Malaria Vaccine Development

A comprehensive report on public and private efforts, including an editorial from the World Health Organization and a report from the National Institutes of Health's Fogarty Center on a study to quantify the global burden of malaria.

Sabin Institute Scientist Honored
Joseph A. Bellanti Receives Award

BY JOHN CLYMER

Sabin scientist Joseph A. Bellanti, a Georgetown pediatrician and vaccine researcher, received the 1998 State University of New York at Buffalo Distinguished Medical Alumnus award in recognition of his long career as a teacher, researcher, and practitioner.

A Most Prestigious Award

"I am both honored and humbled," Bellanti told medical school alumni, officials, and guests who gathered for a dinner in his honor in September on the Buffalo campus. "Medicine is about reducing human suffering. I hope that being selected for this award means that over the course of my career I have in some small measure helped to reduce human suffering, for that is this profession's highest achievement."

"The Distinguished Medical Alumnus is the most prestigious award given by the medical school and Medical Alumni Association," said Bertram A. Portin, assistant dean of alumni affairs at the SUNY-Buffalo School of Medicine and Biological Sciences. The presentation was made by John R. Wright, dean of the Georgetown University Medical Center. Under his direction, more than 300 physicians from all over the world have received research and specialty training. He and his colleagues are prolific contributors to scientific literature, particularly in the area of vaccine development and immune response.

"Perspective is essential," Bellanti commented. "No matter what one accomplishes in the laboratory, what is truly important is saving and improving the quality of human lives."

Peggy Johnston: You can go home again

BY PATRICIA THOMAS

The personalized plate on Margaret I. "Peggy" Johnston's car reads "HIV VAX." She got it in 1996, when she left a highly successful career at the NIH to become the first employee of a new organization called the International AIDS Vaccine Initiative (IAVI). Johnston took this dramatic step because she wholeheartedly endorsed IAVI's belief that HIV vaccines need to be made a top international priority. She was also convinced that her personal efforts could accomplish more within IAVI than within a sprawling federal bureaucracy.

Now, two and a half years later, the NIH has developed a new attitude toward AIDS vaccines, and Peggy Johnston is back. Having left as deputy director of the Division of AIDS (DAIDS), Johnston now occupies two other slots: assistant director for HIV/AIDS vaccines at the National Institute of Allergy and Infectious Diseases (NIAID) and associate director of the vaccine and prevention research program at DAIDS, which is part of NIAID. Te fever is now a newly created post that moves HIV vaccines several rungs higher on the administrative ladder and gives Johnston a direct line of report to NIAID Director Anthony Fauci. She's been charged with linking NIAID's intramural and extramural vaccine research and making sure that everyone is pulling in the same direction.

Running a global start-up

In a sense, what Johnston did while she was away from the NIH made it possible for her to return. After joining IAVI, Johnston spent more time on airplanes than behind the wheel of her car. She was realizing the global ambitions of IAVI’s parent organizations, which include the Rockefeller Foundation, the World Bank, and UNAIDS. By taking the vaccine message to scientific conferences, government meetings, and corporate boardrooms on nearly every continent, Johnston quickly became the face of a public face, first as scientific director and later as vice president for scientific affairs. By mid-1998 IAVI had developed a high profile, a staff, a “blueprint” for speeding HIV vaccine development, and a growing endowment.

While Johnston was promoting AIDS vaccines as an urgent public health issue, NIH leaders were getting the message—not only from her, but also from other public groups such as the AIDS Vaccine Advocacy Coalition and the Sabin Vaccine Foundation (the forerunner and parent of the present Sabin Vaccine Institute). "The government does listen," Johnston says, "as hard as it is for people to realize that sometimes. And it is responsive."

Public pressure and political criticism of its AIDS activities caused the NIH to designate HIV vaccine development a high administrative priority.

See JOHNSTON, page 3
The effective use of vaccines strikes at the heart of one of medicine's greatest challenges for the 21st century: the prevention of infectious diseases. In order to achieve this, global scientific, political and economic cooperation are necessary. The International Center for Interdisciplinary Studies in Immunology (CVI) Consultative Group Meeting November 9-10 in Geneva, Switzerland was based on this fundamental premise. The meeting was attended by representatives from multi-national immunization programs, the development assistance community, industry, non-governmental organizations, national governments, and international health agencies, research institutions and academia including the Albert B. Sabin Vaccine Institute.

