

ORIGINAL ARTICLE

Metaphors for illness in contemporary media

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Essayist Susan Sontag alerted us more than 20 years ago to the way in which clusters of metaphors attach themselves to our discussion of certain diseases, and the influence these metaphors exert on public attitudes to the diseases themselves and to those who experience them. This study of feature articles on five diseases—avian flu, cancer, diabetes, heart disease, and HIV/AIDS—published recently in the *New York Times* reveals distinct patterns of metaphor usage around each. While the metaphors used in relation to the diseases Sontag studied—cancer and HIV/AIDS—have become less emotive and more positively informative, the sensationalist connotations of the metaphor clusters that have formed around two diseases that were not on the agenda for wide public debate in her time—avian flu and diabetes—are hardly congruent with the serious intent of the articles in which they appeared. By contrast, discussion of heart disease involved very limited use of metaphor. The article ends with a call for journalists and medical professionals to become more aware of the impact of the metaphors they use and to collaborate in developing sets of metaphors that are factually informative and enhance communication between doctors and their patients.

contract the diseases. Depiction of disease as an enemy suggests that its progress is inexorable and that all treatment is likely to be in vain, and it also tends to spill over into public attitudes towards those experiencing the diseases. She argued, in particular, that the “pollution” and “contamination” metaphors used around HIV/AIDS reinforced the tendency to blame those viewed at that time as the most likely candidates for the disease—gay men—for their own condition and to imply that they were being justly punished for their own transgressions (p112).¹ References to HIV/AIDS as an “alien invader” also fostered antagonism towards refugees and other migrants (especially from Africa). “This is the language of political paranoia,” she wrote, “with its characteristic distrust of a pluralistic world” (p106).¹ She expressed her concern that the widespread use of such “metaphoric trappings” tended to “deform the experience” of having the disease and to “inhibit people from seeking treatment early enough, or from making a greater effort to get competent treatment” (p102),¹ and even had an insidious effect on how medical professionals treated them.

Sontag recommended the abandonment of all metaphors around ill health: “My point is that illness is *not* a metaphor, and that the most truthful way of regarding illness—and the healthiest way of being ill—is one most purified of, most resistant to, metaphoric thinking” (p3).¹

SUSAN SONTAG ON ILLNESS METAPHORS

It was American novelist and essayist Susan Sontag who, more than 20 years ago, first alerted us to the widespread use of distinctive clusters of metaphors in relation to certain diseases. In her *Illness as metaphor* (1978), she focused on the recurrent use of military metaphors (among others) in relation to cancer, not only in describing the nature of the “killer disease” itself as “invasive”, as “setting up outposts” that “colonise” the body, but in referring to available treatments as “bombardment” and “chemical warfare” and as “weapons” to be used against the “demonic enemy” in the “crusade against cancer.” In a subsequent essay, *AIDS and its metaphors* (1988), she examined the use of metaphors of “invasion” (again), but especially of “pollution”, “contamination”, and of the “willingness” of the HIV virus, which can “lurk for years in macrophages”.¹

In both cases, Sontag argued, these metaphor clusters foster feelings of mystery, fear and anger towards diseases that should be viewed in a more coolly scientific manner (p7).¹ Specifically, she was concerned that military imagery implies inherent weakness, and so a degree of blame, in those who

FOR AND AGAINST SONTAG'S CLAIMS

Since then, her arguments have been both criticised and supported by scholars from a number of disciplines. Among the many researchers to argue against Sontag, medical historian Barbara Clow has asserted, that, while cancer was regarded, in the 20th century, as “a dreadful affliction”, she found little evidence to suggest that the disease reduced people to “a state of silence or disgrace”.² By contrast, books inspired by Sontag, such as historian James Patterson’s *The dread disease: cancer and modern American culture*³ and numerous publications by AIDS activists, have detailed the part played by language in shaping public attitudes to these diseases. Michael Ignatieff’s review of the volume in which the two essays were first published together insisted on the value of her intervention: “Taken together, the two essays are an exemplary demonstration of the power of the intellect in the face of the lethal metaphors of fear.”⁴ More specifically, Meira Weiss has reported on a survey indicating that different diseases are indeed regularly referred to by professionals as well as the wider public in terms of distinctive metaphors that imply positive

