Eradicating polio - Building the boat while sailing

J. John
Christian Medical College, Vellore, India

In 2012 we are at a peculiar juncture of polio eradication. There are sufficient reasons for optimism, but there are also many unknowns ahead. Wild poliovirus (WPV) type 2 was eradicated in 1999, providing proof of principle that WPV 1 and 3 can also be eradicated. Only in parts of 3 countries, Nigeria, Pakistan and Afghanistan, WPV 1 and 3 transmissions have not yet been interrupted.

The exclusive use of trivalent OPV (tOPV) had some justifications but also major problems not exactly unpredicted. OPV has wide geographic variations of efficacy and inherent genotypic/phenotypic tendency to de-attenuate. Where WPV 1 and 3 transmissions were intense in infancy, the efficacy of types 1 and 3 in tOPV was particularly low. Since 2005 monovalent OPVs (mOPV-1 and 3) with superior efficacy are in use, overcoming the inhibitory effect of type 2 vaccine virus. In 2009, a bivalent OPV (bOPV) containing type 1 and 3 was tested and found non-inferior to mOPVs. Since then bOPV is widely used. Many doubt if WPV 1 or 3 could have been eradicated with tOPV.

For 12 years type 2 vaccine virus was fed to children although WPV 2 was eradicated. Since vaccine viruses cause polio as an adverse reaction (vaccine-associated paralytic polio, VAPP), an ethical dilemma emerged: type 2 VAPP while there is no type 2 WPV polio. Moreover, de-attenuated vaccine viruses with genotypic and phenotypic properties of neuro-virulence and easy transmissibility – called “vaccine-derived polioviruses” (VDPVs) have emerged in many locations where OPV is being used. Post-WPV eradication OPV must be discontinued to stop VAPP, but then silent transmissions of VDPVs will flare up, capturing the niche left by WPVs. True polio eradication must be defined as zero infection worldwide with wild and vaccine viruses.

The availability of bOPV presents the opportunity to use it instead of tOPV – thus avoiding seeding of vaccine type 2 virus any more in the community. However, VDPV-2 circulation must be anticipated; to preempt and intercept it immunity umbrella with inactivated poliovaccine (IPV) must be established before replacing tOPV with bOPV. Once that tactic is found successful, the world will be ready to stop all OPV after global eradication (and certification) of WPV 1 and 3.

Vaccination programs in Southeast Asia

U. Thisyakorn
Chulalongkorn University, Bangkok, Thailand

Southeast Asia is one of the most densely populated areas around the world and suffers from large disease burdens of common pediatric infectious diseases including diarrhea and pneumonia. The national vaccination programs and vaccine uptake of conventional vaccines in this area showed that children in most countries were well protected from conventional vaccine-preventable diseases. Differences in vaccine antigens that were used and variations in time schedules for certain vaccines existed. Protection against newly developed vaccines such as rotavirus, pneumococcus and human papillomavirus infections were obviously inadequate in most of the countries in this area. Children in Southeast Asia are still suffering from certain vaccine-preventable diseases. Promoting coverage of newly developed vaccines will benefit a great number of children in this area. Strengthening of vaccination for special groups such as adults, health care workers, immunocompromised hosts, pregnant women and travelers is urgently needed.

Vaccines are unquestionably one of the most cost-effective public health measures available, yet they are undervalued and under-utilised throughout the world. It is important for international agencies, governments, and health policy makers to keep this preventive measure in the spotlight. Ultimately, it is the global society and future generations that benefit when all countries make the effort to protect their population from vaccine-preventable diseases.

http://dx.doi.org/10.1016/j.ijid.2012.05.140

Facing anti-vaccine movements: Myths and facts about adverse events

K. Powell
Children’s Hospital Medical Center of Akron Department of Pediatrics, Akron, OH, USA

Anti-vaccine movements are motivated variously by political, cultural, and/or personal factors. Three tactics used by anti-vaccine activists are 1) creating doubt about vaccine safety, 2) insistence on the individual’s right to decide about vaccination, and 3) requiring that research be done to address the activists’ concerns. Examples of anti-vaccine activities illustrate these points.

A paper by Wakefield, published in the UK in 1998 and subsequently retracted, claimed that autism was caused by the MMR
vaccine. Information in this paper was used by anti-vaccine activists to argue against the use of MMR and led to decreased coverage and resultant measles outbreaks.

A policy change in 1999 recommended by the American Academy of Pediatrics and the US Centers for Disease Control to remove thimerosal from vaccines fueled the rumor that thimerosal caused autism. This rumor resulted in thousands of claims of vaccine injury and a decrease in the rate of neonatal hepatitis B immunization.

