreaks, thereby overlooking more recent developments in applied epidemiology that address non-infectious epidemics. Because public controversy regarding the obesity epidemic repeatedly reflects misperceptions of the scientific meaning of an epidemic, here we explore three features of the obesity epidemic that are uncommon among the most famous of historic epidemics: it is non-infectious, slowly developing, and involves a largely intentional exposure.

Non-infectious outbreaks have long been recognized as epidemics. Between 1946 and 1987, of 2900 outbreak and cluster investigations with US CDC participation, 65% were infectious disease outbreaks, 8% non-infectious disease outbreaks, 5% environmental health threats, and 22% “other or unknown.” Several examples of non-infectious

epidemics are summarized in Table 1 (rows 2–6). Non-infectious epidemics typically occur from exposure (e.g. ingestion, inhalation or skin contact) to a toxin or other environmental factor, analogous to exposure to a microorganism (Anto et al. 1989; Buchholz et al. 2002; Peto et al. 1999). “Exposure” may also be to a detrimental behavior, such as the consumption of a diet lacking in fruits and vegetables underlying a 2002 scurvy outbreak in Afghanistan (Ahmad 2002).

Obesity’s second departure from traditional epidemics is its slowly developing, chronic nature. Infectious outbreaks are often fast-moving phenomena evolving over days to weeks. However, as AIDS demonstrates, not all infectious epidemics have rapid time-scales. Slowly developing excess weight trends lengthen windows of opportunity for prevention of obesity itself, and of obesity-related disease. However, reversal of weight trends is also likely to be prolonged.

Intentionality is the third major factor by which obesity differs from more traditional epidemics. Many infectious or environmental exposures affect unwitting victims. Others involve a purposeful, but potentially harmful behavior, such as sun exposure and melanoma. Regarding obesity, most Americans are aware that excess food and sedentary lifestyles can lead to obesity. Yet, a variety of environmental factors, including long work-hours, family demands, access to nutritious foods, and safe exercise opportunities, can make pursuing healthy lifestyles difficult, and at times unhealthy behaviors may actually be preferred.

In addition to making arguments that reflect misperception of the scientific approach to epidemics, critics also focus on the distribution of body weight in the US population to challenge the “obesity epidemic” label. For example, one recent article apparently uses categorical overweight and obesity prevalence estimates to derive a crude approximation of body mass index (BMI) distribution in the USA, asserting that obesity trends can be accounted for by “a relatively modest rightward skewing of average weight on the distribution curve,” with most people having a weight only 3–5

Table 1

Epidemic	Causative agent	Source/mode of transmission
Gastrointestinal symptoms in Maine schoolchildren (Millard et al. 1994)	Cryptosporidium parasite	Drinking apple cider made from feces-contaminated apples
Asthma in Barcelona (Anto et al. 1989)	Soybean dust	Inhaling aerosolized dust from soybean unloading at the local harbor
Gastrointestinal symptoms in California diners (Buchholz et al. 2002)	Methyomyl	Eating Thai food made with methomyl-contaminated salt
Melanoma in US adults (Beddingfield 2003)	Ultraviolet light	Exposing skin to excess sunlight (e.g. tanning); ozone depletion ^a
Mesothelioma in European men (Dennis 1999)	Asbestos	Working in jobs with regular asbestos exposure (e.g. the building industry)
Thyrototoxicosis in residents of the Midwest USA (Hedberg et al. 1987)	Bovine thyroid tissue	Consuming ground beef prepared from neck trimmings containing thyroid tissue

Note: ^aHypothesized source/mode of transmission.

kg more than that of the prior generation. The conclusion offered is that obesity trends are not compatible with an epidemic. According to this interpretation, the only change that has occurred recently is seemingly trivial and can be attributed to individual consumption of “the equivalent of a Big Mac once every 2 months” (Campos et al. 2006a, 55). While questions could be raised about the precision of such estimates, more importantly for our discussion a small average change does not preclude a large difference in frequency of clinically significant weight accumulation. This is clearly evident when data reflecting a right-ward skewing of US BMI distribution are examined more closely rather than dismissed: not only is average weight or BMI rising, but the population is shifting disproportionately towards more extreme body sizes (Freedman et al. 2002; Sturm 2003).

Here, we examine this phenomenon using standard clinical weight categories. Similar to other health issues defined by continuous physiologic measurements (e.g. hypertension and blood pressure; diabetes mellitus and serum glucose), body weight is often considered according to categories of BMI (kilograms of weight divided by the square of height in meters) based on degree of associated health risk (US HHS 1998). These include underweight (BMI < 18.5 kg/m²), normal weight (BMI 18.5–24.9 kg/m²), overweight (BMI 25.0–29.9 kg/m²), and obesity (BMI ≥ 30 kg/m²). Obesity can be further subdivided into three classes: obesity I (BMI 30.0–34.9 kg/m²), obesity II (BMI 35.0–39.9 kg/m²), and extreme obesity (BMI ≥ 40 kg/m²).

While, as shown in Figure 1, obesity has increased markedly in the USA, the prevalence of extreme obesity is increasing most rapidly. For example, from 1986 to 2000 the reported prevalence of BMI ≥ 30 kg/m² approximately doubled, while that of BMI ≥ 40 kg/m² quadrupled (Sturm 2003). Thus, while it is possible to interpret the shape of the population’s BMI distribution curve as undergoing only mild alteration, such a shift reflects a significant number of people moving into the extremely obese range—a categorization that was previously uncommon but, as of 2003, represented over 10 million individuals (Ogden et al. 2006; US Census Bureau 2003). The significance of such a shift is underscored by the fact that mortality and certain measures of morbidity (e.g. diabetes, hypertension, coronary artery disease) and per-capita healthcare expenditures escalate as weight increases from the normal weight to extremely obese range (Arterburn, Maciejewski and Tsevat 2005; McTigue et al. 2006).

