Vaccines: The Week in Review
30 January 2012
Center for Vaccine Ethics & Policy (CVEP)

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/service/vaccine-education-center/home.html

This weekly summary targets news and events in global vaccines ethics and policy gathered from key governmental, NGO and industry sources, key journals and other sources. This summary supports 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 pdf form and as a set of blog posts at http://centerforvaccineethicsandpolicy.wordpress.com/. This blog allows full-texting searching of some 2,000 content items.

Comments and suggestions should be directed to
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[Editor's Note: The Global Fund released separate announcements last week on leadership changes and new funding commitments which are distilled below, each with links to the associated full text]

The Global Fund to Fight AIDS, Tuberculosis and Malaria announced that it will appoint Gabriel Jaramillo as General Manager, "a newly created position intended to oversee a process of transformation as it accelerates the fight against the three pandemics by focusing on its management of risk and grants." Mr. Jaramillo, a former Chairman and CEO of Sovereign Bank, "has more than 35 years of experience in executive positions in the financial sector, where he won broad recognition as a highly skilled leader and administrator with impeccable integrity. Since he retired a year ago, he has served as a Special Advisor to the Office of the Special Envoy for Malaria of the Secretary General of the United Nations, and was a Member of the High-Level, Independent Panel that looked at the Global Fund's fiduciary controls and oversight mechanisms." The announcement noted that the Global Fund's Board in November "approved a Consolidated Transformation Plan to address the findings of the Panel, along with a new, ambitious, four-year strategy and decided to appoint a General Manager to oversee this transformation. The General Manager will report to the Board, and will assume full executive responsibilities for the Global Fund."

Mr. Jaramillo commented, "My priorities at the Global Fund are to achieve maximum efficiency, accountability and concrete results that save lives. In essence, we will start with a reorganization that emphasizes simplicity, discipline and rigor, with grant-management as the core activity of the institution." Mr. Jaramillo is described as a native of Colombia and a Brazilian citizen. He studied at California State University, where he earned a Bachelor's degree in marketing and a Master's degree in Business Administration. Over the next three decades, "he excelled as a manager at successive institutions, including Marine Midland Bank, Citibank, Banco Santander and Sovereign Bank, where he became Chairman and CEO in 2009. He retired from that position in January 2011, and remained as Chairman until June 2011." Mr. Jaramillo will take up a 12-month appointment on 1 February 2012.

http://www.theglobalfund.org/en/mediacenter/pressreleases/2012-01-24_The_Global_Fund_appoints_Gabriel_Jaramillo_as_General_Manager/

The Global Fund announced that Executive Director Michel Kazatchkine "has decided to step down in mid-March after leading the organization for five years, during which time he oversaw a dramatic expansion in the organization's life-saving work." In a statement to staff, Prof. Kazatchkine said, "For the last ten years, the Global Fund has been my passion and my most important undertaking. I am immensely proud of what the Global Fund has achieved in these ten years, and I am tremendously grateful that I have been able to play a central part in its evolution and success." Prof. Kazatchkine also said that "while he respects the Board's decision to appoint a General Manager and 'trusts that it was made in the best interests of the Global Fund,' he has concluded that he should not continue as Executive Director in these circumstances." Prof. Kazatchkine concluded, "I am committed to an orderly transition and I will do all that I can to ensure that the Global Fund emerges from it as a stronger organization." Global Fund Board Chair Simon Bland said, "Few individuals have played a more central role in the creation and evolution of the Global Fund than Michel. The Global Fund as we know it today, the millions of lives it has saved, and the many other successes and innovations with which the Fund is associated, all bear Michel's imprint. Most importantly, his unwavering commitment to health, to human rights and to supporting the weakest and the unprotected, has helped shape the Global Fund into the beacon of hope it is today for tens of millions of people around the world."
- Read Message from the Executive Director to Staff and Partners
- Read Message from Chair of the Board to the Board of the Global Fund
http://www.theglobalfund.org/en/mediacenter/pressreleases/2012-01-24_The_Global_Fund_Executive_Director_to_step_down_in_March/

GAVI congratulates Michel Kazatchkine on a great decade with The Global Fund

The Bill & Melinda Gates Foundation renewed its commitment to the Global Fund to Fight AIDS, Tuberculosis and Malaria via a US$750 million promissory note, described as a "a new and innovative funding mechanism…(which) gives the Global Fund the flexibility and authority to distribute funds efficiently based on immediate needs, leading to greater impact." The announced said the Global Fund "continues to save 100,000 lives a month. The Fund has provided antiretroviral treatment to 3.3 million people, detected and treated 8.2 million people with tuberculosis, and provided 230 million bed nets to families to prevent malaria."
http://www.gatesfoundation.org/press-releases/Pages/renewing-commitment-to-the-global-fund-120126.aspx

The Global Fund said it welcomed the recent announcement by the Kingdom of Saudi Arabia of a contribution worth US$25 million. The contribution, to be paid in full by 2013, will bring the total contribution from Saudi Arabia to the Global Fund in the decade since it was established to US$53 million. The announcement by the Kingdom of Saudi Arabia came in a letter to United Nations Secretary-General Ban Ki-moon in response to an appeal Mr. Ban had made on the Global Fund's behalf. Saudi Arabia is described as one of the main donors from the Gulf region to the Global Fund. In the Middle-East and North Africa, the Global Fund is currently supporting 20 countries

and territories in their fight against HIV/AIDS and tuberculosis and malaria.
http://www.theglobalfund.org/en/mediacenter/pressreleases/2012-01-24_Saudi_Arabia_donates_USD_25000000_to_the_Global_Fund/

The Gates Foundation announced the winner of the first Gates Vaccine Innovation Award, recognizing the work of Dr. Asm Amjad Hossain, a former district immunization and surveillance medical officer in Bangladesh. The announcement noted that "to help vaccinators reach children, Dr. Hossain instituted a new and improved process to help register, track and locate pregnant mothers. He also implemented annual vaccination schedules for communities and other simple steps like adding the phone numbers of vaccinators to children's immunization cards, which increased accountability and allowed parents to easily access health workers." Dr. Hossain oversaw routine immunization programs in two Bangladeshi districts with low immunization rates, Brahmanbaria and Habiganj. He was tasked with immunizing more than 150,000 children against vaccine-preventable diseases including diphtheria, pertussis, tetanus, polio, and measles. In the course of a single year, his application of creative methods contributed to an increase in immunization coverage by more than 15 percentage points. Dr. Hossain's achievements will be recognized with an award of US$250,000, the majority of which will be donated to a charity of his choice.