The Institute is dedicated to building international cooperation needed to encourage research and distribution of vaccines to people in every corner of the world, to lift people from the suffering caused by disease. This was the dream of Albert Sabin and it is the Institute's guiding star.

The first half of the 20th century saw the entire world gripped by fear of the mysterious and deadly disease called paralytic poliomyelitis or polio. Children who happily ran and played suddenly could run no more, struck down by the greatly feared polio virus about which little was known. At the height of the polio epidemic in 1952, there were 52,768 new cases in the United States. It was Albert Sabin's indefatigable effort that led to the development of the oral polio vaccine. The widespread introduction of Sabin's global campaign to eradicate the disease. The vaccine was to a large degree a product of Sabin's forceful character and his intervention to overcome geopolitical barriers to its development. The eradication campaign drove polio from the Americas and is on track for worldwide eradication in the year 2000. (Jonas Salk's injected vaccine became available five years earlier, however, it was more difficult to administer and provided less immunity.)

Not only did Sabin's vaccine provide the means to eradicate polio globally, his intuitive gift of prediction made him a trailblazer in the globalization of vaccine research and development. At the height of the Cold War in the late 1950s, it was Sabin and Soviet scientists who put aside their countries' considerable political differences to successfully test the oral polio vaccine in massive clinical trials in the Soviet Union and several Eastern bloc countries.

This history provides a backdrop for the Children's Vaccine Initiative's efforts to combat infectious diseases throughout the world. As World Health Organization Director General Gro Bruntland and several other speakers at the CVI meeting made clear, there is never been more urgent than it is today.

Delegates to the 1998 CVI meeting agreed that every child has a right to immunizations. Peoples of all countries face a moral and economic imperative to encourage the development and use of new vaccines and technologies to administer them more easily and cheaply. The scientists, public health officers, humanitarians, policy makers and advocates gathered for the CVI meeting are actively taking up this challenge in various ways.

At the CVI meeting, I was able to confer with World Health Organization officials and public health authorities from the U.S., Mexico and other countries. We plan to meet in early 1999 at Georgetown University Medical Center to adopt specific strategies to accelerate development of a non-injected measles vaccine. This effort is a continuation of Sabin's research on a cost effective weapon in the medical arsenal to rectify this situation.

The conference was itself an instrument of peace and an excellent example of "vaccine diplomacy." Not only did Sabin's vaccine provide the means to eradicate polio globally, his intuitive gift of prediction made him a trailblazer in the globalization of vaccine research and development. At the height of the Cold War in the late 1950s, it was Sabin and Soviet scientists who put aside their countries' considerable political differences to successfully test the oral polio vaccine in massive clinical trials in the Soviet Union and several Eastern bloc countries.

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Johnston, from page 1.

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Rough spots ahead

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Children's Vaccine Initiative: Is Vaccination a Human Right?

M any of the world's leading experts in vaccines and vaccination came together every two years as partners in the Children's Vaccine Initiative (CVI), an 8-year-old organization that is dedicated to making universal childhood immunization not just a good idea, but a reality. Last month, members of the CVI Consultative Group met in Geneva to assess progress toward this goal. They talked about the newest vaccines emerging from laboratories all over the world, the challenges of getting safe injections in remote areas, and about dozens of other topics. And, as the meeting progressed, the poignancy of opening remarks made by Sir Gustav Nossal deepened.

"We are meeting at a time of opportunity and challenge," Nossal said when he welcomed 350 participants from 50 countries to the opening session. Opportunity takes the form of new vaccines emerging from laboratories all over the world, and the challenge is that "in the 28 poorest countries of the world little progress has been made in the last decade," said Nossal, an emeritus professor of pathology at the University of Melbourne in Australia, who chaired the CVI meeting and is a trustee of the Sabin Vaccine Institute.

This lack of progress is reflected in World Health Organization (WHO) studies showing, year after year, that 20% of the world's children remain unprotected against polio, measles, and other infectious diseases. This troubling finding hasn't changed in recent times, no matter what strategies public health officials have tried.

