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Collapsing Goods in Medicine and the Value of Innovation

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Medicine is an inherently moral profession, inasmuch as healing and promoting health are paradigmatic moral activities. With wellness as an overarching aim, it is to be expected that goods in medicine will be morally good. But if typical, it is not always so. What is good for an individual may not be good for others or for people at large, and where the focus from a medical perspective is on a particular individual, the good in medicine may not coincide with a greater good from a moral point of view. That is the case for goods of a kind that may prove instructive in several ways, what we may call collapsing goods.

1. Collapsing Goods and Social Constraints

Antibiotics were understandably heralded as wonder drugs when they were introduced, and a physician who was chary of prescribing them would be viewed with suspicion by many patients. Unfortunately, the perception of their value has led to widespread, indiscriminate use that may do more harm than good. Overuse throughout a population promotes mutations that result in resistant strains of bacteria that are difficult to fight against. People whose health is otherwise compromised may become untreatable, while people in otherwise fine health may respond only with difficulty. Over time, multiply resistant strains of bacteria may develop that cannot be controlled with any antibiotics at hand. As Stuart B. Levy has observed: "Ever since antibiotics became widely available in the 1940s, they have been hailed as miracle drugs – magic bullets able to eliminate bacteria without doing much harm to the cells of treated individuals. Yet with each passing decade, bacteria that defy not only single but multiple antibiotics – and therefore are extremely difficult to control – have become increasingly common.... In part because of the rise in resistance to antibiotics, the death rates for some communicable diseases (such as tuberculosis) have started to rise again, after having declined in the industrial nations."[1] Ironically, the under use of antibiotics by

individuals when combined with the overuse of antibiotics throughout a population may increase the risks of multiply resistant strains of bacteria. Both factors loom large. Again as Levy has remarked: "Notably, many physicians acquiesce to misguided patients who demand antibiotics to treat colds and other viral infections that cannot be cured by the drugs. Researchers at the Centers for Disease Control and Prevention have estimated that 150 million outpatient prescriptions for antibiotics every year are unneeded.... People often fail to finish the full course of treatment. Patients then stockpile the leftover doses and medicate themselves, or their family and friends, in less than therapeutic amounts. In both circumstances, the improper dosing will fail to eliminate the disease agent completely and will, furthermore, encourage growth of the most resistant strains, which may later produce hard-to-treat disorders."[2]

None of this would be particularly problematic morally, if the prescription of antibiotics on an individual basis were not medically good. But the general effectiveness of antibiotics, together with the relatively low risk of adverse consequences to an individual whose condition may or may not really call for them, creates a professional presumption for their use. Insofar as medical care should be focused on individuals, the indications need not be high to call for the prescription of antibiotics, even from a moral point of view. Moreover, the resulting good is not limited to a single case. The positive value to be gained in readily prescribing antibiotics as conditions seem to warrant is likely to be present in several, many, even a great many cases. The problem is that when resistant strains of bacteria develop, there comes a point where this ceases to be so. The good continues only up to a point, a threshold of use, and then plummets with undesirable and possibly devastating results. This is an instance of a collapsing good.

Most medical matters can be discussed without reference to collapsing goods. Treatment, cure, and palliation are typically good without limit. Setting a broken bone, treating diabetes, and vaccinating against polio are medical goods that do not begin to decline. Indeed, there is, in some sense, no limit to the good of such treatments, apart from possible eugenic concerns. As long as there are more people with broken bones, diabetes, or the susceptibility to polio, there is more good to be done by doing what is medically warranted on an individual basis. Any moral obligation is likely to be a function of the aggregate of the medical good that is warranted on an individual basis. In some cases, as in bone-setting, what is at issue is on the order of a linear function, where the total medical good is directly proportional to the sum of the individual goods. Vaccination is interestingly different, in as much as the good for a population may increase dramatically when the good to be done on an individual

basis confers herd immunity on the population, as may have been achieved for smallpox. Vaccination, then, may be at an extreme that makes it something of an inverse of a collapsing good. We might think of vaccination as a case of what could be called an expanding good. But for all these cases, whether setting bones, treating diabetes, or vaccinating against polio, the good at issue is, as may be said, a socially unconstrained good.

