Vaccines: The Week in Review
6 December 2010
Center for Vaccine Ethics & Policy
http://centerforvaccineethicsandpolicy.wordpress.com/
A program of
- Center for Bioethics, University of Pennsylvania
http://www.bioethics.upenn.edu/
- The Wistar Institute Vaccine Center
http://www.wistar.org/vaccinecenter/default.html
- Children's Hospital of Philadelphia, Vaccine Education Center
http://www.chop.edu/consumer/jsp/microsite/microsite.jsp

This weekly summary targets news and events in the global vaccines field gathered from key governmental, NGO and company announcements, key journals and events. This summary provides support for ongoing initiatives of the Center for Vaccine Ethics & Policy, and is not intended to be exhaustive in its coverage.

Vaccines: The Week in Review is now also posted in a blog format at http://centerforvaccineethicsandpolicy.wordpress.com/. Each item is treated as an individual post on the blog, allowing for more effective retrospective searching. Given email system conventions and formats, you may find this alternative more effective. This blog also allows for RSS feeds, etc.

Comments and suggestions should be directed to
David R. Curry, MS
Editor and
Executive Director
Center for Vaccine Ethics & Policy
david.r.curry@centerforvaccineethicsandpolicy.org

The November issue of GIN was released with the lead story: NEW CONJUGATE VACCINE TO PROTECT AGAINST MENINGITIS A TO BE LAUNCHED
[30/11/2010 from Maya van den Ent (UNICEF) & Carol Tevi Benissan (WHO)]
[Initial paragraphs]

A new conjugate vaccine, to protect against meningococcal group A disease, was successfully used during pilot vaccination campaigns in Burkina Faso, Mali and Niger in September 2010. The campaigns vaccinated over 1 million people aged 1 – 29 years. Group A meningococcus is the main cause of meningitis epidemics and accounts for an estimated 80-85% of all cases in the 25 countries of the African meningitis belt. The new vaccine is expected to provide protection for at least 10 years, as compared to the polysaccharide vaccines currently in use, that protects for only three years.

Burkina Faso will conduct a nationwide campaign with the new vaccine targeting over 12 million people from 6 December 2010. Mali and Niger will roll out the vaccination in December and continue into 2011. The vaccine, called MenAfriVac and manufactured by the Serum Institute of India Ltd, is available at less than US$ 0.50 per dose. Its development in less than a decade has been possible through a unique public-private partnership. The Meningitis Vaccine Project, which has coordinated development, is a collaboration between WHO and PATH, made possible through a grant from the Bill & Melinda Gates Foundation. The introduction in Burkina Faso, Mali and Niger is being funded by the governments of the introducing countries, the GAVI Alliance and other

partners. UNICEF and WHO are playing a vital role in supporting countries to prepare for the mass campaigns. However, an additional US$ 475 million must be mobilized in order for the vaccine to be introduced in the remaining 22 countries of the meningitis belt. http://www.who.int/entity/immunization/GIN_November_2010.pdf

The World Health Organization, UNICEF, the National Institute of Allergy and Infectious Diseases (NIAID) and the Bill & Melinda Gates Foundation announced a collaboration "to increase coordination across the international vaccine community and create a Global Vaccine Action Plan." The plan "will build on the successes of current work to achieve key milestones in the discovery, development and delivery of lifesaving vaccines to the most vulnerable populations in the poorest countries over the next decade." The organizations said the collaboration follows the January 2010 call by Bill and Melinda Gates for the next ten years to be the Decade of Vaccines. The Global Vaccine Action Plan "will enable greater coordination across all stakeholder groups – national governments, multilateral organizations, civil society, the private sector and philanthropic organizations -- and will identify critical policy, resource, and other gaps that must be addressed to realize the life-saving potential of vaccines."

The announced described the structure of the Decade of Vaccines Collaboration as including a Leadership Council to provide oversight for the planning effort, a Steering Committee that holds the primary responsibility for developing the action plan, an International Advisory Committee to assist the Leadership Council in evaluating the action plan, and a Secretariat for administrative support. Prof. Pedro Alonso, Director for the Institute for Global Health of Barcelona and Dr. Christopher Elias, President and CEO of PATH, have been appointed co-chairs of the Steering Committee and the Secretariat. The Leadership Council is comprised of:

- Dr. Margaret Chan, Director General of WHO;
- Dr. Anthony S. Fauci, Director of NIAID, part of the National Institutes of Health;
- Mr. Anthony Lake, Executive Director for UNICEF;
- Ms. Joy Phumaphi, Chair of the International Advisory Committee and Executive Secretary, African Leaders Malaria Alliance
- Dr. Tachi Yamada, President of Global Health at the Bill & Melinda Gates Foundation;

The Steering Committee includes globally recognized experts in vaccine delivery, advocacy, research and development, and access:

- Dr. Nicole Bates, Senior Program Officer, Global Health Policy and Advocacy, Bill & Melinda Gates Foundation
- Dr. Seth Berkley, President & CEO, International AIDS Vaccine Initiative (IAVI)
- Dr. Zulfiqar Bhutta, Founding Chair, Division of Women and Child Health, Aga Khan University
- Dr. Lola Dare, CEO, Center for Health Sciences Training, Research and Development International
- Ms. Helen Evans, Acting CEO, GAVI Alliance
- Dr. Lee Hall, Chief, Parasitology and International Programs Branch, Division of Microbiology and Infectious Diseases, NIAID
- Dr. T. Jacob John, Professor and Head, Departments of Clinical Microbiology and Virology, Christian Medical College, Vellore, India (Retired)

