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# What Is an Epidemic?

## Currents in Contemporary Bioethics

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Misuse of the word “epidemic” has become an epidemic. In this note I examine several accounts of what it means to be an epidemic, explore what I take to be the motivation for over-extending the term, and explain why I think we should use it in a more careful way.

### Epidemics, Old and New

The term “epidemic” can be traced back to Hippocrates, and it appears at least three times in his brief book, *Of the Epidemics*, which is mainly a collection of medical case descriptions.<sup>1</sup> In each instance, Hippocrates uses the term to describe seasonal outbreaks of infectious diseases, though he knew little about the etiology of infection.<sup>2</sup> For more than two millennia, the term continued to be used to indicate a sudden surge in disease, or symptoms of disease, in a population. Over time, it evolved to refer to single diseases rather than clusters of diseases or symptoms, but the essential meaning remained remarkably constant for over two thousand years. According to the Oxford English dictionary, the primary definition of epidemic continues to be “a widespread occurrence of an infectious disease in a community at a particular time.”<sup>3</sup> Although vague, this account nicely captures the common thought that epidemics have something to do with a spike in infectious disease in a particular population.

An even more precise account is found in the first edition of the Oxford Companion to Medicine, which defines epidemic as “an outbreak of disease such that for a limited period of time a significantly greater number of persons in a community or region are suffering from it than is normally the case...The extent and duration of an epidemic are determined by the interaction of such variables as the

nature and infectivity of the causal agent, its mode of transmission, the degree of preexisting and newly acquired immunity, etc.”<sup>4</sup> This definition is clear and concise, and it hints at why epidemics occur and how they evolve. However, just 15 years later, the 3rd edition of the Oxford Companion to Medicine reflects a newer and less helpful use of the term: “An epidemic is the occurrence of numbers of cases of a disease clearly above normal expectations.”<sup>5</sup> References to infection and duration are dropped, though an above normal rate of disease remains as a criterion.

Other dictionaries and textbooks have made further changes, including dropping disease as a necessary condition, so that many now consider an epidemic anything that negatively impacts the health or welfare of a large number of people in a population.<sup>6</sup> In some cases, the primary definition is confined to infectious disease, but the secondary one covers all unexpected adverse events that affect a population. For example, the Oxford Dictionary Online includes as a secondary definition: “a sudden, widespread occurrence of a particular undesirable phenomenon” and lists “an epidemic of violence” as an example of this sense of the term.<sup>7</sup>

I will argue that the newer meaning of “epidemic” suffers from three main problems: it lacks precision and explanatory power, it is politically controversial, and it contributes to the increasingly common perception of epidemiology (which began as the study of epidemics) and public health (which began as the branch of medicine charged with treating and preventing epidemics) as fields of study with no clear mission or unique domain.

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### About This Column

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inclusive to pick out a clear set of issues. For example, if an epidemic occurs whenever an unusually large number of people in a population are adversely affected by an event, we would have to include as epidemics the increase in amputees during World War II, the uptick in children who drown in rivers after Indian monsoons, and deaths and injuries in Indonesia that occurred after the

for vaccination rather than to accurately depict the (likely) trajectory of infection.<sup>9</sup> Because epidemics and pandemics caused by infectious disease can be scary events that inflict large losses, most people are willing to make significant sacrifices to address them. The relevant sacrifices include foregoing freedom to travel to certain regions, and paying higher taxes to finance vaccination provi-

A third problem for the more expansive account of epidemic is that epidemiologists – whose main job is to discover, describe and address epidemics – are not necessarily well-placed to solve the many problems that fall within its scope, such as poverty, rape, and unemployment. Epidemiologists have no special expertise about what causes these conditions, or how best to treat them. Instead, political scientists, economists, and psychologists are often better equipped to tell us how to improve employment prospects, to create institutions that minimize violence, and so on. Of course, epidemiologists should seek out and synthesize knowledge from different fields. But there are good reasons to be skeptical when we are told that since violent crime is an epidemic, we should pay special attention to what epidemiologists say about its causes and solutions. There are perfectly good reasons, though, to listen to what traditional epidemiologists say about how to control the spread of infectious disease.

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massive 2004 tsunami. These are medically important events, and in some ways the resulting injuries were unexpected, but few would consider them epidemics. The main reason seems to be that they are not caused by infectious agents. In all three cases there is a clear and common cause of injury, but there is no vector or vehicle that transmits the medical event from one person to another.

The second problem with the expansive account of epidemic is that it tends to license a certain amount of political manipulation.<sup>8</sup> It is increasingly common for well-meaning journalists, politicians and scientists to label global problems as “pandemics” (epidemics that cross borders) or “public health crises” in order to draw attention to them. Even for infectious disease, controversies have raged over whether to label recent outbreaks of Avian and Swine flu as “pandemics.” Some suspect that the main motivation for labeling them pandemics is to raise public awareness and government funding

sion and disease surveillance programs. If people are willing to make these sacrifices in order to diminish the threat of traditional epidemics, perhaps activists think they will be more willing to endorse restrictive laws or higher taxes to address obesity, autism, and income inequality, among other issues.

As public health professors Eileen O’Neil and Elena Naumova have argued, when “outbreak” and “epidemic” are used to describe problems like obesity and autism, the motivation may be to manipulate public opinion in order to justify preconceived policies.<sup>10</sup> This is a dangerous trend, and one that should be avoided by scientists, and by scientific nomenclature. When physicians, scientists and public health activists claim that “X is an epidemic,” the words conjure images of a rapidly spreading infectious disease that claims victims indiscriminately, not a steady uptick in the diagnosis of developmental disabilities or an increased consumption of carbohydrates.