What makes prescribing antibiotics different in a morally significant way is that the total medical good is not socially unconstrained. It is, as we may say, a socially constrained good, which brings with it what are sometimes called externalities, and in this case also a collapsing good. While most goods in medicine are socially unconstrained, research and technology may afford increasing instances of socially constrained goods that are collapsing goods. Xenotransplantation may provide one type of case. While the value of a xenotransplant to an individual with a damaged organ may be high, the risk to the health of others in the population at large grows with each additional recipient of a non-human organ. The chances of introducing a virus benign to pigs but lethal to people may go up significantly, if xenotransplantation becomes fairly widespread. The first one or two recipients of porcine organs are likely to be closely watched and even semi-quarantined. But attention is costly and restrictions are disliked. Familiarity may well breed viruses as well as contempt, until it is too late.

Genetic engineering may provide another type of case that presents socially constrained goods that are collapsing goods. Of the several concerns that are regularly voiced about genetic engineering, the one that may generate the most attention has to do with genetic diversity and the possible narrowing of the gene pool. This is, in the first instance, only a concern with genetic alterations to the germ line, not to somatic cells. Genetic diversity has survival value and clear overall value for a population, since without it, a virus or an environmental factor that is not even infectious could devastate a large part of the population.

The lack of genetic diversity among Amerindians is thought to have made them as defenseless against European viruses as European guns. As Laurie Garrett, recounting work of Francis Black, puts it: ''The best example of the phenomenon was the estimated 56 million American Indians who succumbed to disease following the arrival of Europeans – and their microbes.''[3] She adds: ''Black's theory was that what did in the American Indians was their own lack of biodiversity. Since all Amerindians were descended from two fairly small waves of migration from Asia, their gene pool was small.... Black calculated that as the microbe was passed from Amerindian to Amerindian, it had a 32 percent chance of encountering a

human with the same immune system genetics (major histocompatibility complex) as its prior host had possessed."[4] When it came to the Aztecs, smallpox was as devastating as Cortés and no more merciless.[5]

In 1970, American farmers came to know the hazards of uniformity in the gene pool for their corn crops when the Southern leaf blight struck. Caused by a fungus, *Helminthosporium maydis*, the blight spread at up to eighty kilometers a day. In short order, it managed to destroy twelve percent of the annual production of corn in the United States.[6] With greater scientific and technological resources, a lack of genetic diversity might not be so devastating, but even so, it could adversely affect an entire population, even parts that do not share the uniform characteristics, since harm to a large part of a population can cause serious dislocation, at the least, to the rest.

We have, then, problems in the form of moral problems with two kinds of goods, socially unconstrained goods like setting bones and treating diabetes, on the one hand, and socially constrained goods, especially those that are also collapsing goods, on the other. The distinction is not peculiar to medicine. If we can say of a particular good, "the more the merrier," we are dealing with a socially unconstrained good. If we cannot say this and it turns out that, in a sense, we can have too much of a good thing, then we are dealing with a socially constrained good that may also be a collapsing good.

Computers, food, clothing, shelter, and peace are all pretty much socially unconstrained goods. Most goods fall into this category. Socially constrained goods that are also collapsing goods, however, are not hard to come by. Today, with the servers available, having access to the world wide web offers more benefits to more people only up to a point. Delays that are not noticeable when not too many people are on line can become annoying or worse when the number of people on line grows too large, turning the world wide web into the world wide wait. Automobiles and cows, if they lead to conditions of global warming due to excess carbon dioxide and methane that result in cataclysmic climates may be collapsing goods. The same may be said of refrigerators and air conditioners that use chlorofluorocarbons, if their use past a certain threshold leads to ozone depletion in the upper atmosphere to such an extent that we face a significant increase in melanomas. Of course, the underlying issues are factual, and it may turn out that the widely proclaimed hazards are not as serious as popularly thought. Fishing that leads to over-fishing provides another example of a socially constrained good that is a collapsing good. As in this case, some cases of collapsing goods reflect what Garrett Hardin aptly termed, "the tragedy of the commons."[7] The problem Hardin addressed is real enough and important. Collapsing goods need

not result just from that problem, but one way of understanding such tragedies is that they involve collapsing goods. Hardin presents the tragedy of the commons as a failure to recognize the merits of a free market. He is right, and free markets may have further bearings on how best to deal with socially constrained goods that are collapsing goods.