- Dr. Orin Levine, Executive Director, International Vaccine Access Center (IVAC)
- Dr. Jean-Marie Okwo-Bele, Director, WHO Department of Immunization, Vaccines and Biologicals
- Dr. Ciro de Quadros, Executive Vice President, Sabin Vaccine Institute
- Dr. David Salisbury, Director of Immunization, UK Department of Health
- Dr. Anne Schuchat, Director, National Center for Immunization and Respiratory Diseases, CDC
- Dr. Peter A. Singer, Director, McLaughlin-Rotman Centre for Global Health, University of Toronto
- Dr. Lucky Slamet, Deputy for Therapeutic Products, Narcotic, Psychotropic and Addictive Substance Control, National Agency of Drug and Food Control, Indonesia
- Dr. Gina Tambini, Area Manager, Family and Community Health, PAHO
- Dr. Jos Vandelaer, Chief, Immunization, Programme Division, UNICEF
- Ms. Sandy Wrobel, CEO and Managing Director, Applied Strategies

The Decade of Vaccines Collaboration said it expects to complete its work by mid-2012. At that time, "all vaccine stakeholder groups will be responsible for implementing the action plan."
http://www.gatesfoundation.org/press-releases/Pages/decade-of-vaccines-collaboration.aspx

The GAVI Alliance Board, meeting in Kigali, Rwanda, approved a five-year business plan from 2011-2015 "setting ambitious but achievable targets expected to cost US$6.8 billion" and unanimously elected Former Norwegian Minister of Health and current member of parliament Dagfinn Høybråten as its new Chair. GAVI said that representatives from Norway and Sweden announced new commitments to GAVI totalling US$55 million, the United Kingdom offered to co-host the pledging conference in London next June, and France and the Bill & Melinda Gates Foundation "offered to work with the UK to mobilise support for the conference." Concluding her last GAVI board meeting as Chair, Mary Robinson said, "GAVI offers donors an unbeatable deal in terms of value for money and an opportunity to invest in saving the lives of millions of children – children who will grow up free of disease, attend school and become healthy productive adults." Mr Høybråten, who is also leader of Norway's Christian Democratic Party, has been a member of the GAVI Board since 2006.
http://www.gavialliance.org/media_centre/press_releases/gavi_board_kigali.php
http://www.gavialliance.org/media_centre/press_releases/board_chair.php

WHO Director-General Dr. Margaret Chan released a statement on 30 November 2010 on "Human rights – a central concern for the global HIV response." An excerpt is presented below:
"…HIV-related stigma and discrimination continue to undermine HIV responses. The fear of being shunned by their families and friends, marginalized in their communities or denied employment and other services is often the reason why people do not present for HIV testing or attend HIV services. All too often it is the negative attitudes and behaviours of health workers that make health services inaccessible and unacceptable to

those people at greatest risk of HIV infection and in greatest need of prevention, treatment and care services. People living with HIV, drug users, sex workers and men who have sex with men should be able to attend health services where they feel safe and are ensured the best possible and non-judgmental care.

The failure to promote and protect human rights increases vulnerability and can drive HIV epidemics. In sub-Saharan Africa, women and girls are particularly vulnerable to HIV; 80% of all women living with HIV are in this region. In Eastern Europe, over 50% of HIV cases are among people who inject drugs. In France, Netherlands and Spain, between 1/3 and 3/4 of new HIV infections are concentrated among migrants.

On the eve of a new decade, we need to address laws, policies, and regulations that increase HIV vulnerability and risk, impede access to health services or infringe on human rights, particularly for vulnerable and most-at-risk populations. In nearly 80 countries, same-sex sexual relations are criminalized, with 6 countries applying the death penalty. In over 50 countries and territories, there are restrictions on travel and residence for people living with HIV. In many countries drug users are sent to prison or compulsory rehabilitation programmes rather than being provided with effective treatment. The health sector has a critical role to play in promoting public health approaches and arguments when laws are made and strategies developed by other sectors.

Today, I call on all sectors to protect human rights, including the right to health, and to combat discrimination. Working with people living with HIV is critical for an effective HIV response and Member States need to be mindful of the commitments made in the 2006 Political Declaration on HIV/AIDS to promote better legal and social environments for people to access HIV testing, prevention and treatment.

WHO is firmly committed to the goal of achieving universal access to key HIV services. However, this will not be possible unless we make sure that the human rights of everyone, everywhere, are protected and promoted."
http://www.who.int/mediacentre/news/statements/2010/AIDS_Day_20101130/en/index.html

Statement from the U.S. National Institutes of Health on Worlds AIDS Day 2010 Excerpt:

"…We have come a long way in the fight against HIV/AIDS, but we still have much to do, especially in our efforts to cure existing infections and prevent new ones," said National Institute of Allergy and Infectious Diseases (NIAID) Director Anthony S. Fauci, M.D.

"Although progress has been made in reducing the number of new HIV infections globally, the onslaught of new infections is still unacceptably high — 2.6 million in 2009 alone," Dr. Fauci added. "Unless we stem this tide of new infections, and hopefully cure a substantial proportion of those already infected, it will be nearly impossible to control or end the HIV/AIDS pandemic."

During the past year, NIH-supported researchers reported a number of important advances related to HIV prevention strategies — advances that build on the foundation of knowledge generated in part by NIH's investment in HIV/AIDS research. These strategies include vaccines, topical gels (microbicides) with anti-HIV activity, pre-

exposure prophylaxis with antiretroviral drugs, and behavioral and social science interventions.

An effective vaccine is a critical goal in HIV prevention. A large study conducted in Thailand provided the first signs that a vaccine actually could prevent HIV infection, albeit in a relatively small percentage of those vaccinated. Those findings were by no means the final answer, and more research is now underway to understand how this vaccine regimen works and how its efficacy might be increased. In another major step toward development of an effective vaccine, NIH-sponsored researchers discovered several potent human antibodies that can stop most known HIV strains from infecting human cells in the laboratory. These antibodies could be used to design HIV vaccines, or could be further developed to treat HIV infection. The novel techniques used in this research may accelerate HIV vaccine research as well as the development of vaccines for other infectious diseases.

