




A child balances on a high wall to cross a shantytown in Rio de Janeiro, Brazil.





# POVERTY, DISASTERS & HEALTH AGAINST ALL ODDS

The most powerful influences on population health are not the medical interventions that diagnose and treat disease. Rather, they are the broad social forces—war or peace, poverty or financial security, political oppression or fundamental human rights—that shape all of our life possibilities. In the U.S. and across the globe, Harvard School of Public Health has not only forged practical tools and strategies to alleviate suffering, but has also served as a moral voice in public health. The words inscribed in granite on the François-Xavier Bagnoud (FXB) Building—“the highest attainable standard of health is one of the fundamental rights of every human being”—come from the constitution of the World Health Organization, and form the bedrock of the School’s scholarship and fieldwork.



## WAR AND DISASTER

### TACKLING THE NUCLEAR THREAT

It was a time of fallout shelters, “duck and cover” exercises in elementary schools, and an ominous Cold War standoff between the United States and the Soviet Union. It was the late 1950s and, quite by chance, an eminent cardiologist and professor by the name of Bernard Lown attended a talk by Philip Noel-Baker, a recent British Nobel Peace laureate. He came away shaken. “Compared to the threatening nuclear disaster, sudden cardiac death, preoccupying me at the time, seemed a small problem,” Lown recalled, more than half a century later.

He decided to take action. In 1961, he mobilized a group of MDs—including Victor Sidel, Sidney Alexander, Jack Geiger, and Robert Goldwyn—into a group called Physicians for Social Responsibility, with the goal of convincing the public that nuclear war would decimate the population and poison the environment.

“How could we as physicians make a difference?” said Lown in a 2010 speech launching the Bernard Lown Scholars Program and Visiting Professorship at HSPH. “We extrapolated the medical consequences of a virtual nuclear bombing of Boston. We concluded that there was no meaningful medical response to a catastrophe of such magnitude. And we published our results in the *New England Journal of Medicine*.

“We became instant world experts on the topic,” added Lown, whose career highlights include developing the lifesaving direct current defibrillator. “Having demonstrated that in nuclear war there was no place to hide, our findings put an end to the underground shelter craze then exercising the American public.”

The son of Lithuanian Jews who had emigrated to the United States in 1935, Lown also saw disturbing parallels between the proliferation of nuclear weapons and Nazi Germany’s annihilation of 6 million Jews. “We destroyed Hitler and we became Hitlerized in our ability to design mass extermination,” he said in the 2010 speech.



“Duck and cover” exercises were instituted in classrooms in the 1950s and 1960s, in an attempt to prepare students for a nuclear attack.

In the 1970s, with the nuclear threat still looming, Lown reached out to an acquaintance—Evgeni Chazov, personal physician to Soviet leader Leonid Brezhnev and a collaborator on studies investigating sudden cardiac death. Lown asked Chazov if he’d consider joining forces with other U.S. colleagues—including Herb Abrams, Jim Muller, and Eric Chivian, founder of the Center for Health and the Global Environment at Harvard Medical School, as well as Drs. Mikhail Kuzin and Leonid Ilyin of the Soviet Union—to combat the nuclear threat. The result was International Physicians for the Prevention of Nuclear War (IPPNW), founded in 1980.

“Remarkably, within four years we gained 150,000 physician members in 60 countries and educated a wide public on the nuclear threat,” Lown said. “We did some seemingly impossible things.” The doctors sounded a medical warning to humanity: that nuclear war would be the final epidemic, and that there would be no cure and no meaningful medical response. Their message reached millions of people around the world. In the words of former New Zealand Prime Minister David Lange, “IPPNW made medical reality a part of political reality.”

In 1985, Lown and Chazov traveled together to Oslo to accept the Nobel Peace Prize on behalf of their organization.

## WORLD WAR II AND TODAY

Humanitarian assistance is in the DNA of Harvard School of Public Health. And one of the biggest public health and humanitarian relief efforts of the 20th century was the massive scale-up required to wage World War II.