2. "What if Everyone Did That?" and Distributive Justice

When a socially constrained good that is a collapsing good is at issue, the total good to a population falls short, sometimes far short, of what would be expected if the good were socially unconstrained. In the event, a Kantian-sounding question "What if everyone did that?" gets its bite. The question certainly did not originate with Kant, and it is still raised with some frequency, especially in certain political contexts. But for some reason, partly, perhaps, having to do with meta-ethical interests, judging individual behavior by asking what we would think if all people were to do the same, particularly resonated with philosophers interested in moral reasoning in the 1950s and 1960s. After that, the discussions seemed to grow stale, despite continued work by Alan Gewirth.[8]

In the heyday of the discussions, the stock case for the question "What if everyone did that?" concerned the consequences of walking across grass, say the grass in an Oxford quad, where cutting across is convenient but contributes to trampling which, if everyone tramples, leaves a muddy mess that no one wants. If Fred values convenience, then walking across the grass is good for Fred. But then if everyone did that, the grass would be a muddy mess which is bad for everyone. If we take the position that morally speaking it is wrong to allow someone to do something that everyone is not allowed to do, then it would seem to be morally wrong for Fred or anyone else to indulge in grass-walking. In giving more thought to the question "What if everyone did that?", it becomes plain that either that moral position is wrong or that exceptions need to be drawn. The most thorough attempt to defend the position was offered by Marcus Singer in a work that, despite considerable merits, has a distinct Ptolemaic quality that brings to mind the devices of Rube Goldberg and Heath Robinson in allowing for the exceptions.[9] If instead we take a broadly consequentialist position with a view to maximizing the good at issue, then the question does not seem so telling.

With respect to the value of convenience and the value of pleasing greenery and grass-walking, the extremes of no one walking across the grass and everyone walking across the grass are both bad. With no one walking, everyone is inconvenienced, though the grass is a pleasure to see.

With everyone walking, everyone enjoys a short cut, though the grass is a muddy mess. More good could be done by allowing some people to indulge in grass-walking, with the added convenience that brings, as long as the number does not reach a point where it results in detrimental trampling. When put this way, it should be clear that we are dealing with a collapsing good. But if we can do more good with respect to these values by imposing less than complete restrictions on potential walkers, it still does not follow that we should act to bring that good about. If some grass-walking is allowed, then we need to determine who gets to walk across the grass. Any attempt to answer the question "What if everyone did that?" that does not run to the extremes of allowing all or none to do what is at issue inevitably gives rise to the question "But who gets to do that?" This is a question of distributive justice. It is a call to allocate what is regarded as a scarce good and to do so fairly. Questions of distributive justice are all too seldom easy. Indeed, the resentments and other bad effects that can come about from alternative methods of allocation can end up leaving the extremes of all or none in the end, overall, morally the best. Either extreme may be better than otherwise more sensible middle ground. That is just an indication of how difficult questions of distributive justice can be. It is not an excuse to throw up our hands in an effort to find a *via media*. But in general, it would be all the better if questions of distributive justice somehow did not have to arise.

The characteristics we have been considering are common to all problems in the form of moral problems with socially constrained goods that are collapsing goods. Under the constraints, solutions that maximize the good at issue will generally do so without making the good available for all. Promoting the good at issue then produces a concomitant problem of distributive justice. Collapsing goods in medicine when considered from a moral point of view can be expected to give rise to problems of distributive justice. With this understanding, we can turn to consider how we might go about dealing with such problems.

