PIDS Annual Awards

35th Annual Pediatric Infectious Diseases Society Awards

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The following is a compilation of the 2013 Pediatric Infectious Diseases Society Awards presented on Monday, May 6, 2013 during the Pediatric Academic Societies meeting in Washington, DC. Award summaries were adapted from submissions provided by the nominating physician.

10th Annual Stanley A. Plotkin Lectureship in Vaccinology: Anne A. Gershon, MD

The Stanley A. Plotkin Lecture in Vaccinology is presented annually to an individual who has made significant contributions to the field of vaccinology or areas of related science that have impacted the lives of children and the specific area of pediatric infectious diseases. This year's recipient was Dr Anne A. Gershon (Figure 1), who received the award for her invaluable research efforts related to varicella disease and vaccination. Her lecture entitled, "The Third Herpesvirus Meets the Second Brain: Implications for Vaccination against Varicella," is summarized below. Her presentation focused on years of experience working with varicella vaccine and the role of reactivation of vaccine strain in human disease and in development of long-term immunity.

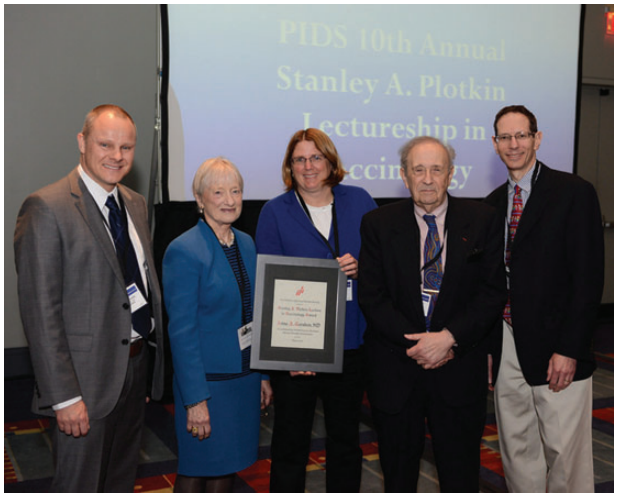

Figure 1. 10th Annual Stanley A. Plotkin Lectureship in Vaccinology recipient Dr Anne A. Gershon (second from left) with (from left to right): Dr David Michalik, Dr Janet A. Englund, PIDS President, Dr Stanley A. Plotkin, and Dr David Greenberg, representative of award sponsor Sanofi Pasteur.

Dr Gershon has made substantial contributions to the understanding of varicella virus epidemiology, diagnosis, immunology, latency, prevention, and treatment. She is the author of over 300 publications and has edited 11 books. She is the Director of the Division of Pediatric Infectious Diseases and a Professor of Pediatrics at Columbia University College of Physicians and Surgeons. She has served on the Committee on Infectious Diseases of the American Academy of Pediatrics (AAP), the Committee on Immunization Practices of the Center for Disease Control and Prevention (CDC), and was a member of the CDC's Working Group for varicella vaccine. She also played a major role in recommending a second dose of the vaccine for all children. Dr Gershon was a member of the Councils of the

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Infectious Diseases Society of America (IDSA) and the Pediatric Infectious Diseases Society, and she was the President of the IDSA in 2008–2009. She was also a member of a March of Dimes Research Committee Study Section from 2004 to 2010.

Dr Gershon has also been the recipient of numerous awards and commendations. She received the Senn Award of the AAP in 1997, the Saul Krugman Memorial Lecture at New York University in 2000, a Distinguished Women Award from Smith College in 2000, the Scientific Achievement Award from the Varicella-Zoster Research Foundation in 2001, the Distinguished Alumnus Award from the Babies Hospital Alumni Association in 2003, the Distinguished Physician Awards of the Pediatric Infectious Diseases Society in 2008, and the Distinguished Alumnus of Weill Cornell Medical School in 2011. She was recently awarded the 20th Annual Albert B. Sabin Gold Medal from the Albert B. Sabin Vaccine Institute. She has also been recognized as one of the Best Doctors in America and New York for multiple years.