The Gates Vaccine Innovation Award "celebrates revolutionary ways in which children in the poorest parts of the world receive life-saving vaccines. The award is bestowed on an individual or organization nominated by the public that has made a uniquely innovative contribution to the Decade of Vaccines, in the hope of shining a light on the most powerful innovations in global health. Nominees are assessed on the tangible health impact, creativity, and scale of their innovation in the science, delivery, or funding of vaccines."
http://www.gatesfoundation.org/press-releases/Pages/gates-vaccine-innovation-award-winner-120124.aspx

The GAVI Alliance said it will receive at least US$4.5 million for child immunisation from two new partners to its unique GAVI Matching Fund program. The new funding was committed by Comic Relief, a UK-based charity that fights poverty and social injustice, and The Children's Investment Fund Foundation (CIFF), a UK-based charity that works to improve the lives of children living in poverty in developing countries. The new funding will be matched by the British Government and the Gates Foundation, bringing the total to US$9 million. Separately, GAVI said that "an anonymous private foundation also hopes to make use of a GAVI innovative finance vehicle by investing in the International Finance Facility for Immunisation (IFFIm), The anonymous foundation has discussed an investment in IFFIm bonds whereby it could donate the interest generated to GAVI through the Matching Fund. Under such an arrangement, the coupon (interest) has the potential to exceed US$5 million, which would be matched by the Gates Foundation.
http://www.gavialliance.org/library/news/press-releases/2012/gavi-alliance-programme-raises--us$-38-million-for-child-immunisation/

UNICEF appealed for US$1.28 billion to fund its humanitarian operations in 2012, assisting children in more than 25 countries globally. Supporting the appeal, UNICEF released a **new report – *UNICEF 2012 - Humanitarian Action for Children*** – which notes that "throughout the world, millions of children are living amidst crises that persist for years. While some of these emergencies attract significant media and political attention, others never reach international awareness, and many become silent emergencies in which deep humanitarian need, existing far from the public eye, is too easily and quickly overlooked." The UNICEF report "describes the daily situation of some of the world's most vulnerable children and women caught up in emergencies across the world and the funding required to meet their immediate and long-term needs." UNICEF said that it requires adequate funding in order to fulfill its commitments towards children as "they not only represent the future but are the most vulnerable, and deserve generous and consistent support from the donor community."
UNICEF's 2012 Humanitarian Action for Children report: http://www.unicefusa.org/har.
http://www.prnewswire.com/news-releases/unicef-report-children-in-more-than-25-countries-caught-in-emergencies-138188249.html

Bill & Melinda Gates Foundation co-chair Bill Gates released his fourth annual letter which "challenged global leaders to invest in innovations that are accelerating progress against poverty, or risk a future in which millions needlessly starve." The Gates Foundation media release noted that "the letter describes remarkable progress in the developing world and makes the case to continue investing in efforts that have made a difference for millions of the world's poorest people. Over the past 50 years, for example, the percentage of the population living in poverty has fallen from 40 percent to 15 percent, or about 1 billion people. Gates believes it is possible to continue the progress, but only with innovative investments in areas like helping small farmers grow more food, which is the best way to fight hunger and poverty among the poor."
To view the letter click here: www.gatesfoundation.org/annualletter
http://www.gatesfoundation.org/press-releases/Pages/fourth-annual-letter-120124.aspx

Twitter Watch *[accessed 29 January 2012: 19:45]*
Items of interest from a variety of twitter feeds associated with immunization, vaccines and global public health. This capture is highly selective and is by no means intended to be exhaustive.

UNDP UN Development
Amazing set of infographics, videos and data on the #futureofaid on.undp.org/ybvK8Q v @AlertNet
26 minutes ago

UNDP UN Development
"Under-five mortality will be five million by 2025 compared to 21 million in 1955" says @WHO on.undp.org/zBR03Z v @Bworldonlinecom
13 hours ago

PIH Partners In Health
The Global Fund just turned 10! Check out why @pih thinks the #GlobalFund matters: pih.org/GFmatters @globalfundnews
22 hours ago

PIH Partners In Health
Did you know? The #GlobalFund provides 82% of international funding for #TB treatment: ow.ly/8JcJE @globalfundnews
28 Jan

WHO WHO
Once widely dispersed, neglected tropical diseases now concentrated in settings of extreme poverty, urban slums j.mp/wDgkLl #NTD
27 Jan

CDCgov CDCgov
CDC started the fight against malaria. Now let's finish it together. go.usa.gov/nIW #CDC247
27 Jan

UNICEF UNICEF
The well-being of millions of children is at stake. Check out UNICEF's Humanitarian Action for Children 2012 Report uni.cf/xIcD2T
27 Jan

GAVIAlliance GAVI Alliance
With gifts and matches from supporters, the #GAVI Matching Fund has secured at least $38 million in pledges! ht.ly/8IvJq
27 Jan

GAVIAlliance GAVI Alliance
Dr. Asm Amjad Hossain has won the @GatesFoundation Inaugural #Vaccine Innovation Award- ht.ly/8HBQH
26 Jan

UNDP UN Development
New edition of Global Risk Report by @davos - amazing interactive visual of worrying data on.undp.org/zmEC72 #WEF #bigdata
26 Jan

globalfundnews The Global Fund
Celebrating the big 10 theglobalfund.org/en/blog/27748/
25 Jan

GAVISeth Seth Berkley
I join global leaders in congrats for Michael Kazatchkine on great decade with GFATM including 5yrs as ED Wishing him best in next endeavor
24 Jan

globalfundnews The Global Fund
The Global Fund's Executive Director to step down in March
theglobalfund.org/en/mediacenter…
24 Jan

globalfundnews The Global Fund
The Global Fund appoints Gabriel Jaramillo as General Manager
theglobalfund.org/en/mediacenter…
24 Jan

OrinLevine Orin Levine
Provocative read. Should Google Try To Stop the Spread of Anti-Vaccine Activism?
slate.com/articles/techn… via @Slate #vaccine
23 Jan

Journal Watch

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. If you would like to suggest other journal titles to include in this service, please contact David Curry at: david.r.curry@centerforvaccineethicsandpolicy.org

Annals of Internal Medicine
January 17, 2012; 156 (2)
http://www.annals.org/content/current
[Reviewed last week; No relevant content]

British Medical Bulletin
Volume 100 Issue 1 December 2011
http://bmb.oxfordjournals.org/content/current
[Reviewed earlier; No relevant content]

British Medical Journal

28 January 2012 (Vol 344, Issue 7841)
http://www.bmj.com/content/current

Effectiveness of vaccine against pandemic influenza A/H1N1 among people with underlying chronic diseases: cohort study, Denmark, 2009-10

BMJ 2012;344:d7901 (Published 25 January 2012)
Hanne-Dorthe Emborg, Tyra Grove Krause, Anders Hviid, Jacob Simonsen, Kåre Mølbak,

Abstract

Objective

To determine the effectiveness of an adjuvanted monovalent vaccine against pandemic influenza A/H1N1 among people with underlying chronic diseases.

Design

Historical cohort study.

Setting

Mandatory national reporting systems, 2 November 2009 to 31 January 2010, Denmark.

Participants

388 069 people under 65 years of age with a diagnosis in the past five years of at least one underlying disease expected to increase the risk of severe illness after influenza.

Main outcome measures

Laboratory confirmed H1N1 infection and influenza related hospital admission with laboratory confirmed H1N1 infection. Estimates of vaccine effectiveness were adjusted for age and underlying disease.

Results

The effectiveness of pandemic vaccine against confirmed H1N1 infection 14 days after one dose of vaccine was 49% (95% confidence interval 10% to 71%). The effectiveness of vaccine against admission to hospital for confirmed H1N1 infection was 44% (−19% to 73%).

Conclusions

The adjuvanted monovalent vaccine against pandemic influenza A/H1N1 was offered late in the 2009-10 influenza season. Among chronically ill people, this vaccine offered protection against laboratory confirmed H1N1 infection but only offered non-significant protection against influenza related hospital admissions confirmed as H1N1 infection. This finding is of public health relevance because the population of chronically ill people is a major target group for pandemic vaccinations and because of the delayed availability of pandemic vaccines in a forthcoming pandemic.

