Chairman H.R. Shepherd Honored at GW University Commencement

H. R. Shepherd, Sabin Vaccine Institute chairman, celebrated his 80th birthday on May 20 in a most unusual way. From the commencement platform set up on the Ellipse adjacent to the White House, Stephen Joel Trachtenberg, president of The George Washington University (GW), presented him with an honorary doctorate of science degree.

Shepherd is an adjunct professor in the Department of Microbiology and Tropical Medicine at GW’s School of Medicine and Health Sciences. Sabin senior fellow and scientific advisory council chair, Peter Hotez, chairs the GW department, where he heads the research team for the Institute’s Hookworm Vaccine Initiative. At the commencement ceremony, the university honored Shepherd for his many contributions to science and industry. He has 50 years of experience in the pharmaceutical industry and is a renowned expert on aerosol medications. He holds several patents on aerosol products and spearheaded the development of the metered-dose inhaler for asthmatics.

Before becoming chairman of the Institute, Shepherd was chairman and chief executive officer of Armstrong Pharmaceuticals. Shepherd is a member of the National Academy of Sciences Presidents’ Circle, heading its library outreach program. He received his Bachelor of Science degree from Cornell University in 1943 and an Honorary Doctorate of Letters from Villanova University.

Continued on page 4.
Hookworm in the Catholic World

Most of the world’s one billion cases of human hookworm infection occur where rural poverty intersects with the warm and moist climates of the tropics. While hookworms, like other infectious pathogens that plague humans, do not respect national, ethnic, or religious boundaries, it is of interest to consider the vulnerability of certain groups of people to these blood-feeding helminth parasites. Our recent visit to Archbishop of Washington, D.C., Cardinal Theodore McCarrick, gave me pause to reflect on the predominance of Catholic populations who live in the developing nations of the tropics and their risk for acquiring hookworm infection.

Large numbers of Catholics comprise the populations of Sub-Saharan Africa. Incidence of hookworm infection occurs in an alarming percentage of the 24 million Catholics living in Congo; 13 million Catholics living in Nigeria; 10 million Catholics in Uganda; seven million Catholics in Angola; two to three million Catholics living in Cameroon, Cote d’Ivoire, Ghana, Madagascar, Mozambique, Malawi, Rwanda, Sudan, and Zambia; and the estimated one million Catholics living in Benin, Burkina Faso, Zimbabwe, and Togo (demographics are from the 2001 Catholic Almanac). Similarly, many of the estimated 61 million Catholics who live in the Philippines and the five million living in Vietnam are at risk for hookworm infection, where the species Necator americanus is highly endemic. In the Western Hemisphere, hookworm is ubiquitous in the rural tropical regions of South America, including Venezuela, Guyana, Suriname, Brazil, Colombia, Peru, Bolivia, and northern Paraguay and Argentina. Catholics make up 80 percent or more of the populations who inhabit these regions.

For the last year, we have been working to establish a field site in Central America as part of our Human Hookworm Vaccine Initiative (HHVI). Hookworm is endemic throughout Central America, but particularly in regions where there are high levels of rural poverty. As a nation, Honduras stands out, not only for its hookworm problem, but also other endemic tropical infectious diseases such as leishmaniasis, dengue, and Chagas disease. Hookworm is a common problem among the 6.2 million people living in Honduras, 5.7 million Catholics among them.

Adding to the mix of poverty and disease was the misery created in 1998 by Hurricane Mitch, in which more than 6,000 Hondurans perished and more than 2 million evacuated their homes. Working closely with the Catholic Church, the First Lady of Honduras, Mary Flores, has made heroic efforts to improve the health infrastructure of her country. For the past year, she has championed a state-of-the-art Children’s Pediatric Specialty Hospital located in Tegucigalpa. From the University of Pennsylvania, we recently recruited Maria Elena Bottazzi, PhD, to the HHVI, who will conduct enzymology research on a new class of hookworm antigens discovered in our laboratories. Dr. Bottazzi is a native Honduran who aspires to someday direct a research program in the Children’s Hospital. In August, I visited Honduras with Dr. Bottazzi in order to establish an epidemiologic field site in that country. Our nascent efforts were funded by a generous grant from the Central American Bank for Economic Incentives (CABEI), and could serve as a basis for beginning hookworm vaccine clinical trials in Honduras. Along with Allan Goldstein, PhD, of SVI’s board of trustees, we also are exploring similar efforts in Panama.

The Archbishop of Washington, D.C., shares our deep concern for the plight of all of the poorest of the poor, both Catholic and non-Catholic, living in the world’s “hookworm belt.” We share with Cardinal McCarrick a commitment to work on this important public health problem.

—by Peter J. Hotez, MD, PhD, FAAP

Peter J. Hotez, MD, PhD, is professor and chair of microbiology and tropical medicine at The George Washington University, and senior fellow of the Sabin Vaccine Institute. He also is visiting professor, Institute of Parasitic Diseases, Chinese Academy of Preventive Medicine.
A Letter from the President

The events of September 11 changed our world in ways we cannot even yet fully comprehend. As we try to recover from the tragic loss of life and property, we also face the realization that the world is suddenly a far more dangerous place than it seemed to be just a few weeks ago. In the process of getting back to work on vaccines, our effort to save lives take on greater importance because it gives us the opportunity to demonstrate to the world how science can be used in a positive way to alleviate suffering and, in particular, how vaccines contribute to making the world a safer, more stable place to live.

This is precisely the point we are trying to make with this issue of the Sabin Vaccine Report, which is devoted to the subject of vaccine diplomacy—an issue of even greater relevance now, given the terrorist attacks on the World Trade Center and the Pentagon. Sabin Senior Fellow Peter Hotez, MD, PhD, and other scholars have been studying the underlying causes of conflict and they are able to establish a link between a lack of healthcare and a given country’s proclivity to enter into conflict. In his study entitled “Contagion and Conflict,” Michael Moodie, president of the Chemical and Biological Arms Control Institute, supports this thesis. Our own Sabin Trustee Michael Osterholm writes about the potential threat of biological terror in his book, Living Terrrors. We begin exploring these frightening and important issues in this fall edition of the Sabin Vaccine Report.

While the topic of vaccine diplomacy has been an interest of the Institute for some time, we are also now taking up the question of how the Institute can help find solutions to the threat of biological terrorism. We are working toward holding a meeting on this topic early in 2002 if we determine that it will help advance the policy dialogue on this crucial issue.

There are several new sections in this edition of the newsletter to which I would like to draw your attention. We are initiating a primary theme for the issue, and want to encourage you to share your thoughts in a feedback column that will appear henceforth on these pages. We are also recognizing excellence in vaccine-related work in the profile of Dr. Bruce Gellin, director of the National Network for Immunization Information (see page 13), and in lauding those organizations, such as Wal-Mart and its use of its parking lots for immunization sessions (see page 13), who have made special or unique contributions to the field of immunization.

