



# Risk in Perspective

## THE HARVARD CENTER FOR RISK ANALYSIS: PAST, PRESENT, AND FUTURE.



George Gray, Ph.D.

This issue of Risk in Perspective is unusual. Rather than a discussion of a specific risk policy, or a report on the scientific work of the faculty at the Harvard Center for Risk Analysis, we take this opportunity to provide an update on HCRA's status.

As you may be aware, founding director John Graham has left to serve as Administrator of the Office of Information and Regulatory Affairs in the Office of Management and Budget in the administration of President George W. Bush. John leaves behind a legacy which includes one of the world's preeminent academic centers doing risk analysis and decision science, as well as a long list of graduates who have taken their shared commitment to the value of quantitative risk analysis into prominent positions in government, academia and industry.

George Gray is serving as Acting Director. George has been with HCRA since 1991, almost since its inception. He will guide the Center as part of an Executive Committee that includes

senior faculty members John Evans, Karen Kuntz, and Milton Weinstein. Dean Barry Bloom and Academic Dean James Ware have voiced strong support for the Center, and for the importance of risk analysis and decision science in the field of public health. Dean Ware said "The leadership of the School of Public Health sees the Center for Risk Analysis as one of the really precious intellectual assets of the school. We are determined to preserve and strengthen it." The school's leaders have supported the idea of making HCRA a more flexible institution within the administration of the Harvard School of Public Health (HSPH), to increase the opportunities for synergy with other departments within the school, and potentially with other schools within Harvard University.

A search has begun for a new Director. A search committee, made up of faculty from HSPH and other schools within Harvard University, will work with the job description below to identify an individual to lead HCRA in the years to come.

**For more information on HCRA visit our website at:  
[www.hcra.harvard.edu](http://www.hcra.harvard.edu)**

## Director, Harvard Center for Risk Analysis

The Harvard School of Public Health is searching for a Director of its Center for Risk Analysis, the first comprehensive risk center established at a School of Public Health. The mission of the Center is to promote reasoned public responses to health, safety, and environmental risks. The Center's research and teaching focus on methods of decision science, economic evaluation, and risk assessment, and their application to decisions involving medical technologies, automotive safety, environmental health and food safety. The Director is responsible for priority setting, fundraising, management of scientific and administrative staff, and collaboration with full-time faculty on curriculum matters and research projects. The Director also represents the Center on matters relating to faculty development and evaluation, curriculum, and the allocation of school funds, as they relate to the faculty based primarily at the Center. The Director will hold a full-time appointment at the rank of either Full

Professor or Professor of Practice, depending on the successful candidate's background. Teaching in risk assessment, decision analysis, or risk management will be required.

The successful applicant will have extensive knowledge and experience in risk-related policy at the interface of government and business, significant managerial experience in the academic, public and/or private sectors, and a record of raising funds from government, foundations, and industry. Importantly, the Center Director must demonstrate a clear vision of the appropriate role of formal analysis in decision-making, and appreciation of the critical roles of science, economics, and politics in the design of successful public health policy. Prior experience in an academic environment is preferred, but not required. An advanced degree in a related discipline is required.

At this time of transition for HCRA, we take the opportunity to step back and give you a look at who we are, some of what we've accomplished, and our plans for the future.

## Who We Are

The mission of the Harvard Center for Risk Analysis is to promote reasoned responses to risks to public and environmental health and safety. We both apply the methods of risk and decision analysis to specific public health and medical issues, and work to improve and advance those methodologies. HCRA is one of the only centers of its kind in the academic world of public health, creating a synergy among faculty who use similar analytic tools to investigate different risk issues. HCRA recognizes that while public and environmental health issues demand both academic rigor and careful analysis, many of these

issues are of immediate relevance to the public and policy makers. We see our mission as operating at the interface of academia and policy.

Founded in 1989, HCRA has grown to a faculty of 10 and a staff of 11, including six research associates and a Director of Risk Communication. HCRA is currently host to four visiting scholars, and is the academic base for 21 doctoral students and five post-doctoral fellows. HCRA has produced more than 20 doctoral graduates since the Center was founded, 10 in just the past two years.



Milt Weinstein

A significant portion of the Center is the Program for the Economic Evaluation of Medical Technology (PEEMT), which was founded and is led by Milt Weinstein. PEEMT encompasses four faculty members and 15 doctoral or post-doctoral students.