Cost Effectiveness and Resource Allocation

(Accessed 29 January 2012)
http://www.resource-allocation.com/
[No new relevant content]

Emerging Infectious Diseases

Volume 18, Number 2—February 2012
http://www.cdc.gov/ncidod/EID/index.htm

Perspective

Pathogenic Responses among Young Adults during the 1918 Influenza Pandemic

G. Shanks and J. F. Brundage
Abstract
Of the unexplained characteristics of the 1918–19 influenza pandemic, the extreme mortality rate among young adults (W-shaped mortality curve) is the foremost. Lack of a coherent explanation of this and other epidemiologic and clinical manifestations of the pandemic contributes to uncertainty in preparing for future pandemics. Contemporaneous records suggest that immunopathologic responses were a critical determinant of the high mortality rate among young adults and other high-risk subgroups. Historical records and findings from laboratory animal studies suggest that persons who were exposed to influenza once before 1918 (e.g., A/H3Nx 1890 pandemic strain) were likely to have dysregulated, pathologic cellular immune responses to infections with the A/H1N1 1918 pandemic strain. The immunopathologic effects transiently increased susceptibility to ultimately lethal secondary bacterial pneumonia. The extreme mortality rate associated with the 1918–19 pandemic is unlikely to recur naturally. However, T-cell–mediated immunopathologic effects should be carefully monitored in developing and using universal influenza vaccines.
Research
Diphtheria in the Postepidemic Period, Europe, 2000–2009
K. S. Wagner et al.
Abstract
Diphtheria incidence has decreased in Europe since its resurgence in the 1990s, but circulation continues in some countries in eastern Europe, and sporadic cases have been reported elsewhere. Surveillance data from Diphtheria Surveillance Network countries and the World Health Organization European Region for 2000–2009 were analyzed. Latvia reported the highest annual incidence in Europe each year, but the Russian Federation and Ukraine accounted for 83% of all cases. Over the past 10 years, diphtheria incidence has decreased by >95% across the region. Although most deaths occurred in disease-endemic countries, case-fatality rates were highest in countries to which diphtheria is not endemic, where unfamiliarity can lead to delays in diagnosis and treatment. In western Europe, toxigenic Corynebacterium ulcerans has increasingly been identified as the etiologic agent. Reduction in diphtheria incidence over the past 10 years is encouraging, but maintaining high vaccination coverage is essential to prevent indigenous C. ulcerans and reemergence of C. diphtheriae infections.
Commentaries
1918 Influenza, a Puzzle with Missing Pieces
D. M. Morens and J. K. Taubenberger

Global Health
Winter 2012
http://www.globalhealthmagazine.com/in_this_issue/
[Reviewed earlier]

Globalization and Health
[Accessed 29 January 2012]
http://www.globalizationandhealth.com/
[No new relevant content]

Health Affairs
January 2012; Volume 31, Issue 1
http://content.healthaffairs.org/content/current
[Reviewed earlier]

Health and Human Rights
Vol 13, No 2 (2011)
http://hhrjournal.org/index.php/hhr
[Reviewed earlier]

Health Economics, Policy and Law
Volume 7 - Special Issue 01 - January 2012
http://journals.cambridge.org/action/displayIssue?jid=HEP&tab=currentissue
[Reviewed earlier]

Health Policy and Planning
Volume 27 Issue 1 January 2012
http://heapol.oxfordjournals.org/content/current
[Reviewed earlier]

Human Vaccines & Immunotherapeutics (formerly Human Vaccines)
Volume 8, Issue 1 January 2012
http://www.landesbioscience.com/journals/vaccines/toc/volume/8/issue/1/
[Reviewed earlier]

International Journal of Infectious Diseases
Volume 16, Issue 2 pp. e75-e150 (February 2012)
http://www.sciencedirect.com/science/journal/12019712
[Reviewed last week]

JAMA
January 25, 2012, Vol 307, No. 4, pp 335-421
http://jama.ama-assn.org/current.dtl
Original Contributions
Serum Vaccine Antibody Concentrations in Children Exposed to Perfluorinated Compounds
Philippe Grandjean, Elisabeth Wreford Andersen, Esben Budtz-Jørgensen, Flemming Nielsen, Kåre Mølbak, Pal Weihe, Carsten Heilmann
JAMA. 2012;307(4):391-397.doi:10.1001/jama.2011.2034
Abstract

Context
Perfluorinated compounds (PFCs) have emerged as important food contaminants. They cause immune suppression in a rodent model at serum concentrations similar to those occurring in the US population, but adverse health effects of PFC exposure are poorly understood.
Objective
To determine whether PFC exposure is associated with antibody response to childhood vaccinations.
Design, Setting, and Participants
Prospective study of a birth cohort from the National Hospital in the Faroe Islands. A total of 656 consecutive singleton births were recruited during 1999-2001, and 587 participated in follow-up through 2008.
Main Outcome
Measures Serum antibody concentrations against tetanus and diphtheria toxoids at ages 5 and 7 years.
Results
Similar to results of prior studies in the United States, the PFCs with the highest serum concentrations were perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). Among PFCs in maternal pregnancy serum, PFOS showed the strongest negative correlations with antibody concentrations at age 5 years, for which a 2-fold greater concentration of exposure was associated with a difference of −39% (95% CI, −55% to −17%) in the diphtheria antibody concentration. PFCs in the child's serum at age 5 years showed uniformly negative associations with antibody levels, especially at age 7 years, except that the tetanus antibody level following PFOS exposure was not statistically significant. In a structural equation model, a 2-fold greater concentration of major PFCs in child serum was associated with a difference of −49% (95% CI, −67% to −23%) in the overall antibody concentration. A 2-fold increase in PFOS and PFOA concentrations at age 5 years was associated with odds ratios between 2.38 (95% CI, 0.89 to 6.35) and 4.20 (95% CI, 1.54 to 11.44) for falling below a clinically protective level of 0.1 IU/mL for tetanus and diphtheria antibodies at age 7 years.
Conclusion
Elevated exposures to PFCs were associated with reduced humoral immune response to routine childhood immunizations in children aged 5 and 7 years.

Journal of Infectious Diseases
Volume 205 Issue 4 February 15, 2012
http://www.journals.uchicago.edu/toc/jid/current

Viruses

Dennis K. M. Ip, Martin Schutten, Vicky J. Fang, Rita O. P. Fung, Regina T. Dutkowski, Kwok-Hung Chan, Gabriel M. Leung, J. S. Malik Peiris, and Benjamin J. Cowling

Validation of Self-swab for Virologic Confirmation of Influenza Virus Infections in a Community Setting

J Infect Dis. (2012) 205(4): 631-634 doi:10.1093/infdis/jir803

Abstract
Few studies have investigated the validity of self-collected nose and throat swabs for influenza confirmation in community settings. We followed outpatients with confirmed influenza with sequential measurement of viral loads and applied log-linear regression

models to the viral shedding patterns. Among 176 outpatients with confirmed influenza, the detection of virus and quantitative viral loads obtained from self-swabs was consistent with statistical predictions based on earlier and later measurements, suggesting that self-collected nose and throat swabs can be a valid alternative for virologic confirmation of influenza A or B infection in a community setting.