We look forward to seeing some of you at next month’s Sabin Vaccine Colloquium at Cold Spring Harbor (9-11 October) on “Making Vaccines for the Developing World: Access to and Deployment of New Technologies”. The winter issue of the Sabin Vaccine Report will cover these important discussions.

Your feedback is truly welcome; do provide us with your thoughts on how we can better serve the needs of the immunization and vaccine community.

Don L. Douglas, President
Sabin Vaccine Institute
don.douglas@sabin.org

Advancing the Mission of the Sabin Vaccine Institute—A Message from the Chairman

During 35 years as chairman of a public company (Armstrong Pharmaceuticals, later Medeva) devoted to saving lives through the development of a metered-dose inhaler for asthma, it was a challenge for me not only to achieve the mission of producing inhalers, but also to make a profit for the stockholders who believed in what we were doing. That company still exists, and, the chief operating officer is my son Ben Shepherd. It is producing more inhalers than ever before, carrying on the work we started over 40 years ago.

I took on a second challenge about eight years ago when Heloisa Salin and I decided to create the Albert B. Sabin Vaccine Foundation, now the Sabin Vaccine Institute. Most of our readers are well aware of our success to date, first made possible by the wisdom of Heloisa in allowing us to use the Sabin name and by the efforts of our co-founders, namely Dr. Bob Chanock and Dr. Phil Russell, and our early board members, Dr. Ed Neiss, Irv Miller, Nancy Hargrave, and Fernone Seton. All these individuals made it possible to get to where we are now.

And where are we now? Our colloquium at Cold Spring Harbor have made a real impression on decision makers in the public sector, private sector, and academia and have resulted in a number of influential publications. Our cancer colloquium at Walker’s Cay has been important to cancer researchers and we hope to continue this series. We have become the recipient of an $18-million grant from the Gates Foundation for the development of a hookworm vaccine and that initiative has just completed a very successful first year. We have awarded nine Sabin Gold Medals to recognize great vaccine scientists, and we are on the verge of forming a Sabin Scholars Program with three scientists as its guiding vision. The creation and continuation of each of these endeavors has been an extraordinary challenge for the Institute, and we have met these challenges with a degree of success that still astonishes me.

We are now at a critical point in our development, institutionalizing the administration of all these programs under a professional staff. In April we hired a full-time president and CEO, Don Douglas, who came to us after 15 years as country director and Asia regional advisor.
H.R. Shepherd Honored with GW Degree

Sabin Chairman Encourages GW Graduates to Dedicate Energy Towards Resolution of a Moral Outrage

In Shepherd’s remarks to the students, he said, “Coming and being involved with George Washington University was an extraordinary experience for me. It’s a story that should be told in a very dramatic document, which some day I hope you will hear about.

“It’s because of The George Washington University, it’s because of Steve Trachtenberg, Skip Williams, and the other members of this university that made it possible for the Sabin Institute to get an $18 million grant to develop a hookworm vaccine and made it possible for us to move an extraordinary group of scientists from a very prestigious university, Yale, that didn’t know any better and let us bring it to George Washington University, and they are already making extraordinary progress. For this I am thankful, you should be thankful, and I am very, very pleased to be here. I just want to say two things to you: Pick a moral outrage and work on it.”

Continued from page 1

“Businessman, inventor, chemist, philanthropist, citizen: you set an ambitious course for your life and succeeded in ways that enhanced the lives of millions. You founded the Albert B. Sabin Institute to honor the memory of your friend, encourage research and advocacy for new vaccines to prevent deadly diseases, and improve the worldwide distribution of these medications. Your longstanding effort to be of maximum service to your fellowmen is an inspiration and your dedication to "real world" problems is uplifting. For your leadership for over 50 years in the pharmaceutical industry and your pioneering work in vaccine research, The George Washington University hereby awards you the degree of Doctor of Science honoris causa on your 80th birthday.”

—Excerpt of statement by GW President Stephen Joel Trachtenberg recognizing H.R. Shepherd with Honorary GW Degree

H.R. Shepherd addresses 2001 graduates of The George Washington University.

Sabin Delegates Meet Nation’s Newest Cardinal

Cardinal McCarrick Hears About Sabin Vaccine Institute Initiatives

Continued from page 1

scourge among the poorest Catholic populations in Asia, Africa, and Latin America,” Hotez said. “It robs both children and adults of their health and vigor. Our efforts to make a hookworm vaccine, as well as the efforts of some of the other vaccine initiatives would have their most immediate and significant impact on these populations.”

“Cardinal McCarrick is clearly a man of extraordinary compassion and gentleness and our meeting was certainly memorable and informative,” Shepherd said. “We had the opportunity to introduce Cardinal McCarrick to our important vaccine initiatives, which have a potential for making a critical humanitarian impact in the world and may some day change the course of human history.”

See the ViewPoint column on page 2 for more about this summit with the cardinal.
The Sabin live poliovirus vaccine is one of the most effective human vaccines ever developed. Over one billion vaccinations have proven it safe, inexpensive to produce, and it has been distributed globally. The Sabin vaccine elicits long-lasting immunity in individuals and collective immunity in communities. To add to its success, exciting results reported in the August 2001 *Journal of Virology* suggest that an anti-Simian Immunodeficiency Virus (SIV) vaccine based on the Sabin poliovirus vector promises an approach for developing a vaccine for the prevention of HIV.

**Why the Sabin Vaccine?**

A research team at the University of California at San Francisco, led by Raul Andino, PhD, focused on the Sabin vaccine because it produces a potent mucosal immune response. Human immunodeficiency virus (HIV) infection, which causes AIDS, is transmitted by sexual intercourse in more than 80% of infections worldwide, thus a strong mucosal immune response is desirable for an anti-AIDS vaccine. Most current anti-AIDS vaccine candidates target only the cellular-based immune response.

Monkeys were chosen as the experimental test system because they are the only nonhuman primates, other than chimpanzees, infected by SIV via the mucosal route. The oral poliovirus (OPV) vector was chosen because of its safety, affordability, stability, and ease of transport and administration. Oral administration is particularly important to obtain good mucosal immunity in order to control SIV (or HIV) infection, and to prevent chronic infection.

**Experimental Strategy**

Because the OPV vector is too small to clone an entire SIV (or HIV) virus, and researchers do not yet know which SIV (or HIV) genes or antigens are essential to vaccine success, Sabin 1 and Sabin 2 strain vectors were used to make a vaccine library consisting of 20 viruses, each with a little piece of the SIV genome. A mixed cocktail of all 20 Sabin recombinant vaccines (SabRV) was given to the experimental set. First, the Sabin 1 vaccine cocktail was administered. It was followed 20 to 22 weeks later with the Sabin 2 vaccine cocktail designed to boost immunity.