Extreme obesity not only shows epidemic trends, it may lend insight into particularly strong causal pathways underlying current weight trends. This consideration is an extension of the logic of an epidemiologic principle, which suggests that evaluating extreme cases of exposure may be useful in establishing causal links, particularly when the exposure and outcome show a dose–response relationship (Hennekens and Buring 1987, 157). When we turn our attention to lesser degrees of obesity, they also show marked increases in prevalence—and affect a substantial portion of the population (Flegal et al. 1998). However, the prevalence of overweight (BMI 25.0–29.9 kg/m²) has remained relatively stable over the same time-frame (e.g. at 32–34% from 1976–1980 to 2003–2004) (US CDC 2006). Although overweight is significant as a marker of individuals whose diet and physical activity patterns may pre-dispose them to further

weight gain, and has in particular been linked with increased risk of diabetes and hypertension (Colditz et al. 1995; Huang et al. 1998; Shaper, Wannamethee and Walker 1997), its prevalence is currently at an endemic, rather than epidemic, level. As such, Epidemic Investigation methods are unlikely to provide substantial insight into its population dynamics.

The Epidemic Investigation

The field of public health, long charged with protecting the population's health, has a well-established protocol for action in the face of epidemics—the “Epidemic Investigation.” Also known as a “field investigation” or “outbreak investigation,” the Epidemic Investigation originated in applied epidemiology and was developed and honed on varied outbreaks (Brownson 1998b, 71–72). The approach is rooted in “clinical medicine, epidemiology, laboratory science, decision theory, skill in communications, and common sense” (Goodman and Buehler 1996, 10). The paucity of published commentary on the Epidemic Investigation method in the medical literature in part reflects the fact that most senior obesity researchers were trained in a paradigm of endemic chronic health issues, and not in the definition of or approach to combating epidemics. In addition, it may be due to the method's applied (as opposed to theoretical) origins (Reingold 1998).

Several features distinguish Epidemic Investigations from other epidemiologic studies: (1) because their starting point is usually a problem with an unclear cause, they often use descriptive studies to generate hypotheses before conducting analytic studies to test these hypotheses; (2) they are frequently retrospective; (3) because they are initiated in response to an urgent need to protect the community's health and address its concerns, their purview extends beyond data collection and analysis to public health action and the need for responsiveness to community needs and effective risk communication is heightened; (4) the imperative for urgent response forces consideration of when data are sufficient to take action, rather than asking what additional questions might be answered by the data—such action is likely to be controversial, and sometimes unwanted; and (5) perhaps as a result, Epidemic Investigations often attain national or international prominence (Brownson 1998b, 75). Since the Epidemic Investigation method was developed specifically for situations where public health urgency and diverse community needs must be balanced, it may provide important insight for the obesity situation, where public controversy regarding policy interventions has already emerged.¹¹

Determining the Need for an Epidemic Investigation

An Epidemic Investigation is warranted when control and prevention of epidemic disease is needed, and further investigation is appropriate (US HHS 1992). The balance between investigation versus control is struck by weighing knowledge of the epidemic's causative agent and its source or mode of transmission, which can vary widely (Table 1). If the source/mode of transmission is known, control receives highest priority. If the

causative agent is unknown, investigation is also a strong focus. With an unknown source/mode of transmission, investigation has highest priority—regardless of causative agent knowledge (US HHS 1992).

For example, if investigators determined that *Cryptosporidium* was the causal agent of a gastroenteritis outbreak, but did not know how it was contracted, generalized control measures (e.g. careful hand-washing, food hygiene) could be initiated. However, further investigation would be needed to understand the outbreak's source (e.g. contaminated cider), and eliminate future risk.

Undertaking an Epidemic Investigation

An Epidemic Investigation entails a well-defined set of actions, formalized primarily by the CDC's Epidemic Intelligence Service (Brownson 1998b). For ease of explanation, these actions are consolidated here into five categories: establishing the presence of an epidemic; undertaking an epidemiologic analysis; communicating with the press and public; environmental sampling; and implementing control measures (Figure 3). While some precede others, the sequence is not rigid and certain elements (e.g. communication with press and the public) typically occur throughout the investigation.