Another significant milestone for HIV prevention came in July 2010, when the Centre for the AIDS Programme of Research in South Africa (CAPRISA) reported that a vaginal gel containing the antiretroviral drug tenofovir reduced the risk of male-to-female sexual transmission of HIV by approximately 40 percent. NIH funding provided the training and research infrastructure for this study.

Pre-exposure prophylaxis or PreP involves giving uninfected people antiretroviral drugs as a possible means of preventing HIV infection. Just last week, the published results of the NIH-sponsored iPrEx study indicated that a daily dose of an oral antiretroviral drug cut the risk of HIV infection by more than 40 percent among men who have sex with men (http://www.niaid.nih.gov/news/newsreleases/2010/Pages/iPrEx.aspx). The study found even higher rates of effectiveness, up to 73 percent, among those participants who adhered most closely to the PrEP regimen. Ongoing research will determine whether PrEP can work in other at-risk populations, including women and heterosexual men…"

http://www.nih.gov/news/health/nov2010/od-30.htm

PhRMA released a new report – Biopharmaceutical Researchers Testing 100 Medicines and Vaccines for HIV Infection and Related Conditions. The overview notes that:

"…treatment alone is not enough to combat HIV/AIDS. For every two patients who begin receiving HIV treatment, five people become infected. A preventative vaccine is crucial to the fight against AIDS. "A safe and effective HIV vaccine is critical to the control of HIV globally," says Dr. Anthony Fauci, Director of the National Institute of Allergy and Infectious Diseases (NIAID). According to the International AIDS Vaccine Initiative (IAVI), without a significant improvement in prevention efforts, including an HIV vaccine, infections could double from about 5 million a year in 2005 to 10 million a year by 2030. IAVI estimates that the potential positive impact of AIDS vaccines would be enormous, especially in the developing world.

Conservatively, a vaccine that is 50 percent effective and given to only 30 percent of the population could reduce new HIV infections by 34 percent over 15 years, according to IAVI. Currently, 33 vaccines are in development. In addition to the vaccines, there are 56 antivirals, two cancer treatments, four immunomodulators, three gene therapies,

and two other medicines now in human clinical trials or before the Food and Drug Administration awaiting approval.
http://www.phrma.org/sites/phrma.org/files/AIDS_2010_0.pdf

The Weekly Epidemiological Record (WER) for 3 December 2010, vol. 85, 49 (pp 489–496) includes: Outbreak news – Cholera, Haiti – update; Monitoring progress towards measles elimination; Monthly report on dracunculiasis cases, January–September 2010.
http://www.who.int/entity/wer/2010/wer8549/en/index.html

The MMWR for December 3, 2010 / Vol. 59 / No. 47 includes:
- Seasonal Influenza and 2009 H1N1 Influenza Vaccination Coverage Among Pregnant Women --- 10 States, 2009--10 Influenza Season
- Vital Signs: HIV Testing and Diagnosis Among Adults --- United States, 2001--2009
- Announcement: National Influenza Vaccination Week --- December 5--11, 2010
http://www.cdc.gov/mmwr/PDF/wk/mm5947.pdf

Journal Watch

[Editor's Note]
Vaccines: The Week in Review continues its weekly scanning of key journals to identify and cite articles, commentary and editorials, books reviews and other content supporting our focus on vaccine ethics and policy. ***Journal Watch*** **is not intended to be exhaustive, but indicative of themes and issues the Center is actively tracking.** We selectively provide full text of some editorial and comment articles that are specifically relevant to our work. Successful access to some of the links provided may require subscription or other access arrangement unique to the publisher. Our initial scan list includes the journals below. If you would like to suggest other titles, please write to David Curry at david.r.curry@centerforvaccineethicsandpolicy.org

Clinical Infectious Diseases
15 December 2010 Volume 51, Number 12
http://www.journals.uchicago.edu/toc/cid/current
[Reviewed earlier]

Emerging Infectious Diseases
Volume 16, Number 12–December 2010
http://www.cdc.gov/ncidod/EID/index.htm
[No relevant content]

Human Vaccines
Volume 6, Issue 12 December 2010
http://www.landesbioscience.com/journals/vaccines/toc/volume/6/issue/11/

Meeting Reports

A key for successful development of flu vaccines: Public-private collaboration - the Barcelona vaccine forum, Phacilitate, the Fira Palace Barcelona Spain, 21-23 June, 2010, the meeting report

Cristina Niculescu and Jean-Marc Balloul

Abstract

At the Barcelona Vaccine Forum, Phacilitate 2010 numerous plenary sessions, round table discussions, and workshops were dedicated to discussions surrounding one major topic, i.e. ensuring flu vaccine availability in a pandemic situation. High level speakers and participants coming from different horizons (WHO, US-FDA, EU-EMA, vaccine industry, etc) shared their experience encountered during the influenza pandemic from 2009, the strategies and actions undertook for accelerating pandemic flu vaccines development and approval, the cooperation and coordination activities deployed to overcome the shortage for such vaccine, encountered especially in developing countries. During other sessions, the speakers highlighted the role of innovative partnering, business models or funding opportunities in enabling vaccine market development on a global scale. Finally, novel approaches and technologies for vaccines production that respond better to the growing worldwide demand for influenza vaccine and the achievements with the development of an "universal" vaccine that could guard against all seasonal and pandemic influenza strains were presented during the Barcelona Forum.

Reviews

Could the United States experience rubella outbreaks as a result of vaccine refusal and disease importation?

Brynn E. Berger and Saad B. Omer

Prenatal rubella infection early in gestation is likely to damage the fetus, leading to miscarriage, stillbirth, neonatal death, or congenital rubella syndrome (CRS). CRS is a devastating syndrome that encompasses a wide variety of disorders, including (but certainly not limited to) cataracts, congenital heart defects, deafness, and mental retardation. Elimination of rubella was declared in the United States in 2004; however, the US faces the risk of rubella outbreaks. In this article, we discuss the possibility of rubella outbreaks in the US due to refusal of measles-mumps-rubella (MMR) vaccination and importation of the disease from regions where vaccination coverage is suboptimal. To avoid the severe health consequences associated with prenatal rubella infection, continued attention should be given to the maintenance of high MMR coverage.