The monkeys produced secretory immunoglobulins IgG & IgA for mucosal immunity. The researchers next waited 10 weeks for this immunity to peak and then decline, mimicking the real world situation where protection from infection would rely on vaccine “memory immunity” or “baseline immunity.”

The subjects were then infected with SIV via the vaginal (mucosal) route. Seven experimental monkeys were challenged twice each, with high doses of a virulent SIV strain. The doses were 100 times higher than a normal infection, because the researchers needed to ensure that all experimental monkeys became infected. Twelve who had not been given the anti-SIV vaccine cocktails were similarly challenged with the virulent strain of SIV.

**Striking Results**

All 12 control animals developed SIV infections; three developed clinical AIDS within 48 weeks. In contrast, the seven vaccinated subjects remained healthy by all clinical parameters. They all produced substantial anti-SIV antiserum and mucosal antibody responses. SIV-specific cytotoxic T-lymphocyte responses were also detected in three of the seven. Two of the seven were completely protected from SIV. The others showed a pronounced reduction in viremia, indicating that the vaccine elicited an effective cellular immune response.

According to Dr Andino, this study highlights the “proof of concept to approach.” No other AIDS vaccine concept elicits protective mucosal immunity, and at this time no arm of the adaptive immune system can be ruled out as a critical component of an AIDS vaccine.

The Sabin recombinant vaccine (SabRV) doses used in this study are comparable to normal Sabin oral poliovirus vaccine doses used for infants, children, and adults. Andino believes a SabRV would be substantially more efficacious in humans, because Sabin viruses are several orders of magnitude more infectious in people than in monkeys, and also replicate more effectively in people. This would generate a significantly stronger immune response to SabRV-expressed antigens in humans than in the experimental monkeys. Andino believes that SabRVs have exciting potential as human vaccine vectors, and that vaccination with an array of defined antigenic sequences—a cocktail of multiple HIV antigens—could be used to protect against diverse HIV strains.

Andino foresees engineering SabRV to carry HIV antigens. These experimental vaccines will then need to be tested in human phase 1 and phase 2 clinical trials. There are major production, legal, and regulatory issues involved in the design and execution of clinical drug trials, but the world has 50 years of experience with the Sabin oral polio vaccine as safe for the individual and for the environment, affordable, efficacious, and stable for transport and distribution.

—by Phyllis B. Moses, PhD

Phyllis B. Moses, PhD is senior fellow at SIV's New Canaan office.
The 1990s saw significant developments in the area of vaccine supply. Many Western vaccine producers were absorbed by pharmaceutical companies. Focus was on the bottom line, rather than the provision of vaccines at prices within the reach of poor countries, and still less the development of new vaccines against diseases prevalent in those poor countries.

Even in the United States recently, there have been shortages of meningitis vaccine and tetanus toxoid that are linked to price increases. There also are shortages of yellow fever vaccine. The adenovirus vaccine used by the U.S. military is no longer produced in the country, resulting in a predictable increase in morbidity and mortality among recruits.

With the collapse of the Soviet Union, many of its vaccine-producing institutes found themselves in newly independent republics with no staff or funds to continue production, while its biowarfare research scientists found themselves out of jobs. Coincidentally, in Geneva, technical experts were looking for ways to strengthen the Biological Weapons Convention (BWC), demilitarize the ex-Soviet countries, and use the skills of those research scientists for peaceful purposes.

In that context, the concept of “dual-threat” agents—pathogenic microorganisms that occur naturally and cause disease in humans, animals or plants, but which, at the same time, have the potential for use in biowarfare or bioterror (BW/BT)—was introduced.

Out of concerns about dual-threat agents came the idea of Vaccines for Peace (VfP). The mission of VfP was welcomed by both the Third and Fourth Review Conferences of the BWC as an incentive for developing countries to join and support the Convention. It would give them access to modern vaccine technology, in addition to providing transparency into the research programs of former biowarfare institutes. Current funding for military vaccine research would be diverted to support these transparent institutes.

An objection to VfP was that defense appropriations for vaccine research and development were not to be used for vaccines that also would be used by civilians. A countervailing argument is that military, including peacekeepers, on active duty in developing countries are often called upon to live in conditions approximating those of the local people, so it obviously is in the military’s interest to develop protection against locally endemic diseases. Additionally, current U.S. BW/BT concerns are increasingly focused on civilian protection. Under current projections, there is a need to produce and stockpile, for both civilian and military use internationally, much more anthrax, smallpox and yellow fever vaccine.

Another objection is that the national right of states to self-defense allegedly would be compromised by VfP, since all military vaccine development would be conducted under conditions of transparency. For instance, a particular state may wish to improve its self-defense by vaccinating its military against an agent that is not in the VIP program. It also has been argued that the vaccines given to a country’s military should be a state secret, since a potential adversary would otherwise know in advance against which agents the opposing forces were protected. But these arguments can be turned on their heads. A state claiming the right to develop its own vaccine in conditions of secrecy will inevitably be suspected of doing so in order to protect its own troops against an offensive weapon it is clandestinely developing. Furthermore, the knowledge by a potential aggressor of the immune status of opposing troops would complicate, rather than simplify, the aggressor’s plans because the immunizations would logically be against the most common, easy to weaponize, BW agents. Trying to circumvent such protection would involve research and development of much more difficult organisms.

Vaccines for Peace would not only protect the military and civilians against possible BW/BT, but also provide protection for large populations suffering from endemic diseases for which no vaccines are currently being produced, and which, given the accelerating globalization of infectious diseases, may soon be imported and start to spread in non-endemic countries (e.g. West Nile virus in the United States). VfP is thus a worthy object of support by both defense and foreign aid funds—all it needs is a sponsor.

by Jack Woodall, PhD

Jack Woodall, PhD

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Since the collapse of the Soviet Union, changes in the international system have given rise to novel national security threats, the implications of which are not fully appreciated. The national security dimensions of health issues are a good example of such a threat.

Former United Nations Secretary General Boutros Boutros-Ghali, in his 1992 report, Agenda for Peace, makes the point that, “Drought and disease can decimate no less mercilessly than the weapons of war.” Research since that time suggests a relationship between declining health indicators and a reduced capacity to govern. A deteriorating national health profile could:

• undermine agricultural output, diminish food supplies, and increase vulnerabilities to infectious diseases created by poor nutrition;

• reduce industrial productivity through increased absenteeism and higher worker turnover, ultimately impacting economic development;

• reduce family income and drain savings as families provide for ill members;

• further strain fragile government institutions as they try to provide care and sustenance to a growing number of the afflicted;

• reduce the pool of political leaders, as well as military and police recruits, diminishing the ability of the state to maintain order; and

• add to a feeling of hopelessness and despair.