"The Third Herpesvirus Meets the Second Brain"

Anne A. Gershon, MD, Columbia University Medical Center, Department of Pediatrics

Vaccination controls infections caused by varicella-zoster virus (VZV) in the United States [1]. As a result, transmission of this virus has markedly decreased [2], giving rise to the unintended result that young physicians, who have neither experienced the illness nor seen it, may fail to recognize clinical varicella when they encounter it. How did this happen?

In the 1950s, physicians at Children's Hospital in Boston began to attempt to cure leukemia and other cancers in children; at the same time, high doses of steroids were used to treat other diseases, such as rheumatic fever. An unwanted and unanticipated consequence of these therapies was the appearance of severe and fatal varicella, which had previously been considered to be a mild, although highly contagious, infection [3]. Effective antiviral therapy had not been developed. Although passive immunization was becoming available, it did not always succeed in preventing severe chickenpox [4]. Chickenpox was recognized as a highly threatening problem for immunocompromised children, many of whom were iatrogenically immunocompromised; moreover, the incidence of zoster, also caused by VZV, began to increase [5].

Fortunately, at the same time that VZV was becoming seriously problematic, Michiaki Takahashi [6] attenuated wild-type VZV and developed a vaccine against varicella; if this vaccine could be used in immunocompromised children, its introduction would be providential. The "if," however, was a key word; safety was an immediate concern and reasons offered for not vaccinating were abundant. The vaccine became highly controversial [7–9]. Research conducted in Japan showed the vaccine to be safe and effective, although the laboratory methods used to gain these data were somewhat problematic [10]. Nevertheless, in small studies of Japanese families, the vaccine was protective [11–13]; moreover, 7% of children cured of leukemia were dying of varicella in the United States [14]. The time seemed right to do a large study of the efficacy and safety of the varicella vaccine [15]. The argument against testing of the vaccine in the United States centered on VZV latency after primary infection, the dangers of which were unknown, and that accurate methods to measure antibodies to VZV were not readily available, although they were in development. In 1979, the National Institutes of Health/National Institute of Allergy and Infectious Diseases hosted an international workshop to discuss whether varicella vaccine ought to undergo further testing and whether that could and should be done in the United States. The consensus was an emphatic yes. The fluorescent antibody to membrane antigen (FAMA) was introduced, which enabled immunity to be evaluated, and the FAMA test, in turn, enabled testing of the vaccine to begin, first in leukemic children [16] (who were at risk of death if not immunized) and soon afterward in healthy children [17]. The vaccine was found to be both effective and safe, and almost 10 years later, in 1995, the varicella vaccine received US Food and Drug Administration approval for universal use in healthy children. Initially, 1 dose of a live-attenuated varicella vaccine (Oka strain) was approved for all healthy children in the United States [18, 19]. Vaccine uptake was slow at first, but within 10 years it was clear that the incidence of varicella

was declining rapidly. Today, the varicella vaccine is used in many countries around the world; these include, in addition to the United States, Australia, Brazil, Canada, China, Germany, Greece, Italy, Israel, Qatar, South Korea, Spain, Taiwan, and Uruguay.

It is now established that 2 doses of varicella protect 98% of children [20–22]. Immunity has persisted without waning for as long as 14 years after vaccination [1, 23]; moreover, zoster is less common in vaccinated individuals than in those who have experienced the natural infection [24, 25]. The vaccine is also extremely safe in both healthy children and adults, and serious adverse events are rare, occurring mostly in vaccinees who were thought to be normal at the time of their vaccination but were actually suffering from an occult immunodeficiency [5].

The Oka strain of VZV has the ability to establish latency in neurons; it can also reactivate and sometimes cause disease [5]. At first neuronal latency of the vaccine virus was considered to have disadvantages, but with experience, it appears that subclinical reactivations of latent VZV may provide an autologous boost to immunity to VZV and thus help to prevent waning immunity to VZV after natural infection or vaccination. Latent VZV is present within intrinsic neurons of the bowel, which in aggregate constitute the enteric nervous system, known colloquially as the "second brain" [26]. When reactivation in this location goes awry, gastrointestinal (GI) disease, such as ulceration, can occur [27]. Transient reactivation of VZV without symptoms has been reported in one third of astronauts following space flight [28]. It seems possible that mild or asymptomatic reactivation can play a role in stimulation of immunity to the virus, preventing further reactivation, particularly because the gut is the largest lymphoid organ in the body. These recent data support the concepts of VZV reactivation that both Hope-Simpson [29] and Luby [30] proposed almost half a century ago. It stands to reason that VZV reactivation in an organ that is packed with the effectors of adaptive immunity may not be able to cause much in the way of disease but still give rise to an immunological boost before the infection is cleared. We are currently testing the hypothesis that VZV reactivation plays a positive role in the maintenance of long-term immunity to VZV. Such a role would be consistent with the observations that asymptomatic or only mildly symptomatic persons sometimes shed VZV DNA transiently in saliva [28].