The Lancet
Jan 28, 2012 Volume 379 Number 9813 p287 – 384 e20 - 26
http://www.thelancet.com/journals/lancet/issue/current

Comment

Moral science and the Presidential Commission for the Study of Bioethical Issues

Amy Gutmann, James W Wagner

[No abstract]

Tackling the spread of drug-resistant tuberculosis in Europe

Ibrahim Abubakar, Masoud Dara, Davide Manissero, Alimuddin Zumla

Preview

Multidrug-resistant (MDR) tuberculosis and extensively drug-resistant (XDR) tuberculosis have become an important health problem in many countries of the WHO European region and currently threaten global efforts to control tuberculosis.1–4 About 81 000 (18·4%) of the 440 000 patients worldwide with MDR tuberculosis live in this region.2 The highest rates occur predominantly in eastern Europe; however, population movement means that drug-resistant tuberculosis is a priority public health issue for all European countries.

Correspondence

Action to preserve WHO's core functions cannot wait for organisational reform

Mohga M Kamal-Yanni

Preview

While WHO undergoes a wide-ranging reform sparked by a US$300 million budget shortfall, the agency is facing an exodus of qualified staff that is affecting its ability to work.1 The Executive Board is due to meet on Jan 16 to agree long-term principles and priorities for the organisation; it must ensure, in particular, that core functions are accorded the priority they merit. Oxfam is especially concerned that inadequate funding will severely diminish the WHO Essential Medicines Department, which for more than three decades has had an indispensable role in enabling developing countries to access affordable medicines.

The Lancet Infectious Disease
Feb 2012 Volume 12 Number 2 p89 - 166
http://www.thelancet.com/journals/laninf/issue/current

Comment

Inactivated polio vaccine and global polio eradication

John F Modlin

Preview

2012 will mark the 24th year of WHO's Global Poliomyelitis Eradication Initiative.1 Eradication has proven more difficult than originally envisioned because of geopolitical events, such as war, social disruption, and political indifference; social and cultural issues, such as distrust of poliovirus vaccines and vaccinators; and the unanticipated emergence of virulent vaccine-derived polioviruses in many locations. Few of these obstacles have bewildered the scientific community as much as the low efficacy of the major weapon in the arsenal, trivalent oral polio vaccine (OPV) in regions with dense populations, high birthrates, and poor sanitation resulting from diarrhoea due to enteric pathogens, particularly rotaviruses, and perhaps nutritional deficiencies and other factors.

Articles

Immunogenicity of supplemental doses of poliovirus vaccine for children aged 6–9 months in Moradabad, India: a community-based, randomised controlled trial

Concepción F Estívariz, Hamid Jafari, Roland W Sutter, T Jacob John, Vibhor Jain, Ashutosh Agarwal, Harish Verma, Mark A Pallansch, Ajit P Singh, Sherine Guirguis, Jitendra Awale, Anthony Burton, Sunil Bahl, Arani Chatterjee, R Bruce Aylward

Summary

Background

The continued presence of polio in northern India poses challenges to the interruption of wild poliovirus transmission and the management of poliovirus risks in the post-eradication era. We aimed to assess the current immunity profile after routine doses of trivalent oral poliovirus vaccine (OPV) and numerous supplemental doses of type-1 monovalent OPV (mOPV1), and compared the effect of five vaccine formulations and dosages on residual immunity gaps.

Methods

We did a community-based, randomised controlled trial of healthy infants aged 6—9 months at ten sites in Moradabad, India. Serum neutralising antibody was measured before infants were randomly assigned to a study group and given standard-potency or higher-potency mOPV1, intradermal fractional-dose inactivated poliovirus vaccine (IPV, GlaxoSmithKline), or intramuscular full-dose IPV from two different manufacturers (GlaxoSmithKline or Panacea). Follow-up sera were taken at days 7 and 28. Our primary endpoint was an increase of more than four times in antibody titres. We did analyses by per-protocol in children with a blood sample available before, and 28 days after, receiving study vaccine (or who completed study procedures). This trial is registered with Current Controlled Trials, number ISRCTN90744784.

Findings

Of 1002 children enrolled, 869 (87%) completed study procedures (ie, blood sample available at day 0 and day 28). At baseline, 862 (99%), 625 (72%), and 418 (48%) had detectable antibodies to poliovirus types 1, 2, and 3, respectively. In children who were type-1 seropositive, an increase of more than four times in antibody titre was detected 28 days after they were given standard-potency mOPV1 (5/13 [38%]), higher-potency mOPV1 (6/21 [29%]), intradermal IPV (9/16 [56%]), GlaxoSmithKline intramuscular IPV (19/22 [86%]), and Panacea intramuscular IPV (11/13 [85%]). In those who were type-2 seronegative, 42 (100%) of 42 seroconverted after GlaxoSmithKline intramuscular IPV, and 24 (59%) of 41 after intradermal IPV ($p<0·0001$). 87 (90%) of 97 infants who were type-3 seronegative seroconverted after intramuscular IPV, and 21 (36%) of 49 after intradermal IPV ($p<0·0001$).

Interpretation
Supplemental mOPV1 resulted in almost total seroprevalence against poliovirus type 1, which is consistent with recent absence of poliomyelitis cases; whereas seroprevalence against types 2 and 3 was expected for routine vaccination histories. The immunogenicity of IPV produced in India (Panacea) was similar to that of an internationally manufactured IPV (GSK). Intradermal IPV was less immunogenic.
Funding
Global Alliance for Vaccines and Immunization (GAVI), WHO.

2008 estimate of worldwide rotavirus-associated mortality in children younger than 5 years before the introduction of universal rotavirus vaccination programmes: a systematic review and meta-analysis

Jacqueline E Tate, Anthony H Burton, Cynthia Boschi-Pinto, A Duncan Steele, Jazmin Duque, Umesh D Parashar, the WHO-coordinated Global Rotavirus Surveillance Network

Summary
Background
WHO recommends routine use of rotavirus vaccines in all countries, particularly in those with high mortality attributable to diarrhoeal diseases. To establish the burden of life-threatening rotavirus disease before the introduction of a rotavirus vaccine, we aimed to update the estimated number of deaths worldwide in children younger than 5 years due to diarrhoea attributable to rotavirus infection.
Methods
We used PubMed to identify studies of at least 100 children younger than 5 years who had been admitted to hospital with diarrhoea. Additionally, we required the studies to have a data collection midpoint of the year 2000 or later, to be done in full-year increments, and to assesses diarrhoea attributable to rotavirus with EIAs or polyacrylamide gel electrophoresis. We also included data from countries that participated in the WHO-coordinated Global Rotavirus Surveillance Network (consisting of participating member states during 2009) and that met study criteria. For countries that have introduced a rotavirus vaccine into their national immunisation programmes, we excluded data subsequent to the introduction. We classified studies into one of five groups on the basis of region and the level of child mortality in the country in which the study was done. For each group, to obtain estimates of rotavirus-associated mortality, we multiplied the random-effect mean rotavirus detection rate by the 2008 diarrhoea-related mortality figures for countries in that group. We derived the worldwide mortality estimate by summing our regional estimates.
Findings
Worldwide in 2008, diarrhoea attributable to rotavirus infection resulted in 453 000 deaths (95% CI 420 000—494 000) in children younger than 5 years—37% of deaths attributable to diarrhoea and 5% of all deaths in children younger than 5 years. Five countries accounted for more than half of all deaths attributable to rotavirus infection: Democratic Republic of the Congo, Ethiopia, India, Nigeria, and Pakistan; India alone accounted for 22% of deaths (98 621 deaths).
Interpretation
Introduction of effective and available rotavirus vaccines could substantially affect worldwide deaths attributable to diarrhoea. Our new estimates can be used to advocate for rotavirus vaccine introduction and to monitor the effect of vaccination on mortality once introduced.