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discrimination in favour of some life-threatening diseases (eg, cardiovascular disease is consistently "metaphorized as a defect in the "body machinery"") and negative discrimination against others (eg, AIDS—with the dominance of the "pollution" metaphor; and cancer—represented as "transforming" the person who has it into an Other).⁵

IMPOSSIBILITY OF ERASING METAPHOR FROM MEDICAL DISCOURSE

Metaphor "is a central tool of our cognitive apparatus".⁶ In discussion of health matters, as in other areas of human life, which are both conceptually complex and emotionally fraught, we inevitably resort to metaphor. In the words of Banks and Thompson, "people are incorrigible users of metaphor in thinking about sickness and health and the workings of the human body."⁷ Health professionals depend on simple metaphors (eg, from the domain of plumbing) to explain to patients the nature of their cardiovascular or urinary tract problems (p99).⁷ Equally, patients and relatives create vivid personal metaphors to communicate their experience. A depressed person says she is "drowning"; someone experiencing severe pain refers to it as "a red-hot poker"; and a grieving person declares that "losing your parents is like losing the tent poles out of a tent".⁸

Indeed, according to Scott L Montgomery,⁹ metaphor is as essential to communications among professionals, even at the highest level of research, as it is to communication with patients or in popular discussion. He argues that modern Western medical thinking and research are organised around two sets of fundamental conceptual metaphors: the first, "biomilitary" metaphors, representing disease and the body's response to it in terms of "attack" and "defence"; the second, bioinformationist metaphors, portraying the body, in both health and sickness, as a communications system, operating in terms of "transmitters", "messages", "encoding", "receptors", and so on.

While Sontag's absolutist demand that we abstain altogether from metaphor in reference to sickness was unrealistic, it seems likely that repeated use of certain metaphors not only reflects, but may substantially shape, attitudes to sickness—our own and that of others.

METAPHORS USED IN THE MASS MEDIA IN RELATION TO FIVE DISEASES

The present study takes up the issues raised by Sontag in relation to the use of metaphors of sickness in the mass media. It involves analysis of articles in a major newspaper relating to five diseases (including the two, cancer and HIV/AIDS, that she herself wrote about), with the aim of identifying and critiquing patterns of metaphor use. We chose the *New York Times* because it is a serious, highly respected, non-specialist publication, widely influential not only in the USA but internationally, that presents well-informed, generally non-sensational articles on health matters. We examined all the feature articles published from 1 September 2005 to 31 May 2006 on several diseases about which there is major current debate—cancer, diabetes, heart disease, HIV/AIDS and avian flu.¹ (We set aside the large number of brief, factual, news items about such matters as trials of a new therapy and research by drug companies that made little use of metaphor and, in our view, would have had little impact on public attitudes to the diseases.) Rather than undertaking a quantitative, statistical analysis, we were

concerned to describe the broad patterns of metaphor use, and assess whether journalists had learnt from Sontag's essays to be more judicious in their selection and combination of metaphors.

UNEVEN DISTRIBUTION OF METAPHORS

We observed that metaphors proliferated in relation to two diseases, avian flu and diabetes, that were not on the agenda for public debate in Sontag's time. The diseases that Sontag had focused on, cancer and HIV/AIDS, attracted far fewer, and less alarmist, metaphors—in part, no doubt, as a direct effect of the stand she had taken, but also because they are better understood and more effectively treated now than when she wrote. Heart disease attracted the fewest metaphors.

THE CONTENT AND NATURE OF THE ARTICLES

Avian flu was represented (accurately) as a disease primarily of birds and wholly, to this point, outside the USA. Readers were reminded that the virus will need to undergo significant mutation to become a major threat to humans and a substantial geographical shift to become a threat to birds, let alone humans, in the USA. The articles recounted the real concerns of experts and governments about the likelihood that either or both of these changes may occur, and the fears (often irrational) of ordinary citizens about their personal safety. Type 2 diabetes, on the other hand, was (again, accurately) represented as a massive, immediate, local (as well as international) problem, with disastrous implications for individuals and whole communities, whose causes are quite well understood, but where public awareness and government action lag behind the clinical reality. Several articles, under the heading "Bad Blood", focused on the incidence of type 2 diabetes in the poor and immigrant communities of New York.