Short Reports

A policy framework for accelerating adoption of new vaccines

Open Access Article

Orin S. Levine, Rana Hajjeh, John Wecker, Thomas Cherian, Katherine L. O'Brien, Maria Deloria Knoll, Lois Privor-Dumm, Hans Kvist, Angeline Nanni, Allyson P. Bear and Mathuram Santosham

Rapid uptake of new vaccines can improve health and wealth and contribute to meeting Millennium Development Goals. In the past, however, the introduction and use of new vaccines has been characterized by delayed uptake in the countries where the need is greatest. Based on experience with accelerating the adoption of Hib, pneumococcal and rotavirus vaccines, we propose here a framework for new vaccine adoption that may be

useful for future efforts. The framework organizes the major steps in the process into a continuum from evidence to policy, implementation and finally access. It highlights the important roles of different actors at various times in the process and may allow new vaccine initiatives to save time and improve their efficiency by anticipating key steps and actions.

Commentaries

The threat of vaccine associated poliomyelitis in India: Medicolegal issues involved

Meena Rajput and Luv Sharma

India is among the world's large reservoirs of wild poliovirus (WPV) with 559 confirmed cases of poliomyelitis (wild virus) being reported in 2008. The World Health Organization's program for the eradication of poliomyelitis in third world countries like India is associated with major ethical and medico-legal implications. Two vaccines are available in India for poliomyelitis i.e. oral polio vaccine (OPV) and inactivated polio vaccine (IPV), of which OPV is used in the eradication campaign, the case count for 2009 being 36 out of a total of 384 reported cases globally, the case count for mid 2010 being 19 cases out of 84 reported globally. There are widespread reports of vaccine derived poliomyelitis as well as vaccine associated poliomyelitis (VAP) from different parts of the country, which can be linked to resurgence of polio in several states or to the failure of the polio drive (Polio Sundays). Though an extended comprehensive polio campaign is on and both money and manpower are being dumped for achieving the goal of polio eradication, the ground reality is entirely different. The argument that wild polio strains have surfaced to hamper the drive cannot account for all post vaccination cases. The Indian Academy of Paediatrics has forcefully suggested replacement of OPV by IPV, as the effectiveness of IPV far exceeds the cost benefit of OPV. IPV has by and large replaced OPV in many parts of the world. The second issue is the threat of litigation on the health department once the post vaccination cases rise even further. There are certain other socio-ethical issues discussed in this paper on a subject which has an important bearing on the health statistics of this country.

JAMA
December 1, 2010, Vol 304, No. 21, pp 2323-2430
http://jama.ama-assn.org/current.dtl

Medical News & Perspectives

As Trials Advance for a Malaria Vaccine, Policy Makers Urged to Plan for Its Use

JAMA. 2010;304(21):2348. doi: 10.1001/jama.304.21.2348

Rebecca Voelker

[First 150 words per JAMA convention]

As the first promising malaria vaccine makes its way through phase 3 clinical trials in sub-Saharan Africa, stakeholders' greatest fears go beyond the possibility that the vaccine may fail to meet safety and efficacy goals. They worry that even if the vaccine is licensed, inadequate planning for its distribution could leave it to languish in warehouses. "After decades of research and tens of millions of dollars invested . . . it would be scandalous if this vaccine just sits on the shelf," said Yvette Collymore, MA, of the nonprofit PATH Malaria Vaccine Initiative (MVI), during a recent Washington, DC, conference. MVI and the vaccine's creator, GlaxoSmithKline (GSK) Biologicals, partnered

in 2001 to develop the vaccine for infants and young children in sub-Saharan Africa. But the origins …

Lab Reports

Tuberculosis Vaccine

JAMA. 2010;304(21):2350. doi: 10.1001/jama.2010.1715

Tracy Hampton, PhD

[First 150 words per JAMA convention]

A new tuberculosis vaccine boosts protectiveness of the current bacille-Calmette-Guérin (BCG) vaccine, which becomes less effective over time, suggest preclinical findings from scientists at the Infectious Disease Research Institute in Seattle and Colorado State University in Fort Collins (Bertholet S et al. Sci Transl Med. 2010;2[53]:53ra74).

The new vaccine consists of a single recombinant fusion protein produced from 4 Mycobacterium tuberculosis (Mtb) antigens from Mtb protein families associated with virulence or latency.

The vaccine induced CD4 T helper type 1 cell responses and led to a reduction in the number of bacteria in the lungs of vaccinated mice that were challenged with virulent or multidrug-resistant Mtb strains, prevented the death of guinea pigs that were vaccinated and subsequently challenged with virulent Mtb, and elicited CD4 and CD8 T cell responses in human peripheral blood mononuclear cells from BCG-vaccinated or Mtb -exposed individuals.

The results support testing the vaccine …

Journal of Infectious Diseases

15 December 2010 Volume 202, Number 12
http://www.journals.uchicago.edu/toc/jid/current

[Reviewed earlier]

The Lancet

Dec 04, 2010 Volume 376 Number 9756 Pages 1873 - 1958
http://www.thelancet.com/journals/lancet/issue/current

Comment

Eliminating malaria—all of them

J Kevin Baird

Preview

In 1952, Lowell Coggeshall1 wrote "The greatest misconceptions about the treatment of malaria, especially in the past, have arisen from the fact that too many considered it a single disease. Malaria is not a disease—it is a variety of diseases." In The Lancet's Series, four papers detail the lofty goal of elimination for the broad spectrum of clinical manifestations, species, and stages of plasmodia that are responsible for these many diseases (table). Do we have the tools to manage them all?