Series

Non-communicable health risks during mass gatherings
Robert Steffen, Abderrezak Bouchama, Anders Johansson, Jiri Dvorak, Nicolas Isla, Catherine Smallwood, Ziad A Memish
Preview | Summary |
Crowd and environmental management during mass gatherings
Anders Johansson, Michael Batty, Konrad Hayashi, Osama Al Bar, David Marcozzi, Ziad A Memish
Preview | Summary |

Medical Decision Making (MDM)
November/December 2011; 31 (6)
http://mdm.sagepub.com/content/current
[Reviewed earlier; No relevant content]

Nature
Volume 481 Number 7382 pp409-540 26 January 2012
http://www.nature.com/nature/current_issue.html
[No relevant content]

Nature Medicine
January 2012, Volume 18 No 1
http://www.nature.com/nm/journal/v18/n1/index.html
[Reviewed earlier; No relevant content]

Nature Reviews Immunology
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http://www.nature.com/nri/journal/v12/n1/index.html
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New England Journal of Medicine
January 26, 2012 Vol. 366 No. 4
http://content.nejm.org/current.shtml
[No relevant content]

OMICS: A Journal of Integrative Biology
http://www.liebertonline.com/toc/omi/15/11
Volume 15, Number 12
[No relevant content]

The Pediatric Infectious Disease Journal
February 2012 - Volume 31 - Issue 2 pp: A11-A12,109-214,e37-e51

http://journals.lww.com/pidj/pages/currenttoc.aspx
[Reviewed last week]

Pediatrics
January 2012, VOLUME 129 / ISSUE 1
http://pediatrics.aappublications.org/current.shtml
[Reviewed earlier]

Pharmacoeconomics
February 1, 2012 - Volume 30 - Issue 2 pp: 83-170
http://adisonline.com/pharmacoeconomics/pages/currenttoc.aspx
[Reviewed last week]

PLoS One
[Accessed 29 January 2012]
http://www.plosone.org/article/browse.action;jsessionid=577FD8B9E1F322DAA533C413369CD6F3.ambra01?field=date

Facemasks, Hand Hygiene, and Influenza among Young Adults: A Randomized Intervention Trial

Allison E. Aiello, Vanessa Perez, Rebecca M. Coulborn, Brian M. Davis, Monica Uddin, Arnold S. Monto
PLoS ONE: Research Article, published 25 Jan 2012 10.1371/journal.pone.0029744
Abstract
Limited vaccine availability and the potential for resistance to antiviral medications have led to calls for establishing the efficacy of non-pharmaceutical measures for mitigating pandemic influenza. Our objective was to examine if the use of face masks and hand hygiene reduced rates of influenza-like illness (ILI) and laboratory-confirmed influenza in the natural setting. A cluster-randomized intervention trial was designed involving 1,178 young adults living in 37 residence houses in 5 university residence halls during the 2007–2008 influenza season. Participants were assigned to face mask and hand hygiene, face mask only, or control group during the study. Discrete-time survival models using generalized estimating equations to estimate intervention effects on ILI and confirmed influenza A/B infection over a 6-week study period were examined. A significant reduction in the rate of ILI was observed in weeks 3 through 6 of the study, with a maximum reduction of 75% during the final study week (rate ratio [RR] = 0.25, [95% CI, 0.07 to 0.87]). Both intervention groups compared to the control showed cumulative reductions in rates of influenza over the study period, although results did not reach statistical significance. Generalizability limited to similar settings and age groups. Face masks and hand hygiene combined may reduce the rate of ILI and confirmed influenza in community settings. These non-pharmaceutical measures should be recommended in crowded settings at the start of an influenza pandemic.
Trail Registration
Clinicaltrials.gov NCT00490633

Pre-Vaccination Nasopharyngeal Pneumococcal Carriage in a Nigerian Population: Epidemiology and Population Biology

Ifedayo M. O. Adetifa, Martin Antonio, Christy A. N. Okoromah, Chinelo Ebruke, Victor Inem, David Nsekpong, Abdoulie Bojang, Richard A. Adegbola
PLoS ONE: Research Article, published 24 Jan 2012 10.1371/journal.pone.0030548

Abstract

Background

Introduction of pneumococcal vaccines in Nigeria is a priority as part of the Accelerated Vaccine Introduction Initiative (AVI) of the Global Alliance for Vaccines and Immunisation (GAVI). However, country data on the burden of pneumococcal disease (IPD) is limited and coverage by available conjugate vaccines is unknown. This study was carried out to describe the pre vaccination epidemiology and population biology of pneumococcal carriage in Nigeria.

Methods

This was a cross sectional survey. Nasopharyngeal swabs (NPS) were obtained from a population sample in 14 contiguous peri-urban Nigerian communities. Data on demographic characteristics and risk factor for carriage were obtained from all study participants. Pneumococci isolated from NPS were characterised by serotyping, antimicrobial susceptibility and Multi Locus Sequencing Typing (MLST).

Results

The prevalence of pneumococcal carriage was 52.5%. Carriage was higher in children compared to adults (67.4% vs. 26%), highest (≈90%) in infants aged <9 months and reduced significantly with increasing age (P<0.001). Serotypes 19F (18.6%) and 6A (14.4%) were most predominant. Potential vaccine coverage was 43.8%, 45.0% and 62% for PCV-7, PCV-10 and PCV-13 respectively. There were 16 novel alleles, 72 different sequence types (STs) from the isolates and 3 Sequence Types (280, 310 and 5543) were associated with isolates of more than one serotype indicative of serotype switching. Antimicrobial resistance was high for cotrimoxazole (93%) and tetracycline (84%), a third of isolates had intermediate resistance to penicillin. Young age was the only risk factor significantly associated with carriage.

Conclusions

Pneumococcal carriage and serotype diversity is highly prevalent in Nigeria especially in infants. Based on the coverage of serotypes in this study, PCV-13 is the obvious choice to reduce disease burden and prevalence of drug resistant pneumococci. However, its use will require careful monitoring. Our findings provide sound baseline data for impact assessment following vaccine introduction in Nigeria.

PLoS Medicine

(Accessed 29 January 2012)
http://www.plosmedicine.org/article/browse.action?field=date
[No new relevant content]

PNAS - Proceedings of the National Academy of Sciences of the United States of America

(Accessed 29 January 2012)
http://www.pnas.org/content/early/recent
Perspective:
Peter Palese and Taia T. Wang

H5N1 influenza viruses: Facts, not fear

PNAS 2012 ; published ahead of print January 25, 2012, doi:10.1073/pnas.1121297109

Abstract

The ongoing controversy over publication of two studies involving the transmission in ferrets of H5N1 (H5) subtype influenza viruses and the recommendations of the National Science Advisory Board for Biosecurity to redact key details in the manuscripts call for an examination of relevant scientific facts. In addition, there are calls in the media to destroy the viruses, curtail future research in this area, and protect the public from such "frightening" research efforts. Fear needs to be put to rest with solid science and not speculation.