HSPH graduate and future dean Brigadier General James Stevens Simmons served as head of the Preventive Medicine Service of the Army's Office of the Surgeon General—the top public health official in the armed services. Simmons would boast of having trained 30,000 officers and enlisted men in various public health specialties by mid-1944.

When Oak Ridge, Tennessee, was chosen as the place to manufacture the fuel for the atomic bomb, it went from being a village of 19,000 to a bustling town of 78,000 almost overnight—and alum Bernard Blum, MPH

'38, was put in charge of keeping the inhabitants of the secret “atomic city” healthy.

Granville Larimore, MPH '42, served as chief of venereal disease education for the Army's Office of the Surgeon General. Venereal disease was perhaps the most challenging infectious disease threat of the war, and in response, Larimore helped make a movie on venereal disease prevention, cleverly titled *Pick Up*.

Ruth Parmelee, MPH '43, was assigned to an 8,000-person refugee camp in what was then called Palestine, where she encountered people infected with lice, scabies, and typhoid. She wrote in the *Harvard Public Health Alumni Bulletin* of measles and whooping cough epidemics that broke out before proper quarantines could be established.

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## BRINGING AID TO THE WORLD'S MOST DANGEROUS PLACES

January 1992. The scene in Mogadishu was as close as it comes to hell on earth. As Somalia's civil war gathered force, “the fighting was a combination of direct slaughter and indiscriminate firing of very heavy weapons on a city built of sandy concrete,” recalled Jennifer Leaning, director of the François-Xavier Bagnoud (FXB) Center for Health and Human Rights, who traveled to the war zone on behalf of Physicians for Human Rights. Figuratively and literally, “the city crumbled. People were trapped, killed, mutilated, and brought to hospitals that were completely unequipped to handle complex casualties.”

For the past 20 years, that experience has continued to inform Leaning's work in ways that are crucial to the center's mission. “What I saw in Mogadishu underscored my understanding that half measures to support a population in need are fraught with peril. It focused me on the importance of medical ethics and competence and the training of humanitarians. The people who were there were heroic. I honor them. But they knew what they were doing was not enough. They knew they were not at the top of their game.”

Training humanitarian workers to be effective in such disasters has since become a key goal of both the FXB Center and the Harvard Humanitarian Initiative (HHI), which Leaning co-founded in 2005 with Michael VanRooyen, who now directs HHI. “How do you train people to work in humanitarian environments that are fluid and difficult?” says

VanRooyen. “We need to recognize humanitarian assistance as a unique and specialized discipline. Students must know not only about humanitarian principles and the basic provision of services, but also about finance, personnel, diplomacy, culture, and very practical matters of security. They also need to be creative and to lead. The toughest challenge is teaching leadership.”

*Michael VanRooyen, director of the Harvard Humanitarian Initiative, in the Democratic Republic of the Congo in 2009*



*Jennifer Leaning, at right, director of the François-Xavier Bagnoud Center for Health and Human Rights, in the Darfur region of Sudan*





HSPH Professor John E. Gordon, who would go on to chair the Department of Epidemiology, organized units to search for communicable diseases in advance of troops moving into an area, recognizing that until the 20th century, infectious diseases took a greater toll on armies during war than did opposing combatants. Research that Gordon compiled after the war showed that if battle-related mortality were excluded, World War II marked the first conflict in which accidental trauma, such as vehicular accidents, drowning, falls, athletic injuries, and even suicides replaced non-battle-related disease as a major cause of death in the military—part of his keen understanding of the social context of public health trends.

Today's humanitarian work by HSPH faculty, including those with the Harvard Humanitarian Initiative, mirrors the endeavors undertaken in war-torn areas nearly 70 years ago. At the François-Xavier Bagnoud Center for Health and Human Rights, the mission has evolved and expanded beyond its original focus on HIV/AIDS, said director Jennifer Leaning, to include young people in crushing circumstances—such as girls in poverty-stricken rural India, the Roma in eastern and central Europe, and boys and girls victimized by sex trafficking. “We are focusing on children and adolescents in oppressive, war-torn, grotesque, stigmatized situations around the world.”