Correspondence

Rotavirus vaccine efficacy in African and Asian countries

Stephen Obaro

Preview

The report by George Armah and colleagues (Aug 21, p 606)1 on the efficacy of a pentavalent rotavirus vaccine in sub-Saharan Africa is encouraging news for the control of rotavirus gastroenteritis in African children. Interestingly, the same vaccine is about 50% less efficacious than reported in some developed countries.2 Although the absolute proportion of severe diarrhoeal disease prevented is still much higher in the African setting, the relative poor performance of enteric vaccines in these populations deserves further mechanistic study.

Rotavirus vaccine efficacy in African and Asian countries

Giorgio Tamburlini, Adriano Cattaneo, Lorenzo Monasta

Preview

The design of the studies by George Armah and colleagues1 and K Zaman and colleagues2 on the efficacy of pentavalent rotavirus vaccine against severe rotavirus gastroenteritis in African and Asian countries neglects a crucial factor: breastfeeding.

Rotavirus vaccine efficacy in African and Asian countries – Authors' reply

Robert F Breiman, George Armah, K Zaman, Samba Sow, Dang Duc Anh, Max Ciarlet, Kathleen M Neuzil

Preview

The pentavalent rotavirus vaccine offers an opportunity to affect child health positively, particularly in regions of the world with high diarrhoea morbidity and mortality. Although our study focused on the prevention of severe gastroenteritis, we agree with Stephen Obaro that the vaccine might be effective against less common outcomes, including mortality. In fact, such an effect has been shown in postmarketing studies, most notably in Mexico, where introduction of a rotavirus vaccine into the national immunisation programme correlated with a significant reduction in all-cause diarrhoea mortality.

The Lancet Infectious Disease

Dec 2010 Volume 10 Number 12 Pages 813 - 892

http://www.thelancet.com/journals/laninf/issue/current

[Reviewed last week]

Nature

Volume 468 Number 7324 pp599-720 2 December 2010

http://www.nature.com/nature/current_issue.html

Reviews

Impacts of biodiversity on the emergence and transmission of infectious diseases

Felicia Keesing, Lisa K. Belden, Peter Daszak, Andrew Dobson, C. Drew Harvell, Robert D. Holt, Peter Hudson, Anna Jolles, Kate E. Jones, Charles E. Mitchell, Samuel S. Myers, Tiffany Bogich & Richard S. Ostfeld + et al

Abstract

Current unprecedented declines in biodiversity reduce the ability of ecological communities to provide many fundamental ecosystem services. Here we evaluate evidence that reduced biodiversity affects the transmission of infectious diseases of humans, other animals and plants. In principle, loss of biodiversity could either increase or decrease disease transmission. However, mounting evidence indicates that biodiversity loss frequently increases disease transmission. In contrast, areas of naturally

high biodiversity may serve as a source pool for new pathogens. Overall, despite many remaining questions, current evidence indicates that preserving intact ecosystems and their endemic biodiversity should generally reduce the prevalence of infectious diseases.

Nature Medicine
November 2010, Volume 16 No 11
http://www.nature.com/nm/index.html
[Reviewed earlier]

New England Journal of Medicine
December 2, 2010 Vol. 363 No. 23
http://content.nejm.org/current.shtml
Perspective
Influenza Vaccine — Safe, Effective, and Mistrusted
K.M. Harris, J. Maurer, A.L. Kellermann
[This article has no abstract; the first 100 words appear below]
On August 10, 2010, the World Health Organization (WHO) declared an end to the 2009 influenza A (H1N1) pandemic. It is fortunate that the virus that had spread worldwide so quickly turned out to be less severe than was first feared. It is worth remembering, though, that an earlier strain of H1N1 influenza — the one that emerged in 1918 — sparked the worst closely observed and recorded pandemic in history, killing an estimated 20 million to 40 million people worldwide.
The 2009 H1N1 virus did give us one gift of inestimable value: it provided a full-scale test of the…

The Pediatric Infectious Disease Journal
December 2010 - Volume 29 - Issue 12 pp: A9-A10,1067-1157,e80-e99
http://journals.lww.com/pidj/pa ges/currenttoc.aspx
[Reviewed last week]

Pediatrics
December 2010 / VOLUME 126 / ISSUE 6
http://pediatrics.aappublications.org/current.shtml
Pentavalent Rotavirus Vaccine in Developing Countries: Safety and Health Care Resource Utilization
Celia D. C. Christie, Newton D. Duncan, Kirk A. Thame, Matthew T. Onorato, Hyacinth D. Smith, Lavern G. Malcolm, Robbin F. Itzler, Mark J. DiNubile, and Penny M. Heaton
Pediatrics 2010; 126: e1499-e1506.
Abstract
OBJECTIVE In the international, placebo-controlled, Rotavirus Efficacy and Safety Trial, the pentavalent rotavirus vaccine reduced the rate of rotavirus-attributable hospitalizations and emergency department visits by 95%. This study investigated the effect in Jamaica.

METHODS The vaccine effect on rates of hospitalizations and emergency department visits in Jamaica was evaluated in both modified intention-to-treat and per-protocol analyses. Rates of serious adverse events, including intussusception, also were compared between groups.
RESULTS A total of 1804 Jamaican infants, 6 to 12 weeks of age at entry and primarily from low/middle-income families of African heritage, received ≥1 dose. During the first year after dose 1, there were 2 and 11 hospitalizations or emergency department visits attributable to rotavirus gastroenteritis involving any serotype among 831 evaluable vaccine recipients and 809 evaluable placebo recipients, respectively (rate reduction: 82.2% [95% confidence interval: 15.1%–98.0%]). In the per-protocol analysis, all 8 G1 to G4 rotavirus-attributable events that occurred ≥2 weeks after dose 3 were in the placebo group (rate reduction: 100% [95% confidence interval: 40.9%–100%]). Of the 1802 subjects included in the safety analyses, intussusception was confirmed for 1 vaccine recipient (115 days after the third dose) and 3 placebo recipients. One vaccine recipient and 3 placebo recipients died during the follow-up period, but none of the deaths was considered to be vaccine-related.
CONCLUSIONS In this posthoc subgroup analysis, the vaccine reduced health care resource utilization attributable to rotavirus gastroenteritis, without increased risk of intussusception or other serious adverse events, among infants in a resource-limited country.