John Evans

Another key component of HCRA is the degree program in Environmental Science and Risk Management (ESRM), jointly run by the School of Public Health's Department of Environmental Health and Department of Health Policy and Management. HCRA's John Evans and Jim Hammitt are leaders of this program, and seven HCRA students and two post-doctoral researchers are currently working toward degrees in ESRM.



Jim Hammitt

HCRA has an annual budget of approximately three million dollars, broken down as follows:

- 40% — Unrestricted
- 30% — Government Restricted (grants)
- 20% — Private Restricted (non-government project specific funding)
- 10% — Harvard University

Our funders include corporations, foundations, government organizations that deal with health, safety, and environmental matters, private donors, and both

the Harvard School of Public Health and Harvard University. We publish a list of every source of financial support received since the inception of the Center on our website and in our biennial report. It is also HCRA policy to list funders of specific projects on any publications those projects generate.

Given the high profile nature of many of the issues we study, HCRA has a conflict of interest policy that goes beyond that of the School of Public Health, of Harvard University, and of most of the other centers within the University

## HCRA Accomplishments

### Research

HCRA faculty have published hundreds of papers in influential peer-reviewed journals. A few noteworthy recent examples include:

- A paper published in the Journal of the American Medical Association (JAMA) by Sue Goldie et. al. on the cost effectiveness of various approaches to preventing cervical cancer in developing nations.
- Research by Peter Neumann, Jim Hammitt, et. al. published in the journal Health Affairs on the public's willingness to pay for testing to determine genetic predisposition to Alzheimer's disease.
- Papers on the safety of airbags, published in The American Journal of Public Health, by Maria Segui-Gomez, and on patterns of hazardous child seating in motor vehicles, in Pediatrics by Eve Wittenberg. Segui-Gomez and Wittenberg are former HCRA students.
- Papers by Kim Thompson and colleagues, published in JAMA, measuring the amount of violent content in children's media, including G-rated movies and E-rated video games.
- A paper in The New England Journal of Medicine by Sue Goldie, Milt Weinstein, and colleagues on the cost effectiveness of anti-retroviral therapy.

- A study published independently by HCRA, written by John Graham et.al., on the risks and benefits of cell phones and driving.
- Research led by John Evans and Jim Hammitt on the benefits of efforts to remedy air pollution in Mexico City, to be published in an upcoming book edited by Nobel laureate Mario Molina of MIT.
- Phaedra Corso, along with Jim Hammitt and John Graham, developed and tested risk communication methods to improve the accuracy of willingness-to-pay estimates, which measure how much individuals are willing to pay for various risk reduction strategies. Their work was published in the Journal of Risk and Uncertainty.
- Research led by Karen Kuntz on the cost-effectiveness of screening for colorectal cancer in the general population was published in JAMA.

### HCRA graduates include:

- Tammy Tengs, Ph.D. 1994, Assistant Professor in the Urban and Regional Planning Department in the School of Social Ecology at the University of California, Irvine.
- Maria Segui-Gomez, M.D., Sc.D., 1999. Assistant Professor, Department of Health Policy and Management, Johns Hopkins School of Hygiene and Public Health

- Jonathan Levy, Sc.D., 1999, Assistant Professor of Environmental Health and Risk Assessment, Harvard School of Public Health.
- Phaedra Corso, Ph.D. 2000, Public Health Analyst

at the Centers for Disease Control and Prevention in Atlanta.

- Bruce Schackman, Ph.D., 2001, Assistant Professor, Cornell Medical School

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## Education

HCRA faculty members teach a total of 16 courses at the School of Public Health to approximately 500 students. They serve on 44 doctoral committees, chairing 9.

### HCRA faculty direct two Harvard degree programs:

The [Ph.D. in Health Policy with a concentration in Decision Science](#) is part of a University-wide program designed for students interested in scholarly careers in environmental health, health care, mental health, and public health.

The [MS/ScD in Environmental Science and Risk Management](#) is jointly offered by the departments of Health Policy and Management and Environmental Health. It provides students with an integrated education in environmental science, risk analysis, and decision making.

In addition, HCRA faculty are active in teaching and mentoring students in other degree programs in the departments of Health Policy and Management, Environmental Health, Biostatistics, and Epidemiology.