Ten years or more ago, HIV/AIDS was typically referred to as a disease of gay (white) men in North America. The articles we studied focus on two rather different issues: first, the growth in the incidence of HIV/AIDS among women and across all ethnic groups in North America; second, the devastating problem it has become in Africa and India, especially among women and children, and the successes and failures of public health measures taken in different countries. To the credit of the journalists, they are much less concerned than their predecessors in the 1980s were with the "threat" that the presence of the disease in Third World countries might pose to people living in First World countries, and, in a series of articles, draw attention in a compassionate manner to the massive threat that HIV/AIDS poses to the health, the social cohesion, the economic welfare, indeed the survival, of many millions of people in Africa and Asia.

The perspective in the articles on cancer is, again, very different from that which Sontag found and the tone much more positive. They are primarily concerned with increasingly sophisticated research on the origins of different forms of cancer and on refinements to the rich array of treatments available. Great empathy is shown towards those, especially women with breast cancer, undergoing the most stressful forms of treatment.

Given that coronary heart disease remains the most significant cause of death in the USA and the fact that so much heart disease is preventable by lifestyle changes, the number of articles on heart disease was surprisingly low. The articles studied related especially to refinements in treatments, diet change as a means of reducing the incidence of heart disease, and the previously neglected topic of heart disease among women, specifically the role of hormone therapy for other conditions in making women more or less susceptible to heart disease.

¹This was a sample of convenience extending back from June 2006, when we started our study, in which we judged that we had achieved saturation of data for our purpose. We accessed the articles via the *New York Times* online: <http://www.nytimes.com>

INFORMATIVE AND/OR EMOTIONALLY POSITIVE METAPHORS

In contradiction to Sontag's claims that metaphors used around disease are necessarily damaging in their impact, we were impressed by the number of informative and/or emotionally positive instances of metaphor use. We list just a few examples from articles on different diseases. The unpredictable nature of virus mutation was vividly communicated in this sentence from an article on avian flu: "Gene segments are shuffled randomly into new configurations, like the symbols in the window of a slot machine. If one of these configurations happens to be both pathogenic and transmissible from human to human, jackpot: a pandemic ensues."¹⁰ An article on HIV/AIDS quoted a Unicef official who declared, "Twenty-five years into the pandemic, this very visible disease continues to have an invisible face, a missing face, a child's face."¹¹ Among the emotionally positive metaphors, we noted in particular the phrases used by two cancer specialists. While one stated that researchers are "close to being able to put our arms around the whole cancer problem",¹² another (in an article by Sontag's son, David Rieff) declared that "the caterpillar [of cancer research] is about to turn into a butterfly."¹³ A fresh, well-chosen metaphor offers a flash of intellectual or emotional insight into a previously murky area.⁶

BIOMILITARY AND BIOINFORMATIONIST METAPHORS

It was interesting to see Montgomery's observations⁹ about the prevalence of "biomilitary" and "bioinformationist" conceptual metaphors confirmed in relation to all the diseases. While treatments for all five diseases were referred to in military terms ("aggressive strategies", etc), the use of military metaphors to describe the action of the disease itself (as an "enemy", "attacking", "invading") was extremely high in relation to avian flu and very low in relation to heart disease. Similarly, while bioinformationist terminology ("receptor", "marker", "message") was found in relation to all diseases, it was most prevalent in relation to cancer.

Here we outline briefly the patterns of metaphor found in relation to the five diseases, in descending order of occurrence of significant metaphors.