Ultimately, declining health is one factor that exacerbates tensions and contributes to an environment conducive to the eruption of violent conflict.

Countries of particular concern include Russia, China, and India, whose size, strategic importance, nuclear capabilities, and worrisome health trends give them special international importance. Health indicators in Russia—maternal and infant mortality, life expectancy, fertility—have declined precipitously over the last decade, while risky social behaviors such as intravenous drug use, alcoholism, and prostitution exacerbate this negative health spiral. China’s and India’s HIV/AIDS epidemics are only just being discovered. In China where until recently the government denied an HIV/AIDS problem existed, 600,000 people are now known to be infected, and as testing and reporting become more common this number is likely to grow several fold. Likewise, 3.7 million (a conservative estimate) are infected in India. Given that cultural taboos discourage testing, reporting, or education about HIV-related illnesses in both countries, and since neither country can afford expensive treatments used to control the disease in the West, their HIV transmission curves are likely to continue to climb steadily for some time before they flatten or begin to decline. Combined with other infectious disease threats, non-communicable health problems, immense social burdens, and the pressures that these factors will place on social and political cohesion, these countries could become sources of regional instability.

Health issues are now an integral part of many of the ethnic and other civil conflicts confronting the international community. In some instances, the negative synergy of infectious diseases, disruptive population movements, environmental degradation, weak government structures, and long-standing grievances manifests itself in “complex humanitarian emergencies.” Complex humanitarian emergencies highlight the inability of a government to maintain civil order or provide basic human needs to its people. In these cases, where the intense interaction of starvation, sickness and disease, and violence takes place, the outcome is usually extremely lethal.

Unlike traditional security challenges, the solutions to problems at the nexus of health and security will not be found in straightforward applications of military power; rather, they will require cross-sector partnerships involving national governments and industry, the national security, medical and public health, scientific, developmental, relief, and academic communities, among others. Health crises, like so many novel security threats, are enormous challenges that require nontraditional partnerships, a wide variety of expertise, and creative strategies to respond effectively.

Truly leveraging health to promote stability requires balancing altruism and self-interest, charity and strategy. The newly established Global AIDS Fund represents a unique opportunity to use health to enhance stability. As the international community moves ahead with the fund, establishing sound criteria for administering the fund requires leaders and their governments to not only bolster public health practice, but also demonstrate their commitment to, and progress towards:

• general absence of civil conflict;

• stable governance;

• control and accounting of fund resources to ensure they are not used to supply military or diverted to the black market;

• nondiscrimination against women or populations groups in the application of fund resources.

Given the level of resources potentially at stake, the Global AIDS Fund could truly become an effective lever for shaping political, as well as social behavior.

Another promising strategy is using “health as a bridge to peace.” The World Health Organization (WHO) has applied the concept through programs in Mozambique, Croatia, Bosnia, Sri Lanka, Angola, and others. These efforts aim to employ peace-building and conflict management strategies in conjunction with the care and treatment of those with infectious diseases. Continued on page 16.
The Albert B. Sabin Vaccine Institute proudly sponsored four young scientists at the 52nd Annual Intel International Science and Engineering Fair in San Jose, California in May. For the third consecutive year, the Institute awarded four prizes of $500 each to students whose projects included work on infectious disease, immunology, and vaccinology.

The Intel ISEF was formerly known as the Westinghouse Fair and is widely regarded as the “Olympics,” or highest achievement, in high school science competitions. This year over 1,200 students—half of them female and 95% from the public school system—came from over 30 nations to compete for over $2 million in cash and scholarship prizes. Judges at the competition included PhDs, MDs, Nobel Laureates, and members of the scientific and engineering professional communities. With the event location in California’s Silicon Valley, the Sabin Vaccine Institute benefited from a strong panel of judges, including Lisa Danzig, MD, and Allen Izu, MS, of Chiron Corporation; James Matriano, PhD, of Alza Corporation; and Vaishali Kerekatte, PhD, and Bridget O’Keefe, of University of California–Berkeley. Chiron Corporation is headquartered in Emeryville, California and is a global biotechnology company with an established vaccine department. It is the manufacturer of a rabies vaccine, Rabavert. Chiron is partnered with the Swiss pharmaceutical company Novartis.

The San Jose, California Convention Center served as the venue for 2001 Intel ISEF.

Judges for the Intel ISEF came from Silicon Valley-area companies and organizations: Seated, from left, Allen Izu, Lisa Danzig, James Matriano. Standing, Sabin Vaccine Institute’s Veronica Korn, Bridget O’Keefe, and Vaishali Kerekatte. Photos of the Intel event are courtesy of James Matriano.
THE INFINITE ALLURE OF SCIENCE—by Karen Beckman

My name is Karen Beckman and I am an incoming chemistry major at North Dakota State University. Throughout the past three years, science has played a major role in my life. I have worked for an innovative biotechnology company, have participated in extra-curricular summer science programs and have competed in scientific research contests across the nation. My experiences have allowed me to meet some of the world’s top researchers and compete with the world’s top students in the scientific field. These experiences have challenged me and the rewards I received have inspired me to pursue a career in scientific research.

The International Science and Engineering Fair has provided some of my most remarkable accolades and scientific experiences. I have competed in three ISEF fairs and have placed both 2nd and 4th respectively, in the category of Biochemistry. This past fair I also received a special award from the Albert B. Sabin Vaccine Institute. I am very honored to have been chosen as a recipient of this award because it truly admires the work of the scientists at the Albert B. Sabin Institute.

I am a secondary IV student attending Laurier Macdonald High School in Montreal, Quebec. I am very interested in science and I plan to pursue a career as a doctor and medical researcher. I’ve been presenting scientific projects for nine years, most of which have dealt with biotechnology and infectious diseases.

This year, I was privileged to present my science project: Phages, the Ultimate Cure! at the Intel International Science and Engineering Fair in San Jose, California. Here, I was honored to receive the Albert B. Sabin Vaccine Institute Award. It was a great pleasure to explain my project to Albert B. Sabin Vaccine Institute judges as well as other evaluators, the press, scientists, and the public at large. Meeting and conversing with individuals from around the world made the Intel experience truly remarkable.