PLoS Medicine
(Accessed 5 December 2010)
http://medicine.plosjournals.org/perlserv/?request=browse&issn=1549-1676&method=pubdate&search_fulltext=1&order=online_date&row_start=1&limit=10&document_count=1533&ct=1&SESSID=aac96924d41874935d8e1c2a2501181c#results
WHO and Global Health Monitoring: The Way Forward
J. Ties Boerma, Colin Mathers, Carla Abou-Zahr Essay, published 30 Nov 2010
doi:10.1371/journal.pmed.1000373
Can We Count on Global Health Estimates?
Editorial, published 30 Nov 2010
doi:10.1371/journal.pmed.1001002
A Call for Responsible Estimation of Global Health
Wendy J. Graham, Sam Adjei Essay, published 30 Nov 2010
doi:10.1371/journal.pmed.1001003
Production and Analysis of Health Indicators: The Role of Academia
Christopher J. L. Murray, Alan D. Lopez Essay, published 30 Nov 2010
doi:10.1371/journal.pmed.1001004
Global Health Estimates: Stronger Collaboration Needed with Low- and Middle-Income Countries
Osman Sankoh Essay, published 30 Nov 2010
doi:10.1371/journal.pmed.1001005
The Imperfect World of Global Health Estimates
Peter Byass Essay, published 30 Nov 2010
doi:10.1371/journal.pmed.1001006

Science
3 December 2010 vol 330, issue 6009, pages 1273-1440
http://www.sciencemag.org/current.dtl
[No relevant content]

Science Translational Medicine
1 December 2010 vol 2, issue 60
http://stm.sciencemag.org/content/current
[No relevant content]

Vaccine
http://www.sciencedirect.com/science/journal/0264410X

Volume 29, Issue 2 (16 December 2010)
Regular Papers
Knowledge differences between male and female university students about human papillomavirus (HPV) and cervical cancer: Implications for health strategies and vaccination Original Research Article
Pages 153-160
Rui Medeiros, Diana Ramada
Abstract
Knowledge about HPV and cervical cancer (CC) depends on several factors such as gender and education, which brings implications for health strategies and vaccination. A survey was conducted in Portugal with a representative sample of 1706 university students. Only 55.4% (n = 945) had already heard of HPV, although 88.3% (n = 834) from that know that is a risk factor for CC. 89% students (n = 841) wants to be vaccinated against it, but only 13.8% stated as main reason to be vaccinated "prevention of the disease". Mean scores of knowledge were calculated. Statistical differences were found, regarding "CC knowledge", in gender ($p < 0.001$) and between health sciences schools and non-health sciences schools ($p < 0.001$). Differences regarding the study area in "knowledge and beliefs of HPV" ($p < 0.001$) and in "relation between HPV and CC" ($p < 0.001$) were found. Therefore, these differences may help to develop effective strategies that lead to decline CC incidence and mortality.
Economic analysis of the global polio eradication initiative
Original Research Article
Pages 334-343
Radboud J. Duintjer Tebbens, Mark A. Pallansch, Stephen L. Cochi, Steven G.F. Wassilak, Jennifer Linkins, Roland W. Sutter, R. Bruce Aylward, Kimberly M. Thompson
Abstract
The global polio eradication initiative (GPEI), which started in 1988, represents the single largest, internationally coordinated public health project to date. Completion remains within reach, with type 2 wild polioviruses apparently eradicated since 1999 and fewer than 2000 annual paralytic poliomyelitis cases of wild types 1 and 3 reported since then. This economic analysis of the GPEI reflects the status of the program as of February 2010, including full consideration of post-eradication policies. For the GPEI intervention, we consider the actual pre-eradication experience to date followed by two

distinct potential future post-eradication vaccination policies. We estimate GPEI costs based on actual and projected expenditures and poliomyelitis incidence using reported numbers corrected for underreporting and model projections. For the comparator, which assumes only routine vaccination for polio historically and into the future (i.e., no GPEI), we estimate poliomyelitis incidence using a dynamic infection transmission model and costs based on numbers of vaccinated children. Cost-effectiveness ratios for the GPEI vs. only routine vaccination qualify as highly cost-effective based on standard criteria. We estimate incremental net benefits of the GPEI between 1988 and 2035 of approximately 40–50 billion dollars (2008 US dollars; 1988 net present values). Despite the high costs of achieving eradication in low-income countries, low-income countries account for approximately 85% of the total net benefits generated by the GPEI in the base case analysis. The total economic costs saved per prevented paralytic poliomyelitis case drive the incremental net benefits, which become positive even if we estimate the loss in productivity as a result of disability as below the recommended value of one year in average per-capita gross national income per disability-adjusted life year saved. Sensitivity analysis suggests that the finding of positive net benefits of the GPEI remains robust over a wide range of assumptions, and that consideration of the additional net benefits of externalities that occurred during polio campaigns to date, such as the mortality reduction associated with delivery of Vitamin A supplements, significantly increases the net benefits. This study finds a strong economic justification for the GPEI despite the rising costs of the initiative.