AVIAN FLU

Informative metaphors

The wealth of metaphors used in relation to avian flu may in part be attributed to the desire of scientists to conceptualise, and of responsible journalists to explain to a non-specialist reading public, the characteristics of the type A(H5N1) virus, its rapid spread among bird populations and the risk to humans if a relatively minor mutation, permitting easy human-to-human transmission, takes place in the virus. In addition to the "slot machine" metaphor referred to above and another, representing the likelihood of the disease becoming a human pandemic as that of "a Category 5 hurricane with long odds on its occurring, but with devastating consequences if it does",¹⁴ we noted the following vivid, informative metaphors relating to the geographical spread of the disease: "why did the disease after years of *smoldering* in poultry, suddenly start *hitchhiking* in migratory birds?"¹⁵; outbreaks of the disease are referred to as occurring in a "*hopscotch pattern*"¹⁶; European health authorities are concerned at the possibility that "*permanent reservoirs of the disease*" will be established on Europe's doorstep.¹⁷ Likewise informative is the description of the flu gene as being "covered with a thicket of spikes, like a burr", which enable it to attach itself to bird or human cells. The same writer explains that resistance to an outbreak of disease occurs because "the immune system preserves a memory of its previous encounters

with a flu, which are dragged up, *like old photographs from the back of a closet*" (Shreeve, p5).¹⁰

The value of such imagery for describing features of the disease and its spread in popularly comprehensible terms can hardly be overestimated.

Metaphors of war, criminality and terrorism

Overwhelmingly dominant in the articles on avian flu is a cluster of metaphors derived not just from the military domain, but from the domains of individual criminality and terrorism. Referring to the geographical spread of the disease, one article said that "like enemy troops moving into place for an attack, the bird flu known as A(H5N1) has been steadily advancing."¹⁸ To which another writer adds, "Diseases don't stop at state lines, any more than they do at national borders."¹⁹ On the level of the individual organism, "the virus invades cells deeper in the lungs" (p5).¹⁰ Many phrases bear connotations of malicious intent: "the virus lurks" (p3)¹⁸ and it is "a serial killer" (p2).¹⁰ One writer tends to melodrama with the statement that "the virus did not need one of the host's own enzymes to turn traitor and cleave apart the hemagglutinin protein to help the virus infect a cell ... the virus toted its own cleaving mechanism into the host on that gene, like a butcher who brings his own knife" (p9).¹⁰

In reference to public health responses to these threats, a mass of military metaphors is used. The emphasis, especially in President George W Bush's speech in late November, 2005, and journalistic commentaries on it, is strongly on "defence" at the national level. Certainly "international surveillance" is crucial (p2),¹⁸ "insufficient surveillance" is a worry, and "aggressive public health measures" must be taken.²⁰ The central feature of the government's defensive "strategies" is "building national reserves of antiviral medicines".²¹ Not only are government authorities "stockpiling Tamiflu", but individual households are, too.²² It is important, however, "not to target just one flu strain".²³ Nevertheless, action is equally required at state level, and "localities cannot rely on the feds to be the cavalry that rides over the hill to rescue every US town and city from pandemic influenza."²⁴ While metaphors of attack and defence are, as has been mentioned, commonplace in popular (and professional) discourse concerning infectious diseases, the language used in relation to avian flu is almost indistinguishable from that used in relation to possible terrorist attacks on the USA. Indeed, President Bush's speech, with its insistence on the need to strengthen surveillance, and its promise to give Americans "the protections they deserve," sounds much like an address on "homelands security" with the term "Al-Qaeda" replaced by "avian flu".²¹ Several articles identified a trend towards households acquiring large quantities of Tamiflu. (Such behaviour might well be likened to the widespread practice in the USA of purchasing handguns for use as weapons against "home invasion".)

A series of articles on the possibility (after the release of a detailed description of the genome of the virus responsible for the 1918 flu pandemic) that terrorists might actually construct a lethal flu virus and deploy it as "a weapon of mass destruction" transform the metaphorical analogy between avian flu and international terrorism into a near-apocalyptic prophecy. The headline "Virus 911" and the terms "bioterrorist attack" (p1),¹⁹ "weapon of mass destruction",²⁵ and "hypothetical megathreat"²⁶ are found in the articles on this topic.