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## THE WAR AT HOME

Urban poverty and violence have long gone hand in hand, but to identify solutions, we need to understand how these problems intersect.

Perhaps no one has contributed more to this effort than Professor of Human Behavior and Development Felton James Earls, whose research challenged the so-

called broken windows theory that crime stems from community disrepair and disorder, arguing for its replacement with a theory of “collective efficacy”—the notion that neighborhood crime rates are tied to residents’ willingness to act for each other’s benefit, most particularly for the benefit of each other’s children.

“It is far and away the most important research insight in the last decade,” Jeremy Travis, director of the National Institute of Justice from 1994 to 2000, told the *The New York Times* in 2004.

Earls’ insights grew out of his massive Project on Human Development in Chicago Neighborhoods. Launched in 1994, the 10-year, \$51 million epidemiological study, funded by the National Institute for Mental Health and the MacArthur Foundation, examined the causes and consequences of children’s exposure to violence.

Not surprisingly, the recognition that urban violence is an urgent public health issue has deep roots at HSPH. Starting in the 1970s, physician Deborah Prothrow-Stith, as associate dean and professor of public health practice, advocated combating youth violence using strategies similar to those that had successfully curbed smoking and drunken driving.



Mourners leave a funeral for 15-year-old Hadiya Pendleton in Chicago in February 2013. Pendleton was fatally shot in what police say was a case of mistaken identity in a gang turf war.



## THE PUBLIC HEALTH APPROACH TO GUNS

“During most of the twentieth century, gun assaults were seen almost exclusively as a criminal justice problem, gun suicides as a mental health problem, and unintentional gunshot wounds as a safety issue. Since the mid-1980s, it has become increasingly recognized that the most prom-

ising approach to reduce firearm injury is to emphasize prevention, focus on the community, use a broad array of policies, and bring together diverse interest groups.”

—David Hemenway  
Director, Harvard Injury Control Research Center  
from *Private Guns, Public Health*



## FIGHTING SEXUAL VIOLENCE IN THE CONGO

The plight of women in the eastern Democratic Republic of the Congo (DRC) has captured headlines, as women have fallen prey to lawlessness and violence in the ongoing conflict that first broke out in 1996. Since its inception, an estimated 6 million lives have been lost and hundreds of thousands of women have been raped or sexually assaulted.

Efforts at aid, though well intentioned, often fail to reflect the needs the women themselves consider to be most critical. Jocelyn Kelly, SM '08, director of the Women and War Program at the Harvard Humanitarian Initiative, recalled one woman she spoke with in a focus group when she started traveling to the region. "Like many stories in the Congo, hers was one of the most horrific you could imagine. When I asked her what services she would find most helpful, I thought she might say, 'I would like help paying my hospital bills' or 'I would like materials to rebuild my home.' But without even pausing or thinking, the woman said, 'I want to become literate. And I want education for my children.'"

Kelly sees her role as communicating the needs of such women to the funders and high-level policymakers who can make change happen. To this end, she splits her time between the violent, crisis-ravaged locations where she conducts field research and cities such as New York and Washington, DC, where she forcefully advocates for the needs of Congolese women with key players such as the World Bank and the United Nations Security Council. "Ideally, we act as a bullhorn, taking the voices of those affected by conflict and crisis into policy and programming circles," she explained.

Victories are hard-won but deeply satisfying. One example: A report about the stigma endured by Congolese survivors of sexual violence influenced a large government donor's decision to fund holistic, family-centered programs for the women.

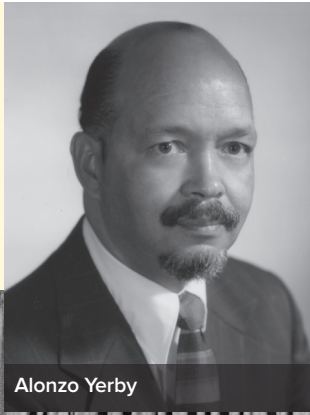


For Kelly, making this type of direct impact keeps her going. "There have been times where on Tuesday, I'll be on the ground in the DRC, speaking with women affected by the conflict—and on Thursday morning, I'll be on a panel in Washington, DC, talking about what those women said to me," said Kelly. "Those are some of the most wonderful moments of my job."