These vulnerable, unvaccinated children are concentrated in the world's poorest countries. These are places where traditional vaccines are underused due to widespread constraints on resources, such as shortages of money and manpower and grave difficulties deploying vaccines to children in remote areas. These same barriers will doubtless impede the use of new vaccines, which have the added complication of costing more than older products. Nossal's warning reverberated throughout the two-day CVI conference: as children in wealthy nations gain better protection thanks to scientific progress in vaccine design and delivery, the children of the developing world could fall farther behind. One of the greatest challenges in public health, speakers at the conference repeated, is reaching the 20% of children who remain unvaccinated.

Old and new arguments are being used to make the case for vaccination. Immunization is widely acknowledged as the most cost-effective of all public health interventions. If all the available vaccines were used as experts recommend, WHO estimates that 4 million lives could be saved each year. At a cost of only about $1 per dose, vaccines for pertussis, measles, hepatitis B, Haemophilus influenza type B (Hib) disease, and others common infectious illnesses can save billions of dollars each year. Yet this isn't happening. Even though measles is largely preventable by immunization, for example, direct medical costs associated with the disease still total about US$1.1 billion each year, much of it in industrialized countries that can afford the vaccine. When polio is finally eradicated, a long-elusive goal that is now almost within reach, worldwide health care savings will amount to a whooping US$53.5 billion each year.

As impressive as these economic arguments are, the reality is that childhood immunization remains low on the priority list for many governments.

So at this year's meeting, CVI turned to moral suasion as a means for mobilizing political will in countries that lag behind.

The right to vaccination

Humanitarian concerns were in the spotlight from the start, with the opening session devoted to presentations that portrayed vaccination as a right of every child. At least eight international conventions and treaties declare that children are entitled to protection against disease; one spells out immunization as a right while in the others this idea is implicit. One of the earliest and most explicit of these agreements is the 1988 "Protocol of San Salvador," a broad human rights document that specifies universal immunization as a right.

But the real cornerstone of the humanitarian line of argument is the Convention of the Rights of the Child (CRC), which clearly articulates the rights of children to health, and thus to vaccination (see box). After being adopted in 1989 by the United Nations General Assembly, the CRC was ratified more rapidly than any other human rights instrument ever has been. There are 191 signers and only two holdouts: Somalia, which lacks an internationally recognized government, and the United States. U.S. ratification has been complicated by political disagreement about the desirability of joining in an international agreement that addresses family issues, as well as by other factors.

Although human rights agreements like the CRC have very weak enforcement provisions compared with conventions related to the conduct of war, they can be used to bring moral pressure to bear on governments. On some issue perceived as a right, governments have a perceived responsibility to provide. If they fail to do so, they denigrate the image of the international stage.

Even though the CRC lacks strong enforcement mechanisms, it is clearly a step in the right direction, according to Roy Widdus, coordinator of the CVI. The document emphasizes that children are a special group in society and holds governments morally and legally accountable for their protection. This strengthens campaigns waged by child health advocates within each country, and leaves rogues nations open to censure by their peers.

Life, death and accidents of birth

There is little doubt that children in poor countries need all the help they can get to attain a healthy maturity. According to the WHO, a child in the poorest 20% of the world's children will be born prematurely, will suffer from malnutrition, will be vaccinated once, and will die before his or her fifth birthday from causes that are preventable with existing technologies. According to the World Bank, the World Health Organization, and the United Nations Children's Fund (UNICEF), about 800,000 children under age 5 die each year from vaccine-preventable diseases such as measles, diarrhea, and tetanus, and millions of others suffer from the effects of these diseases. In the case of measles, for example, it costs about $200 to vaccinate a child, but it can cost the family $500 or more in lost income, travel expenses, and hospital fees. UNICEF calculates that 600,000 and 800,000 lives would be saved each year.

Children's Vaccine Initiative:

Mission: The Children's Vaccine Initiative is an effort that seeks to benefit all children through scientific advances in protecting and delivering vaccines.

History: CVI was founded in 1990.

Activities:

-Increasing awareness of the need for a coordinated global strategy for a successful vaccination campaign
-Providing a venue for the discussion of new vaccines, their development, and their use
c-Working to make the self-interested view that health is worth investing in because it paves the way to prosperity 

Widdus believes this is a less powerful than the humanitarian rationale for making child health a top national priority.