In such an emotive climate, it is hardly surprising that large numbers of patients are reported as rushing to their doctor believing that the cough they had developed "must be bird flu".²⁷ It seems clear that the plethora of military metaphors used both reflected and inflamed the extreme anxiety of a large section of the American public about a threat whose seriousness the experts find hard to gauge. Echoing Sontag's question

about metaphors around HIV/AIDS, one may also ask whether the representation of the disease as a malevolent and aggressive Other has encouraged political paranoia and skewed public attitudes and policy? Of the many billions of dollars promised by President Bush to "combat" avian flu, only a small fraction has been devoted to work at the global level to assist the governments of countries such as China, Indonesia and Nigeria to control the pandemic among birds (thereby confronting the potential for human pandemic at its source), and a very large fraction to building "stockpiles" of antiviral "weapons". While the *content* of all the articles viewed was informative and responsible, in that it balanced expert concern about how the virus might mutate with frequent reminders that its impact on humans so far has been quite limited, the *metaphors* so consistently used have, in our view, tended paradoxically to reinforce widespread public (including presidential) paranoia about the disease.

DIABETES

Military and other metaphors

A scattering of more or less conventional single metaphors is used in the articles to describe the nature of type 2 diabetes and its incidence: "diabetes *gallops* practically out of control"²⁸; patients may want to "take a vacation from diabetes, but it grants no time off"²⁹; and so on. There is also a high incidence of metaphors representing the disease as a (more or less military-style) attack. Among the more vivid, we found "one day in the trenches" (a reference to a visit to a diabetes ward); "genetics may load the cannon, but human behaviour pulls the trigger"³⁰; people described as getting fat because they are "bombarded with all the societal influences"³¹; a comparison of uncontrolled diabetes to "a forced death march" (p7).²⁹

Military metaphors representing the treatment of diabetes emphasise counter-attack rather than mere defence. Reporters write of: needing to "outwit the disease" (Kleinfeld, p 3)³²; "aggressively lowering a person's blood sugar"³³; (also "aggressively screening" (p4)³¹; being "aggressive about controlling" (p4)³⁴; and the need to "squellch an immune system attack that is causing the disease".³⁵

The image of the flood

Most striking, however, is the dominance of a cluster of vivid metaphors relating to floods and storms, especially in the articles of two writers. Examples include references to New York City being struck by a "huge wave of new cases" (Kleinfeld, p1)³²; the threat that diabetes may "engulf growing numbers of the young" (p1)³²; repeated use of the term "surge" to denote the increasing incidence of the disease³²; reference to health facilities being "swamped by the disease's handiwork" (p1)³²; references to New York City as an "epicenter of diabetes" (p1)²⁹ and as being "in the teeth of an epidemic" (p2)²⁹; eating habits being driven by a "gale force of popular culture" (p3)³¹; patients whose diabetes is no longer being actively treated referred to as being "cut loose again, to drift back to a life of limited care options" (p10)³¹; doctors denigrating patients with advanced diabetes as "shipwrecks" (p7)³²; and the World Health Organization having "warned that Asia faces a tsunami of diabetes in the coming decade".³⁵

The choice and evocative force of such metaphors may be largely explained by their being "in the air" after the tsunami in the Indian ocean at the end of 2004 and the destruction and loss of life in New Orleans caused by the hurricane in mid-2005. But when metaphor clusters occur with such regularity, they may carry more than a single associative load. In the first place, there are, perhaps, the Judaeo-Christian connotations of "the flood" as a divine punishment for human sin. However, a sentence in an editorial on the diabetes crisis indicates a rather different set of connotations, describing the Bush administration's

handling of the diabetes crisis as "a Katrina-like saga of confusion and incompetence".³⁶ No longer an analogy between the incidence of diabetes and the hurricane, this is an analogy between the government's responses to the two disasters.

In an attempt to highlight the extent to which diabetes in the USA is self-inflicted, another writer makes an analogy that is even more thought-provoking: "Imagine if Al Qaeda had resolved to attack us not with conventional chemical weapons but by slipping large amounts of high fructose corn-syrup into our food supply. That would finally rouse us to action—but in fact it's pretty much what we're doing to ourselves."³⁷ This analogy, in our view, offers a valuable flash of insight, in overturning the widely held assumption that all public health (and, indeed, other) threats must spring from some hostile Other.

