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Risk Analysis and the Value of Life

To make its research readily available to a broad audience, the Center for Philosophy and Public Policy publishes a quarterly newsletter: *QQ—Report from the Center for Philosophy and Public Policy.* Named after the abbreviation for "questions," *QQ* summarizes and supplements Center books and working papers and features other selected work on public policy questions. Articles in *QQ* are intended to advance philosophically informed debate on current policy choices; the views presented are not necessarily those of the Center or its sponsors.

In this issue:

One of the chief mandates of government is to protect the lives of its citizens. It does this through providing military defense against foreign attack and criminal sanctions against domestic assault. But death comes not only through war and bloodshed, and in this century government, via its regulatory agencies, has protected people as well against various more diffuse threats to life and health: death from any cause leaves its victims just as dead. We believe that it falls within the jurisdiction of government to protect its citizens with equal vigilance against many threats to life.

But if we look at the mandates of different regulatory agencies that share the common goal of protecting life, we see that they pursue this goal with differing degrees of zeal. In some an agency must balance gains in safety or health against the costs of achieving them; in others it must act to reduce risks in whatever ways are technologically feasible. This leads to some startling differences in standards. A review of the cost effectiveness of some proposed lifesaving programs has shown that the median cost of saving a life was $50 thousand at the Consumer Product Safety Commission and $64 thousand at the National Highway Traffic Safety Commission, while the same median value was $2.6 million at the Environmental Protection Agency and $12.1 million at the Occupational Safety and Health Administration. Surely this comparison suggests that we are spending too much in some areas, too little in others, or both.

The estimated cost of saving a life should no doubt be brought more into line across different programs, not only for reasons of equity, but also for reasons of efficiency. We could save more lives for the same total regulatory budget if we allocated these funds differently. But which inequalities should we accept? How should other values weigh against the number of lives we could save? And what should the overall median value be anyway? How do we decide?

The Social Value of Life

Policy analysts have been trying to answer these questions for some years now. One of their practical goals is to bring more order and coherence to the piecemeal approach to health and safety regulation of the 1960s and early 1970s. The methods they have developed—different specific techniques for analyzing and comparing risks, costs, and benefits—are intended to help us think clearly and comprehensively about all these issues.

One way to do this is to calculate what risk analysts call "the social value of life." They look at consumer choices that reveal preferences for safety, as opposed to other goods, and at social decisions to accept some level of risk when the cost of reducing it further would be too great. Measures such as these can be used to establish a systematic, consistent benchmark for deciding what we should spend on lifesaving policies.

A justification for being explicit and analytic about what we are willing to spend to save lives is that by allocating our risk budget more efficiently, we can reduce everyone's risk of early death. Equally important, since every dollar we spend on increased safety is a dollar diverted from enhancing our lives in other ways, we can make better comparisons between improving life's quality and increasing its longevity. Living longer, after all, is a poor substitute for living well.

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But many find the prospect of setting a social value for life a chilling one. This may be partly because they fear entrusting such decisions to a technocratic elite which might abuse its powers. Even setting aside this fear, however, it seems unconscionably cold and calculating to tote up the dollar value of individual human lives in an accountant's ledger. If, for example, we decide to forgo certain safety measures in coal mines, because we have coolly estimated that their costs do not justify their benefits, this will almost certainly mean some miners' deaths will not be prevented. It means, that is, that some real, actual, flesh and blood human beings will die, in order to save what may amount to only a few pennies on a dollar. Likewise, if we decide that certain pollution control measures in a large power plant are not worth their cost, numerous deaths can be expected to result. Isn't this killing to save money?

The risk analyst's response is that, like it or not, trade-offs between safety and other goods do have to be made. We could always spend more—perhaps a good deal more—to make the world safer—perhaps a little bit safer. At some point, as a society, we have to strike a balance. Risk analysis helps us do this in an orderly, rational way. According to Allan Gibbard, professor of philosophy at the University of Michigan, " 'Killing to save money' is a tendentious way of describing the operation of a power plant with substantial pollution controls. . . . The phrase would allow us to dismiss a thousand man-years of sweat and toil as mere 'money' while underlining diffuse effects on health as 'killing.' " Impassioned rhetoric will not let us off the hook of making hard choices.