*Details of the manuscripts have already been disclosed to many in the field of influenza virology; for example, one of us (P.P.) was sent one of the manuscripts in September 2011 as a courtesy and to elicit comments.

Science

27 January 2012 vol 335, issue 6067, pages 369-492
http://www.sciencemag.org/current.dtl

News & Analysis

H5N1

Flu Controversy Spurs Research Moratorium

David Malakoff

Science 27 January 2012: 387-389.

Amid a growing global controversy over the potential dangers of experiments involving the H5N1 avian influenza virus, a group of leading influenza researchers last week agreed to a 60-day moratorium on some sensitive flu studies.

H5N1

Ron Fouchier: In the Eye of the Storm

Martin Enserink

Science 27 January 2012: 388-389.

Science talked to Ron Fouchier of Erasmus MC in Rotterdam, the Netherlands, who carried out one of the two controversial H5N1 avian influenza studies that triggered the international debate.

Letters

Pause on Avian Flu Transmission Research

Ron A. M. Fouchier, Adolfo García-Sastre, Yoshihiro Kawaoka, Wendy S. Barclay, Nicole M. Bouvier, Ian H. Brown, Ilaria Capua, Hualan Chen, Richard W. Compans, Robert B. Couch, Nancy J. Cox, Peter C. Doherty, Ruben O. Donis, Heinz Feldmann, Yi Guan, Jaqueline Katz, H. D. Klenk, Gary Kobinger, Jinhua Liu, Xiufan Liu, Anice Lowen, Thomas C. Mettenleiter, Albert D. M. E. Osterhaus, Peter Palese, J. S. Malik Peiris, Daniel R. Perez, Jürgen A. Richt, Stacey Schultz-Cherry, John Steel, Kanta Subbarao, David E. Swayne, Toru Takimoto, Masato Tashiro, Jeffery K. Taubenberger, Paul G. Thomas, Ralph A. Tripp, Terrence M. Tumpey, Richard J. Webby, and Robert G. Webster

Science 27 January 2012: 400-401.

Full Text

Science Translational Medicine

25 January 2012 vol 4, issue 118
http://stm.sciencemag.org/content/mcurrent
Commentary
Policy
Triggers for Research Ethics Consultation
Molly Havard, Mildred K. Cho and David Magnus*
Abstract
Research ethics consultation services are designed to help scientists address ethical and societal issues that may not be considered in the context of existing regulatory frameworks, such as institutional review boards. Here, we identify some types of biomedical research for which the research process can benefit from consultation with ethicists.

Tropical Medicine & International Health
February 2012 Volume 17, Issue 2 Pages 143–261
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-3156/currentissue
[Reviewed last week]

Vaccine
Volume 30, Issue 6 pp. 983-1234 (1 February 2012)
http://www.sciencedirect.com/science/journal/0264410X
Editorial
New influenza vaccines: Promises, perils, and pitfalls
Pages 983-984
Gregory A. Poland, Pritish K. Tosh
[No abstract or preview]
Brief Report
Contact transmission of vaccinia virus from smallpox vaccinees in the United States, 2003–2011
Pages 985-988
Ellen R. Wertheimer, Denise S. Olive, John F. Brundage, Leslie L. Clark
Abstract
Since 2002, approximately 40,000 US civilians and 2.1 million military personnel have been vaccinated against smallpox. The vaccine contains live vaccinia virus that can be transferred through physical contact. This report summarizes numbers, rates, and characteristics of contact vaccinia cases that presented between December 2002 and March 2011. Cases were identified from reports in adverse event reporting systems and peer-reviewed literature. One hundred fifteen cases of vaccinia transmission through contact were identified (5.4 per 100,000 vaccinees); 52 reports (45%) noted laboratory confirmation. Three-quarters of vaccinees, but fewer than 8% of contact vaccinia cases, were described as military members. Most cases were household or intimate contacts (n = 86, 75%) or wrestling partners (n = 18, 16%) of vaccinees. Nearly all cases manifested mild, local skin reactions; of 14 hospitalized cases, one was life-threatening. Vaccinia transmission from vaccinees is relatively infrequent. Continued attention to both vaccinee education and screening for contraindications to vaccination is appropriate.
Regular Papers

Influenza vaccination coverage one year after the A(H1N1) influenza pandemic, France, 2010–2011

Pages 995-997

Jean-Paul Guthmann, Laure Fonteneau, Isabelle Bonmarin, Daniel Lévy-Bru

Abstract

We report influenza vaccination coverage in target groups for the 2010–2011 influenza season, one year after the A(H1N1) pandemic. Data were collected through a one-stage cross-sectional national random telephone survey conducted in January 2011 among a sample of the population of mainland France connected to a land telephone line. Influenza vaccination coverage was below 75%, ranging from 28% for health professionals to 71% in the "65+" group with an underlying condition. Coverage was higher in the "65+" compared to the "<65" with an underlying condition. It was not significantly lower compared to the previous season. Our results do not suggest that the controversies related to the pandemic vaccination campaign of 2009–2010 have had a negative impact on subsequent seasonal influenza vaccination coverage.

Evidence-based decision making for vaccines: The need for an ethical foundation

Original Research Article

Pages 1009-1013

Robert I. Field, Arthur L. Caplan

Abstract

Evidence-based decision making (EBDM) is a tool to assess the value of medical interventions by weighing costs and health outcomes that has increasingly been applied to vaccines. However, many of the ethical considerations that support EBDM when used to evaluate therapeutic care do not readily translate to prevention. This mismatch can result in policy decisions that produce unanticipated negative consequences, including public resistance. In its emphasis on quantifiable outcomes, EBDM invokes the ethical principle of rule-utilitarianism, which values the optimal long-run balance of benefit over harm. Vaccines raise a number of competing ethical concerns in ways that individual medical treatments do not. They rely on widespread compliance for effectiveness, which can limit individual autonomy, emphasize population over individual effects, which can obscure the imperative of beneficence to help the vulnerable, require a just allocation process within populations, and sometimes challenge strong social norms. For EBDM to effectively guide vaccine policy makers, such as the Advisory Committee on Immunization Practices (ACIP) in the United States, an ethical foundation is needed that systematically considers all relevant values and transparently places vaccination recommendations in the context of social norms and individual concerns.

Active surveillance for influenza vaccine adverse events: The integrated vaccine surveillance system

Original Research Article

Pages 1050-1055

Gabriella Newes-Adeyi, Jacey Greece, Sam Bozeman, Deborah Klein Walker, Faith Lewis, Jane Gidudu

Abstract

Objectives

We conducted a pilot study of the Integrated Vaccine Surveillance System (IVSS), a novel active surveillance system for monitoring influenza vaccine adverse events that could be used in mass vaccination settings.