In general, however, as in the articles on avian flu, there was a marked discrepancy between the seriousness of the public message conveyed by the articles on diabetes and the impact of the dominant cluster of metaphors employed in the service of that message. Whereas many of the articles underlined the fact that the incidence of type 2 diabetes could be massively reduced if people made better dietary choices, took more exercise and gave up smoking—and emphasised the need for federal and state governments to undertake public education on these topics—the hurricane, tsunami and flood imagery tended rather to imply the inevitability of the disease as an "act of God".

HIV/AIDS

Military and other metaphors

The emotive imagery of "pollution" and "contamination" that pervaded discussion of HIV/AIDS in the 1980s is almost entirely absent from the articles viewed. Certainly there are still many military metaphors, but these refer almost entirely to the treatment of the disease at the individual level and to the monitoring and limitation of its incidence. Typical is the statement by the New York City health commissioner that "government should become much more aggressive about monitoring and caring for people infected with HIV and preventing spread of the disease."³⁸ Even in this statement, however, it may be felt that there is some residual uncertainty about just whether some of the "aggression" is directed at those carrying the disease.

Some other metaphors are used just once, in illuminating and/or context-specific ways. So, in an article on methamphetamine use in North America as a factor in the transfer of HIV/AIDS from "gay enclaves" to the heterosexual population, a psychologist comments that "the problem has been brewing for the past year, but now it's beginning to boil."⁴⁰ (Not all readers will spot the allusion in this metaphor to the process of manufacturing crystal methamphetamine.) One article on the need, in Africa, for international funding to be made available to treat children with HIV/AIDS makes use of blandly conventional metaphors of "pressure mounting", "charities ... beginning to flock here", and sporting metaphors such as "the biggest hurdle facing children in need of treatment" and the fact that "we just haven't stepped up to the plate to make sure they get it".⁴¹

Metaphors of travel and transport

The dominant cluster of metaphors used around HIV/AIDS is that of travel and transport. This is, in part, because, unlike a

ⁱⁱ In the same vein, one article asked whether the terminally ill AIDS patient should be treated with "the more aggressive ventilator, on which she would probably die, or the more passive morphine, from which she would probably slip into death",³⁸ and another referred to the need to "test more aggressively" and for "aggressive collection of data".³⁹

disease such as flu, which may be contracted through the most insignificant encounter with an infected person, the HIV virus is transmitted only by intimate contact and exchange of fluid: through sexual contact, sharing of needles, by babies from their mothers, and so on. In this sense the virus *travels* along clearly identifiable routes and terms such as "route" and "path" are used about the process of transmission (Jacobs, p2).⁴⁰ Many of the articles examining the spread of HIV/AIDS in the Third World (specifically in Africa and India), however, highlight the crucial role of those actually travelling and working in the transport industry, notably truck drivers, who visit sex workers—women and men—and so transmit the disease not only in these encounters but back to their own wives and, eventually, children. So the virus is *transported* both metaphorically and literally. As one writer says, "highways are a conduit for the virus" that truck drivers "bring home" with them. Upgrading India's road system will allow more freight to be transported but "some things are better left uncarried."⁴² The same journalist strikes one of the few positive notes in referring to the way in which intervention by public health workers along the main transport routes in India ensures that "word is starting to travel along with the virus." Interestingly, too, research and public policy on AIDS prevention is represented in terms of a long and difficult journey, with its own "timeline" and "milestones". There are "bottlenecks" and "barriers" that need to be eliminated if the "goals" that have been set are to be met.⁴³

In contrast to the articles on avian flu and diabetes, we found broad congruence between message and metaphor in the articles on HIV/AIDS.