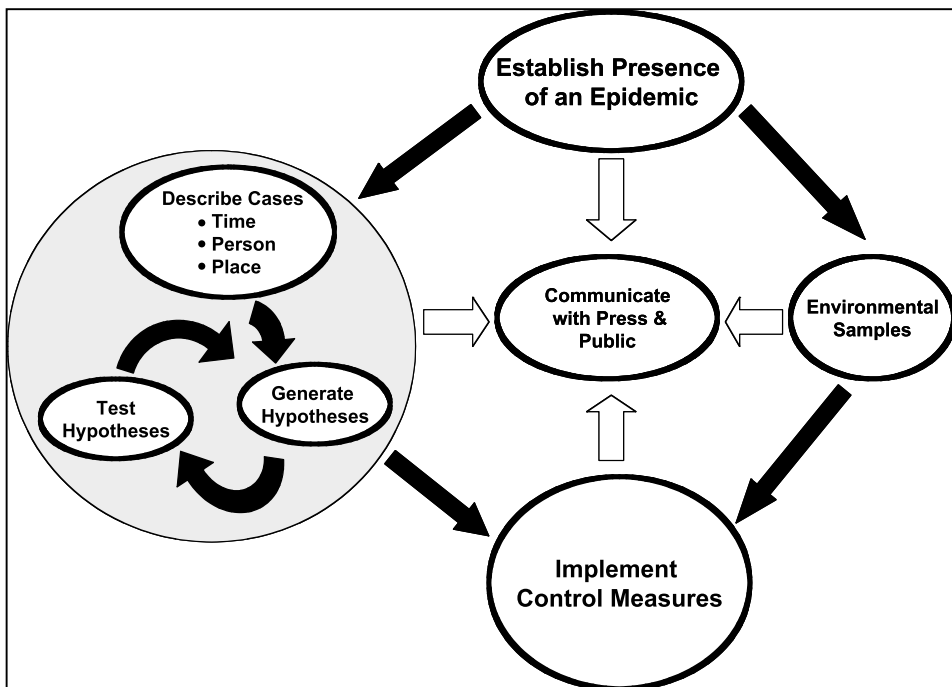


Figure 3 Major Components of the Epidemic Investigation Protocol. The epidemiological analysis' three components are encompassed within the shaded circle.

Establishing the Presence of an Epidemic

Establishing an epidemic's presence requires developing a case definition, or standard outcome criteria, establishing the population's baseline incidence rate, and documenting higher-than-expected outcome incidence in the community.

Epidemiological Analysis

For the epidemiological analysis, descriptive features of cases (e.g. time, person and place) are determined, then hypotheses of association between potential exposures and the outcome of interest are generated and tested. Temporal patterns of outcome incidence are displayed as an epidemic curve. The rate of development of symptoms, and their timing relative to other activities, is noted. Characteristics of the people developing the illness, and the places they frequent, are tabulated.

Hypotheses are generated to explain mechanistically the epidemic trends and account for the observed descriptive features of the epidemic. Such causal hypotheses are then tested in observational studies. Results lead to refined or additional hypotheses, and the iterative process is repeated until the epidemic's causal pathway is understood, or effective control measures can be generated. As etiologic factors emerge, primary versus secondary causes are clarified. For example, while original cases may result from environmental exposure, subsequent cases may occur via person-to-person spread. At times, a secondary etiology is more dangerous than the primary one, as in classic plagues of the Black Death.

Environmental Samples

Environmental samples (e.g. food, water, soil) are frequently collected early in Epidemic Investigations when the causative agent is unknown. Such samples are tested for microorganisms or toxins as appropriate.

Implementing Control Measures

While an epidemic response includes treating cases, the ultimate aim is to interrupt the mechanisms underlying epidemic trends, and thus prevent further cases. Control measures may: (a) target the specific causal agent, source of transmission, or reservoir (e.g. destruction of contaminated food); (b) aim to interrupt exposure (e.g. improved hand-washing techniques or avoidance of un-pasteurized beverages); or (c) work to reduce susceptibility of the host (e.g. by immunization or prophylactic medication) (US HHS 1992). Choice of intervention depends on the features of the epidemic under investigation. Epidemic Investigation methods specifically recognize that control measures must be pursued with care; "outbreaks can have enormous financial or legal consequences, with costs to businesses and individuals extending from a wide range of practices such as closing of restaurants, destroying contaminated livestock, removal of a contaminated product from the market or product liability" (Brownson 1998b). A key

challenge is balancing the responsibility to prevent further disease with the need to protect the credibility and reputation of affected institutions (Reingold 1998). Carefully addressing this challenge may help promote public health initiatives with public understanding and acceptance.

Communicating with Media and the Public

Communications typically entail briefing local authorities and media personnel (US HHS 1992). Concerns of possible inaccuracies in press reporting are balanced against media's potential for sharing timely information with a possibly at-risk public (Reingold 1998).

Application of the Epidemic Investigation Protocol to Obesity

The *Call to Action* invoked epidemic terminology to describe the phenomenon of escalating excess weight trends in the USA, yet the report did not turn to the Epidemic Investigation protocol for guidance in shaping proposed interventions. If it had, how might the US public health strategy for addressing obesity have taken on a different character? To answer this question, it is useful to explore how application of the Epidemic Investigation protocol to the obesity case might proceed.

The standard clinical obesity definition, a BMI (kilograms of weight divided by the square of height in meters) of 30 kg/m^2 or above, provides an easily applied case definition. As described in the *Call to Action*, national data using this definition show substantial increases in obesity prevalence over the past few decades (Figure 1; US CDC 2006), establishing the presence of an epidemic. Obesity's causative agent—caloric imbalance with more calories consumed than expended—is known. However, the reason for so much more caloric imbalance now, versus prior decades (the source/mode of transmission), is unclear. Non-specific control measures, such as recommending avoidance of high-calorie diets and sedentary lifestyle, can be based on general obesity knowledge. However, further evaluation is needed to understand, and target interventions against, the factors driving this epidemic. Given these facts, a literal reading of the *Call to Action's* epidemic terminology suggests that an Epidemic Investigation is warranted. As the previous section explained, any such investigation should proceed with regular communication regarding progress, to the press and to the public.

In considering an epidemiological analysis of obesity (McTigue and Kuller 2007), obesity-related factors of *person* include the fact that obesity risk has increased in men and women, across diverse racial groups, and over a broad age range. Risk is particularly high for those of female sex, and those of certain racial/ethnic origins (US HHS 2003). *Time* focuses attention on the past two decades as critical for the emergence of the source/mode of the epidemic transmission, since that is the historical timing of escalating weight trends; it also points towards childhood as a developmental stage in which weight accumulation has particularly increased (US HHS 2003). Features of *place* in the obesity epidemic include factors that facilitate physical activity, such as presence of exercise facilities, recreational or park space, sidewalks, traffic, hills,

benches, shade, landscaping, direct access routes, opportunities for activity at workplaces, safety (Brownson et al. 2001; Craig et al. 2002; French, Story and Jeffery 2001; Handy et al. 2002; Hill and Peters 1998; Humpel, Owen and Leslie 2002), and possibly ones that promote caloric intake, such as venues selling high-energy content foods (Poston and Foreyt 1999; Maddock 2004).