My project, I attempted to test an alternative for antibiotics: bacteriophages. When my grandfather got very ill from a ruptured appendix, doctors treated him with various antibiotics, which all failed. I decided to research and found that antibiotic resistance is becoming an increasingly serious problem. I aimed to find a scientific show talking about antibiotic resistance, and in my surprise, they were proposing sewage water as the cure for harmful bacteria! They explained that certain viruses, bacteriophages, each uses a specific type of bacteria as factories for the production of their offspring, ultimately lysing them. My curiosity was piqued; I wanted to find a phage of my own and wanted to confirm if these phages really worked. I managed to find a mentor, Dr. Mathy, at the company Biophage Inc. in Montreal, Quebec. I then collected water from sewers in the Montreal area and from the St. Lawrence River in hope to extract a phage of my own. Unfortunately, I did not find any, but I still decided to test the Coliphage against E. coli K12 bacteria that represented harmful bacteria. I isolated, amplified and concentrated phages against this bacterium with success. These viruses really did work! I also tested their efficacy against antibiotic-resistant bacteria in mice. This helped me prove that these viruses could be an alternative for ineffective antibiotics. I was privileged to see the photos of the Coliphage magnified over 200,000 times by an electron microscope! It was amazing to see the awkward shape of the virus. The hexagonal head, the tail, the linear mobile-like tail fibers were like science fiction to me. My experiences helped prove that phages are more advantageous than antibiotics. They attack only one or two bacterial strains. Antibiotics kill many types of bacteria simultaneously, often killing helpful bacteria in the body, which provokes further resistance. Phages are viruses, therefore adapting with bacteria and preventing resistance. Phages don’t cause side effects like antibiotics (allergies, cramps, etc.) and a single dose is sufficient to cure an infection. Phages aren’t perfect, mind you! They are specific to only one bacteria, which means that when you visit the doctor with a bacterial infection, he must determine the bacteria causing it, which can take time. It is important to note that finding a phage for every bacterium in nature is quite an arduous and lengthy task. However, when phages were compared to “miracle drugs,” I found my project and appeared to be more efficient and more effective. I could only think, what more could we ask for when something is better than antibiotics?

No, I didn’t find a phage to save my grandfather from his Staph infection. Fortunately, his immune system picked up and managed to eradicate the bacteria with some of the help of antibiotics. What if all pathogenic bacteria resisted antibiotics? The consequences are too serious to write on paper. For this reason, it is important that scientists continue to research alternative treatments such as vaccines and bacteriophages against pathogenic bacteria. Nobel laureate Joshua Lederberg once said, “The single biggest threat today’s continued dominance of the planet is the virus.” I think this is true, however simultaneously I say, “Impossible solution to sustain man’s continued dominance on the planet is the virus.”

NEVER TOO YOUNG FOR SCIENCE—by Salvatore Mottillo

I am a secondary IV student attending Laurier Macdonald High School in Montreal, Quebec. I am very interested in science and I plan to pursue a career as a doctor and medical researcher. I’ve been presenting scientific projects for nine years, most of which have dealt with biotechnology and infectious diseases.

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My project was inspired by the fact that when you visit the doctor with a bacterial infection, he usually prescribes antibiotics, which ultimately lysing them! My curiosity was peaked; I wanted to find a phage of my own and wanted to confirm if these phages really worked. I managed to find a mentor, Dr. Mathy, at the company Biophage Inc. in Montreal, Quebec. I then collected water from sewers in the Montreal area and from the St. Lawrence River in hope to extract a phage of my own. Unfortunately, I did not find any, but I still decided to test the Coliphage against E. coli K12 bacteria that represented harmful bacteria. I isolated, amplified and concentrated phages against this bacterium with success. These viruses really did work! I also tested their efficacy against antibiotic-resistant bacteria in mice. This helped me prove that these viruses could be an alternative for ineffective antibiotics. I was privileged to see the photos of the Coliphage magnified over 200,000 times by an electron microscope! It was amazing to see the awkward shape of the virus. The hexagonal head, the tail, the linear mobile-like tail fibers were like science fiction to me. My experiences helped prove that phages are more advantageous than antibiotics. They attack only one or two bacterial strains. Antibiotics kill many types of bacteria simultaneously, often killing helpful bacteria in the body, which provokes further resistance. Phages are viruses, therefore adapting with bacteria and preventing resistance. Phages don’t cause side effects like antibiotics (allergies, cramps, etc.) and a single dose is sufficient to cure an infection. Phages aren’t perfect, mind you! They are specific to only one bacteria, which means that when you visit the doctor with a bacterial infection, he must determine the bacteria causing it, which can take time. It is important to note that finding a phage for every bacterium in nature is quite an arduous and lengthy task. However, when phages were compared to “miracle drugs,” I found my project and appeared to be more efficient and more effective. I could only think, what more could we ask for when something is better than antibiotics?

No, I didn’t find a phage to save my grandfather from his Staph infection. Fortunately, his immune system picked up and managed to eradicate the bacteria with some of the help of antibiotics. What if all pathogenic bacteria resisted antibiotics? The consequences are too serious to write on paper. For this reason, it is important that scientists continue to research alternative treatments such as vaccines and bacteriophages against pathogenic bacteria. Nobel laureate Joshua Lederberg once said, “The single biggest threat today’s continued dominance of the planet is the virus.” I think this is true, however simultaneously I say, “Impossible solution to sustain man’s continued dominance on the planet is the virus.”
Richard Coker’s From Chaos to Coercion: Detention and the Control of Tuberculosis, published in 2000 by St. Mark’s Press, New York, is a fascinating and provocative study of New York City’s multi-drug-resistant tuberculosis epidemic of the early 1990s.

The explicit goal of the book is to use “the lens of tuberculosis...to examine the American response to those who pose a threat to others through their failure to conform.” His specific interest is the willingness of Americans to use coercion to enforce public health regulations. The chief question he poses is whether the use of state power to force individual compliance is morally or even rationally justified.

While he concentrates on the problem of tuberculosis, his discussion is also directly relevant to the question of childhood immunization that in the United States relies upon mandatory compliance.

Simply raising the question of why the United States, a country that prides itself on maximizing individual liberty, would so easily turn to mandatory compliance in matters of protecting the public’s health, when other nations (e.g., Coker’s homeland, Great Britain) facing similar situations choose voluntary compliance, is intellectually challenging. For instance, most of us have grown so accustomed to mandatory vaccination for our children entering public school that we don’t give a moment’s thought about its coercive implications. Since many Americans aren’t aware that countries such as the United Kingdom have rejected mandatory compliance, we don’t ask if our method may have some relationship to why our vaccination rates are much lower than theirs.

In the case of tuberculosis, Coker is concerned about the interplay between an individual’s responsibility to the community and the community’s reciprocal responsibility. He raises the question “whether society should be held at least in part responsible for the antisocial and chaotic behavior of some of its members. If...this is the case, then the moral issues regarding detention of those who are not infectious but persist in failing to comply with treatment are complex.” The question of society’s responsibility to the poor, mentally ill, addicted, and homeless—and thus society’s indirect causal relationship to the spread of infectious disease—is a vital one. In raising the issue Coker performs an important service for us.