3. Four Ways to Deal with Collapsing Goods

In general, there are four ways to deal with problems in the form of moral problems with collapsing goods in medicine and elsewhere. They are moral suasion, regulation, a pricing mechanism, and innovation. Each has a place, but in a fundamental respect, the last of these ways, innovation, is different from the first three, moral suasion, regulation, and a pricing mechanism. For problems in the form of moral problems with

collapsing goods in medicine, the difference is important from a moral point of view no less than from a medical point of view.

Moral suasion, regulation, and a pricing mechanism are ways of solving problems in the form of moral problems with collapsing goods. To make use of antibiotics, but within limits set by the risks of developing resistant strains of bacteria, we may urge restraint in their prescription. Anyone can contribute to the effort, which must appeal to the moral sensibilities of individual physicians, though peer pressure among physicians may do more to persuade than outside rhetoric. By and large, moral suasion is likely to be effective only where the risks to the population seem convincingly high and an alternative treatment is readily at hand. On a case by case basis, moral suasion may not do much, and where the focus from a medical perspective is on a particular person, the patient who presents a treatable illness, it perhaps should not be expected to do much, morally speaking. For the longer term, moral suasion should not be discounted as a factor in bringing about change. Spittoons are no longer requisite office amenities at least partly for this reason. More generally, widespread concern for sanitation even among physicians is partly a result of moral suasion.

With regulation, we go beyond moral suasion in several ways. We subordinate the judgment of individual physicians to an organized authority. The authority may be a professional body such as the American Medical Association or a certifying board, a corporate body with financial interests, or, at various levels, the state. The Joint Commission on Accreditation of Healthcare Organizations has oversight authority over practices in American hospitals. The Food and Drug Administration regulates pharmaceutical products. Private or public, regulation is coercive. It has the force of sanctions, professional, financial, and legal. With sanctions, however, there must also come mechanisms for oversight and powers of enforcement. Clearly the use of antibiotics can be curtailed by regulation. How effectively regulations work depends on how well crafted they are in their expressed aim, and how strong the sanctions they impose.

A pricing mechanism provides incentive to seek alternatives on the basis of cost. In a free market, the risks presented by the collapsing good may be reflected in its price, at any rate as far as the market is efficient and accounts for externalities. Insofar as the practice of medicine is at some remove from a free market, a collapsing good may be discounted beyond anyone's awareness, even though if this were not the case, the market with respect to medicine by nature might not be as efficient as most. No doubt, with taxation we can use a pricing mechanism to implement a public policy. This is no less coercive than the sanctions of regulation. Even so, where more than moral suasion is needed to curtail the use of a collapsing

good, as may well be the case with antibiotics, taxation at least gives us an alternative to regulation. The nature of the coercion is different and to some extent keeps the choices to be made within the purview of individual physicians.

With the first three ways of dealing with problems in the form of moral problems with collapsing goods, we have alternative ways to try to solve the problems. For the prescription of antibiotics, considerable moral suasion combined with a pricing mechanism might be effective. For xenotransplantation, regulation with features of current organ transplant regulations and biohazardous materials regulations might be in order. Genetic engineering may present moral problems that are less open to such solutions. Moral suasion may be largely ineffective; a pricing mechanism may be politically unpalatable; and regulation, if it introduces a randomization procedure to promote genetic diversity, may undermine the benefits of choice that are sought in the first place. Still, more than moral suasion may be necessary, if the risk of a narrowing of the gene pool makes extensive genetic engineering a serious collapsing good.

The fourth way of dealing with problems in the form of moral problems with collapsing goods, innovation, it might be said, is not so much a way of solving the problems as it is of dissolving them, to use a trope favored by enthusiasts of the later work of Wittgenstein. What is at issue is morally significant. Through innovation, we transform a problem in the form of a moral problem with a collapsing good into a problem in the form of a moral problem without the collapsing good. We exchange a collapsing good with a socially unconstrained good. As a result, we eliminate the problem of distributive justice that is a concomitant of any problem in the form of a moral problem with a collapsing good. We do away with the need to find an answer to the question "But who gets to do that?" and settle an often difficult issue of fairness.