The relative merits of these arguments may depend on one's perspective.
WHO Director-General Calls for New Solutions

If anyone at the Geneva conference doubted that the Children's Vaccine Initiative is a major player in the global health arena, then the presence of Gro Harlem Brundtland erased those doubts. In her message, the newly elected director-general of the World Health Organization celebrated the tremendous strides that the Children's Vaccine Initiative (CVI) has made in translating biomedical research and public health into practical, life-saving programs, and other concerned world's children by translating into reach. A physician who is now one of the world's most prominent health policy-makers, Brundtland did not equivocate when she talked about vaccination's place in the grand scheme of things. "Immunization is simply the most cost effective health intervention we have available. There is no doubt in my mind," she proclaimed.

Brundtland's support for immunization adds momentum not only to the efforts of the CVI, but also to the Expanded Programme on Immunization (EPI). When the EPI was founded by WHO a generation ago, only 5% of the world's children received basic vaccines against polio, diphtheria, whooping cough, measles, and tuberculosis. An estimated 80% of children worldwide have been immunized against these diseases. As success at immunization has been in expanding vaccination campaigns throughout the world, the next century will see even higher levels of immunization that can only be met if new and different approaches are also used, Brundtland said.

New products demand new strategies

Advances in laboratory science and clinical medicine now promise an entirely new generation of vaccines against some of the infectious diseases that now kill 17 million people each year, Brundtland noted. But these new vaccines, many of which are products of the revolution in genetic engineering and recombinant technology, will cost more than traditional products - a fact that is likely to be a barrier to their use. For example, new vaccines against Haemophilus influenzae type B (Hib), pneumococcus, and rotavirus are expected to have a major impact on the health of children in industrialized nations, where their use is spreading quickly. Both the Hib and the pneumococcal vaccines prevent pneumonia, the number one killer of infants and children worldwide, while the rotavirus product protects against a disease that is a major cause of hospitalization for diarrheal disease during the first two years of life. These vaccines can have an enormous impact on global health, so long as problems of affordability, acceptance, and infrastructure can be overcome.

It is never simple to introduce new vaccines to people who aren't familiar with their benefits and, in fact, may never have heard of them. Several major challenges must be addressed before we get maximum benefit. For example, epidemiological studies may be needed to demonstrate the burden of a disease, so that citizens and policymakers will take it seriously. Analysts will also need to figure out how a new vaccine can be integrated into existing immunization programs in a manner that is cost-effective and acceptable to both providers and patients. If technical assistance is needed to deploy a new vaccine or other intervention, local experts may need to be called in. Finally, industry help and creative funding may be needed to bring new vaccines to the people who need them most, Brundtland said.

A larger role for industry?

G. H. Brundtland, Director-General of the World Health Organization.

Although not every commercially un promising vaccine can be this fortunate, scientific inquiry sometimes boosts the attractiveness of a product that had been going nowhere fast. For years, rotavirus was thought to be a major cause of serious, sometimes life-threatening diarrhea only for infants and toddlers in the developing world. And then, in an odd twist of fate, an epidemiological study found that rotavirus disease is actually quite widespread in industrialized countries. Suddenly, pharmaceutical companies were willing to invest in a vaccine that had only been on the back burner. As a result of this effort, the world's first rotavirus vaccine was licensed by the Food and Drug Administration in August, 1998. The epidemiologist whose study sparked industry's interest, Roger I. Glass of the U.S. Centers for Disease Control, was co-recipient of the CVI Pasteur award presented at the Geneva conference.

This means vaccines for extremely rare diseases or those that mainly strike poor people who can't afford to buy expensive products, and who often live in parts of the world where transporting, storing, and administering them can be extremely difficult. There is unlikely to be a very profitable market for a vaccine against malaria in Africa, for example, but people who are estimated to usually live in poor countries. Brundtland pointed to development of these sorts of vaccines as one of the greatest challenges for advocates of prevention. The WHO and the EPI can play an important role here, by opening the dialogue with industry and looking for innovative ways to provide incentives for developing such products.