*Jocelyn Kelly, director of the Women and War Program at the Harvard Humanitarian Initiative, speaks in 2009 with a commander of the Mai-Mai militia in Uvira, Democratic Republic of the Congo.*



# Fighters for Equity



Alonzo Yerby

## TACKLING TWO-TIER HEALTH CARE

With the creation of the Medicare and Medicaid programs in 1965, the United States began its first large-scale experiment with a formal national health system. Almost overnight, it began subsidizing medical care for the elderly and poor.

But for Alonzo Yerby, who served as a consultant to the Johnson administration during the drafting of the legislation, the policy didn't go far enough.

"Health care for the disadvantaged ... tends to be piecemeal, poorly supervised, and uncoordinated," he wrote in an address to the White House Conference on Health in January 1966, six months after the legislation was passed. "We can no longer tolerate a two-class system of health care."

Yerby, who later became head of the HSPH Department of Health Policy and Management, remained troubled by the social injustice he saw within medicine. Creating a successful national health system, he felt, had to begin with addressing the day-to-day issues of people living in poverty.

An effective health service must "strike not at the symptoms, but at the causes of the health crises of our metropolitan areas," he wrote in 1965, setting the tone for his tenure at Harvard. "The social environment of the individual ... influences his health and potential for recovery from disease." Providing quality preventive care was essential, in Yerby's eyes. So too was access to doctors, since long waiting times and frequent travel between specialists placed a heavy burden on the poor.

Yerby died in 1994. His passion for equity and social justice in public health is perhaps his greatest legacy. During his 16 years on Harvard's faculty, he inspired legions of students and left a lasting impression on his peers—and on his son, Mark, who followed in his father's footsteps by earning an MD and MPH, and now maintains a private neurology practice in Portland, Oregon, where he adheres to the key principle of his father's work. As Mark told *Harvard Public Health Review* in 1997, "He believed that public health was not just the purview of health professionals, but belonged to every physician."



U.S. President Lyndon B. Johnson, left, with former President Harry S. Truman, seated right, signs the Medicare bill into law in 1965.



*“The tectonic plates are shifting, but it is at the intersection of health and human rights that the most radical transformation is occurring, and it is there that the future will lie.”*

*—Jonathan Mann, 1996*



Jonathan Mann, first director of the François-Xavier Bagnoud Center for Health and Human Rights

## BRIDGING AIDS AND HUMAN RIGHTS

Jonathan Mann, physician and advocate, pragmatist and visionary, transformed the way the world looked at AIDS. As the first head of the Global Programme on AIDS for the World Health Organization (WHO), he illuminated the intersection of health and human rights. Mann joined the HSPH faculty in 1990 as a professor of epidemiology and international health. He became the first director of the School's François-Xavier Bagnoud (FXB) Center for Health and Human Rights, which he founded in 1992 with the Countess Albina du Boisrouvray, whose generous \$20 million gift made the center's work possible. Mann died at age 51 in 1998, in the crash of Swissair Flight 111.

In his leadership post at the WHO from 1986 to 1990, Mann forged the approach to AIDS now considered axiomatic: prevention, understanding the social and behavioral dynamics and patterns of sexual transmission, comprehensive surveillance, monitoring, and education, a robust program of biomedical research, and an emphasis on the rights of the individual.

Today, as AIDS becomes a treatable chronic disease in many parts of the world, it is easy to forget the point at which a conscious decision was made to embark on what the *Village Voice* described as “a condom-based compassionate strategy to slow the spread of AIDS,” instead of opting for the repressive quarantine strategies that had many supporters. Mann “had an edgy agenda and an edgy analysis,” said Jennifer Leaning, the current director of the FXB Center. “He was critical of the pace of progress.”

As Mann himself told the Second International Conference for Health and Human Rights, at Harvard University in 1996, “The tectonic plates are shifting, but it is at the intersection of health and human rights that the most radical transformation is occurring, and it is there that the future will lie.”