4. The Moral Value of Innovation

In the late nineteenth century, New York City had between one hundred and two hundred thousand horses, each one producing two dozen pounds of manure on a daily basis. Disposing of between twelve hundred and twenty-four hundred tons of manure every day was a serious problem. It lent credence to the claim that the city which had seen almost a doubling of population per decade since 1800 faced a limit to growth, because with another doubling the manure from all the horses would be too deep to walk through. With subways, buses, trucks, and even cars eliminating the need to use horses for transportation, the problem dissolved, and with it a

pedestrian problem of a collapsing good, though the new modes of transportation brought different problems with them. Had it not been for innovation, we would have had to deal with the problem by using some combination of the first three ways: lauding the virtues of good citizenry in not keeping a horse; permitting the use of horses only for people with certain occupations; or taxing stables and feed. Whatever the combination, we would have had to settle for something less than what innovation brought about. We would have been left still to deal with a collapsing good, and in doing so with a problem of distributive justice. Each of the ways of dealing with the problem has to include some means of allocating the collapsing good. With innovation, the need for a just allocation of horses disappeared. The transformation of the problem did away with the problem of distributive justice.

Innovation could similarly have moral import for cases of collapsing goods in medicine. Through innovation, we might be able to transform the problems we have considered having to do with the widespread prescription of antibiotics, xenotransplantation, and genetic engineering, from problems in the form of moral problems with collapsing goods to problems in the form of moral problems that involve socially unconstrained goods. With sufficient knowledge and competence to overcome resistant strains of bacteria quickly and easily, we would not have to worry about devastating harm to the population from mutations of bacteria. For instance, if it were easy enough to create new antibiotics on the spot that would address the mutation, there would no longer be social constraints on the widespread use of antibiotics, and their widespread use would cease to pose the risks that make them collapsing goods. Expertise that we lack today might allow us to clone human organs as readily as some animals can regenerate limbs. If we could clone livers, kidneys, and even hearts, then the transplantation of non-human organs would become an obsolete practice. With organ cloning, we would be able to exchange a collapsing good with a socially unconstrained good and render xenotransplantation a curious technology for the medical history books. Concerns over a narrowing of the gene pool due to genetic engineering might be similarly overcome by greater understanding and adeptness in genetics. We might block a harmful agent from spreading throughout a population that has become less genetically diverse in some respects or undo any damage it might have done with added proficiency in genetics.

Some of this may sound like so much speculation, but that is unimportant. What matters is that some such alternatives are possible and innovation is what makes the possibilities actualities. Innovation allows us to change the parameters of a moral problem so that we no longer have to deal with a collapsing good. The change is truly transforming, since it

lets us dispense with an otherwise concomitant problem of distributive justice, a significant moral gain. It is not too much to say that if knowledge is power, the knowledge from innovation has moral power.

If we reconsider the first three ways of dealing with problems in the form of moral problems with collapsing goods, moral suasion, regulation, and a pricing mechanism, there is a sense in which the fourth way, innovation, has implications for them. The moral significance of innovation is such that if any of the other ways of dealing with problems in the form of moral problems with collapsing goods does more to promote innovation than the others, then that way has added moral value. Whether or not one of the ways does do more to promote innovation is an empirical matter. For political reasons, it is also one that is highly subject to dispute. But if, for instance, the pricing mechanism in a free market tends to encourage innovation and tends to do so to a greater extent than moral suasion and regulation, it has added moral value for this reason. The added moral value lies in the elimination of a concomitant problem of distributive justice where not everyone will be as well off as they would like to be, to a problem where everyone can in principle realize a socially unconstrained good. Other moral considerations would certainly be relevant in an overall moral assessment. The exchange of a collapsing good for a socially unconstrained good might not be desirable, all things considered, in a particular case, despite its general moral advantages. But this just underscores the importance of determining the long-term consequences of what we do when we face cases of collapsing goods. Nowhere is this more important than in medicine.