In constructing his argument, Coker takes aim at one of the most widely praised innovations developed for dealing with multi-resistant strains of tuberculosis: Directly Observed Therapy (DOT). DOT has been credited with ending the New York TB epidemic, and is seen as a humane and effective method that can be employed wherever it is needed in the world. While DOT is far less restrictive than incarceration, it nevertheless contains compulsion as an inherent part of its constitution. Coker, keenly aware of this aspect of DOT asks, “have alternative approaches to preventing relapse and the subsequent development of drug resistance been considered adequately, and if not, why not? And is DOT morally justifiable and culturally acceptable?”

While Directly Observed Therapy has coercion hidden under its velvet glove of helpful outreach workers, actual confinement of those who are not cooperative with DOT puts state power right up front. The author asks, “Is detention of noninfectious, noncompliant individuals right from ethical, legal, and public health perspectives?”

Coker supplies answers that are not always convincing, but his positions are always well argued and cogently presented. While he failed to persuade this reviewer that New York City was unjustified in confining a relatively small number of recalcitrant people who refused to take their tuberculosis medicine to prevent a relapse of the disease, most of his other points hit home. Most persuasive were his arguments that society is deeply implicated in the “uncoperativeness” of those at the margin of society who are most at risk for tuberculosis and most likely to refuse to take their medicine; that the lack of decent housing, drug, alcohol and mental illness treatment facilities are communal failures that directly feed the spread of tuberculosis and are not solvable by blaming the victims of society’s neglect; that the lack of health insurance for all Americans is directly linked to the spread of disease among the poor; widespread contempt, hostility and self-righteousness of the majority of middle class Americans to the poor and dependent, makes compulsion more attractive than voluntary approaches regardless of their actual effectiveness; that social neglect and lack of empathy toward socially marginal individuals provokes the very type of uncooperative behavior that then terrifies mainstream Americans and seems to justify resorting to compulsion.

Tuberculosis is an illustrative model of a social disease. It thrives where people are badly housed, clothed, fed, employed, and treated. The image of socially irresponsible individuals who threaten society is a viscerally powerful one that has often galva-
**Days of Tranquility** occur when arrangements are made between opposing armies to lay down their arms for a specified period of time to ensure the delivery of humanitarian relief and the provision of health and education services, including the implementation of vaccination campaigns. Afghanistan, Angola, El Salvador, Lebanon and the Philippines all have experienced **Days of Tranquility** that have interrupted either war or civil unrest and allowed immunization to proceed as a symbol of persistent and hopeful humanitarian effort.

The United Nations Children’s Fund (UNICEF), in collaboration with other major world organizations such as Pan American Health Organization (PAHO) and the World Health Organization (WHO) have on many occasions consolidated their efforts to better structure relief and immunization efforts.

Truces, or “humanitarian cease fires,” to immunize have been called since the early 1990s when the race began to globally eradicate polio by the year 2005 or earlier. Most **Days of Tranquility** have been successful and warring factions have respected the human right to health care. In 1999, for example, an estimated 10 million children were vaccinated against polio in the Democratic Republic of the Congo, according to figures from the United Nations. Nations plagued by ongoing armed conflict have had varying degrees of success. In Afghanistan, for instance, the effort failed to reach children in some of the more affected and isolated areas in the northern sections of the country.

Conflict itself is a major obstacle to providing the children in these war-torn regions with preventive healthcare such as immunizations. **Without Days of Tranquility** and the cooperation of world governments, the children would be beyond reach. In a poignant and humanitarian way, the health of the world’s children has been a bridge toward peace and understanding, if only for a short time.

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**BOOK REVIEW**

Continued from page 10

In August 2000, UNICEF Executive Director Carol Bellamy immunizes a girl against polio during the National Immunization Days (NIDs) campaign in the south-central town of Kananga. She visited the Democratic Republic of Congo (DRC) to further global efforts to eradicate polio, especially in countries affected by conflict. One of 20 priority countries where wild poliovirus is still endemic, her visit there coincided with a NIDs campaign targeting 11 million children. Polio eradication efforts in the country are temporarily ongoing armed conflict in six provinces affecting some 14 million Congolese, as both the national economy and health system are deteriorating. Each child must be immunized three times to be fully protected from the polio virus. Photo provided courtesy of UNICEF/000–0673/ RAKHIA CHALASANI.

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**In the part of parents. As a result, mandatory immunization seems like a reasonable way to ensure that parents help protect both their own children and society. However, in Great Britain it is assumed that parents will voluntarily comply if agents of society first do their part. Doctors are financially rewarded if they take every opportunity to vaccinate the children that they see; they are financially penalized if they don’t. In cases where a doctor has not seen a child at all, public vaccinators are sent directly to the child’s home, instead of blaming the parents for not bringing in their offspring. Our goal, like the British, should be to maximize the number of protected children by finding the most efficient way of achieving that result. The British assumption that people will cooperate if the health system does its job, seems to work far better than the American supposition that some form of required immunization is necessary to force parents to protect their children.

All in all, this is a book that everyone interested in public health should have in his or her bookcase. It succeeds even when the reader disagrees with it by asking the right questions, and by showing there is a viable alternative way of doing things. As in so many cases, America seen through foreign eyes can be a very enlightening experience.

—by William Muraskin, PhD

William Muraskin, PhD, is a Sabin fellow and professor of urban studies, Queens College, New York.
Sabin Vaccine Institute Publishes Proceedings

Two Recent Colloquia Culminate in Lively Publication Series

**Social Venture Capital for Neglected Vaccines: Creating Successful Alliances**

Neglected vaccines mean neglected children. A new publication of the Sabin Vaccine Institute, *Social Venture Capital for Neglected Vaccines: Creating Successful Alliances* explores the economics of vaccine development and production in a unique and compelling way.

Throughout the developing world, thousands of children suffer and die from malaria, tuberculosis, and HIV/AIDS each year. These diseases destroy untold potential and countless years of productive life. They prevent economic development and leave large sections of the world impoverished. Although vaccines would save them, the value of the market in the developing world is so limited that companies that need to make a profit in order to exist invest their efforts and resources elsewhere. If the market is left to its own workings, these vaccines—and children in the poorest countries—will remain neglected.

The Albert B. Sabin Vaccine Institute convened the 7th Annual Vaccine Colloquium at Cold Spring Harbor in the fall of 2000 to bring together key players to address this challenge. Colloquium participants—leaders in science, public health, policy, and industry—were asked to focus their combined expertise on envisioning ways to reduce barriers and stimulate commitment to the development of vaccines for developing country markets.

**Vaccines for Developing Economies: Who Will Pay?**

A scientist on the verge of a major laboratory breakthrough in creating a vaccine against a parasite that has devastated populations in India and China goes looking for funding to continue his work—but finds “zero interest” from pharmaceutical companies, large and small.