More than 20 years after her gift, the Countess's passion hasn't waned. She remains an active presence in the work of the FXB Center and related activities around the world. “There's so much to do,” she said. “But as I look at the women and children on field trips, I get the energy to go on.”



# OF PLACE AND RACE

## NEIGHBORHOOD EFFECTS

If “geography is destiny,” words famously attributed to Napoleon Bonaparte, nowhere is this truer than in the realm of public health. “If there’s one overarching theme, it’s that place matters,” says Ichiro Kawachi, chair of the Department of Social and Behavioral Sciences. “Regardless of who you are as a person, neighborhood makes a big difference in your life chances and your health chances.”

One recent strand of investigation took off in the 1970s with the discovery that even unusually high incomes do not protect the health of people living in poor neighborhoods, an insight that emerged from research by Lisa Berkman, now the Thomas Cabot Professor of Public Policy and Epidemiology and director of the Harvard Center for Population and Development Studies. Drawing on a survey of 7,000 adults, Berkman, then a graduate student at the University of California, Berkeley, and her colleagues found a link between income and health—something they had expected. But they were surprised to find that high incomes did not compensate for living in a poor area. On the other hand, the study also found that social connections such as good relationships with friends and family have a protective impact, resulting in longer and healthier lives. Berkman, former chair of the Department of Social and Behavioral Sciences (when it was called the Department of Society, Human Development, and Health), and her successor, Kawachi, established the scholarly framework on social determinants of health at HSPH.

David R. Williams, the Florence Sprague Norman and Laura Smart Norman Professor of Public Health, has explored how socioeconomic status, race, stress, racism, and religious involvement affect physical and mental health. The Everyday Discrimination scale that he developed is currently one of the most widely used instruments in health research to assess perceived discrimination.

The School’s faculty has also shown that just as living in poor, segregated neighborhoods is hazardous to health, so too is living in communities with high levels of income inequality—in part because having substantially less than your neighbors may create significant levels of stress. And HSPH researchers have demonstrated that health is framed

not only by a home’s location, but also by what takes place inside that home. Domestic violence—a crime and human rights violation—also raises the risk of asthma, HIV infection, smoking, poor maternal health, and child mortality.

In the late 1990s, Nancy Krieger, professor of social epidemiology, devised a method to portray the link between a community’s health status and its socioeconomic class—a project that arose out of her frustration over the dearth of socioeconomic data in U.S. health records. Krieger statistically linked census tract poverty levels with public health surveillance information, such as all-cause and cause-specific mortality, cancer incidence, and low birth weight. She found that within a federal census tract (an area that usually includes about 4,000 people of similar income and living conditions), the poverty rate corresponds closely with residents’ health status.

Based on this finding, the Public Health Disparities Geocoding Project, launched at HSPH in 2004, has enabled health departments to measure their progress over time, zero in on problems in specific locales, and clarify the links between poverty and disease. In Massachusetts and Rhode Island, for example, Krieger showed that more than half the cases of childhood lead poisoning, sexually transmitted infections, tuberculosis, nonfatal gun-related injuries, and HIV/AIDS deaths among the poorest residents would not have occurred if their risk had been the same as that of people living in the wealthiest enclaves. The geocoding method has been adopted in the U.S. and around the world by researchers and health departments, as well as by the National Cancer Institute. *continued on page 72*

“Regardless of who you are as a person, neighborhood makes a big difference in your life chances and your health chances.”

—Ichiro Kawachi, chair,  
Department of Social and  
Behavioral Sciences





## RACISM HARMS HEALTH

“I remember thinking, as a young assistant professor, ‘Oh my God, you can actually measure racism?’ recalled Ichiro Kawachi. He was referring to the groundbreaking work two decades ago of his colleague, social epidemiologist Nancy Krieger. “Nancy made visible what was unspeakable, unspoken of, invisible. No one had done this before—they thought it was too sensitive, too difficult. She launched an entire field by saying, ‘If we think this is important, let’s measure it.’”