What might first have seemed to be three very different problems in medicine, risks having to do with the widespread prescription of antibiotics, xenotransplantation, and genetic engineering, can be seen to be, in one respect, problems of a single form. They are all problems that have the form of moral problems with collapsing goods that present concomitant problems of distributive justice. Such problems are not unique to medicine. All such problems can be dealt with in four ways, moral suasion, regulation, a pricing mechanism, and innovation. The last of these ways, innovation, allows us to transform the problem and, in doing so, to exchange a collapsing good with a socially unconstrained good. Any new problem in medicine or elsewhere that we come to recognize as a moral problem with a collapsing good can be dealt with in any of the four ways. But of the four, innovation has the added merit, from a moral point of view, of eliminating an otherwise concomitant problem of distributive justice, and all other things being equal, this has great weight. Indeed, it has enough weight that in giving thought to all the ways of dealing with problems in the form of moral problems with collapsing goods, the other

three ways need to be considered for the degree to which they promote innovation.

Despite the benefits, innovation is not always met with applause, and, in some quarters, seldom sought. Costs for bringing about something new can be high. Benefits can be marginal. Nowhere is this more evident than in the pharmaceutical industry, where bringing a new drug to market that offers little more for patients than drugs already available can nonetheless require a billion dollar outlay. It is tempting then to say that the benefits do not justify the costs. No doubt sometimes it is right to say this. Should we be troubled that the balance is not always on the side of the benefits? The answer is that it largely depends on who incurs the risk in bringing a new drug to market, as long as any outright harms to the subjects of clinical trials are not themselves unwarranted. If the risk is not borne by the same individuals who stand to benefit financially from the introduction of the drug, the lines of fiduciary responsibility are not always clear, leaving important considerations for evaluative judgment murky. That is the situation we find ourselves in, at any rate insofar as we lack a free market in medicine. It is also a reason to favor a free market in medicine, though no doubt a defeasible reason, all things considered.

Objections to innovation may run deeper. People may discount innovation, whatever its perceived benefits, and people may refuse to countenance innovation altogether. The nature of the objections to innovation here are distinct, though in a spectrum of discounting, wholesale discounting that shows an utter disregard for benefits may verge into plain refusal to countenance innovation. For medicine, the differences in the objections are important.

In reducing perceived benefit, discounting innovation is a form of handicapping, giving added weight, relatively, to past ways of doing things, to past attitudes and preferences, over the new ways valued in a new light. When the weighting is small, the bias may be epistemically motivated and in some circumstances sustainable. Innovation brings unintended consequences. There is reason to be cautious in fostering change which may have unforeseen, harmful, side effects. We are all too fallible, and failure to recognize this is reckless. A perceived benefit may turn out to be not altogether beneficial. A predisposition for tradition can reduce regrettable change even as it exhibits realism in human imperfection. Limited discounting of innovation results in resistance to change, but resistance that may be epistemically warranted and prudentially wise. When this is its basis, opposition to innovation is more likely to be strategic or tactical than categorical. Such opposition is placable, at any rate in principle.

When discounting innovation goes further, it introduces a pronounced bias which precludes change by making some attitudes and preferences sacrosanct. Not then merely a counsel of prudence in worldly affairs incorporating an instrumental value to factor risk, it reflects a more substantial opposition to change. It may also represent a morally unjustifiable bias to protect or promote the interests of certain people who claim special status on morally spurious grounds, including a bias of a particular type that can be called temporal bigotry, where interests from one time are favored over interests from another without some morally relevant reason for the favoritism.[10] Religions and ideologies sometimes foster an unquestioning attitude on all manner of conduct. When accepted practices are not to be questioned, discounting is effectively without limit and innovation is not countenanced. Opposition to innovation takes the form of categorical demands to prevent change. This is the outlook of committed Luddites. Not surprisingly, such opposition is likely to be implacable.