Influenza vaccination for healthcare workers who work with the elderly: Systematic review

Original Research Article
Pages 344-356
Roger E. Thomas, Tom Jefferson, Toby J. Lasserson

Abstract
Aim
To identify studies of influenza vaccination of HCWs and influenza in elderly residents in long-term care facilities.
Scope
We searched seven electronic databases for randomised controlled trials (RCTs) and non-RCTs. Two reviewers independently extracted data and assessed trial quality.
Conclusions
The key outcomes are serologically proven influenza, pneumonia, and deaths from pneumonia, and pooled data from three C-RCTs showed no effect. Pooled data from three C-RCTs showed lower resident all-cause mortality, but as influenza constituted less than 10% of all deaths even in epidemic years we question the appropriateness of this outcome measure. Pooled data from three C-RCTs showed vaccination of HCWs reduced ILI and data from one C-RCT that HCW vaccination reduced GP consultations for ILI, but as influenza constitutes less than 25% of ILI and we did not show that HCW influenza vaccination reduced serologically proven influenza we question whether this effect is due to confounding.

Vaccine
http://www.sciencedirect.com/science/journal/0264410X
Volume 29, Issue 1 pp. 1-152 (10 December 2010)
Regular Papers

Pragmatic management of programmatic vaccination errors—Lessons learnt from incidents in London

Original Research Article

Pages 65-69

Laura Craig, David Elliman, Rachel Heathcock, Deborah Turbitt, Barry Walsh, Natasha Crowcroft

Abstract

Correct storage, handling and administration of vaccines are vital components of a successful immunisation programme. However, with the large number of different healthcare professionals now involved in delivering the vaccine programme on a daily basis, it is inevitable that programmatic errors will occur. Decisions as to how best to rectify these errors can be difficult however, as often they are unprecedented and there may be no hard evidence on which to base their management. These decisions must therefore be based on what is known and any available previous experience. They also often take place in an environment of concern about litigation and liability which puts pressure on health care workers to take a defensive or conservative approach. Management decisions may ultimately also have to be a pragmatic choice based on the individual situation and what is deemed to be the best way to minimise adverse reactions, ensure patients are adequately protected and maintain public confidence in the immunisation programme. Here, we describe our experiences of managing vaccine programmatic errors and some of the many factors that we had to consider.

The uptake of rotavirus vaccine and its effectiveness in preventing acute gastroenteritis in the community

Original Research Article

Pages 91-94

Khitam Muhsen, Gabriel Chodick, Sophy Goren, Varda Shalev, Dani Cohen

Abstract

We examined the uptake of rotavirus vaccine and its effectiveness in preventing acute gastroenteritis (AGE) in the community. Data on rotavirus vaccines purchases and AGE were extracted from the computerized database of a large health maintenance organization in Israel. The incidence of AGE requiring a physician visit during 2008–09 rotavirus season among vaccinated and non-vaccinated children were compared, and vaccine effectiveness was calculated as: (1 − Relative Risk) × 100. During the study period, the uptake of rotavirus vaccine (mostly monovalent) reached 55.1% (N = 19,108) of the studied cohort. The risk of AGE requiring a physician visit was 23.2% and 46.4% among vaccinated and unvaccinated children, respectively, yielding an effectiveness of 50.1% (95% CI: 47.5%, 52.6%). Rotavirus monovalent vaccine was highly effective in preventing AGE in the community.

Factors associated with protective antibody levels to vaccine preventable diseases in internationally adopted children

Original Research Article

Pages 95-103

Laura Patricia Stadler, Stephanie Donauer, Marilyn Rice, Indi Trehan, Shelia Salisbury, Mary Allen Staat

Abstract

To determine which factors are predictive of protective antibody against vaccine-preventable diseases in internationally adopted children, we evaluated 562 children with serologic testing for at least one vaccine antigen before receiving a US vaccination.

Vaccination status was defined as the number-of-doses recorded and as the presence of an up-to-date and valid record according to the American Academy of Pediatrics and the Advisory Committee on Immunization Practices guidelines. The number-of-doses recorded was the best predictor of protective antibody. These findings suggest that other options for immunization verification guidelines for internationally adopted children should be considered by policy makers.

Vaccine
http://www.sciencedirect.com/science/journal/0264410X
Volume 28, Issue 52 pp. 8227-8352 (6 December 2010)
Editorial
Developing the next generation of vaccinologists
Pages 8227-8228
Gregory A. Poland, Myron M. Levine, John D. Clemens
[no abstract]

Vaccine
http://www.sciencedirect.com/science/journal/0264410X
Volume 28, Issue 51 pp. 8049-8226 (29 November 2010)
Reviews
Reflections on the influenza vaccination of healthcare workers
Review Article
Pages 8061-8064
Stuart McLennan, Sabine Wicker
Abstract
Despite all that is known about the dangers of nosocomial transmission of influenza to the vulnerable patient populations in our healthcare facilities, and the benefits of the influenza vaccination, the low rates of influenza vaccination among healthcare workers (HCWs) internationally shows no sign of significant improvement. With the current voluntary 'opt-in' programmes clearly failing to adequately address this issue, the time has undoubtedly come for a new approach to vaccination to be implemented. Two different approaches to vaccination delivery have been suggested to rectify this situation, mandatory vaccination and 'opt-out' declination forms. It is suggested, however, that these two approaches are inadequate when used by themselves. In order to protect the most vulnerable patients in our healthcare facilities as best we can from serious harm or death caused by nosocomial transmission of influenza, while at the same time respecting HCWs autonomy, and in many jurisdictions, the related legal right to refuse medical treatment, it is recommended that 'op-out' declination forms should be used in conjunction with restricted mandatory vaccination. This 'combined' approach would allow any HCW to refuse the influenza vaccination, but would make the influenza vaccination a mandatory requirement for working in areas where the most vulnerable patients are cared for. Those HCWs not willing to be vaccinated should be required to work in other areas of healthcare.
Benefits of vaccinating young adult women with a prophylactic quadrivalent human papillomavirus (types 6, 11, 16 and 18) vaccine
Review Article
Pages 8065-8072
J. Monsonego, J. Cortes, C. Greppe, M. Hampl, E. Joura, A. Singer

Abstract
Cervical cancer is a leading cause of cancer-related deaths worldwide. The causal role of human papillomavirus (HPV) infection in the pathogenesis of cervical cancer has prompted the development of vaccines against HPV. The highest risk of HPV infection is in women aged 16–25 years. Almost all young adult women can benefit from HPV vaccination. There is strong epidemiological and clinical support for vaccination programmes that target sexually active women in this age group to prevent HPV infection, and thus avert the development of HPV-related disease. Furthermore, the implementation of HPV vaccination programmes may benefit the development or awareness of cervical cancer prevention strategies and ultimately reduce the burden of cervical cancer and improve cervical cancer control.