HCRA offers several executive education courses designed for mid-career professionals who want to know more about specific topics related to risk. These courses are taught by a combination of HCRA faculty and other experts brought in from around the world. They are offered as a way of bringing HCRA's expertise to working professionals who can apply that knowledge to real-world problems.

### Analyzing Risk: Science, Assessment, And Management

This course introduces students to the science and methods of risk assessment and its role in risk

management and communication. It discusses the sciences of toxicology and epidemiology, and examines risk assessment issues involving chemicals and radiation as models for risk assessment challenges.

### Analyzing Regulations: Health, Safety, and the Environment.

This course introduces students to the role of benefit-cost analysis and risk analysis in evaluating government regulations that affect health, safety, and the environment. It includes the theory underlying these approaches, methods for estimating benefits, risks, and costs, and discussion of the laws and government policies that require and/or prohibit the use of analysis in crafting regulatory policy.

### Probabilistic Risk Analysis: Assessment, Management, and Communication

This advanced course teaches the methods used to assess, manage, and communicate risks in a probabilistic framework. It is aimed at experienced analysts.

### The Risk Communication Challenge

This course offers practical guidance on how to effectively communicate about the highly emotional issues of risk, using real-world case studies and scientific research that explains how people perceive risks, and how they respond to communication about those risks from the media, from government, and/or industry. It is offered both in Boston and in Brussels.

More about these courses can be found at <http://www.hsph.harvard.edu/ccpe/>

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## Outreach

HCRA's work has been widely covered in the news media. Our study on "Mad Cow" disease, by George Gray and research associates Joshua Cohen and Sylvia Kreindel, was recently announced by U.S. Secretary of Agriculture Anne Veneman at a news conference in Washington, D.C. Secretary Veneman cited the work as an important tool in helping the U.S. government strengthen safeguards against Mad Cow disease. Our expertise on the Mad Cow disease issue has been

cited in national newspapers, magazines, and on network newscasts.

Similar attention was given to research by Kim Thompson and Ph.D. candidate Fumie Yokota, who quantified the amount of violence portrayed in G-rated animated feature films. A risk-benefit analysis of cell phones and driving, which found a paucity of hard data on which to base wise policy, has been covered worldwide.

The findings of a study by Dr. Sue Goldie, Karen Kuntz and colleagues on the cost effectiveness of using Pap technology to reduce the risk of anal cancer for gay and bisexual men was covered in several prominent medical journals.

Jonathan Levy and Jack Spengler, faculty members of the Environmental Health Department who work closely with HCRA, did a widely-publicized series of reports on the cost effectiveness of improving pollution control on old power plants.

HCRA's expertise on risk communication and risk perception has been widely cited in coverage of America's response to the attacks of September 11<sup>th</sup>.

Sue Goldie has presented her work on cervical

cancer treatment in developing nations at the World Bank using the Risk In Perspective she wrote on the issue to facilitate widespread dissemination of the information. Together with the Alliance for Cervical Cancer Prevention (funded by the Bill & Melinda Gates Foundation) they are expanding this work to Kenya, Peru, India, and Thailand.

In the past year, HCRA has had OpEd pieces, commentaries, and articles in *The Washington Post*, *USA Today*, *Newsday*, *The Boston Globe*, *Issues in Science and Technology*, and on National Public Radio, among others. HCRA faculty and senior staff have been cited as experts on risk issues in more than 600 newspaper, television, and radio reports.

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## Policy Impact

HCRA members serve on many important policy-making groups.

- Peter Neumann is a member of the International Society for Pharmacoeconomics and Outcomes Research's Task Force on the Use of Health Economic Information in Decision Making.
- Sue Goldie is on several national and international committees developing screening guidelines for viral STDs, and is chairing a Bioterrorism Task Force for the Society of Medical Decision Making.
- Kimberly Thompson serves on the National Academy of Sciences committee on motor vehicle rollover and served on the subcommittee on arsenic in drinking water.
- Jim Hammitt is on the EPA Science Advisory Board overseeing benefit-cost analysis of the Clean Air Act, the Energy Information Administration advisory board, and the National Science Foundation advisory panel on decision, risk, and management science.
- Milt Weinstein was co-chair of the Panel on Cost-Effectiveness in Health and Medicine for the US Public Health Service.
- John Evans is on the EPA's scientific advisory board studying drinking water safety.
- Joshua Cohen is on the Institute of Medicine's Immunization Safety Review Committee investigating potential risks associated with childhood vaccinations.
- Karen Kuntz is leading a team working with the National Cancer Institute evaluating trends in colorectal cancer.