For medicine, opposition to innovation stemming from limited discounting is much like a loyal opposition in a democracy: if it did not exist, we should have reason to create it. Illness brings a range of emotions to the fore often lead by fear. Treatments that are seen to be ineffective or worse play on the fears. With the problems that heightened fears produce never far from the practice of medicine, it is understandable that something approaching a prime directive for medicine would be the precept, *primum non nocere*. Insofar as limited discounting gives expression to caution, it helps to allay fears. Keeping the opposition to innovation from becoming too much of a retarding force requires us to set the limit of discounting, itself a matter for judgment.

Opposition to innovation in medicine that takes the categorical form is certainly not unknown. Medical Luddites are generally ready to make their presence felt. Without reaching back in time, we find taboos of blood, proscriptions on porcine products, and dismissals of drugs merely for being chemicals or for being unnatural, where ''chemical'' is uttered with disdain and ''unnatural'' is offered up as a term of opprobrium. Such strictures vary in scope. Taboos of blood and proscriptions on porcine products have narrow scopes, impinging on small areas of medical concern. Dismissals of drugs as chemicals or unnatural are broader in scope, bearing on pharmacological treatments in general. Opposition to innovation in medicine can be more encompassing still, as when it takes the form of complete rejection of allopathic medicine. The opposition may be driven by religious conviction, with religiously endorsed preferences taking precedence over any other considerations. The opposition may

have an ideological source, where ideological rectitude requires a subordination of ideologically suspect desires and beliefs.

Opposition to innovation due to limited discounting is unlikely to curtail efforts to deal with collapsing goods in medicine by exchanging them with socially unconstrained goods. Indeed, to the extent that it mitigates mistakes which can call a halt to change for longer than the facts warrant, such opposition may help to promote such efforts. It is where the opposition is categorical that the option of exchanging a collapsing good in medicine with a socially unconstrained good may be foreclosed. Even then, categorical opposition may only shift a focus for innovation and largely impose manageable constraints. For strictures that are narrow in scope, as for taboos of blood or proscriptions on porcine products, efforts to improve medical care may simply be directed at alternative forms of innovation, even to address the same medical concerns. If an alternative can be found, an exchange of a collapsing good with a socially unconstrained good may yet be at hand. For strictures that are broad in scope, alternatives may be harder to come by until, with the complete rejection of allopathic medicine, no options for innovation in medicine are left. Even before that point is reached, collapsing goods will not be the only goods affected. If the strictures are ideologically or religiously driven, individuals not in the grips of ideology or religion will be presented with forced choices. In the end, we need to identify and face up to competing values and try to act in ways to which we and others would give cogent consent.[11]

Notes

1. Stuart B. Levy, "The Challenge of Antibiotic Resistance," *Scientific American* 278, No. 3 (Mar. 1998), p. 46.
2. Ibid., pp. 50–51.
3. Laurie Garrett, *The Coming Plague* (New York: Penguin Books, 1995), p. 589.
4. Ibid., p. 590.
5. See Michael B. A. Oldstone, *Viruses, Plagues, and History* (New York: Oxford University Press, 1998), pp. 32–33.
6. See David Suzuki and Peter Knudson, *Genethics* (Cambridge, Mass.: Harvard University Press, 1990), pp. 296–298.
7. See Garrett Hardin, "The Tragedy of the Commons," *Science* 162 (13 Dec. 1968); also in Hardin, *Exploring New Ethics for Survival: The Voyage of the Spaceship Beagle* (New York: Penguin Books, 1972).
8. See Alan Gewirth, *Reason and Morality* (Chicago: Chicago University Press, 1981).
9. See Marcus George Singer, *Generalization in Ethics* (New York: Alfred A. Knopf, 1961).

10. See Thomas Magnell, "Present Concerns and Future Interests," in Joram Graf Haber, ed., *Ethics in the 90s*, (Belmont, Calif.: Wadsworth Publishing, 1997).
11. Many of the ideas in this paper were stimulated by discussions I enjoyed as a Fellow in Medical Ethics and also as a Lecturer in Medical Ethics in the Division of Medical Ethics in the Department of Social Medicine at Harvard Medical School. In particular, I would like to thank Robert Truog and Walter Robinson for their pointed questioning and thoughtful probing of received opinion on moral matters in medicine.