### **Communicating Risk**

One of the main causes for concern with an over-extended definition of “epidemic” is that it may become more difficult for physicians and public health practitioners to explain the relevant risks to non-specialists. Arguably the best way of communicating the risks associated with an epidemic is to explicitly describe its characteristics, such as the speed of transmission, the number of new cases, and the nature and severity of symptoms.<sup>11</sup> It is also important to classify a population-wide event as either contagious or non-contagious. If the newer and broader definition of epidemic sticks, we should at least be honest about whether the condition is truly contagious, or whether it just happens to negatively affect a large number of people. We might be tempted to say some conditions that influence population health are “culturally contagious,” rather than biologically contagious, but it is worth remembering that even powerful trends that use culture as a vector

are not literally contagious since peer pressure can be resisted.

Consider adult obesity as a case in point. Obesity has been labeled an “outbreak” and an “epidemic,” and it is increasingly called a “pandemic” and a “public health crisis.” While each of these descriptions has different connotations, all of them have powerful emotional resonance for those familiar with the history of infectious disease. They suggest that people who are significantly overweight are in a position similar to victims of anthrax or the Spanish flu. Yet the differences are enormous. For one thing, voluntary choice typically plays a bigger role in explaining behavior that leads to obesity than it does in explaining the contraction of anthrax.<sup>12</sup> More importantly, adults are not infected with obesity in the way we are infected with influenza and other contagious diseases, and there is no single causal agent that leads to changes in obesity rates within a population.

If the definitions of “epidemic” and related terms (like “outbreak” and “pandemic”) continue to evolve in the current direction, it is likely that citizens and policymakers will respond by greeting new public health warnings with indifference, and potentially hostility. Just as many of us roll our eyes when politicians declare yet another war on something they disapprove of (drugs, abortion, poverty),<sup>13</sup> many people are likely to ignore warnings of impending epidemics as the term becomes increasingly amorphous. The authors of a recent article on epidemics worry that public trust may be at stake:

Lack of precision is an unsure foundation for disease surveillance, causing a gradual but real erosion of trust of public health professionals for failure to develop sound policy in an appropriate manner...

The danger, of course, is that when a real event occurs, the force of the word [“epidemic” or “outbreak”] has been exhausted and communication about a catastrophic event may be hampered, both among public health professionals and to the public. With overuse and imprecision, policy recommendations that rely upon public behavior change may be taken less seriously.<sup>14</sup>

We can use words and deploy concepts however we like, but we should resist the temptation to describe medical conditions in ways that are intended to increase fear rather than accurately portray a problem. Public health practitioners and journalists would be wise to heed George Orwell’s injunction in “Politics and the English Language” to choose our words carefully: “man may take to drink because he feels himself to be a failure, and then fail all the more completely because he drinks. It is rather the same thing that is happening to the English language. It becomes ugly and inaccurate because our thoughts are foolish, but the slovenliness of our language makes it easier for us to have foolish thoughts.”<sup>15</sup>

#### Acknowledgement

Special thanks to Mark Rothstein for comments on an earlier draft.

#### References

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6. P. Martin and E. Martin-Grane, “2,500-year Evolution of the Term Epidemic,” *Emerging Infectious Diseases* 12, no. 6 (2006): 976-980.
7. See *supra* note 3.
8. J. Sullum, “An Epidemic of Meddling,” *Reason Magazine* (2007), available at <<http://reason.com/archives/2007/05/17/an-epidemic-of-meddling>> (last visited August 1, 2014).
9. P. Doshi, “The Elusive Definition of Pandemic Influenza,” *Bulletin of the World Health Organization* 89, (2011): 532-538, available at <<http://www.who.int/bulletin/volumes/89/7/11-086173/en/>> (last visited August 1, 2014).
10. E. O’Neil and E. Naumova, “Defining Outbreak: Breaking Out of Confusion,” *Journal of Public Health Policy* 28, no. 4 (2007): 442-455.
11. M. Green et al., “When Is an Epidemic an Epidemic?” *IMAJ* 4 (2002): 3-6.
12. The case is admittedly different for children who lack the power (because of ignorance, immaturity, or parental oversight) to control their diet and exercise patterns. See J. Anomaly, “Is Obesity a Public Health Problem?” *Public Health Ethics* 5, no. 3 (2012): 216-221.
13. Mark Rothstein has suggested (in correspondence) that just as many people misleadingly use medical terms to apply to non-medical events – an “epidemic of crime” – they also use non-medical terms to describe our efforts at promoting medical research, as occurs when politicians declare “war on cancer.” This is bound to happen as language evolves, but allowing scientific nomenclature to reflect the evolution of words in popular discourse can be dangerous, since it can impact funding priorities. A similar point about the increasingly vague use of “public health” is made in M. Rothstein, “Rethinking the Meaning of Public Health,” *Journal of Law, Medicine & Ethics* 30, no. 2 (2002): 144-149.
14. See *supra* note 10, at 448.
15. G. Orwell, “Politics and the English Language,” 1946, available at <[http://www.npr.org/blogs/ombudsman/Politics\\_and\\_the\\_English\\_Language-1.pdf](http://www.npr.org/blogs/ombudsman/Politics_and_the_English_Language-1.pdf)> (last visited August 1, 2014).