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## Looking Ahead

We see great opportunity to apply our expertise in the future as the range and complexity of public and environmental health and safety issues faced by society continues to grow. Broadly, we intend to continue to champion the application of risk and decision analysis as a discipline in the field of public health. Specifically, our research includes:

- In the area of Environmental Protection, initiatives address Children's Health, Endocrine Disruption and Particulate Pollution.
- John Evans and Jim Hammitt continue their collaboration with researchers from other parts of Harvard, from MIT, and other institutions on projects to help control air pollution in Mexico City and in China.
- As the demands on the health care system continue to challenge policy makers, the value of our research into the cost-effectiveness of medical interventions is sure to grow. The PEEMT initiative includes work by Karen Kuntz on colorectal cancer. Peter Neumann is studying consumer preferences for certain interventions for Alzheimers Disease. Sue Goldie is doing groundbreaking work on approaches to cervical cancer in developing nations, where this sexually transmitted disease is the leading cancer killer of women.
- Our study of Motor Vehicle risks continues to produce research that plays a prominent role in regulatory decision making. Senior researcher Josh Cohen is examining alternative fuels for mass



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all post-consumer fiber.

transit busses. Ph.D candidate Edmond Toy is studying the safety and environmental implications of sport utility vehicles. HCRA is coordinating the CDC-funded 'Kids in the Back' project to explore methods to encourage people to seat their children in the rear seats of motor vehicles, reducing their risk of fatality in a crash by as much as one third.

- HCRA's newest program, in food safety, has done pioneering work on "Mad Cow" disease. George Gray is coordinating a panel of independent experts looking into whether low doses of hormonally active agents in plastic pose a significant risk to public health. Another project involves risk issues associated with mercury levels in tuna fish.

In addition to analyses of specific risk issues, HCRA's research will focus on developing decision-analytic tools and methodologies, such as Value of Information Analysis (VOI), that can be used by government and industry. VOI can help in quantifying the value of collecting new data when there are still great uncertainties, by cataloging what is known, what is not, and calculating the costs and benefits of various strategies to deal with those risks while trying to resolve the uncertainties.

By building such tools, we hope to empower thoughtful decision making about risk with reasoned analysis and credible data.

Looking ahead, we plan to make contributions to the developing fields of risk perception and risk communication. Our expertise in risk communication has been widely called upon by government and the media in the wake of the terrorist attacks in September. In the wake of the attacks we have spoken with representatives of federal, state, and local governments to offer the teachings of HCRA's course, The Risk Communication Challenge. We will continue our program of communicating HCRA's science to the press, the public, and to policy makers. Our outreach will continue to target policy makers as well as the media and general public. We have begun to send our Risk in Perspective reports to key policy makers at the state, national, and international levels who are involved in the issue being discussed in those reports.

Through research, education, and outreach, HCRA has made significant contributions to public and environmental health. We look forward to broadening and strengthening our mission of using decision science to empower informed choices about health, safety, and environmental risks.

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### Upcoming Executive Education Courses:

## **The Risk Communication Challenge**

Normally offered in Boston each fall, the course this year was postponed due to the events of September 11th. The course has a powerful new relevance in the wake of those events. It will be offered at the Harvard School of Public Health April 23-25th. This course offers practical guidance

on how to effectively communicate about the highly emotional issues of risk, using real-world case studies and scientific research that explains how people perceive risks, and how they respond to communication about those risks from the media, from government, and/or industry.

## **Analyzing Regulations: Health, Safety and the Environment**

**Washington, DC — May 9 - 10, 2002**

Learn to better understand an analysis and evaluate its validity by familiarizing yourself with the methods used in the analysis. With both federal and state regulations being increasingly subjected to more than the traditional benefit-cost analysis,

you need to keep pace with the expanding body of analytic tools in current use. Whether you represent private or public interests, you need to know how the methods in use color the eventual conclusions.

**MORE ABOUT THE COURSES CAN BE FOUND AT**

<http://www.hsph.harvard.edu/ccpe/>