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Furthermore, a sufficiently sophisticated risk analysis, one that, in Gibbard's terms, looks to "the expected total intrinsic reward" of our lives, will not ride roughshod over our actual feelings, about safety and health, or anything else. Even if our feelings are not rational or consistent, they matter, Gibbard explains, because they are ours: "They determine much in the way we experience our lives and the ways we experience each other." Frustrating them has costs of its own, to be counted in with all the rest: "A risk-cost-benefit analysis that takes into account all contributions to expected total intrinsic reward must count things other than lives saved, injuries and illnesses avoided, and resources diverted to do these things. It must count effects on the ways people who stand ready to carry out a policy experience their lives."

Suppose, for example, that we could save more lives if we spent our budget for mine safety on preventing accidents rather than on heroic, extremely expensive rescue efforts for trapped miners. Nevertheless, Gibbard recognizes, it may be "dehumanizing to stand idly by when strenuous, expensive effort has a substantial chance of saving lives." An ideal risk analysis would count the benefits of saving more lives but also the costs of forfeiting some of the psychological rewards of human fellowship.

But can risk analysis take account of all our other values, throwing them in one gigantic hopper with the number of lives saved and the dollar costs of saving them? Is risk analysis just a neutral way of structuring our decisions, incorporating all our values, whatever they are, and giving them whatever weight we determine to be important? Or are there some values that resist treatment in this way?

Douglas MacLean, director of the Center for Philosophy and Public Policy, notes, "Many people are uncomfortable with the suggestion that risk analysis should be a decision procedure for making choices that seem important both for their consequences and for the real and symbolic value that attaches to how we make them." For this reason, decisions about life and death are decisions we might especially resist consigning to the risk analyst's decision machine.

MacLean argues that this is because human life is a sacred or priceless value. This is often taken to mean that life has infinite value, but MacLean rejects this interpretation of what it is for something to be held as sacred. Certainly we are not willing to spend infinite sums of money to save lives; we have other competing priorities. Indeed, MacLean points out, "Many of the things we regard as priceless may nevertheless have perfectly well-determined market values. To say of something that it is priceless may be only to say that it is not for sale, not that no one could afford it."

The mark of a sacred object, according to MacLean, lies not so much in how much we value it, but in how that value is expressed. In every culture, sacred values are attended by special ceremonies and rituals. MacLean characterizes rituals as irrational or nonrational behavior, actions in which the relationship between means and ends is deliberately inefficient. This aspect of rituals indicates their symbolic meaning and draws the attention of the community to objects, relationships, or roles that have a special place in the life of the group.

Our society, too, has its own rituals for expressing the sacred value of life. MacLean takes these to include: saving crash victims, fliers lost at sea, or astronauts; retrieving the wounded or dead in battle; diverting resources from making mines safer in order to mount rescue missions for trapped miners; or even supporting individual medical treatment rather than more public health research. These defy economic sense—they are intended to defy economic sense. They are intended to show that life has a value that cannot be cashed out in purely economic terms.

What MacLean concludes from this is that "the value of life is complex. It has at least two aspects, which can conflict with each other. First, human life has intrinsic value: saving lives or preventing early deaths is good, and the more lives saved the better. Risk analysis is an important tool for furthering this value. . . . Second, human life is a sacred value, which must be expressed through rituals and other special actions. Setting acceptable levels of risk must be guided by both aspects of this value, even though . . . they may have to be balanced and traded off against each other. . . . We might reasonably choose to accept certain inefficiencies—to save fewer lives than we might otherwise save—in order to maintain the sacredness of human life. Risk analysts insist that we are willing to accept some risks as a trade-off to improve life's quality; why should we not also accept some risks, some localized inefficiencies, in order to maintain the integrity of the value of human life?"

Charles Pereira, U.S. Park Police

U.S. Park Police rescue victims of the January 1982 Air Florida plane crash.