Krieger’s ecosocial epidemiologic theory of disease distribution—which analyzes how people literally embody their societal and ecological context, thereby producing population rates of disease—has influenced a generation of researchers. Explaining the comparatively high risk of hypertension among African Americans, for example, Krieger wrote in a 1994 paper, “Epidemiology and the Web of Causation: Has Anyone Seen the Spider?”: “A person is not one day African American, another day born low birth weight, another day raised in a home bearing remnants of lead paint, another day subjected to racial discrimination at work (and in a job that does not provide health insurance), and still another day living in a racially segregated neighborhood without a supermarket but with many fast food restaurants. The body does not neatly partition these experiences—all of which may serve to increase risk of uncontrolled hypertension.”

In 1996, Krieger shook up the field with a study suggesting that bearing the brunt of racial discrimination raises the risk of elevated blood pressure, a partial explanation of why blacks suffer more hypertension than whites. The study showed that self-reported racial discrimination is just as harmful as any of the commonly named “lifestyle” culprits: lack of exercise, smoking, a high-fat or high-salt diet.

Traditionally, epidemiology had “adjusted” for race and class to flush out specific biological pathways behind disease. Krieger argued that racism was itself a causal exposure for disease. She went on to develop a scientifically validated research instrument for measuring people’s experiences of racial discrimination—one now used by researchers studying a wide array of health outcomes, from hypertension to tobacco use to depression.

Other HSPH faculty helped write *Unequal Treatment*, a landmark 2003 report on racial and ethnic disparities in American health care. Among its findings: Even after overcoming barriers to obtaining health care, African Americans and other minority populations were less likely to receive procedures such as coronary bypass operations, kidney dialysis, and kidney transplants.



Nancy Krieger  
Professor of Social Epidemiology  
Department of Social and Behavioral Sciences





# HEALTHY GROWTH OF PEOPLE AND SOCIETIES

## THE MEASURE OF A HEALTHY LIFE

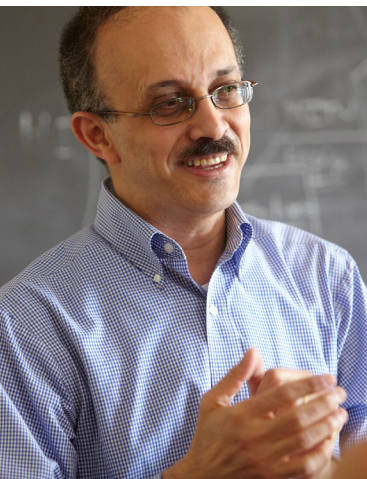
“Your child is in the 80th percentile for height and 75th for weight.”

Nearly every parent of an infant or young child in the U.S. and many other parts of the world has heard words similar to those at his or her child’s well-baby visits and annual physicals. But few know the genesis of the charts that doctors use to assess their children’s progress toward normal health milestones—a 1930s project undertaken at Harvard School of Public Health.

The brainchild of pediatrician-researcher Harold Coe Stuart, the Longitudinal Studies of Child Health and Development marked a new approach to pediatric public health. It was concerned with the manifestations of health, not simply sickness, and it replaced a focus on individual care with ongoing developmental research. To this end, Stuart—who headed the School’s Department of Child Hygiene, later known as the Department of Maternal and Child Health—followed a group of 324 children in Boston’s predominantly Irish middle-class Roxbury neighborhood from before birth through adulthood, starting in 1930. The project was

holistic and intensely cross-disciplinary—involving social workers, public health nurses, anthropologists, dentists, psychologists, psychiatrists, and pediatricians—a reflection of Stuart’s conviction that children’s health involved the interplay of physical, emotional, social, and cultural factors.

