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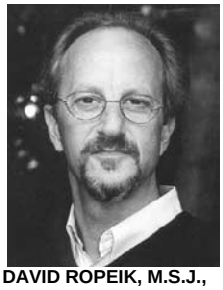
Risk in Perspective

RISK COMMUNICATION: A NEGLECTED TOOL IN PROTECTING PUBLIC HEALTH.



DAVID ROPEIK, M.S.J., Director of Risk Communication, The Harvard Center for Risk Analysis

PAUL SLOVIC, PH.D., President, Decision Research

"Decision-makers must realize, and accept, that the dangers of misperception of risk are real, and pose both a threat to public health and an impediment to policy making that will provide the greatest benefit to public health."

Do we live in riskier times than humans have ever faced? This is a common question in these days of terrorism, SARS, weapons of mass destruction, climate change, ozone depletion and HIV/AIDS.

The answer is resoundingly equivocal. There is both good risk news, and bad. But despite the mixed evidence, many people say they think the risks we modern humans face are greater than they've ever been. The implications of this apprehension are immense for public and environmental health and for the global economy.

We write to offer insight into how human risk perception is both analytical *and* affective, which offers an explanation of why the effective job of risk communication, through both their policies and what they say about them. Understanding and respecting the analytic and affective ways people make risk judgments can help governments help citizens keep their sense of risk in perspective. This, in turn, will not only help individuals make wiser, healthier decisions for themselves. It will also help focus social concern on the relatively greater risks. That will allow governments, businesses, and other social institutions to invest in optimal protection of public and environmental health with the most efficient use of limited resources.

SOME CURRENT RISK REALITIES

Just how risky is the world in which we live? Consider some data from the United States, which reflect similar trends in developed nations worldwide. In 1900, the average life expectancy was about 45 years of age. Today it is nearing 80. In just the last 40 years, infant mortality has dropped from 26 per thousand live births, to 7. In 1918, the influenza epidemic killed 600,000 Americans. In 1999, influenza killed about 36,000 Americans. By major measures, this is a far healthier, safer world than it has ever been.

But new risks have arisen. Worldwide more than 22 million people have died of AIDS since 1984. The postwar industrial/ technological/information age has given us both the benefits *and* the risks of nuclear power, pesticides, and many new technologies. Under the burden of a global population that in the last 100 years has exploded from 1.65 billion people to more than 6 billion people, environmental risks such as climate change, water and air pollution, and mass extinction of species have added to a growing litany of new perils.

On top of this new host of new hazards, we Live in a time of unprecedented media availability and information immediacy. Whenever something is discovered that may even *possibly* be perilous, welearn of it, worldwide, within days. It is also a new phenomenon that a majority of our sources of information are owned by a small number of large corporations. Seeking to maximize profits, the media outlets of these global firms often make new risks sound as dramatic as possible in order to grab attention and attract us to buy their next newspaper, magazine, or television broadcast.

These are the modern realities of what seems like a risky world. But it is not by careful rational analysis alone that we interpret information about

the risks our modern world presents. Such conscious analysis is relatively slow and effortful. In addition we use ancient intuitive processes that are instinctive, fast, and often not completely accessible to conscious awareness. We apply a series of affective criteria to perceive and respond to danger. Essentially, several decades of research on risk perception suggests that humans tend to fear similar things, for similar reasons. To understand the characteristics of risks that trigger these responses is to gain some insight into why people are commonly more afraid of some relatively small risks, and less afraid of some that in certain ways cause greater harm.

RISK PERCEPTION FACTORS

Dread

What's worse, being eaten by a shark or dying of heart disease? Both kill you, and heart problems are far more likely to do you in. But the dreadful death often evokes more concern. Despite the fact that heart disease kills roughly 25 percent more Americans each year, cancer evokes more fear in most people because cancer is perceived as a dreadful way to die. This helps explain why hazards that might cause cancer, such as radiation and industrial chemicals, evoke strong fears. Dread is a clear example of the more general way we think about risk in terms of our intuitive feelings, a process that has been labeled The Affect Heuristic.

Control

Do you feel pretty safe when you drive? Most people do. Having the wheel in your hand gives you the feeling that you can control what happens. But switch to the passenger seat and you're a little more nervous because you are no longer in control. This also applies to process. If you feel as though you have some control over the process determining a risk you will face, the risk probably won't seem as big as if it was decided by a process over which you felt you had no control.