For MacLean this gives a reason to resist across-the-board applications of risk analysis. But Gibbard responds that a sensitive form of risk analysis can meet these objections. In the end, he argues, we can still look at the various rituals in which we engage to show the sacred value of life and ask whether on balance they contribute, in the deepest sense, to the intrinsic reward of our lives. We can ask: does the existence of this or that ritual—however passionately attached we are to it in the press of daily life—really make our lives more worth living? "In a cool hour," Gibbard maintains, "we should be willing to reflect on what we regard with reverence in normal life." This is the kind of detachment involved in relying on ideal risk-cost-benefit analysis, which tries to remain sensitive to all the values and procedures that contribute to intrinsically rewarding lives.

Muddling Through

Can sacred values, personal commitments, and the important but subtle conventions and practices that characterize a culture be treated in this way? What would it mean to incorporate even these deepest values

A Modest Proposal

One is tempted here to present a new "modest proposal," on how best to use a given amount of the public's resources for lifesaving purposes. First we determine to use those resources to save the greatest number of lives, ignoring the difference of "feel" between saving the lives of identified persons perhaps under our gaze and saving "statistical" lives. So if ten people are clinging to a semi-submerged oil rig, and we have seen their plight on the evening news, we will, before sending the helicopters, ask ourselves: "Could we save more lives, possibly less visible lives, some other way?" Almost always the answer will be yes: an inoculation program to save children from some disease will save more lives for the same expenditure. So let those clinging to the oil rig drown. We have more efficient uses for our money.

The next move is to consider whether we should spend on the inoculation program or invest to spend more effectively later. Medical technology can be expected to advance, so we will save more children from an untimely death by investing our funds in research than by inoculating them now. But since medical research has progressed nicely without great subsidy from public funds, perhaps our best bet for eventually saving more lives is to invest elsewhere, wherever the economic returns look best—say, in oil rigs or atomic plants. That way we will have more funds to use eventually on putting to use the then-latest medical knowledge to save lives.

Once this decision is taken, we will have to have a view on what safety measures to install in our oil rigs and atomic plants. To protect our investment and so eventually save more lives, we will perhaps sacrifice a few workers' lives to keep profits high. We have more efficient ways to save lives than to waste potential lifesaving earnings in measures to save workers' lives.

Periodically, we will face the decision of whether to reinvest or spend our earnings on actual lifesaving. So long as there are still more lives at risk than we can save with our increased funds and profits are still high, we will of course reinvest whenever we face this choice. We still have better things to do with our lifesaving resources than to save lives.

With luck, our very investments and the hazard they produce may kill off enough people so that a time will come when it will no longer make good economic sense to go on investing our lifesaving funds. We will then disburse our funds to save whoever is left at risk, perhaps the entire now-much-reduced population. We will then congratulate ourselves on our rational use of our opportunities. From a position where, had we spent, we would have saved only a fraction of those whose lives were at risk, we have, by our clear-headed, efficient investment policy, made it possible for us eventually to save all the lives remaining at risk. What more rational course of action for the public good could possibly be dreamed up?

—Annette Baier

into some grand risk-cost-benefit analysis that aims at maximizing the intrinsic reward of our lives, in the broadest sense?

MacLean is skeptical that any formal system of analysis could ever capture all our values and concerns with the requisite sensitivity, since these depend so much on details of the concrete contexts in which they arise. Moreover, it is not clear what the yardstick for measurement is to be. If all our values are to be compared and assessed on one single scale, what is that scale? Most risk analysts have taken the common currency to be money, the amount we as individuals or as a society are willing to pay to satisfy our preferences and promote our values. But Gibbard rejects this standard, since, given the vast differentials in income, different amounts of money mean different things to people differently situated. His measure is the far broader notion of the intrinsic reward of a person's life. But is this too vague to be of any practical application?

MacLean argues that we might be better off giving up the search for a sensitive, yet workable, metric, consigning risk analysis to a more limited and less inclusive role, and "focusing our attention on directly examining our values more closely, without presupposing that we can ever find a method that will make them orderly and systematic." He asks: "Why should we think we would be better off allowing our judgments and intuitions to be corrected by some general analytic method?"

Conclusion

What should we conclude from this about how systematic and coherent our government agencies should be in tackling risk to life and health?

Annette Baier, professor of philosophy at the University of Pittsburgh, gives one reason why it may make for more systematic and coherent policy not to aim at a standard across-the-board policy for preserving life. She suggests that our traditional approach has its own rationale that may make more sense and achieve better results than the alternative presented by risk analysis.