Is it time for a new yellow fever vaccine?

Review Article
Pages 8073-8076
Edward B. Hayes
Abstract
An inexpensive live attenuated vaccine (the 17D vaccine) against yellow fever has been effectively used to prevent yellow fever for more than 70 years. Interest in developing new inactivated vaccines has been spurred by recognition of rare but serious, sometimes fatal adverse events following live virus vaccination. A safer inactivated yellow fever vaccine could be useful for vaccinating people at higher risk of adverse events from the live vaccine, but could also have broader global health utility by lowering the risk-benefit threshold for assuring high levels of yellow fever vaccine coverage. If ongoing trials demonstrate favorable immunogenicity and safety compared to the current vaccine, the practical global health utility of an inactivated vaccine is likely to be determined mostly by cost.

Regular Papers

Hepatitis A and travel amongst Nova Scotia postsecondary students: Evidence for a targeted vs. universal immunization strategy

Original Research Article
Pages 8105-8111
Katherine Matheson, Beth Halperin, Shelly McNeil, Joanne M. Langley, Donna MacKinnon-Cameron, Scott A. Halperin
Abstract
Background
Canadian guidelines recommend hepatitis A virus (HAV) vaccination for high-risk persons, such as travelers to HAV-endemic areas. The US CDC advocates universal immunization.
Objectives
To explore whether a universal strategy for HAV immunization rather than the Canadian targeted approach for travelers is justified by measuring compliance of postsecondary students with Canadian guidelines.
Methods
A cross-sectional study using an electronic survey method elicited HAV risk factors, immunization history, disease status, and factors affecting immunization status from postsecondary students. Seropositivity was determined by measuring HAV antibodies in saliva from a convenience sample of survey participants within each study group. Statistical analysis used Fisher's exact test and logistic regression.

Results
We received 2279 completed surveys (10.6% response) and 235 saliva samples (58.7% response). A total of 1380 (60.6%) participants had traveled to HAV-endemic regions and 1851 (81.2%) were planning to do so within the next 5 years. Less than half who traveled to HAV-endemic areas reported a history of HAV vaccination (48.0%). HAV seropositivity rates were higher amongst those who traveled to (63.6%) or were planning to travel to (55.0%) HAV-endemic areas than those who had never traveled or had no plans to travel to such areas (17.4%). Only 8.9% of unvaccinated students were seropositive (5.3% of Canadian-born students). Amongst unvaccinated, seropositive students, there was a nonsignificant trend for higher seropositivity in those who had previously traveled to HAV-endemic areas (14.7%) than those who had not traveled abroad (4.4%), suggesting an exposure to HAV during travel. Nearly all (96.5%) unvaccinated students, who were willing to be vaccinated based on current knowledge or if their doctor recommended it, indicated a willingness to receive vaccine if it were provided free of charge.
Conclusions
Current Canadian guidelines for HAV vaccination are not being followed within the postsecondary student population. Given high rates of travel to HAV-endemic areas in this population, a universal approach to HAV vaccination may be warranted.

Resistance to vaccination: The attitudes and practices of primary healthcare workers confronting the H1N1 pandemic

Original Research Article
Pages 8120-8124
Seyhan Hidiroglu, Pinar Ay, Ahmet Topuzoglu, Cem Kalafat, Melda Karavus
Abstract
During the H1N1 pandemic, most healthcare workers in Turkey were not willing to take up the vaccine. This qualitative study aims to explore the factors that lead to vaccination resistance among a group of primary healthcare workers in Istanbul. Data were collected through focus group discussions. Thematic content analysis was conducted. All participants considered themselves at risk for infection, yet most of them were not vaccinated. Only persons with a "poor" immune system were considered by the respondents at risk for severe disease and death. Health personnel mostly did not realize their potential role in the transmission of influenza to patients. The decision of vaccination was dependent on the information source. The personnel who depended mainly on the media either did not accept vaccination or was undecided. They believed that the vaccine went through an accelerated authorization procedure. Yet the ones who accepted vaccination relied mostly on evidence-based sources and accessed information from the guidelines of the Ministry of Health, Professional Medical Associations and the World Health Organization. Social networks were also influential factors in the decision-making process. It is important to empower healthcare workers through supporting the skills of acquiring and using evidence-based information. This is particularly important for physicians who also serve as opinion leaders.

Population and risk group uptake of H1N1 influenza vaccine in mainland France 2009–2010: Results of a national vaccination campaign

Original Research Article
Pages 8157-8161
Angie Bone, Jean-Paul Guthmann, Javier Nicolau, Daniel Lévy-Bruhl
Abstract

A mass vaccination campaign against influenza A/H1N1 was launched in France in October 2009. Vaccination was offered free of charge to the entire population according to a pre-defined order of priority. Demographic data and data on vaccinations given were recorded in a dedicated database. We analysed vaccine uptake by age, sex and region in the overall population and in certain risk groups, including pregnant women. Overall vaccine uptake was 8% and varied by age-group and sex. Vaccine uptake in pregnant women was 22.7%. These low uptakes may reflect controversies around the vaccine and vaccination policy and have important implications for future pandemic vaccination strategies.