CANCER

A sprinkling of metaphors

While the articles on cancer emphasise the progress made in understanding how different forms of cancer occur and in refining the treatments available, several articles focus on people experiencing cancers that current knowledge and techniques cannot treat successfully. Empathy is shown both towards them and towards the specialists who perform a professional and ethical "high-wire act"⁴⁴ in advising patients on the respective merits of more and less radical treatment options in a rapidly changing research climate. Understandably less positive just after the death of his mother, David Rieff refers to the "sea of death" oncologists "swim in" (p6).¹³

These articles are less metaphor-rich than those Sontag would have consulted, in part, we suggest, because, with such advances in cancer research, both the level of public anxiety and the difficulty of explaining technically complex issues have diminished. There are many one-off images to convey a specific piece of information. In reference to the development of cancers, one writer refers to a "snowball effect, a chain reaction" (p2).¹² The same writer states that naturally occurring "DNA repair stands as the dike between us and an inundation of mutations." (This, it may be noted, is the *third* disease, after diabetes, and avian flu, where Hurricane Katrina has left its metaphorical mark.) Rieff refers to Sontag having had "the biological deck stacked against her" (p1).¹³

Biomilitary and bioinformationist metaphors

The military imagery that Sontag loathed is still quite prominent. A researcher states that, in the mutation of normal cells into cancer cells, "it looks like someone has thrown a bomb in the nucleus" (p1)¹²; and breast cancer is "invasive"⁴⁵; "in cancer, genetic changes give cells a sort of superpower" (p1).¹² Description of the body's response to cancer is likewise still couched in military terms: "The white blood cells of the immune system should attack cancer cells as foreign bodies and destroy them."⁴⁶ Treatments may be more or less "invasive".

Prostate cancer is to be "fought aggressively"⁴⁷; there is talk of "blasting cancer cells with harsh chemotherapy", or of "using a sort of molecular razor to cut them out" (p1).¹² There are also metaphors of cancer cells as an individual "killer"—"malignant", of course—against whom we need protection⁴⁸; or a wily criminal band "lurking, quiescent and ready to spring if the drug is stopped" (p4),¹² which must be outwitted by researchers who are "detectives"⁴⁸ seeking to "unravel genetic factors", and even members of the public who are "amateur disease sleuths" searching for environmental factors that might increase the incidence of cancer.⁴⁹

Much more significant now than when Sontag wrote is the imagery associated with information-processing: "receptors for estrogen"⁵⁰; "markers" and "genetic control systems"⁵¹; "gene deletions and rearrangements"¹²; "cancer cells make proteins that actually tell the immune system to let them alone and even to help them grow" (p1).⁴⁶ There is a tendency also to refer to the cancer as if it were an independent organism within the body: breast cancers may or may not be "fueled by estrogen" (p2)⁴⁴; some drugs "starve cancers of estrogen".⁵² Sontag's claim that metaphors for cancer imply that the patient's identity is somehow diminished by the disease is picked up (for obvious reason) in an article in which women who have undergone radical mastectomy, followed by breast reconstruction, talk about their need to "feel whole", not "mutilated".⁵³

Commentators on cancer in the mass media, like commentators on HIV/AIDS, have over the past 20 years considerably toned down the emotive force of the metaphors they use, no doubt partly in response to Sontag's work.

HEART DISEASE

A disease starved of metaphors

There are probably several reasons for the smallness of the number of articles on coronary heart disease. As Sontag herself argued, it has never had the awful mystery of tuberculosis, cancer, HIV/AIDS (or, one might add, Alzheimer disease). In part, this may be because of the nature of the mechanical, specifically plumbing, metaphors that have collected around it. Much more publicity has been given over the past 40 years to mechanical procedures such as angioplasty, bypass surgery and heart replacement than to research on the biochemistry of cardiovascular disease or to refinements in drug treatment. Many people assume that if they get heart disease, it is likely to be eminently treatable by a surgeon with advanced plumbing skills and, if such treatment fails, the end will be quick and "clean". So their concern about prevention is low. Nevertheless, in the words of one specialist: "People who have congestive heart failure, their outcomes are like the worst cancers. People think of it as a cleaner death and cancer as a dirtier death, but that's not the case" (p6).¹³

Most of the metaphors used in the articles studied do indeed represent the cardiovascular system in plumbing terms. There is "narrowing or stiffening" of blood vessels and "blood flow deficit",⁵⁴ which eventually results in "obvious blockages".⁵⁵ The downside of the dominance and accessibility of the plumbing metaphor for the cardiovascular system is that it distracts public attention from the biochemical factors (including smoking, salt intake and lipids) that affect that system.