Is the risk natural or is it human-made?

Anthropogenic sources of radiation like nuclear power, mobile phones, or electrical and magnetic fields frequently evoke greater concern than radiation from the sun, which is a vastly greater risk (1.3 million skin cancer cases, 7,800 melanoma deaths, per year in the U.S.) but less worrisome to many because it is natural. This factor helps explain widespread concern about many technologies and products, and offers important insights into one key factor in the debate over the Precautionary Principle.

Choice

A risk we choose seems less risky than if that risk is imposed on us. If you use a mobile phone while driving, you may have on occasion noticed a driver next to you, using *his or her* mobile, and felt upset about the risk that other driver was imposing on you, even while you voluntarily took the same risk, albeit with less concern. (Of course, you have control over your car, so the factor of control also contributes in this example.)

Children

In addition to the genetic imperative to survive (whichis, after all, the underlying impetus of our riskperceptions and responses) humans are genetically driven to reproduce. Survival of the species depends on survival of our progeny. So it is not surprising that research has found that a risk to children, like asbestos in a school or the abduction of a youngster, seems worse than the same risk to adults, such as asbestos in a workplace or the abduction of an adult. During last year's sniper attacks in Washington D.C., after five adults had been murdered, the sniper wounded a 13 year-old boy. The local police chief, tears in his eyes, declared of the sniper "He's really getting personal *now!*"

Is the risk new?

At the time bovine spongiform encephalopathy first showed up in Germany, an opinion survey found that about 85% of the public thought mad cow disease was a serious threat to public health. But the same poll done at the same time in the U.K., where it had been around for years and killed many more animals and more than 100 humans, found that only around 40% of the public thought mad cow disease was a serious threat. New risks, including everything from SARS and West Nile virus to new technologies or products, tend to be more frightening than the same risk after we've lived with it for a while and our experience has helped us put the risk in perspective.

Awareness

The more aware of a risk we are, the more available it is to our consciousness, and the more concerned about it we are likely to be. SARS is currently evoking far more new coverage, attention, and concern than influenza, which kills an estimated 36,000 people a year. In the Washington D.C. area last fall, fear of being shot by a sniper was much higher than the greater risks of heart disease, cancer, or stroke. The other risks weren't gone, but conscious concern about them was lower, because awareness of them had been reduced.

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Can it happen to me?

Any risk seems larger if you think you or someone you care about could be a victim. Consider terrorism in the United States. Prior to September 11, 2001, the Americans who were victims of terrorism were "someone else". Yes, they were Americans. But they were in foreign embassies, or on foreign military assignment. After 9/11/01, however, Americans at home felt they too were possible targets, and fear of terrorism grew.

This helps explain why statistical probability is often irrelevant to people and an ineffective form of risk communication. Imagine that someone hands out 1 million bottles of water, one of which carries a poison. You get one of those bottles. Now imagine taking a drink from that bottle. Your risk of dying from that water is only one a million, but it still feels risky to drink it, because you could be that one. This helps explain why the acceptable level of risk to many people is zero.

The Risk-Benefit tradeoff

Some risk perception researchers and many risk analysts believe that the risk-benefit tradeoff is the major factor that makes us more or less afraid of a given threat.

If we perceive a benefit from a behavior or choice, the risk associated with it seems smaller. If there is no perceived benefit, the risk seems larger. When measles and polio were prevalent, the benefits of vaccination were perceived to outweigh the risk of the side effects. But now, with these diseases rare, the perception of some parents is that the risks of those side effects, as low as they are, outweigh the benefits of vaccines. Many American health care workers, "first providers", are refusing a smallpox vaccination because the risk of the treatment, low though it may be, seems larger than the benefit, which is protection from a disease they aren't convinced is a threat at all.

Trust

Research has found that the less we trust the people who are supposed to protect us, or the people or government or corporate institutions exposing us to the risk in the first place, or the people communicating to us about the risk, the more afraid we'll be. The more we trust, the less concern we'll feel. Imagine you're in a desert, nearly dead of thirst, and someone appears and offers you two glasses of a clear liquid. She won't tell you what is in either glass, only that one comes from Pope John Paul and one comes from a tobacco company.