CVI Presents Jenner, Pasteur and Lifetime Achievement Awards

This year, the CVI honored researchers and public health specialists from Australia, Japan, and the United States with its Jenner, Pasteur, and Lifetime Achievement Awards. The awards were given at a ceremony during the 1998 Consultative Group meeting. Bjorn Melaard, the CVI Executive Secretary, presented the awards. The awards were created two years ago to mark the "Year of the Vaccine," commemorating the 200th anniversary of the first vaccine, discovered by British physicians Edward Jenner, and the 100th anniversary of the death of French vaccine pioneer Louis Pasteur. The awards honor individuals who have made exceptional contributions to vaccine development and immunization and in so doing have expanded protection against infectious diseases.

The Jenner Award laureate, Ralph H. Henderson, was cited for his visionary, single-minded leadership of the WHO’s Expanded Programme of Immunization (EPI) from 1979-1989. During his leadership, the EPI achieved what has been called "the greatest public health revolution of this century"- a revolution that brought vaccines to some 80% of the world’s children and is continuing to do so every year, with an estimated saving of almost 3.5 million lives. Before the EPI began, only about 5% of the world’s children were receiving much-needed vaccines. Henderson is currently an adviser to Gro Harlem Brundtland, the Director-General of the WHO.

The Pasteur Award winners were cited for their pioneering work in the development of vaccines against rotavirus disease and in laying the foundations for the future application of these vaccines. The rotavirus claims an estimated 600,000-800,000 children’s lives each year. Ruth F. Bishop, a researcher at the Royal Children’s Hospital in Melbourne, Australia, received the rotavirus award in 1973 and, in so doing, opened an avenue of research that prepared the way for the development of the first experimental rotavirus vaccine. At the National Institutes of Health in Bethesda, Maryland, Albert Z. Kapikian, a leader in the field for the last 25 years, initiated development of what this year became the first rotavirus vaccine to be licensed for use in children. The third recipient, Roger Glass of the Centers for Disease Control (CDC) in Atlanta, Georgia, a student under Kapikian, produced the first clear evidence that rotavirus infections are prevalent not only in developing but also in industrialized countries. His work in this area has made a major stimulus to epidemiological research on rotavirus disease throughout the world and has played a key role in the development of several experimental rotavirus vaccines.

The winners of the CVI Lifetime achievement award, Yuji Sato and wife Koko Sato, developed the first acellular pertussis (or whooping cough) vaccine nearly twenty years ago, while working at the National Institutes of Health in Tokyo. This vaccine, which was widely used in Japan, uses purified proteins of the pertussis organism, Bordetella pertussis, instead of the whole bacterial cell used for the traditional "whole-cell" pertussis vaccine. The newer acellular vaccines have about the same efficacy but fewer of the side effects linked to the whole-cell vaccine, which has been almost entirely replaced in some industrialized countries.
Workplace-based Vaccination Programs Gaining in Popularity

BY ELIZABETH DE LA PAZ

What’s the secret to a healthy workforce? Many institutions, both public and private, are finding that on-site vaccination programs, most commonly during the flu season, are sure ways to decrease the number of sick employees, thereby improving productivity and employee morale at the same time. It might seem obvious that healthier employees would save a company money. But there was little convincing proof that such vaccination programs could have a major impact until the New England Journal of Medicine published a placebo-controlled study demonstrating a 43 percent reduction in sick days among adults immunized for the flu. The National Coalition for Adult Immunization, an immunization advocacy organization, estimates that about 20 percent of the American population is infected during the flu season, with direct medical costs exceeding $4 billion per year.

Ahead of the game

The National Institutes of Health (NIH) has been offering flu vaccine to its employees for at least 18 years, according to immunologist Robert W. M. McKinney, director of the NIH’s Division of Safety, which operates the NIH Occupational Medical Service. Each year, the NIH provides the vaccine free to all employees, though the program places emphasis on healthcare providers, such as those at the NIH’s Influenza and Microbiology Laboratory. The NIH’s vaccination program is a huge undertaking: it attempts to cover more than 16,000 employees housed in over 7 million square feet of building space at several locations in suburban Maryland. In addition to on-site immunization, M. McKinney’s staff provides all employees with information about other public immunization sites, such as those at local supermarkets and malls. Each year about 30 percent of employees elect to get vaccinated, but M. McKinney would rather see that number closer to 50 percent. “Immunization is of great benefit not only for the individual, but for that person’s family, and everyone they come in contact with,” he said.