In summary, the Oka strain of live-attenuated varicella vaccine has changed the frequency and severity of VZV infections. As usage increases, one would expect control of this viral infection to continue to improve. It is possible that latency and reactivation of VZV play an important role in long-term immunity to the virus after vaccination. Further research is ongoing to explore the potential of this hopeful eventuality along with the more ominous possibility that reactivation of VZV is an occult contributor to a multitude of GI disorders that are now classified as idiopathic.

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2013 Distinguished Physician Award: Mary P. Glodé, MD

Nominated by: James K. Todd, MD

The Distinguished Physician Award of the Pediatric Infectious Diseases Society is awarded to: *"A pediatrician with an extensive and distinguished career marked by significant accomplishments and contributions in pediatric infectious diseases including those as a clinician, educator and/or investigator . . . in keeping with the Society's purpose to enhance the health of infants, children and adolescents by promoting excellence in diagnosis, management and prevention of infectious diseases through clinical care, education, research and advocacy."*

Dr Mary (Mimi) P. Glodé (Figure 2) is one of the two deserving recipients in 2013. She is nationally and internationally recognized by her colleagues and peers for her distinguished career in pediatric infectious diseases marked by many significant accomplishments and contributions, including those as a clinician, educator, investigator, and advocate for children. She is currently Professor and Chief of the Section of Pediatric Infectious Diseases in the Department of Pediatrics at the University of the Colorado School of Medicine and the Children's Hospital Colorado. She has been an active and contributing member of the Pediatric Infectious Diseases Society (PIDS) since 1986.

Figure 2. Distinguished Physician Award recipient Dr Mary P. Glodé.

Dr Glodé had superb undergraduate, medical, pediatric, and infectious diseases training while receiving numerous awards for her scholarship at the University of Nebraska, Washington University School of Medicine, the University of Texas Southwestern Medical School, the National Institutes of Health (NIH), and the Children's Hospital Medical Center and the Beth Israel Hospital in Boston. Her passion for infectious diseases was inspired by early exposure to such influential mentors as Ralph Feigin, George McCracken, and John Robbins, with whom she collaborated on many important scientific publications related to encapsulated bacteria. These studies played a pivotal role in defining the need for post-exposure prophylaxis and development of an effective vaccine for *Haemophilus influenzae* type b (Hib) infection.

In 1974, her resident research project on the relationship between *Escherichia coli* K1 capsular polysaccharide antigen and clinical outcome in neonatal meningitis resulted in the first of her now 94 peer-reviewed publications [1]. While at the NIH, she developed, along with Dr John Robbins, an infant rat model of *E. coli* neonatal meningitis that later proved to be instrumental in her subsequent investigations into disease transmission and the role of both chemoprophylaxis and immunization in preventing Hib disease [2–4]. Since 1978, Dr Glodé has been an incredibly productive clinician, scientist, and educator in the Department of Pediatrics at the University of Colorado School of Medicine and Children's Hospital Colorado. She pursued investigations into the development, testing, and deployment of an effective Hib vaccine that forever changed the

character of inpatient infectious diseases [5]. Dr Glodé also emerged as an internationally recognized expert on Kawasaki disease, and she and her collaborators were among the first to show the beneficial effects of intravenous immunoglobulin [6–8].