Methods
We recruited 605 adult vaccinees from a convenience sample of 12 influenza vaccine clinics conducted by public health departments of two U.S. metropolitan regions. Vaccinees provided daily reports on adverse reactions following immunization (AEFI) using an interactive voice response system (IVR) or the internet for 14 consecutive days following immunization. Followup with nonrespondents was conducted through computer-assisted telephone interviewing (CATI). Data on vaccinee reports were available real-time through a dedicated secure website.
Results
90% (545) of vaccinees made at least one daily report and 49% (299) reported consecutively for the full 14-day period. 58% (315) used internet, 20% (110) IVR, 6% (31) CATI, and 16% (89) used a combination for daily reports. Of the 545 reporters, 339 (62%) reported one or more AEFI, for a total of 594 AEFIs reported. The majority (505 or 85%) of these AEFIs were mild symptoms.
Conclusions
It is feasible to develop a system to obtain real-time data on vaccine adverse events. Vaccinees are willing to provide daily reports for a considerable time post vaccination. Offering multiple modes of reporting encourages high response rates. Study findings on AEFIs showed that the IVSS was able to exhibit the emerging safety profile of the 2008 seasonal influenza vaccine.

Healthcare workers and H1N1 vaccination: Does having a chronic disease make a difference?

Original Research Article
Pages 1064-1070
Matthias Paul Han Sim Toh, Predeebha Kannan, Yongchang Chen, Florence Liong Cheu Chng, Wern Ee Tang
Abstract
Introduction
A novel H1N1 vaccine was manufactured in response to the pandemic in 2009. This study describes the willingness to be vaccinated for H1N1 among healthcare workers (HCWs) in primary healthcare clinics with and without chronic medical conditions, their reasons for refusing vaccination and whether they sought additional information to make an informed decision for the vaccination.
Materials and methods
An anonymous survey was conducted in November 2009 among all medical, nursing, allied health and operations HCWs in nine primary care clinics in Singapore. Participants were asked if they had any chronic medical conditions associated with influenza-related complications (example: asthma, stroke, heart disease, cancer, diabetes mellitus, renal disease), their perception towards vaccination for H1N1 and against seasonal influenza within the preceding 2 years.
Results
The initial response rate was 80%, of which 711 (54.7%) of the completed surveys were analysed. Among the 711 respondents, 16.6% reported having at least 1 chronic disease. Asthma (10.8%), hypertension (10.4%) and dyslipidaemia (9.8%) were the main chronic conditions. Only 39.4% of respondents were willing to be vaccinated against H1N1. Males were 2.07 (95% CI 1.19–3.62) times more likely than females to receive the H1N1 vaccination; the 45–54 and 55+ years old were 2.12 (95% CI 1.06–4.24) and 2.44 (95% CI 1.13–5.27) times more willing than those below 25 years old;

and those who considered accepting the seasonal influenza vaccine were 7.0 times more likely than those who did not (95%CI 4.48–10.92). The 2 principal barriers were "fear of side effects" and "unsure of vaccine's effectiveness". Although 78% attended some H1N1-related talks, only 7% of all HCWs felt that they had sufficient information. Most wanted more information about the vaccine's safety profile and contraindications.
Conclusion
Fewer than 40% of HCWs expressed willingness to receive the H1N1 vaccination, lower than past rates of influenza vaccine. HCWs in primary care clinics who had a chronic condition did not perceive themselves to be at higher risk of developing H1N1-related complications and were not more willing than the rest of the HCWs to accept H1N1 vaccination. Vaccine's side effects and effectiveness were the main concerns. Uptake of H1N1 vaccine may improve with targeted health information covering the vaccine's safety profile.

A longitudinal study of UK military personnel offered anthrax vaccination: Informed choice, symptom reporting, uptake and pre-vaccination health

Original Research Article
Pages 1094-1100
D. Murphy, T.M. Marteau, S. Wessely

Abstract
Aim
To determine longer term health outcome in a cohort of UK service personnel who received the anthrax vaccination.
Method
We conducted a three year follow up of UK service personnel all of whom were in the Armed Forces at the start of the Iraq War. 3206 had been offered the anthrax vaccination as part of preparations for the 2003 invasion of Iraq. A further 1190 individuals who did not deploy to Iraq in 2003 were subsequently offered the vaccination as part of later deployments, and in whom we therefore had prospective pre-exposure data.
Results
There was no overall adverse health effect following receipt of the anthrax vaccination, with follow up data ranging from three to six years following vaccination. The previous retrospective association between making an uninformed choice to receive the anthrax vaccination and increased symptom reporting was replicated within a longitudinal sample where pre-vaccination health was known.
Conclusions
Anthrax vaccination was not associated with long term adverse health problems. However, symptoms were associated with making an uninformed choice to undergo the vaccination. The results are important both for the safety of the vaccine and for future policies should anthrax vaccination be required in either military or non military populations.

Risk factors associated with parents claiming personal-belief exemptions to school immunization requirements: Community and other influences on more skeptical parents in Oregon, 2006

Original Research Article
Pages 1132-1142
James A. Gaudino, Steve Robison

Abstract

Background and objectives
With vaccine-preventable diseases at record lows, few studies investigate rising parent-claimed exemptions to school immunization requirements. After finding exemption clusters in Oregon, we hypothesized that exemption risk factors may vary among communities. We surveyed parents to identify risk factors for exemptions and evaluated risk factor differences among communities with differing exemption rates.
Design
Retrospective cohort study, multi-staged, population-proportionate sampling.
Setting and participants
Parents of 2004–05 Oregon elementary school children (N = 2900).
Main outcome measure
Parent-reported exemption status.
Results
The response rate was 55%. Compared to vaccinators, exemptors were significantly more likely to have: strong vaccine concerns (weighted adjusted odds ratio (aOR) = 15.3, 95% CI 6.4–36.7); "vaccine-hesitant" concerns (aOR = 2.3; 95% CI 1.0–5.0); >1 childbirth(s) at a non-hospital, alternative setting (aOR = 3.6; 95% CI 1.6–8.0); distrust of local doctors (aOR = 2.7; 95% CI 1.0–7.5); reported chiropractic healthcare for their youngest school-age child (aOR = 3.9; 95% CI 1.8–8.5); and reported knowledge of someone with a vaccine-hurt child (aOR = 1.8; 95% CI 0.9–3.4). Exemptors were less likely to have "pro-vaccine" beliefs (aOR = 0.2; 95% CI 0.0–0.6) and less likely to report relying on print materials (aOR = 0.4; 95% CI 0.2–0.8). The strengths of association differed significantly for those with strong vaccine concerns and those reporting knowledge of someone with a vaccine-hurt child, depending on residence in exemption-rate areas, e.g., exemptors in medium-rate areas were more likely to have strong vaccine concerns (aOR = 13.5; 95% CI 5.4–34.0) than those in high-rate areas (aOR = 9.7; 95% CI 3.7–25.4).
Conclusions
Vaccine beliefs were important risk factors. That differing community-level exemption use modified the effects of several individual-level factors suggests that communities also influence parent decisions. Therefore, understanding community contexts and norms may be important when designing interventions.