In 2003 religious and political leaders in Nigeria encouraged boycotts of oral polio vaccine, claiming that it was contaminated with HIV and could cause sterilization in vaccinees. This politically motivated assertion resulted in a polio outbreak in Nigeria and subsequent polio outbreaks in 15 other countries.

A 1994 report on a birth control vaccine using tetanus toxoid as a carrier sparked a rumor that tetanus toxoid could cause sterility. This misinformation, spread by Catholic organizations through 60 countries in South and Central America, resulted in a 45% drop in vaccination coverage.

The intuitive approach to combating vaccine myths is to provide factual information to refute the myth. The method by which the factual information is presented is important. Research on memory performance demonstrated that repetition of a myth in order to refute it frequently led to the false information being remembered as true.

To effectively face anti-vaccine movements the full range of political, cultural, and psychological factors affecting individual decision making must be considered and used in building public trust. In view of the way human memory works, presentation and repetition of facts should replace reiteration of the false myths.

http://dx.doi.org/10.1016/j.ijid.2012.05.141
Type: Invited Presentation

Final Abstract Number: 34.001
Session: Infectious Issues in Transplantation
Date: Saturday, June 16, 2012
Time: 10:15-12:15
Room: Lotus 5-7

The pre-transplant evaluation
N. Smitasin
Vejthani Hospital, Bangkok, Thailand

The science of transplantation has advanced tremendously since the discovery of immunosuppressive agents. With the potent immunosuppressive agents but less adverse effects, patient can live longer and has better quality of life. In order to achieve this goal, pre-transplant evaluation is crucial in decreasing and eliminating infectious complications after immunosuppression.

The objectives of pre-transplant evaluation are to identify and treat active infection, define the risk of infection and implement the strategies to prevent infection post-transplant period.

Detail history taking is the key to successfully managing and preventing infectious complication pre- and post-transplantation. Serological and immunological tests for infections, such as herpes virus, syphilis, HIV and Mycobacterium tuberculosis, identify patients with latent infections which lead to pre-transplant vaccination, treatment and appropriate post-transplant antimicrobial prophylaxis. Patient with active infection should be treated in timely fashion prior to intense immunosuppression to avoid exacerbation of the disease. History of travel, occupation and daily activity suggests specific tests of infections in each geographical area. Life-style modification is recommended in order to decrease exposure to infection pre- and post-transplantation.

http://dx.doi.org/10.1016/j.ijid.2012.05.142
Type: Invited Presentation

Final Abstract Number: 34.002
Session: Infectious Issues in Transplantation
Date: Saturday, June 16, 2012
Time: 10:15-12:15
Room: Lotus 5-7

Donor derived infections
G. Reid
University of Illinois, Chicago, IL, USA

Infections are a significant complication of solid organ transplantations (SOT). Although many of these infections are due to surgical complications and pre- and posttransplant exposure of immunocompromised individuals to pathogens in the hospital and in their daily activities at home, another potential source of infection in these individuals derives from their donors. Usually cadaveric donors are not known and family members giving consent may not know all of their history. In such cases the life saving organs can potentially pose a threat to the lives of the recipients they were meant to save.

Several methods can decrease risk of this occurring: screening of donor medical, social, and travel history, and screening of donor blood for not only common infectious contraindications, such as HIV and viral hepatitis, but also infections endemic to other countries in South and Central America, resulted in a 45% drop in vaccination coverage.

The intuitive approach to combating vaccine myths is to provide factual information to refute the myth. The method by which the factual information is presented is important. Research on memory performance demonstrated that repetition of a myth in order to refute it frequently led to the false information being remembered as true.

To effectively face anti-vaccine movements the full range of political, cultural, and psychological factors affecting individual decision making must be considered and used in building public trust. In view of the way human memory works, presentation and repetition of facts should replace reiteration of the false myths.

http://dx.doi.org/10.1016/j.ijid.2012.05.141
Type: Invited Presentation

Final Abstract Number: 34.003
Session: Infectious Issues in Transplantation
Date: Saturday, June 16, 2012
Time: 10:15-12:15
Room: Lotus 5-7

State of the art: Transplantation in HIV infected individuals
M. Brito
University of Illinois at Chicago, Chicago, IL, USA

The introduction of Highly Active Antiretroviral Therapy in the mid-1990’s has had a significant impact in the morbidity and mortality of patients infected with the Human Immunodeficiency Virus (HIV). Diseases previously deemed untreatable in this patient population are now the focus of intense research. Cirrhosis and decompensated liver disease, secondary to a more rapid progression of Hepatitis C virus infection, and end-stage renal disease, cause significant morbidity in otherwise healthy and virologically