Hypothesis Generation and Revision

When moving from describing the observed features of an epidemic to generating hypotheses regarding the etiology of escalating weight trends, it is particularly useful to keep in mind the time-frame of escalating obesity rates. While any generated hypotheses should be able to explain the observed features of time, person and place, *time* is particularly relevant, as it helps separate background (endemic) obesity prevalence from the current excess (epidemic) prevalence trends. Hypotheses should encompass this temporal dimension of increasing weight development. For example, an investigator of the *Cryptosporidium* epidemic in Table 1 may have proposed that ingestion of cider could be a possible source/mode of the parasite, since it is often un-pasteurized, enjoyed by many children, and was sold during the fair just prior to the gastroenteritis outbreak among school children.

Regarding obesity, four possible causal hypotheses have been generated using an epidemiological analysis approach (McTigue and Kuller 2007). Here, we list these hypotheses and explore how they are able to account for the time, person and place features of the US obesity epidemic. The first is that widespread societal changes fostering time-limitation are driving US weight trends, with obesity occurring in families with working (and often single) parents increasingly exposed to long commutes and technological, sedentary workplaces. These parents' extended commute distances leave little free time for physical activity or the preparation of nutritious foods. As a result, they have turned to pre-prepared foods or quick-serve restaurants for themselves or their children. The hypothesis proposes a mechanism of increasing weight accumulation that would account for the person feature of female sex as particularly high risk (e.g. as women have increasingly joined the workforce); and for time features by focusing on changes that occurred in an era of epidemic weight trends, and by incorporating the likelihood of altered childhood eating patterns. Place features focus on the emergence of suburbs that promote sedentary commuting behavior, and feature-built environments that make leisure physical activities difficult. Other place aspects include the increasingly technological workplace that developed over the time-frame of escalating weight trends, and the growing presence of fast-food restaurants. Of note, this hypothesis raises the possibility of primary and secondary causes of the obesity epidemic. For example, even if shifts in workplace technology and time use are found to be the primary cause of altered diet patterns, it is possible they created demand for rapid, inexpensive food options that now work to propagate epidemic trends.

A second hypothesis is that, in less-affluent communities, societal shifts resulting in resource limitation are driving weight trends. For example, relocation of many affluent

families to suburban neighborhoods in the past several decades may have resulted in urban neighborhoods where food sources are lacking, safety concerns limit physical activity, and food retailers tend to focus on high-calorie options. African-American children are particularly likely to live in such neighborhoods, and girls may be predisposed to pursue sedentary pastimes in unsafe environments. This hypothesis helps explain the person features of high risk among females, particularly those who are African-American, and the time feature of escalating risk over the past several decades, with much higher childhood risk than was previously found. Place aspects of obesity risk addressed here include home residences in unsafe neighborhoods and in proximity to food venues that primarily sell calorie-dense options.

A third hypothesis notes that altered leisure time preferences are driving weight trends. For both men and women—as societal changes limited free time for food preparation and physical activity, and environmental factors inhibited active leisure pursuits—there was a shift toward sedentary, technology-driven pastimes and consumption of highly palatable foods as a popular social endeavor. This hypothesis accounts for similar place and time features as the first hypothesis, but its broader emphasis helps explain how obesity risk has applied across a wide range of person factors. It also focuses attention on changing behavioral norms as a potential means of propagating weight trends.

A fourth hypothesis is that changes in food technology, production practices, and restaurant prevalence have so facilitated caloric intake that, together, they may work as a secondary mode of obesity epidemic transmission. While alterations in the food industry may not have initiated the shift towards caloric imbalance in the USA, it is probable that they accelerated it. This hypothesis accounts for the diffuse person characteristics associated with risk, and their interface with time; for example, obesity is rising in both sexes, and across a broad age range, but with the most notable increase seen among the children who are growing up eating the products of an agricultural industry with sophisticated production techniques, globalized/consolidated regulation and diverse processed food products. Likewise it reflects place factors such as the marked increase in restaurants and vending machines in most consumers' daily lives, and the changing use of farmland in the US agricultural regions.

The preceding discussion illustrates that the Epidemic Investigation protocol can be used to generate plausible hypotheses about forces shaping the obesity epidemic. Further hypotheses could, for example, explore the relative importance of changes in safety, fruit and vegetable access and cultural norms in influencing diet and exercise. Hypotheses could then be tested (e.g. by comparing weight development in working-parent families who have access to nutritious yet quickly-prepared food options, versus those with access to more typical, high-calorie, quick-serve meals). Notably, obesity is so widespread in the USA, and elevated body weight has so many risk factors, a single epidemic cause is unlikely; multiple hypotheses must be explored. However, even complicated system dynamics can be driven by relatively few key processes (Brauer and Castillo-Chavez 2000). The Epidemic Investigation protocol may help identify such key mechanisms.

Implementing Control Measures

Obesity's widespread nature and known causative agent warrant implementing generalized obesity control measures. The drawback of such measures is a lack of specificity, which may both limit effectiveness and potentially threaten parties who could be perceived as liable, without adequate proof of culpability. The Epidemic Investigation protocol suggests that understanding and anticipating such problems, working directly with concerned parties, and communicating regularly with the press and the public may help minimize this problem. Later, better-targeted control measures may be derived from the iterative hypothesis development and testing process.