Given the importance of her mentors' influence on her career, Dr Glodé has reciprocated with academic leadership and mentoring locally, nationally, and internationally. She was Associate Director of Pediatric Infectious Diseases from 1980 until she became the Chief of the Section of Pediatric Infectious Diseases at the University of Colorado in 2002. She has mentored hundreds of students, residents, and pediatric infectious diseases fellows. As Vice Chairman of the Department of Pediatrics for Education from 1994 until 2009, she has been a leader in pediatric resident education, also serving as the residency program director from 1992 until 2003. She has received the prestigious James Strain Award for outstanding contributions to Pediatrics in 2001 and was elected a Career Teaching Scholar in 2003.

Dr Glodé has served on and/or led numerous committees on education and infectious diseases at the national level for the American Academy of Pediatrics (AAP), PIDS, NIH, US Food and Drug Administration, and the Centers for Disease Control and Prevention (CDC)—serving on the Advisory Committee on Immunization Practices (ACIP) from 1995 to 1999, the Committee on Infectious Disease (Redbook Committee) of the AAP since 2007, and acting as the liaison to the ACIP of the CDC from the Red Book Committee of the AAP since 2010. In this capacity, she has been an effective and outspoken national advocate for the use and safety of vaccines and antibiotics in children.

Dr Glodé is a brilliant and creative clinician and scientist, and she is an enthusiastic and committed advocate for her patients, her trainees, and for the profession of pediatric infectious diseases. Colleagues all over the world have benefited immensely from her scholarship, clinical expertise, and mentorship. Like the mentors that influenced her in those early years, she has helped train and inspire an entire new generation of pediatric infectious disease specialists. As best put by Roberta DeBiasi, MD: "From the first moment I met Dr Glode, I was inspired by her example as not only physician and scholar, but also mentor. Personally, she has been absolutely invaluable to me at all phases of my career by serving as a trusted role model. Her example shows others that it really is possible to excel as a physician, academician, teacher and researcher, be equally devoted to your children and family, and be a genuinely nice human being in the process."

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2013 Distinguished Physician Award: Kenneth McIntosh, MD

Nominated by: Robert N. Husson, MD

Dr Kenneth McIntosh's (Figure 3) career path in medicine began in Boston in 1958 at Harvard Medical School followed by internship and residency in Internal Medicine at the Peter Bent Brigham Hospital. He then made a career-defining choice to go to the National Institutes of Health, where he joined the laboratory of Dr Robert Chanock, the famous pediatrician and virologist. Despite having no prior research experience, Dr McIntosh thrived in this area. His first paper identified several new "infectious bronchitis-like

Figure 3. Distinguished Physician Award recipient Dr Kenneth McIntosh (middle) with Dr Robert N. Husson (left), award nominator, and Dr Janet A. Englund (right), PIDS President.

viruses", now known as coronaviruses. Among the viruses discovered in this study was OC43, one of the most common respiratory coronaviruses of man. He went on to study this virus family extensively, including its epidemiology, antigenic variability, and pathogenic potential.

Dr McIntosh later moved to the Medical Research Council laboratories in England for further training in virology. Soon thereafter, Dr Henry Kemp offered him the position of Chief of Pediatric Infectious Diseases at the University of Colorado and Denver Children's Hospital, despite the fact that Dr McIntosh had no formal training in pediatrics. He spent 10 highly productive years from 1969 to 1979 pursuing his interest in respiratory viruses while acting as both Chief of Infectious Diseases and head of the Diagnostic Virology laboratory. Among his notable accomplishments was the first study linking respiratory infections to asthma exacerbations, demonstrating for the first time the presence of coronaviruses in acute lower respiratory tract infection in infants, and the first description of apnea as a presentation of respiratory syncytial virus (RSV) infection in infants. Dr McIntosh also became very interested in viral diagnostics during this period, and he published many papers on new methods for virus isolation and new techniques to detect viral infection in clinical samples, including the first use of an enzyme-linked immunosorbent assay to diagnose respiratory viral infection in patients.

In 1979, Dr McIntosh was recruited back to Boston where he assumed the positions of Director of the Clinical Virology Laboratory and Clinical Chief of the Division of Infectious Diseases at Boston Children's Hospital. In 1984, he was appointed full Professor of Pediatrics at Harvard Medical School and in 1989 he became Chief of the Division of Infectious Diseases, a position he held until the year 2000. During the first several years at Boston Children's, Dr McIntosh continued his research on the diagnosis, pathogenesis, and treatment of respiratory infections. Among his notable findings during this period were a landmark paper on the epidemiology and pathogenesis of *Chlamydia trachomatis* pneumonia in infants and the first demonstration that distinct subtypes of RSV circulate independently in the population.

