Immunizations Save Lives!

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The terrific collection of reviews devoted to immunization topics in this issue of Pediatric Annals was edited by Dr. Leonard R. Krilov of SUNY-Stony Brook and Winthrop University Hospital in New York. Updates on adolescent immunization, vaccine-preventable diseases, pediatric travel vaccines, and vaccine hesitancy (currently a high-interest topic) are included and are all particularly informative.

It is difficult to understand why many Americans are so science-skeptical about issues such as evolution, climate change, and the importance of modern immunizations. The latter issue bedevils us who are devoted to the care of children, especially with the recent outbreaks of measles (a disease once conquered in the US by vaccination). This has occurred primarily among deliberately unvaccinated children usually because of “religious exemptions” or loosely defined “philosophical exemptions.” About 650 measles cases were documented in the US in 2014, and more than 154 cases (including 15 in Illinois where I reside) so far in 2015. A large proportion of these measles cases have been in children from upper middle-class, educated families who have actively chosen not to vaccinate. Today, the vaccination rates in Tanzania are higher than those in the United States. As columnist Michael Gerson wrote recently from Tanzania, “Women walk and bicycle for miles to have their children vaccinated (in Tanzania), while some American suburbanites engage in vaccine denialism.”

Recently an 18-month-old unimmunized boy died in Berlin, Germany. In a brilliant op-ed piece in The New York Times related to religious exemptions, Paul Offit, Chief of Infectious Diseases at the Children’s Hospital of Philadelphia, asked “What Would Jesus Do About Measles?” Offit recounts the 1991 Philadelphia measles epidemic during which there were more than 1,400 cases and nine children who died of measles between October 1990 and June 1991. The index patient was a teenager who had returned from a trip to Spain and then attended a concert at a Philadelphia entertainment arena despite a blotchy rash. Within a few months, there were 258 measles cases and one child had died. That was just the beginning. The epidemic centered on two local fundamentalist churches where children had not been vaccinated. When they became ill, their parents refused life-saving medical care, preferring prayer. For perhaps the only time in US history, public health officials obtained a court order to vaccinate children against parental will. At the end of the epidemic, 6 of the 9 dead children and 486 of 1,424 measles cases belonged to 1 of the 2 churches.

Offit writes that in the time of Jesus, infanticide and child abandonment were common in the Roman Empire, and that Jesus spoke up for children. He quotes Jesus in Matthew 25:40: “Verily, I say unto you, Inasmuch as ye have done it unto one of the least of my brethren ye have done it to me.” He points out that the first Christian emperor of Rome, Constantine, passed child protection laws, that Christian monasteries were prototypes for hospitals, and that Christian missionaries promoted and provided medical care throughout the world in Jesus’ name.

Today, there are about 30,000 US children who are unvaccinated for religious reasons.
should be eliminated, and even though the political forces now prevalent make this unlikely in the near future, several states are now considering this. We all recognize that these deliberately unvaccinated children can expose the immunocompromised and infants too young to be vaccinated to infectious diseases and that such exposure could occur in our waiting rooms and other facilities.

In another brilliant op-ed piece in *The New York Times*, Saad Omer, Associate Professor of Global Health, Epidemiology, and Pediatrics at Emory, proposes using administrative rules and procedures to push parents to immunize their children. In the 48 states (all except Mississippi and West Virginia) that allow religious exemptions to vaccination, and the 19 states that allow philosophical exemptions, Omer points out that the process for these nonmedical exemptions could be made more difficult. It has been shown that the states with easy procedures for obtaining exemptions also have higher rates of nonmedical exemptions and higher rates of vaccine-preventable diseases. Strategies could include requiring a parental letter to explain the reason for seeking an exemption, requiring the letter to be notarized, requiring parents to sign a form and/or to participate in mandatory counseling in person to discuss risks of nonvaccination, requiring an exemption form to be requested in person rather than downloaded, requiring parents to agree to keep their unvaccinated children out of school during outbreaks, and requiring that exemptions be renewed annually. Finally, taxing parents who seek a nonmedical exemption to help cover the public health costs of controlling outbreaks like the current measles one might be reasonable. Food for thought.

**THIS MONTH’S STAMPS**

Four stamps honoring five pioneers in the history of vaccinology have been chosen for this issue devoted to immunizations. The 25¢ stamp from the South African bandustan Transkei in 1991 shows the German Emil von Behring (1854-1917) and the Japanese Shibasaburo Kitasato (1853-1931).

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The 50¢ Transkei stamp shows Dr. Jonas Salk (1914-1995), who developed the inactivated polio vaccine in 1954, which in 1955 was proved 80% to 90% effective in a very large clinical trial, preventing this prevalent and serious infection. The peak of polio in the US was in 1952, with 60,000 cases—3,000 fatalities and 21,000 cases of paralysis. Salk, the son of Jewish immigrants and who grew up in New York City, appeared on the cover of *Time* magazine in March 1954 and became a top celebrity. Widespread implementation of Salk’s vaccine almost completely eliminated polio from the US and many other countries. In 1960, he founded the Salk Institute for Biologic Studies. Interestingly, his second wife was Françiose Gilot, Picasso’s former mistress.

The 1994 Brazilian stamp shows Albert Sabin (1906-1993), who was born in Russia and immigrated to the US with his family at age 16 years. He received his medical degree from New York University, and began a research career in virology in London, then at the Rockefeller Institute in New York City, and moved to Cincinnati Children’s Hospital in 1939. He showed that poliovirus replicated in the intestine, and he then developed the attenuated oral polio vaccine. After trials in tens of millions of individuals in Russia, Mexico, and other countries, the vaccine was licensed in the US in 1961, and it replaced the Salk vaccine for several decades. More recently, primarily because of rare cases of paralytic polio after vaccination of immunodeficient children (about 1 in 1 million doses or less frequent), inactivated polio vaccine is now used routinely.

**REFERENCES**