An Old Framework for Tackling a New Problem

The Epidemic Investigation protocol provides a standard scientific approach for addressing a complicated epidemic situation. It has been successfully employed in diverse settings, and accumulated insight from previous deployment clarifies both potential benefits and hazards of combating epidemic health problems. More specifically, utilization of standard epidemiological principles can yield understanding of dominant forces shaping an epidemic (McTigue and Kuller 2007). By concentrating on recently altered factors that promoted the current weight situation, the Epidemic Investigation protocol identifies pathways that are mutable. These pathways may be more amenable to alteration in the future. Even if an exact pathway is unlikely to be reversed (e.g. reversing the shift towards suburbanization is unlikely if it is found to be a root cause of obesity trends), effective intervention may be expedited by understanding how behavior shifts relate to the epidemic phenomenon. For example, future suburbs may be designed where physical activity is easier to obtain; investment in public transportation may minimize commuting time. Another benefit of this approach is that it avoids focusing on obesity risk factors that are contributing substantially to endemic, but not epidemic, obesity prevalence (e.g. a particular food item that has steadily contributed to some chronic low-level excess weight in the population). Targeting intervention against such items is unlikely to have a significant effect on weight trends, yet would still incur expense. In addition, producers of such items are likely to feel unfairly singled out by the public health control measures.

The process of hypothesis forming, testing, and re-evaluating in the face of new data provides a strategy to hone causal hypotheses, such that unifying mechanisms may emerge from a broad array of possible etiologic factors. With obesity, this knowledge can be used to prioritize potential intervention strategies, rather than relying on a diffuse approach covering dozens of potential elements shaping diet and exercise patterns, as in the *Call to Action*.

Currently, potential avenues for intervention against the obesity epidemic are so diverse that they can seem overwhelming. Variations in cultural norms, as well as resources and barriers to diet and exercise, are likely to result in different interventions being appropriate in different settings. Finally, the slowly changing nature of body weight—and its chronic health sequelae—means that any intervention is likely to

entail a considerable lag time between initiation and measurable health response. Applying the well-honed public health approach developed specifically to combat complicated epidemic dynamics may be a powerful new strategy for prioritizing interventions on a national basis, and adapting them for specific communities' features.

Restructuring the Frame for Public Argument on Obesity

An analysis of the *Call to Action* informed by epidemiology and rhetoric elucidates scientific dimensions of the US public health campaign to combat obesity, while also showing how rhetorical choices frame public discussion of the campaign. The previous section explored how a literal reading of the *Call to Action*'s "epidemic" terminology warrants pursuit of a particular public health approach—the Epidemic Investigation protocol—to address the problem of escalating excess body weight. How might the Epidemic Investigation approach alter the trajectory of public argument? Some possibilities emerge when one considers the potential for this strategy to facilitate what metaphor theorist Schön (1993) calls "frame restructuring."

From a rhetorical perspective, the public argument surrounding the *Call to Action* has unfolded as a "frame conflict" (Schön 1993). Frame conflicts arise when parties disagree about the ways that "generative metaphors" frame the public discussion of social policy issues. Consider public arguments over urban housing policy. Some advocates deploy disease metaphors, such as "urban blight," to organize discussion of urban housing. The disease frame suggests that the proper policy response involves cutting out blight, by removing it as a source of contamination. A different viewpoint humanizes the problem by describing squatter settlements as "natural communities" that deserve to be nurtured. These two ways of talking about the same phenomenon create a frame conflict characterized by incommensurable programs of action.

In Schön's theory, frame conflicts can be transformed by "frame restructuring." This entails the participants "regrouping, reordering, and renaming elements and relations; selecting new features and relations from their observations of the situation" (Schön 1993, 159). For example, Schön explains how advocates in Lima, Peru transcend the frame conflict on urban housing policy by organizing public discourse around a programmatic slogan—"sites and services"—that represents a "complex coordination of the two perspectives held by municipal officials and by partisans of squatter settlement" (Schön 1993, 154). The result is that "[t]he competitive game formerly played between municipal officials, in which officials seek to control and punish while squatters seek to evade control, gives way here to a collaborative game in which officials and settlers *both* win when houses are built and loans repaid" (Schön 1993, 155). While, in practice, frame restructuring rarely produces such a neat synthesis, advocates often devote significant energy to searching for transcendent themes that can break zero-sum public argument deadlocks on issues ranging from tax policy (Lemann 2000) to global warming (Moser and Dilling 2004).

In the case of the public argument regarding the proper public health response to rising prevalence of US overweight and obesity, critics of the *Call to Action* contest the

epidemic frame by arguing that the epidemic metaphor is inappropriate to describe the phenomenon under consideration. Alternately, it is possible to interpret the *Call to Action*'s usage of epidemic terminology in a literal sense. In the previous section, we explored the scientific entailments of such a reading. Our integration of epidemiologic and rhetorical approaches to study of the obesity issue yields further insights that have implications for public argument. In particular, such an approach may help transcend the frame conflict created by counter-discourse that portrays the *Call to Action* as a manifestation of institutional madness.

Interpreting the *Call to Action* as a cue to undertake an Epidemic Investigation recasts the "policy image" (Baumgartner and Jones 1993) of the obesity issue. In their discussion of political agenda setting, Frank Baumgartner and Bryan Jones note how argumentation (1993, 27) and symbolism (1993, 29) create policy images of social problems. These policy images play a powerful role in determining which social problems receive attention and whether that attention translates into effective institutional responses. In the obesity epidemic controversy, skeptics (for example, Campos 2004a, 2004b, 2005; Richman 2002; Manson 2004) strive to cultivate a policy image that situates excess body weight as an issue of personal choice, not government responsibility. The *Call to Action*'s epidemic terminology competes directly with this policy image and argues for a legitimate government role in what Baumgartner and Jones (1993, 31) call the "policy venue"—which "institutions or groups in society must have the authority to make decisions concerning the issue" (see also Malone, Boyd and Bero 2000; Stone 1989). As we have seen, a metaphorical interpretation of the phrase "obesity epidemic" complicates the task of persuading skeptical audiences to accept a policy image that features a legitimate role for significant public health intervention. There are several reasons why a policy image linked to pursuit of an Epidemic Investigation may enjoy more success on this count, while also doing more to achieve the public health outcomes and political results endorsed by critics of the "war on fat" (Campos et al. 2006a, 55).