The Sabin Vaccine Institute, for years acutely aware of the difficulty in creating and introducing lifesaving vaccines in emerging economies, developed directly from this researcher’s experience the colloquium and book, *Vaccines for Developing Economies: Who Will Pay?*

This publication looks at some of the reasons for this “zero interest” and how, in the light of global security and continued economic growth, it is essential that attitudes toward vaccines against diseases including HIV, malaria and tuberculosis change.

*Vaccines for Developing Economies: Who Will Pay?* reports from the leading edge of global public health planning. Selectively invited leaders from science, industry, government and global organizations gathered at the 6th Annual Albert B. Sabin Vaccine Institute Colloquium at Cold Spring Harbor. Their solutions, while not conclusive, map out the territory of international policy, science and economics that lies ahead.

Rather than simply publish a collection of reports and papers from the colloquium, editor William Muraskin crafts a compelling narrative out of the original points of debate and dissension at the 1999 conference and adds recent interviews for further insights. Voices from the colloquium—and some that went unheard there—pointedly and unsparring hammer out the political, economic, and social challenges of saving human lives in developing countries through vaccines.

The resulting forward-looking report is valuable to those in every field who need to keep up with new technology, the new economy, emerging policy issues and security threats, and new government administrations.

Review copies of both of these books are available from the Sabin Vaccine Institute upon request.
Advancing The SVI Mission

Chairman’s Message

Continued from page 3.

in Southeast Asia for PATH (Program for Appropriate Technology in Health). His mission is to carry on and improve the programs we have initiated and to introduce new visionary approaches. He is undertaking what is again a major challenge, not only in managing our programs, but also in developing a financial base to ensure their success.

To this end, he has already engaged a director of development, Bob M. Langus, who has many years of experience as a development officer, and a director of communications, Ray MacDougall, who has worked closely with us in his previous position at The George Washington University. We have opened another office in Washington, DC, from which Don Douglas will carry on his activities along with his staff.

As we have faced each of these challenges over the last eight years, we have been very fortunate in having all of our constituents in one way or another provide us with the financial sustenance necessary to reach this point. We want to acknowledge each and every one of you who made it possible, in the space of a few short years, to have raised a sum of $6 million and this is exclusive of the Gates hookworm grant. We hope you will continue to value and support our growing number of programs.

We thank every one of you very sincerely, and I hope you will take our thanks seriously. We would not have been able to achieve all that we have without the commitment each of you has shown and the contributions you have made, financially, professionally, and otherwise, to support our work. I hope that, after reading our newsletter, you will feel free to let us know how we can improve. If you have any ideas compatible with our mission, or if we have neglected a critical issue of concern to you, please send us your suggestions.

H. R. Shepherd

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Sabin Vaccine Report introduces this regular column in our newsletter to salute individuals and organizations whose innovation and dedication in promoting public health through immunization are worthy of a special mention.

Bruce Gellin, MD, MPH

Director, National Network for Immunization Information

Bruce Gellin, MD, MPH, an internist and infectious diseases physician, is an assistant professor in the Department of Preventive Medicine at Vanderbilt University School of Medicine in Nashville, Tennessee. Dr. Gellin directs the National Network for Immunization Information (NNii), an educational initiative started three years ago by the Infectious Diseases Society of America and the Pediatric Infectious Diseases Society. Since that time NNii has grown and currently includes the American Academy of Pediatrics, the American Academy of Family Physicians, the American Nurses Association, the National Association of Pediatric Nurse Practitioners and the American College of Obstetricians and Gynecologists among its partner organizations.

In mid-1999, Dr. Gellin and his colleagues conducted a nationally representative telephone survey asking parents of young children about the importance of immunization. The survey, published in Pediatrics (November 2000), found that while the large majority of parents support the use of immunization, many have serious misconceptions that could adversely influence their decision-making about immunizations: approximately one in four parents in the United States are concerned that children receive more vaccines than are good for them, and that as a result, their immune systems could become weakened. Gellin and the NNii are working.

Supported by grants from the Annie E. Casey Foundation, the Jewish Healthcare Foundation and the Robert Wood Johnson Foundation, NNii was created to improve the understanding of vaccines and immunization practices and policies by providing up-to-date, science-based information about immunizations to healthcare professionals, the media, policy makers, and the public.

For more information about Bruce Gellin and the work of NNii, visit the following website: www.immunizationinfo.org.

Wal-Mart Introduces Free Child Immunizations

Selected nationwide Wal-Mart Stores, Inc. teamed up this past summer with state health and human services organizations to provide free child immunizations. The program partnered selected local stores with area clinics to give families a convenient and easy opportunity to get free immunization and protection from deadly infectious diseases. While Wal-Marts in Arkansas were the first state to introduce this program last spring, as many as 31 additional states signed on. “Investing in the health of children is always important to Wal-Mart,” said Wal-Mart Senior Vice President for Pharmacy Jim Martin. “This program allows us to reach families and immunize children that might otherwise go unprotected from these preventable diseases.”
A veteran journalist dramatizes the controversial search for an AIDS vaccine—the players, the politics, the money—in a vivid, suspenseful story that reveals how science is done, and not done, in America today.

When the human immunodeficiency virus was identified in 1984, the competition to create an AIDS vaccine was fierce. Now Patricia Thomas brings the contenders to life in a fast-paced, dramatic narrative: Two biologists rescue precious virus cultures from destruction by a military biohazard team. Other researchers drive hundreds of miles during a heat wave to work in a safe containment lab. And a heroic figure from Randy Shilt’s *And the Band Played On* just might win the vaccine marathon.

Thomas shows how the scientists’ youthful optimism is honed into gritty determination as they struggle with difficult research challenges, public condemnation of AIDS patients, cautious bureaucrats, conservative executives, hostile activists, and a perennial shortage of money. The lives and complex motivations of the characters illustrate the triumphs and frustrations of the quest for a vaccine. Interwoven with these gripping human stories are lucid explanations of how vaccines aim to block the potentially deadly tango of the AIDS virus and the human immune system.

Above all, *Big Shot* shows how the health of future generations rests on the shoulders of individuals who are as strong, and as weak, as the rest of us. Just as *A Civil Action* ultimately told us more about human nature the environmental law, *Big Shot* is about a great deal more than AIDS vaccines.

Patricia Thomas has written about medical research for many years, and from 1991 to 1997 she was editor of the *Harvard Health Letter*. She has been a Knight Science Journalism Fellow at MIT, and in 1998 was awarded the Leonard Silk Journalism Fellowship. Thomas was one of the first healthy volunteers to be injected with an experimental DNA vaccine for AIDS, in a study at the National Institutes of Health.