Given the massive costs—personal, social and economic—that it still exacts, and the degree to which its incidence depends on poor lifestyle choices, it could be argued that heart disease should be discussed much more frequently than it is in the mass media. Specifically, in the context of the present study, we would recommend the development of a richer fund of metaphors for educating the public about the many different factors contributing to the occurrence of cardiovascular disease.

CONCLUSIONS

There are, we suggest, several lessons to be learnt from the materials studied. The claim that human beings cannot talk about health and sickness without metaphor was amply borne out.ⁱⁱⁱ It seems clear that the metaphors used in the mass media play a significant role in shaping popular conceptions of sickness. In this sense, they impact on the individual behaviour of lay people relating to both prevention and treatment of illness and on the mindset with which they consult (or fail to consult) medical professionals. There is even some indication that the metaphors tend to shape aspects of public health policy. It seemed to us that there was inconsistency in the degree of self-awareness that the writers of these articles displayed about the likely impact of their choice of metaphor. On the positive side, we noted *single* metaphors in these articles that served a real educational function (eg, the slot machine image for the randomness of virus mutation). We also noted *some metaphor clusters* that communicated medical and social information with great clarity (eg, the transport imagery around HIV/AIDS). However, we also noted major instances of discrepancies between the message that writers sought to convey and the emotive connotations of the metaphor clusters they used (avian flu as terrorism and diabetes as a hurricane).

We were left with a strong sense of the need for medical professionals, educators and journalists to display greater self-awareness in their choice of metaphors, both singly and in clusters. More specifically, we advocate collaboration among these groups in the formulation of fresh metaphor clusters to communicate important medical information and advice in emotionally helpful ways.

We end, therefore, by issuing a challenge to those writing in the mass media to develop a metaphor cluster that might assist lay people to understand, and medical professionals to communicate with their patients around, one of the most intractable topics in the health field. We are referring to the problem most people have in coming to grips with the notion of multifactorial causality in health matters and the question of how (and how much) we are in a position to exercise control over our own health. The relevance of these issues to the incidence of heart disease and type 2 diabetes should be clear. Neither the plumbing metaphors typically used in relation to the former nor the storm and tsunami imagery used in these articles for the latter gives any clues as to the strategies we might use, individually and collectively, to keep the likelihood of contracting heart disease or diabetes to a minimum. We offer here a first attempt at the building of a useful analogy, in the hope that it will provoke others to come up with more comprehensive and effective suggestions.

You have about as much control over your health as you do over your safety in driving a car regularly. In both cases, your security depends mostly on the choices you make every day. When driving, if you pay attention to road conditions, stop when you see the traffic light turning to red, don't speed or drive drunk, and take your car to be serviced regularly, you optimise your chances of driving without serious incident for many years. Of course, however careful you are, something outside your control—a manufacturing defect in the car, oil on the road, irresponsible driving by others, subsidence of the road surface—may still result in your being injured or killed. The same is true of your health. If you make wise choices, about

what you eat and drink, about not smoking or taking drugs, about how much you exercise, about your sexual behaviour, about taking yourself for a medical check-up—and, of course, about how, and with whom, you drive!—the odds are that you will live a long and healthy life. Nevertheless, there are of course factors over which you don't have any control: genetic inheritance (the manufacturing defect), a chance infection (oil on the road), accidental or criminal injury (being hit by a drunk driver) and others. In both cases, it is the many everyday choices you make—do you stop at the lights? do you stop eating when you are full?—that are the most significant factors in determining your safety. While this analogy hardly has the sensational and emotive quality of the terrorism and tsunami analogies we have discussed above, its recognisable, everyday quality may give it a practical usefulness those analogies do not have. We invite readers, especially medical practitioners, to elaborate on, or suggest alternatives to, this simple initial offering.

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