First, use of the Epidemic Investigation to shape public argument on obesity has potential to restructure a key aspect of the debate by reframing the relationship between alleged scientific uncertainty and government policy. In public policy controversies featuring prominent scientific or technological components, the topic of scientific uncertainty often emerges as a key bone of contention. Frequently, skeptics cite the existence of scientific uncertainty on key technical points to underscore their criticism of proposed policy action as premature or precipitous (Jasanoff 1987; Levidow 2001; Mitchell 2000a, 2000b; Shackley and Wynne 1996).

This pattern is clearly evident in the public argument over US obesity, with critics of policy action trading heavily on alleged lack of scientific consensus regarding the causes and effects of rising excess-weight prevalence. For example, critics of the *Call to Action* point to apparent examples of scientific disagreement about the magnitude of obesity-related health risk to frame the problem as a matter of personal choice, not a cause for massive expansion of the public health bureaucracy.¹² Here, the perception of scientific uncertainty about the problem, coupled with the *Call to Action*'s far-reaching "menu" of proposed key actions to address the problem, may steer some audiences to accept

Paul Campos' (2005) portrayal of the Surgeon General's report as a manifestation of institutional psychosis on par with the Salem witch trials and Cold War McCarthyism.

The Epidemic Investigation protocol provides a systematic methodology that acknowledges and deals with dimensions of uncertainty that complicate most public health policy decisions. It does so in a way that balances the need for swift action (through targeted control measures) with the need to improve understanding of outbreaks (through hypothesis generation and testing). Such a strategy resonates with the view that “[p]revention and intervention approaches would ideally be based on a thorough knowledge of causes. In the absence of such knowledge, efforts will be scattered, evaluated too rarely and difficult to assess in terms of impact on public health” (Yach, Stuckler and Brownell 2006, 65). A related challenge stems from Tim Lobstein's (2006, 76) insight that “the debate on obesity and the development of an appropriate policy response needs to move beyond the ‘*There's a problem—No there isn't*’ argument.” The Epidemic Investigation protocol contains rhetorical resources to shift the trajectory of public argument on obesity away from a zero-sum framework that presents government intervention as an all-or-nothing proposition, enabling the many items outlined in the menu of “key actions” suggested in the *Call to Action* to be sorted in a principled fashion. Here, priority would be given to those interventions that target mutable risk factors contributing to epidemic trends, as opposed to long-term risk factors that contribute to endemic, baseline incidence of obesity.

Second, the Epidemic Investigation protocol is a standard scientific methodology with a strong track record of successfully addressing dangerous disease outbreaks (Brownson 1998a). This empirical track record has potential to work as a rallying point that focuses ideologically diverse interlocutors on the challenge of addressing the public health impacts posed by rapidly rising US weight trends. The Epidemic Investigation is not a scientific tool suitable for addressing the problem of excess body weight as a general, endemic phenomenon. Instead, it is a protocol for researching and containing the unique spike of obesity trends evident in the US over the past few decades—the epidemic dimension. A sharper clarification of this limited policy objective may go a long way toward shoring up the public health bureaucracy's legitimate claim to occupy a central (though limited) place in the “policy venue.” It may also help address Katherine Flegal's (2006, 73) concern that “the word epidemic masks some of the characteristics of obesity” such as “the endemic character of overweight.”

The significance of this potential advantage becomes clear in light of Flegal's (2006, 73) further argument that “[b]ecause it has no quantitative definition, there is no precise way to determine whether something is an epidemic or not, and opinions may differ.” Yet Flegal (2006, 73) agrees that data from the NHANES III survey (1988–1994) show overall weight trends “well in excess of what would have been expected”—meeting her technical definition of epidemic as “clearly in excess of normal expectancy” (Flegal 2006, 72). Since that time, obesity prevalence has risen even further, strengthening the basis for Flegal's observation. Including an emphasis on extreme obesity takes advantage of an important opportunity to learn about causal pathways and focus on the degree of weight that is increasing the fastest—affecting some 10 million Americans in 2003 (Ogden et al. 2006; US Census Bureau 2003). It also offers a valuable point of convergence

with skeptics who have conceded that the most pronounced degree of excess weight (at the “true statistical extremes”) poses significant health risks (for example, Campos et al. 2006a, 56; see also Oliver 2006, 2). This represents a potentially valuable common ground that could anchor broad support for application of the Epidemic Investigation protocol to obesity.

Third, a central tenet of an Epidemic Investigation is that implementation of control measures requires care (Brownson 1998b). Because “acting precipitously can also have substantial negative effects ... [b]alancing the responsibility to prevent further disease with the need to protect the credibility and reputation of an institution is very challenging” (Reingold 1998, 26). Carefully addressing this challenge may reframe the public argument in a fashion that reassures stakeholders from private industry that they are not being capriciously targeted in an anti-capitalist “witch hunt” (Campos 2004b).