No comprehensive study of normal child growth had ever taken place before. “Pediatricians interested in research have been so preoccupied with the study of disease that they have not contributed as much as might have been anticipated to studies of normal development,” Stuart wrote. “It is surprising how little is really known about the effects of disease on growth, in view of the attention given to sick children.” He advocated that physicians, school health programs, and parents take regular measurements of a child’s height, weight, chest circumference, hip-width, and girth, stressing that diversion from a normal growth pattern might be a tip-off to underlying disease. And presaging more recent social trends, Stuart interviewed fathers and encouraged them to be part of the child’s upbringing. ❖



**Wafaie Fawzi, chair of the Department of Global Health and Population, and professor of nutrition and of epidemiology**

## GLOBAL NUTRITION

In the late 1960s, when public health researchers were beginning to understand the significance of diet in resource-limited nations, a seminal report coauthored by three eminent HSPH-affiliated scientists—John E. Gordon, chair of the School’s Epidemiology Department from 1946 to 1958, and nutritionists Nevin S. Scrimshaw, MPH ’59, and Carl E. Taylor, MPH ’51, DPH ’53—exhaustively documented how malnutrition leaves victims more susceptible to infections such as tuberculosis and dysentery, and how infectious disease amplifies the effects of malnutrition.

In the mid-1990s, HSPH’s Wafaie Fawzi and colleagues in Tanzania conducted the first clinical trial showing that when HIV-positive women take multivitamins, their chances of miscarriage or of delivering a premature or low-birth-weight baby were reduced by 40 percent. The researchers found that when HIV-infected individuals take daily multivitamin supplements, their disease progressed much more slowly and their chances of dying were greatly reduced. As a result of these findings, nutrition became a core element of HIV/AIDS management with antiretroviral therapy and other interventions. Fawzi’s studies have also shown that during the critical “first 1,000 days”—the duration of pregnancy and the first two years of life—proper nutrition through breastfeeding, a healthy diet, and, when needed, vitamin supplements, dramatically boosts maternal health, decreases premature birth, improves survival and early mental and physical development, and enhances lifelong productivity.

Put simply, says Fawzi, proper nutrition early on enhances a person’s prospects in life. “It is simple and inexpensive and doable.”



# Population Visionary



Roger Revelle

When Roger Revelle took the helm of the new Harvard Center for Population and Development Studies (known as the Pop Center) in 1964, he was already one of the world's most eminent and eclectic scientists.

His prominence in the climate-change conversation dated back to 1957, during his time as director of the Scripps Institution of Oceanography, when he co-authored a paper suggesting that oceans would absorb excess carbon dioxide generated by people at a much slower rate than previously predicted. Former U.S. Senator Al Gore, who had studied with Revelle in the 1960s, wrote about him admiringly in his 1992 best-selling book *Earth in the Balance*, crediting Revelle with inspiring his own future activism. In November 1990, the year before he died, Revelle received the National Medal of Science from President George H.W. Bush for, in Bush's words, "being the grandfather of the greenhouse effect."

As Pop Center director, Revelle brought together a team of colleagues dedicated to the problems of population growth and change. His focus was the plight of developing countries, and he strongly advocated enhancing education,

agriculture, and industrialization in the developing world. For example, Revelle shared his insights about improved planting and irrigation methods, which reduced the salinization of Pakistan's agricultural land and helped transform that country from a grain-importing nation to one with surplus grain to export—one of the most acclaimed successes of the 1960s "Green Revolution."

Revelle also opposed biologists such as Paul Ehrlich, who had concluded that humans would breed themselves into catastrophe. The population problem, Revelle countered, couldn't be separated from the problems of poverty and underdevelopment.

For all his awareness of impending challenges, Revelle—who, in addition to leading the center, was the Richard Saltonstall Professor of Population Policy until his retirement in 1978—was at heart an optimist. His answer to alarms about the "population bomb" was a broad agenda: feeding and caring for the growing numbers of humanity, especially those in the poorest parts of the globe. As he said in an interview with the *Harvard Public Health Alumni Bulletin*, "Because of the shrinking size of the world and its growing interdependence, and the fact that all the world's resources are needed to support the world's peoples, an effective way of distributing the world's income more widely among nations must be found if there is to be world prosperity."

Today, the University-wide Pop Center, directed by social epidemiologist Lisa Berkman, is carrying out Revelle's vision, with a focus on social and environmental determinants of health, population aging, migration, and women's health and fertility.