*Big Shot: Passion, Politics, and the Struggle for an AIDS Vaccine*  
New Book by Patricia Thomas, Sabin Fellow, Hits the Book Stores

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**Bulletin on Influenza Vaccine for 2001-02**

The Centers for Disease Control Keep the Nation Posted as Flu Season Approaches

The National Immunization Program (NIP) of the Centers for Disease Control and Prevention (CDC) is working hard to communicate information related to the production, distribution and administration of influenza vaccine for the 2001-2002 influenza season. Vaccine manufacturers project that 77.1 million doses of influenza vaccine will be distributed this season. Some delays in distribution are still anticipated.

Projected distribution of influenza vaccine for 2001 is greater than the number of doses available in 2000 and comparable with 1999. Compared to 1999 and other previous years, when most of the total vaccine supply was distributed by the end of October, distribution of a significant portion of this year’s total supply will extend into November and December. Manufacturers currently are projecting that the final 27.3 million doses of the total supply will be distributed in November and December 2001. Officials at FDA and CDC stress that these projections from manufacturers are preliminary and could change as the season progresses.

The optimal time to vaccinate persons in groups at high risk is in October and November. To avoid missed opportunities, vaccine also should be offered earlier to high-risk persons when they are seen for routine care or are hospitalized, if vaccine is available.

High-risk patients should be reminded of the importance of their receiving influenza immunization and encouraged to come into the office for a vaccination-only visit. As more vaccine becomes available in November and December, providers also should offer vaccine to unvaccinated lower-risk patients, such as contacts of high-risk persons, healthy persons 50 - 64 years of age and any other persons wanting to reduce their risk for influenza. Providers should continue to vaccinate their patients even after influenza activity is detected in the community, as long as vaccine is available. In recent years, peak influenza activity has not occurred until late December through early March. Consequently, vaccine administered after November will be beneficial in most influenza seasons.

Patients should be advised that it may take as long as two weeks after vaccine administration to develop sufficient antibody to be protected from the virus and that other viruses can cause similar symptoms as influenza. For more information on this year’s flu vaccine, visit [www.cdc.gov/nip/flu](http://www.cdc.gov/nip/flu).
Phyllis B. Moses, PhD, joined the Sabin Vaccine Institute as senior fellow, to conduct science policy scholarship in support of the Institute’s mission of vaccine advocacy and research. In addition to contributions to the Institute’s website and newsletter, and representing the Institute at scientific meetings, she will develop proceedings of the Institute’s two annual colloquia. Moses has extensive experience in commercial publishing, and also in pharmaceutical, nonprofit, and academic environments. She most recently was manager of scientific publications at Purdue Pharma LP. She worked for 10 years at Academic Press and then with Macmillan Reference Ltd., in the United Kingdom. She previously worked in science policy at the National Academy of Sciences/National Research Council. She held positions as a National Science Foundation plant biology postdoctoral fellow, a Rockefeller University graduate fellow with concentrations in virology, genetics, and biochemistry (PhD, 1983), an undergraduate major in biology at the Johns Hopkins University (BA, 1977), and an Undergraduate Research Program fellow in molecular genetics at Cold Spring Harbor Laboratory (1976).

Dr. Moses is based at the Institute’s offices in New Canaan, Connecticut.

Joining SVI President Don Douglas at the program offices of the Institute in Washington, D.C. are two new staff members who will undertake, respectively, development activities and communications programs.

Robert J. Milanchus joined the Sabin Vaccine Institute in September as director of development. A 30-year veteran fundraiser, he has directed the development enterprise and held senior executive posts at a number of national and regional non-profit organizations.

At the Aircraft Owners and Pilots Association Air Safety Foundation, Milanchus served as vice president for foundation development, coordinating grant development and corporate, government, and individual major gifts. He served for five years as executive director of development, public relations, and marketing for the Washington County Health System in Western Maryland, where he coordinated a development program that included major grants, capital projects, and special events, as well as marketing and media affairs. In the early ‘90s, he was director of development and community relations for St. Joseph Services for Children and Families in Brooklyn, New York, and director of development for Sacred Heart University in Fairfield, Connecticut, and the State University of New York at Stony Brook, New York. He previously held executive directorships of Girl Scout Councils in New York and in Ohio.

Milanchus holds a degree in speech education and broadcasting arts and is a member of the National Society of Fundraising Executives, Council for the Advancement and Support of Education, and the Association of Healthcare Professionals.

Raymond A. MacDougall joined the Institute in August as director of communications. He has worked for more than 10 years in publications management, media relations, and marketing in the Washington, D.C. area.

MacDougall was with The George Washington University for the past five years, where he served most recently as publications director for the Medical Center’s office of communications and marketing. There he covered news of GW’s partnership with the Sabin Vaccine Institute and relocation of the research component of the Institute’s Hookworm Vaccine Initiative to the University. He was managing editor of the medical alumni magazine and of the Medical Center’s monthly periodical, reporting on medical and public health education programs, breakthroughs in disease diagnosis and treatment, and initiatives in community health and disease prevention.

MacDougall has also held positions at GW’s School of Engineering and at the University of Maryland. He was a public relations specialist at the UM’s Institute for Systems Research and at the International Development Management Center, and marketed University College graduate management programs.

He is a graduate of the University of Maryland with bachelor’s and master’s degrees from the College of Journalism.
with public health practice. On numerous occasions WHO has been successful at negotiating “days of tranquility” during which belligerents to conflicts agreed to adhere to a cease-fire while public health and medical practitioners carried out immunizations. Angola, Congo, and Sudan are only a few of the examples where polio eradication efforts have been the impetus for temporarily separating warring parties. Prior to the Dayton Accords, the health ministers from Bosnia-Herzegovina, Croatia, and Serbia came together to discuss public health practice that would address health issues along functional rather than ethnic lines. By putting ethnic divisions aside to discuss health issues of common concern they demonstrated the potential of using health as a conflict resolution tool.

The lessons from these examples and other similar experiences need to be more clearly drawn out to evaluate their potential as a lever for ameliorating violent conflict. As WHO makes a final push to eradicate polio by 2005, the most challenging areas remain those embargoed in violent conflict. If the 2005 target is to be met, it will be crucial that hostilities cease, at least temporarily, for immunization efforts to take place. When these opportunities present themselves, we must take advantage of the window to push for a lasting peace. Our success will hinge on how well the international community is prepared to do so.

The international security environment is continuously evolving, creating both new challenges and new opportunities. The stakeholders must first recognize the nature of the challenges before us, and second, identify and exploit opportunities for shaping this environment in ways that, ultimately, enhance security.

—by Jonathan Ban

Jonathan Ban is a research associate at the Chemical and Biological Arms Control Institute in Washington, D.C. (jban@cbaci.org)