Fourth, the Epidemic Investigation protocol may help counteract a tendency noted by Flegal (2006, 73): “Once the epidemic has been recognized, an explanatory framework is created in which to understand it, which often expresses and legitimizes moral and social assumptions, reaffirming social values, and blaming victims.” A related concern is that “[d]efining an epidemic has historically lent a sense of urgency that can—like declaring war—justify abridging civil liberties” (Saguy and Riley 2005, 913). On this logic, classification of obesity as an epidemic demonizes heavy people and primes the pump of social prejudice, sowing “hysteria” and creating a “moral panic” that motivates a “traditional search for societal scapegoats” (Campos 2004a, 235). According to Campos et al. (2006a, 58), the ugly upshot of this process is that “talk of an ‘obesity epidemic’ is serving to reinforce moral boundaries against minorities and the poor.” It is clear that such patterns of victim-blaming discrimination are reinforced by settled stereotypes about weight dynamics and misunderstandings about the technical features of epidemic processes. Abigail Saguy and Kevin Riley (2005, 913) argue that “the epidemic framing of obesity conflates the literal and metaphorical meaning of *epidemic*. In the latter, the *epidemic of obesity* represents concern about the spread of immoral behavior.” Yet once one comes to grips with the fact that there can be epidemics with non-infectious causative agents, the tight link between infectious disease epidemics and moral panics (e.g. due to contagion) need not persist. We posit that the best way to avoid propagating the current stigma around obesity (e.g. “blaming the victim for being obese”) is to initiate an open and systematic investigation aimed at determining the true causes of increasing caloric imbalance in this country.

The public communication of findings from such investigation must also work to counter stigma as public education regarding weight dynamics proceeds. As the causal pathways that drive obesity are isolated and elucidated through the Epidemic Investigation’s process of hypothesis testing and refinement, it will probably become less tenable to pin “blame” for the epidemic on the “moral laxity” of “deviants.”¹³ The Epidemic Investigation protocol’s parsing of epidemic from endemic factors driving weight gain works here as a bulwark against discrimination and stigma. The key research question is not “Why do people become obese?” (the endemic dimension that invites victim blaming), but rather “What changed to cause so many people to become

obese so rapidly?” (the epidemic dimension that broadens consideration of possible causes to many factors beyond “failure of personal responsibility”).

Conclusion

The Surgeon General’s Call to Action to Prevent and Decrease Overweight and Obesity is a landmark piece of public health communication that has played a major role in increasing awareness of excess body weight as a pressing US public health concern. Part of the report’s rhetorical effectiveness stems from its invocation of “epidemic” terminology to describe the rising incidence of US overweight and obesity.

Our analysis shows how this strategy clears the way for three interlocking rhetorical moves, deployed by the *Call to Action* to shape prevailing social knowledge about obesity. First, invocation of epidemic nomenclature imparts urgency to the situation, tapping into society’s collective memory of devastating infectious plagues. Second, the epidemic frame leverages efforts to foreground obesity as a health issue, rather than a cosmetic concern primarily implicating aesthetics. Third, the etymological rooting of “epidemic” in the Greek word “demos” signals how frequent usage of the term epidemic facilitates understanding of excess body weight trends as a universalistic problem calling for a collective societal response.

However, several features of the *Call to Action* leave it vulnerable to criticism that the report’s utilization of the epidemic metaphor constitutes evidence of institutional “madness.” Rhetorical theory shows how the resulting controversy plays out as a frame conflict, the outcome of which has the potential to shape both patterns of public deliberation and policy-making agendas. This line of analysis helps clarify a source of confusion in debates about whether there is in fact an “obesity epidemic.” In many cases, different answers to this question flow from different assumptions regarding the literal or metaphorical status of the term epidemic.

This essay proposes a novel reading of the *Call to Action* that embraces a *literal* interpretation of the report’s “epidemic” terminology. Such a reading warrants application of the Epidemic Investigation protocol to the problem of excess body weight in the USA, a move that has potential both to restructure the public health response to obesity and reframe public argument on the issue. On the policy level, the Epidemic Investigation protocol offers a standard scientific approach for addressing a complicated situation. This approach can yield understanding of dominant forces driving the epidemic, enabling institutional decision-makers to isolate mutable causal pathways and target intervention strategies to address them. In terms of public argument, such targeting presents opportunities for rhetors to reframe deliberation on the obesity issue by recalibrating the relationship between uncertainty and action, bolstering the public health bureaucracy’s credibility, reassuring private stakeholders, and countering stigma surrounding obesity.

The decision by the US CDC to dispatch a team of “disease detectives” to West Virginia in response to that state’s request for assistance in dealing with its escalating obesity rates (Kolata 2005; US CDC 2005b) indicates that US public health officials may be considering the Epidemic Investigation protocol as a strategy to address the

“obesity epidemic.” While it remains to be seen whether the US CDC’s apparent embrace of this strategy in one case significantly alters its overall public health approach to addressing the obesity problem, it is becoming increasingly apparent that new forms of intellectual collaboration that bridge standard categories of knowledge production will be helpful in meeting the challenge posed by the advent of complex chronic disease patterns.