So what determines whether or not employees make it to the clinic? Each year, the Centers for Disease Control (CDC) in Atlanta, issues alerts about the various strains of flu for the coming season. Some years are worse than others, particularly if the flu vaccine does not contain the prevalent strains, which is what happened last season with the Sydney flu strain. “Compliance,” M. McKinney, “is correlated to how much the CDC scares the public into thinking it’s going to be a particularly bad flu season.”

Corporate cost containment

In the private sector, news of the cost-saving benefits of employee immunization travels fast. And with this news, a cottage industry of companies that offer turnkey-style immunization programs has sprung up almost overnight. (See inset.) These companies provide on-site immunization programs—many times tailored to the individual needs of employees. For example, employees in work environments in which they might be exposed to blood products would have a different vaccination profile than employees working elsewhere.

The experience of the Kodak Corporation is a textbook example of the impact of immunization programs. Kodak’s corporate medical director, Wayne M. Lednar, has been tracking the impact of the company’s employee flu-vaccination program. The data from the three-year study are being prepared for publication. Lednar notes that Kodak’s mature and long-standing epidemiology program enabled him to compare employee absences during the peak months of the flu season (December to May). The data confirmed that the greatest employee absences coincided with the highest levels of influenza activity. For more information, visit the Sabin website at www.sabin.georgetown.edu.

Sabin Institute Launches Revamped Website

The Sabin Vaccine Institute recently launched a completely revamped website on the World Wide Web. The user-friendly site can be found at www.sabin.gogeorgetown.edu. Additions to the website make it a valuable resource for anyone with an interest in vaccines—from concerned parents and cautious travelers to inquisitive scientists and researchers. The aim of the page is to provide visitors with the most current news and developments in vaccine science. The site is designed to be user-friendly and to present the spread of disease worldwide.

Among the newest additions to the site are pages dedicated to specific diseases such as HIV, malaria, tuberculosis and others. The pages provide brief profiles on each disease and then links to the most current developments in vaccine research, development, implementation, and public policy. For those interested in being involved with vaccine public policy, links to various vaccine organizations with policy initiatives are only a click away from the site.

Welcome to the site will learn about the history and mission of the Sabin Institute, as well as about opportunities available such as the Sabin-H I llman Fellows Program, which will provide summer internships to qualified high school students. Applications for the program will soon be instantly available via the site. The Sabin site is also eager to provide the public with current announcements on conferences on vaccines and links to publications providing in-depth articles.同时也提供方便的方法让访客搜索有关流行性感冒的最新信息。

The Institute plans to update the site often to keep visitors informed of the newest developments in the fight against disease.

Sabin Calendar

The following is a list of upcoming events, some of which are sponsored by the Sabin Institute. The Institute is not responsible for the content of non-institute listed here.

December 15-17, 1998
Bethesda, MD
SECOND ANNUAL CONFERENCE ON VACCINE RESEARCH
The conference brings together the diverse disciplines involved in the research and development of vaccines and associated technologies for disease control through immunization to present and discuss current vaccine-related scientific data, results, and issues. In addition, the conference aims to encourage communication among vaccine researchers and developers, public health officials, and medical personnel who administer vaccines.

For details, visit www.nfid.org

April 17-21, 1999
Washington, D.C.
EXPERIMENTAL BIOLOGY ’99
American Association of Immunologists
Annual Meeting
T he preliminary schedule is available at http://www.scienceXchange.com/aai/

April 26-28, 1999
Bethesda, MD
8TH ANNUAL MEETING OF THE NIAID INTERNATIONAL CENTERS FOR TROPICAL DISEASE RESEARCH
Information available at the website of the Division of AIDS, AIDS and Infectious Diseases (D AID) in the National Institute of Allergy and Infectious Diseases at the N I H.

www.niaid.nih.gov/research/Dmid.htm
Steere Awarded Albert Sabin Gold Medal for Pivotal Work on Lyme Disease

By John Clymer and Timothy Mahoney

Allen C. Steere, whose pivotal research on Lyme disease helped pave the way for development of a new vaccine to prevent it, has been awarded the sixth Albert B. Sabin Gold Medal. The award was presented to Steere on September 24 in Boston at a dinner in his honor organized by the Albert B. Sabin Vaccine Institute at Georgetown University, which sponsors the award. Heloisa Sabin, co-founder and a director of the Institute, and Joseph A. Bellanti, senior vice president of the Institute, made the presentation.