E-health use, vaccination knowledge and perception of own risk: Drivers of vaccination uptake in medical students

Original Research Article
Pages 1143-1148
Cornelia Betsch, Sabine Wicker
Abstract
Objective
was to improve understanding of mechanisms contributing to healthcare personnel's (HCP) reluctance to get vaccinated against seasonal influenza. We assessed the role of several drivers: vaccination knowledge, vaccination recommendations and the role of the Internet (so-called e-health) in creating vaccination knowledge. The key mechanism under consideration was the perceived own risk (regarding disease and the vaccine).
Method
310 medical students at the Frankfurt University Hospital answered an anonymous questionnaire assessing risk perceptions, intentions to get vaccinated, knowledge,

preferences regarding information sources for personal health decisions and search-terms that they would use in a Google-search directed at seasonal influenza vaccination.
Results
The key driver of vaccination intentions was the perceived own risk (of contracting influenza and of suffering from vaccine adverse events). The recommendation to get vaccinated was a significant, yet weaker predictor. As an indirect driver we identified one's knowledge concerning vaccination. 32% of the knowledge questions were answered incorrectly or as don't know. 64% of the students were e-health users; therefore, additional information search via the Internet was likely. An analysis of the websites obtained by googling the search-terms provided by the students revealed 30% commercial e-health websites, 11% anti-vaccination websites and 10% public health websites. Explicit searches for vaccination risks led to fewer public health websites than searches without risk as a search term. Content analysis of the first three websites obtained revealed correct information regarding the questions of whether the doses of vaccine additives were dangerous, whether chronic diseases are triggered by vaccines and whether vaccines promote allergies in 58%, 53% and 34% of the websites, respectively. These questions were especially related to own risk, which strongly predicted intentions. Correct information on vaccination recommendations were provided on 85% of the websites.
Conclusion
Concentrating on the key drivers in early medical education (own risk of contracting influenza, vaccine safety, vaccination recommendation) promises to be a successful combination to increase vaccination uptake in HCP.

Homeschooling parents' practices and beliefs about childhood immunizations

Original Research Article
Pages 1149-1153
Elizabeth L. Thorpe, Richard K. Zimmerman, Jonathan D. Steinhart, Kathleen N. Lewis, Marian G. Michaels
Abstract
Objective
Concern over the rise of vaccine preventable diseases (VPD) coupled with the increasing popularity of homeschooling makes understanding the attitudes and behaviors of homeschoolers regarding immunizations a critical area of investigation. This study was a pilot to investigate the immunization attitudes of homeschooling parents and the vaccination status of their children.
Methods
In the spring of 2010, online surveys were sent to a convenience sample of 707 homeschooling parents in Western Pennsylvania with children ages 0–18 years of age. Information was collected on demographic characteristics, vaccination status of children, and attitudes toward vaccination.
Results
Surveys were returned by 18 percent of respondents, representing 396 homeschooled children. Demographic characteristics mirrored national homeschooling trends. The majority (95%) surveyed felt that education about vaccines was important. Thirty-eight percent of families had fully vaccinated children while 56% reported partial vaccination and 6% said children had received no vaccines. Respondents who fully vaccinated their children were more likely to agree that vaccinating according to the American Academy of Pediatrics was a good idea (OR: 4.8 [95% CI: 2.0–11.7]) and were more likely to

comply with the recommendations of their health care provider (OR: 8.3 [95% CI: 3.6–19.1]). Respondents who vaccinated their children were more likely to believe that vaccines are safe (OR: 7.6 [95% CI: 1.0–56.2]). Beliefs about autism, thimerosal and learning disabilities did not vary significantly with vaccination status in regression analysis.

Conclusions

While specific factors influencing vaccination practices were not identified, this study demonstrated that recommendations of physicians and the AAP do not significantly influence homeschooling vaccination practices in the pilot population. Given the results of this pilot study, more research is called for, particularly a larger study with public school controls.

The vaccine adverse event reporting system and vaccine safety research in the genomics era

Original Research Article

Pages 1162-1164

Robert Lowell Davis

Abstract

Advances in genetics hold promise for integrating genomics into vaccine safety research. Given the rarity of many vaccine adverse effects, and the challenges in finding sufficient numbers of patients to study, consideration should be given to employing the Vaccine Adverse Event Reporting System (VAERS) for genetic studies of vaccine adverse events. VAERS could be used to build a repository of biospecimens allowing for the systematic evaluation of vaccine adverse events. If successful, such research would enable the identification of specific subgroups of people at particularly increased risk for adverse events.

Estimating the clinical impact of introducing paediatric influenza vaccination in England and Wales

Original Research Article

Pages 1208-1224

R.J. Pitman, L.J. White, M. Sculpher

Abstract

Influenza causes a significant burden of disease each year in England and Wales, with the young and the elderly suffering the greatest burden. Children are recognised as playing an important role in the dissemination of the influenza virus. This study examines the population impact of implementing a programme of paediatric vaccination.

A dynamic transmission model was used to simulate the impact of vaccination programmes with varying levels of coverage across pre-school and school age children. These analyses suggest that vaccinating as few as 50% of 2–18 year olds could result in a substantial reduction in the annual incidence of influenza related morbidity and mortality across the population. Herd immunity may extend this protection to the young and the elderly. It is assumed that such programmes would be implemented in concert with the current strategy of vaccinating the elderly and younger at risk groups with an inactivated vaccine.

In England and Wales, paediatric vaccination of two to eighteen year olds reduced the estimated number of general practice consultations, hospitalisations and deaths arising from influenza A and B infections by up to 95%. This translates into an annual average reduction of approximately 52,000, 1500 and 1200 events, respectively.

A policy of paediatric vaccination could significantly reduce the clinical burden of influenza in England and Wales, in all age groups, with the added value of herd immunity helping to protect the young and the elderly who are at highest risk of complications.

The cost-effectiveness of varicella and combined varicella and herpes zoster vaccination programmes in the United Kingdom

Original Research Article
Pages 1225-1234
Albert Jan van Hoek, Alessia Melegaro, Nigel Gay, Joke Bilcke, W. John Edmunds

Abstract

Background

Despite the existence of varicella vaccine, many developed countries have not introduced it into their national schedules, partly because of concerns about whether herpes zoster (HZ, shingles) will increase due to a lack of exogenous boosting. The magnitude of any increase in zoster that might occur is dependent on rates at which adults and children mix – something that has only recently been quantified – and could be reduced by simultaneously vaccinating older individuals against shingles. This study is the first to assess the cost-effectiveness of combined varicella and zoster vaccination options and compare this to alternative programmes.

Methods and findings

The cost-effectiveness of various options for the use of varicella–zoster virus (VZV) containing vaccines was explored using a transmission dynamic model. Underlying contact rates are estimated from a contemporary survey of social mixing patterns, and uncertainty in these derived from bootstrapping the original sample. The model was calibrated to UK data on varicella and zoster incidence. Other parameters were taken from the literature. UK guidance on perspective and discount rates were followed. The results of the incremental cost-effectiveness analysis suggest that a combined policy is cost-effective. However, the cost-effectiveness of this policy (and indeed the childhood two-dose policy) is influenced by projected benefits that accrue many decades (80–100 years or more) after the start of vaccination. If the programme is evaluated over shorter time frames, then it would be unlikely to be deemed cost-effective, and may result in declines in population health, due to a projected rise in the incidence of HZ. The findings are also sensitive to a number of parameters that are inaccurately quantified, such as the risk of HZ in varicella vaccine responders.

Conclusions

Policy makers should be aware of the potential negative benefits in the first 30–50 years after introduction of a childhood varicella vaccine. This can only be partly mitigated by the introduction of a herpes zoster vaccine. They have to decide how they value the potential benefits beyond this time to consider childhood vaccination cost effective.

Value in Health
January 2012, Vol. 15, No. 1
http://www.valueinhealthjournal.com/home
[reviewed last week]