Traditionally, we have divided the responsibility for facing various dangers not on the basis of what interests or rights are threatened, but instead by the source of the threat. Thus, the judicial system protects security of life, liberty, property, and contract—all against threats by individual offenders; the Environmental Protection Agency protects many of our vital interests and rights against threats to the environment—furthermore, not against all threats to the environment, only those "that come from thoughtless or ruthless human policies." Different public authorities, on Baier's view, "take on different public 'enemies,' each of which may threaten several vital interests." Should we worry that under this division of labor no one is thinking about all the threats to security of life, or coordinating all measures to protect it?

Baier thinks not: "To try to deal in one budget (the total lifesaving budget) with the threat to human life posed by a rise in terrorism, and to deal with the threat terrorism poses to liberty in a different budget (the total liberty-saving budget) would lead to less, not greater, coordination. Doubtless there are better ways to partition our public labor than we have yet devised, but . . . 'rationalizing,' if that amounts to identifying some abstract common goal in several areas and then adopting an efficient total plan to reach it, aiming at consistency in all the areas affected, may be one of those rational strategies that it is even more rational to restrict."

MacLean agrees that it would be a mistake for federal regulatory agencies to aim in a coordinated way at maximizing the overall efficiency of how government resources for lifesaving are expended. Regulatory agencies like EPA and OSHA "are not invisible bureaucracies which were established to duplicate the work of the Office of Management and Budget and bring efficiency and coherence to regulatory policies. They are, rather, very public institutions, which the public expects in part to give voice to the ideals of a society that cares deeply about the lives and health of its citizens."

Although we now realize how important it is to the nation and its economy for these agencies to be cost conscious, "nevertheless, when the Administrator of EPA appears at a press conference to announce a regulatory decision, people are not concerned primarily with knowing that the agency has found the ideal cost-benefit ratio. People want to know that the things they value deeply—our health, the environment, and our natural resources—are being guarded and protected by the agency we have created to be the trustee of these values."

In sum, the actions of such agencies have symbolic and expressive significance. MacLean suggests that this might help us to understand the "rituals" that have been forced on some of these agencies, like the taboos against looking at cost-benefit analyses or establishing a social value of human life. It might help us to understand why modest inconsistencies in achieving our lifesaving goals may be less worrisome than certain efforts to correct them. If life is indeed sacred, we may not always choose to protect it in the most efficient way but in a way that recognizes—and expresses—its special value.

The median lifesaving costs cited are taken from John D. Graham and James W. Vaupel, "Value of a Life: What Difference Does It Make?" *Risk Analysis,* Vol. 1, No. 1 (1981). The views of Allan Gibbard, Douglas MacLean, and Annette Baier are taken from their chapters in *Values at Risk,* edited by Douglas MacLean, Maryland Studies in Public Philosophy (Totowa, N.J.: Rowman and Littlefield, 1986). To order *Values at Risk,* see p. 15.

This Land Is *Whose* Land?

In December, 1971, the Alaska Native Claims Settlement Act (ANCSA) attempted to deal with the land claims of Alaska natives by providing a land and cash settlement administered through state-chartered corporations. Under the terms of ANCSA this corporate stock is inalienable until 1991. This date is now only five years away.

Last fall the independent Alaska Native Review Commission, established by the Inuit Circumpolar Conference, issued a report on what ANCSA, originally claimed to be the most liberal settlement ever reached with native America, actually means to native people. Headed by distinguished Canadian jurist Thomas R. Berger, the commission held meetings in 62 native villages and heard testimony from over 1400 native people.

In what follows, Berger distills the findings of the commission, which are presented in full in his book, *Village Journey,* published in 1985 by Hill and Wang. In response, Franklin Ducheneaux, Counsel on Indian Affairs of the Committee on Interior and Insular Affairs of the U.S. House of Representatives, places ANCSA in the context of earlier settlements with native Americans in the Lower 48. Both Berger's and Ducheneaux's remarks are drawn from presentations they made at a Maryland Colloquium on Public Philosophy, sponsored by the Center for Philosophy and Public Policy, which was held on Capitol Hill last year.