"Dr. Steere exemplifies medical research at its best," said H.R. Shepherd, chairman of the Sabin Vaccine Institute. "His work is an extraordinary example of translational research — that is, turning knowledge gained in the laboratory into a real product that spares patients enormous pain, suffering, and expense. From identifying Lyme disease as an infectious disease, through describing its pathogenesis and leading clinical trials of a preventive vaccine, Dr. Steere has contributed enormously to human health," Shepherd said.

Scientists from the National Institutes of Health, Centers for Disease Control and Prevention (CDC), and leading academic institutions joined Lyme disease patient advocates and public officials in endorsing Steere's selection as a Sabin Gold Medalist. Governor John Rowland declared September 24 as "Allen C. Steere Day" in Connecticut. John Livengood, director of the CDC Epidemiology Surveillance Division, David S. Krause, vice president and director of clinical research and development and medical affairs at SmithKline Beecham Pharmaceuticals, and Robert S. Schwartz, deputy editor of the New England Journal of Medicine and distinguished physician at New England Medical Center, addressed the dinner audience at the Four Seasons Hotel-Boston. They praised Steere's accomplishments as a scientist, his care and concern for patients, and the benefits of the new LYMErix vaccine. The vaccine was developed and is manufactured by SmithKline Beecham.

Lyme disease is the second most prevalent emerging infectious disease in the United States, according to the CDC. It is spread by ticks when they bite their victims. It is not fatal, but it can be very debilitating. It can affect a patient's skin, joints, heart, and nervous system. Its symptoms can include facial paralysis, meningitis, inflammation of the heart, and abnormal cardiac rhythm.

Steere holds the Natalie V. & Milton O. Zucker Endowed Chair in Rheumatology and Immunology at Tufts University School of Medicine. He also is chief of rheumatology/immunology at the New England Medical Center in Boston.
NEW AND NOTEWORTHY

♦ Vaccines: From Concept to Clinic
A Guide to the Development and Clinical Testing of Vaccines for Human Use
by Lawrence C. Paoletti and Pamela Mclinnes

♦ Vaccines: Emerging Technologies, Trends and Market Opportunities
by Pamela Bassett, DMD, MBA
D&M Reports, November 1998.

♦ Needle Tips & the Hepatitis B Coalition News, Fall/Winter 1998-1999
Published by the Immunization Action Coalition (IAC) for individuals and organizations concerned about vaccine preventable diseases. Needle Tips provides valuable information reviewed by the Centers for Disease Control (CDC). Co-editors Deborah L. Wexler and Margaret Vaillancourt describe the IAC as a “grass-roots” organization which, through its newsletter publication and website, provides practical information for health professionals and consumers of vaccines.

♦ Influenza: The Virus, the Disease and How to Protect Yourself
by William J. Martone, M.D.
http://www.nfid.org/library/influenza/
Supported by a grant from the National Foundation for Infectious Diseases and Pasteur Mérieux Connaught, this is a well-written guide to influenza. William J. Martone, currently of the National Foundation for Infectious Diseases, Bethesda, MD is the former Director of the Hospital Infections Program, Centers for Disease Control and Prevention, (CDC) and is a specialist in infectious diseases.

♦ Miracle Vaccines
U.S. News & World Report
November 23, 1998

♦ Vaccines for the 21st Century
A Tool for Setting Priorities
Kathleen R. Stratton, Jane S. Durch, and Michael A. Stoto, Editors
Committee to Develop Priorities for Vaccine Development, The Institute of Medicine

♦ Vaccines:
Emerging Technologies, Trends and Market Opportunities
by John Clymer, Elizabeth de la Paz, Charlene A. Flash, Aleyda V. Kasten, PhD
D&M Reports, November 1998.


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