Notes

- [1] The importance of excess body weight for health has been established by associations with multiple adverse health outcomes, including mortality itself and the major causes of US death such as coronary heart disease, congestive heart failure, breast cancer, colon cancer, stroke, diabetes, and hypertension (Calle et al. 1999; US HHS 1998). Excess body weight also leads to problems that impair quality of life, such as osteoarthritis and sleep apnea, as well as considerable stigma (Teachman et al. 2003; US HHS 1998). Estimated lifetime costs for cardiovascular disease and its risk factors increase by nearly 200% for severe obesity (Thompson et al. 1999).
- [2] For example, in 2003 special issues of the *Journal of the American Medical Association* and *Science* were devoted to articles on obesity research. *Health Politics, Policy and Law* featured a special issue on obesity in 2005, while the *International Journal of Epidemiology* devoted a 2006 special issue to the topic.
- [3] Subsequent clinical guidelines for Canadian, English, and US primary care physicians advocate addressing weight in the clinical setting, focusing on data showing that even moderate improvements in lifestyle and weight carry health benefits (Douketis et al. 1999; NHS Centre for Reviews and Dissemination 1997; Serdula, Khan and Dietz 2003; US Preventive Services Task Force 2003; Weisberg 2002). Notably, these initiatives do not reach those who do not access the healthcare system. As obesity is most common among the poor (Martikainen and Marmot 1999) who tend to have diminished healthcare access, this may be a considerable omission. Even among those who do access medical care, clinical guidelines typically focus on obesity treatment, rather than prevention. In addition, among obese patients, intervention is limited by the healthcare funding structure; health insurance plans frequently do not cover obesity treatment for most individuals, and the cost of self-pay options is frequently prohibitive (Gregoire 2004).
- [4] The basic thrust of the World Health Organization report was subsequently affirmed in a Canadian “call for action” that also characterized escalating excess body weight trends in “epidemic” terminology (Lau 1999). It should be noted that Oliver (2006, 39–43) traces origins of the move to categorize obesity in epidemic terms to US CDC scientist William Dietz. Collaborating in 1998 with US CDC colleague Ali Mokdad, Dietz developed and circulated a vivid set of PowerPoint maps that provided convincing visual evidence supporting his characterization of escalating weight prevalence as an “epidemic.” These maps were eventually published in an influential article, “The Spread of the Obesity Epidemic in the United States, 1991–1998” (Mokdad et al. 1999), which argued for classification of the US obesity problem as an epidemic.
- [5] It is notable that, with this move, Satcher fortifies a common (yet erroneous) belief that all epidemics are infectious diseases. Since overweight and obesity are obviously not infectious, this element of the report is in tension with other passages that label the prevalence of excess body weight as a literal epidemic.
- [6] An Epidemic Investigation is a formal protocol for coordinating public health responses to disease outbreaks classified as epidemics (Brownson 1998b, 71–72). We discuss the Epidemic Investigation protocol more thoroughly in later sections of this paper.
- [7] As Camus’ story of *The Plague* illustrates, invocation of epidemic terminology can activate an audience’s imagination to view apparently unrelated and isolated phenomena as parts of

a coherent universal. In terms of rhetorical strategy, the effort to move an audience's focus in this fashion by way of metaphor involves what Italian rhetorical theorist Giambattista Vico (2002) calls "ingenium." In Vico's view, ingenium works by triggering the "universale fantastico"—a thought process that stimulates collective imagination about universals by fusing together an audience's mental faculties of memory, invention and fantasy (Bevilacqua 1985). Because this process fires the imagination to grasp new relations between particulars, it enables audiences to change their perceptions regarding what are apparently heterogeneous phenomena that reside in isolation from each other, and instead see the things that tie the particulars together in a universal whole. This is an important part of the framework for understanding overweight and obesity presented in *Call to Action*, since the report steers readers to interpret excess weight prevalence as a public health problem deserving broad-based, societal response. This perspective is clearly distinct from a view that sees isolated cases of overweight and obesity as instances of individual weakness or moral failing.

- [8] In Ogden and Richards' terminology, the tenor of the metaphor is the escalating prevalence of excess body weight (the thing to which the metaphoric word or phrase refers), while the vehicle of the metaphor is the set of all possible associations relating to the concept "epidemic." The report steers readers to interpret the ground of the metaphor (the specific quality of the vehicle that informs the tenor) as quantity—the large number of new cases points to the fact that overweight and obesity have "reached epidemic proportions."
- [9] This line of argument parallels broader academic critiques of "therapy culture" (Furedi 2004), a collective social condition where individuals become emotionally dependent on government-driven public health interventions for identity affirmation. Notably, while Richman, Roberts and Campos invoke the specter of heavy-handed state coercion to underscore their critique of the obesity "moral panic," Furedi suggests that therapeutic authority "seeks to exercise control not through a system of punishment, but through cultivating a sense of vulnerability, powerlessness and dependence" (Furedi 2004, 203).
- [10] For example, one survey conducted in spring 2001 found that "Most Americans do not see either the public's or their own weight as a serious health problem ... Americans are able to recognize that obesity is a complicated issue, but most still place the source of obesity in the hands of the individual. Given these factors it is not surprising that there is little enthusiasm for imposing regulations or taxes on food products" (Oliver and Lee 2002, 25–26; See also Oliver and Lee 2005). However, more recent research conducted after release of the *Call to Action* indicates a shift of opinion. An April 2003 survey showed that 85% of respondents "said that it is important for the government to implement" obesity prevention programs (American Heart Association 2003), while a 2003 review of opinion surveys conducted between 2001 and 2003 found that "a slight shift occurred toward favoring government intervention in certain circumstances" (Wellever, Reichard and Velasco 2004).
- [11] Analyses in the field of medical sociology have pointed out the myriad challenges entailed in developing effective public health interventions designed to address entire populations. For example, David Mechanic (1978, 204–205) isolates an inability to pinpoint necessary causes of disease conditions and difficulty in implementing control measures as two interlocking factors that complicate population-based interventions. Such complicating factors have driven refinement of the Epidemic Investigation protocol, which provides a practical framework for focused action in the face of uncertainty.
- [12] In the parlance of medical sociology, this strategy constitutes an attempt to influence the "social construction of medical knowledge," which helps determine "professional and institutional practices of the health care system". Brown elucidates how this concept differs subtly from the "social construction of illness," which has received the bulk of attention in traditional constructionist writing in this area (Brown 1996, 96).
- [13] This outcome may also help minimize the tendency, noted by Frank Furedi (2004), for individuals perceived as "diseased" to become targets of victim-blaming in "therapy culture."

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