Which one would *you* take?

THE IMPLICATIONS

But what of all this? What is the utility of understanding the underpinnings of our fears? We suggest that by realizing and respecting the realities of affect and other heuristic processes, and by accepting that they are apparently deeply rooted and reflect intrinsic human techniques for survival, policy makers can incorporate these values, as well as fact-based analysis, into their risk management decision making. Further, by understanding the reasons people perceive risk as they do, policy makers can communicate with various audiences about these issues in terms and language relevant to people's concerns. Risk communication which acknowledges and respects the affective motivators which underlie people's concerns, rather than dismissing such perceptions as "irrational" because they are not solely fact-based, is likely to be more successful in helping people make more informed choices about the risks they face.

This is directly a matter of public health. People who are either too afraid of relatively low risks, or not afraid enough of relatively big ones, make dangerous choices. People afraid of flying choose instead to drive, a much riskier behavior. People afraid of terrorism or other crimes take the risk of acquiring firearms. In 2001 people afraid of anthrax took antibiotics prophylactically, increasing the proliferation of drug-resistant bacteria.

Further, chronic stress, by altering blood levels of adrenaline and cortisol, impairs the immune system. Worrying too much about getting sick may actually increase the likelihood that you will get sick, or sick*er*, or stay sick longer, or die, from any infectious disease. Chronic stress is also associated with the likelihood of type-II diabetes, accelerated osteoporosis, and causes decrements in learning and long term memory. Fear is, in itself, a risk.

Not enough fear can also be dangerous. People unafraid of natural risks like solar radiation, or risks they think they can control like driving, or risks that are associated with benefits, such as smoking or alcohol consumption or fat and calorie-rich diets, fail to take adequate precautions, and they too face a greater likelihood of premature death. Lack of appropriate caution can be dangerous too.

At a societal level, elevated concern about relatively low risks, and too little concern about relatively big ones, is also potentially harmful. People afraid of a risk that triggers their intuitive fears demand government protection from that risk, though it may not actually be as

much of a threat as they feel. Conversely, if a threat is indeed high but does not trigger affective alarm, demand for protection will be low. This drives allocation of resources that is suboptimal for public health. Time and money spent protecting people from relatively low risks are not available to protect people from greater risks. As a result, some of the people left unprotected from those higher risks will suffer. Some will surely die.

CONCLUSION

One solution to the dangers that arise when the analytic and affective sides of our risk perception don't agree is effective risk communication, informed and empowered by an understanding of risk perception. This must become a priority at the highest levels of policy making in government, in business, and in international affairs. More must be done to help people keep their sense of risk in perspective. Decision-makers must realize, and accept, that the dangers of misperception of risk are real, and pose both a threat to public health and an impediment to policy making that will provide the greatest benefit to public health.

Effective risk communication requires recognition by policy makers that there are risk perception implications in what they *do*, that communication is not just what they say and how they say it. Setting a threshold for acceptable exposure to a pollutant, allowing or disallowing a product or process, requiring or not requiring labeling – indeed *all* risk management decisions - have risk communication meaning and impact. At the most senior level, government agencies must consider the risk perception and communication implications of their actions as policy choices are being made. Risk communication must be thought of as more than just press releases, news conferences, and public service campaigns. It is substance, not just spin.

Some call this pandering to irrationality and emotion, and suggest instead that a benevolent technocracy should be empowered to manage societal risk in order to ensure intelligent, rational and effective policies. But this fails to recognize the sensitive and pivotal issues of trust and control. Even the most benevolent process, if removed from the input of citizen values, will feel like one over which the public has too little control, and will not likely be trusted. The policies of such a process are more likely to provoke resistance than support. Further, the very idea of such a rationality-based technocracy fails to accept that risk perception is at least as much an affective and intuitive process as it is analytical, and that fear itself, either too much or not enough, is a significant risk that also must be factored into decisions about public and environmental protection.

Risk communication, informed by the insights of risk perception, is a powerful yet neglected tool in helping people make more informed and ultimately healthier choices for themselves. More informed individual decision making will in turn free the leaders of social institutions to make reasoned risk management choices that will maximize public and environmental health with the most efficient use of limited resources.

Source for health statistics: CDC

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