Despite his many duties as Division Chief and his successful research program in respiratory viruses, with the advent of the human immunodeficiency virus (HIV) epidemic, Dr McIntosh transitioned his research focus to pediatric HIV and quickly became a leader in this field. He participated in and led several studies as part of the Women and Infants Transmission Study group and the Pediatric AIDS Clinical Trials Group (ACTG), and he served as the Chair of the Executive Committee of the Pediatric ACTG from 1994 to 1996. Dr McIntosh has collaborated with investigators nationally and internationally and his work in this area, represented in nearly 100 publications, has contributed to major advances in the diagnosis, prevention, and treatment pediatric HIV.

In addition to numerous research accomplishments, Dr McIntosh has also made many important teaching and clinical contributions. In recognition of his exceptional teaching skills, he was awarded the Housestaff Teaching Award while at Denver Children's Hospital and the Blackfan Teaching Award at Boston Children's Hospital. Dr McIntosh is known as a consummate clinician and has remained active at Boston Children's even after retirement through participation in weekly clinical conferences in the Division of Infectious Diseases where faculty and trainees continue to benefit from his clinical knowledge and insights.

Dr McIntosh has made enormous contributions for the benefit of children in his research, teaching, and clinical care. He is a pediatrician extraordinaire and a highly deserving recipient of the Pediatric Infectious Disease Society's Distinguished Physician Award.

2013 Young Investigator Award: Saad B. Omer, MB, BS, PhD, MPH

Nominated by: Walter A. Orenstein, MD

Dr Saad Omer (Figure 4) is a young investigator with a record of major accomplishments in pediatric infectious disease research. He has worked on studies in Guatemala, Ethiopia, India, Pakistan, Uganda, Bangladesh, South Africa, and the United States. Dr Omer's research portfolio includes clinical trials to estimate efficacy and/or immunogenicity of influenza, polio, measles, and pneumococcal vaccines; studies on the impact of spatial clustering of vaccine refusers [1]; and clinical trials conducted in Ethiopia, India, and Uganda to evaluate drug regimens to reduce mother-to-child transmission of human immunodeficiency virus in Africa [2–4]. His work has informed and has been cited by many national and international guidelines, as well.

Dr Omer has more than 97 publications in peer-reviewed journals. His research has been published in high-impact scientific journals including the New England Journal of Medicine, the Journal of the American Medical Association, the Lancet, Pediatrics, American Journal of Public Health, and American Journal of Epidemiology. He was awarded the Maurice Hilleman Award in Vaccinology by the National Foundation for Infectious Diseases for his work on the impact of maternal influenza immunization on respiratory illness in infants younger than 6 months. He was also awarded the Program Committee Choice award by the Infectious Diseases Society of America.

Dr Omer has made significant contributions to the scientific literature. Dr Omer has conducted several studies to evaluate the roles of schools, parents, healthcare providers, and state-level legislation in relation to immunization coverage and disease incidence [5–7]. His studies have been critical in reinforcing school immunization laws in the United States and have been cited and quoted by multiple national organizations in their position statements. He was also an investigator on a randomized-controlled trial of maternal influenza immunization conducted in Bangladesh, which was the first randomized-controlled efficacy trial of maternal influenza immunization with infant laboratory-confirmed clinical outcomes; he and his colleagues found that influenza vaccine given to pregnant women has 63% efficacy in protecting their infants against laboratory-confirmed influenza [8], and this effect was not confounded by breastfeeding [9]. Dr Omer also was the principal investigator (PI) of a retrospective cohort study that reported, for the first time, a substantial protective effect of influenza vaccination in pregnancy on prematurity and small-for-gestational age births [10]. He was also the PI of the first study in the United States to demonstrate the protective effect of 2009 H1N1 influenza vaccine on preterm birth and birth weight in the United States [11]. Dr Omer and his colleagues' work on maternal immunization has influenced national and international policy and practice regarding both seasonal and pandemic influenza.

In summary, Dr Omer has made many contributions to pediatric infectious disease research in a short period of time. He is an active member of the Pediatric Infectious Diseases Society and is likely to continue to contribute to pediatric infectious diseases research and policy. He is well deserving of receipt of this award.

Figure 4. Young Investigator Award recipient Dr Saad Omer (middle) with Dr Janet A. Englund (left), PIDS President, and Dr Mark Steinhoff (right).

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2013–2015 PIDS Fellowship Award Supported by Novartis Vaccines and Diagnostics, Inc. David A. Rosen, MD, PhD, Washington University School of Medicine, St. Louis, Missouri

Title: *The Role of Cyclic Diguanylate Monophosphate Signaling in Klebsiella pneumoniae Pathogenesis*

Mentor: David A. Hunstad, MD (Figure 5)

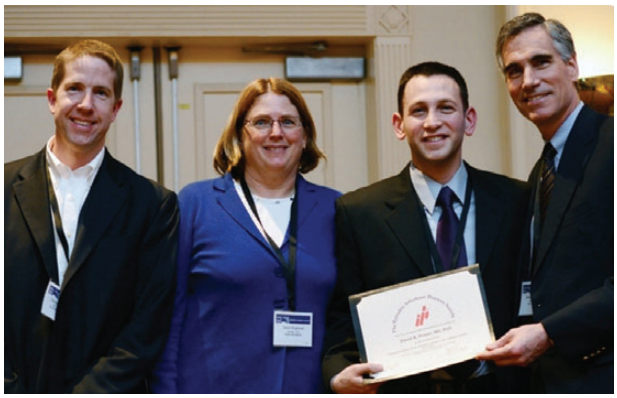

Figure 5. PIDS Fellowship Award Supported by Novartis Vaccines and Diagnostics, Inc recipient Dr David A. Rosen (second from right) with (from left to right): Dr David Hunstad, mentor, Dr Janet A. Englund, PIDS President, and Dr Joseph St Geme III, Chair of the PIDS–St Jude Fellowship Award Committee.

2013–2015 PIDS Fellowship Awards Supported by Medimmune, Inc.
Alison C. Tribble, MD, The Children's Hospital of Philadelphia, Philadelphia, Pennsylvania

Title: *Epidemic Pertussis in Children: Defining the Changing Epidemiology, Risk Factors, and Disparities in Care*

Mentors: Susan Coffin, MD (Figure 6) and Kristen Feemster, MD, MPH

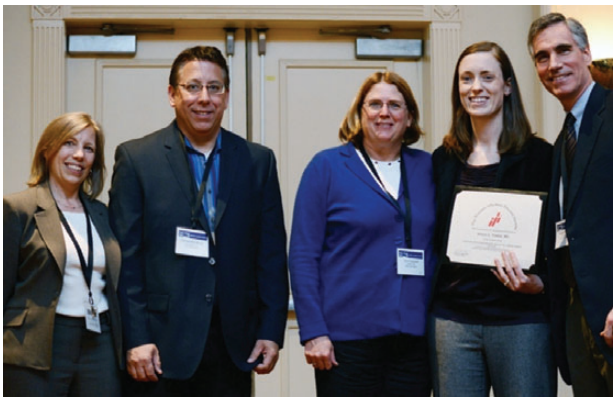

Figure 6. PIDS Fellowship Awards Supported by Medimmune, Inc recipient Dr Alison C. Tribble (second from right) with (from left to right): Dr Susan Coffin, mentor, Dr Christopher Rizzo, Medimmune, Inc representative, Dr Janet A. Englund, PIDS President, and Dr Joseph St Geme III, Chair of the PIDS–St Jude Fellowship Award Committee.

2013–2016 PIDS–St Jude Fellowship Program in Basic Research
Elisa Margolis, MD, PhD, Seattle Children's Hospital, Seattle, Washington

Title: *Dynamics of Bacterial Populations in Vaginal Microflora*

Mentors: Danielle Zerr, MD, MPH and David Fredricks, MD (Figure 7)

Figure 7. PIDS–St Jude Fellowship Award recipient Dr Elisa Margolis (left) with Dr David Fredricks (right), mentor.