Vaccines: The Week in Review
1 August 2011
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/consumer/jsp/microsite/microsite.jsp

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 1,600 items.

Comments and suggestions should be directed to
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UNICEF, the Kenya Ministry of Health and WHO launched a vaccination campaign for children living in the host communities around Dadaab refugee camp in Northern Kenya. The campaign will target 202,665 children under five, with measles and polio vaccines, together with Vitamin A and de-worming tablets. The action was described as part of a regional push to ensure all children in drought affected areas are vaccinated against a killer disease like measles which can be deadly for malnourished children, and be protected from polio.
http://www.unicef.org/media/media_59359.html

WHO and public health organizations globally recognized the first official WHO World Hepatitis Day, 28 July 2011 "to increase the awareness and understanding of viral hepatitis and the diseases that it causes. It provides an opportunity to focus on specific actions such as: strengthening prevention, screening and control of viral hepatitis and its related diseases; increasing hepatitis B vaccine coverage and integration into national immunization programmes; and coordinating a global response to hepatitis."

A range of published and video content is available at:
http://www.who.int/csr/disease/hepatitis/world_hepatitis_day/en/index.html

WHO Europe reported on efforts to improve cross-regional collaboration in protecting polio-free areas through a meeting held 21 to 22 July 2011 in Urumqi, Xinjiang, China, involving more than 40 international public health specialists, senior officials and experts engaged in the field of polio eradication. The two-day workshop was co-hosted by WHO and the Chinese Centre for Disease Control and Prevention, with experts from China, India, Myanmar, Vietnam, Pakistan, Nepal, Tajikistan, the Russian Federation, Kazakhstan, Kyrgyzstan, Mongolia and Uzbekistan, as well as WHO headquarters, the WHO European Region, South East Asia Region, Western Pacific Region and WHO partner agencies. Meeting participants summarized five major lessons learned in 2010:
- Importations occur all the time and will continue until polio eradication is achieved.
- The most vulnerable populations will be affected the most. Reported immunization coverage may not always represent true childhood population immunity. Even when accurate, subnational variation is what matters most, i.e. "the weakest link".
- Rapid response is vital; delays mean any outbreak could be catastrophic in size and fatal. It requires sensitive surveillance at all critical subnational levels. Every step in acute flaccid paralysis (AFP) surveillance needs to be timely. Early notification of suspicion is best.
- Response to threat requires full political support. Cross-border coordination and cooperation is critical.
- Outbreaks are much less expensive to prevent than to control and interrupt. Risk assessment should be undertaken by countries and provinces and should lead to risk reduction. Funding prevention requires local mobilization.
http://www.euro.who.int/en/what-we-do/health-topics/disease-prevention/vaccines-and-immunization/news/news/2011/07/securing-the-gains-cross-regional-collaboration-in-protecting-polio-free-areas

The Bill & Melinda Gates Foundation and Fútbol Club (FC) Barcelona/FC Barcelona Foundation "kicked off a three-year partnership to energize the global fight to end polio and draw attention to the promise of life-saving vaccines." The first year of the partnership will focus on polio eradication. The announcement noted that "FC Barcelona – with 18 million Facebook fans and multiple Twitter channels with millions of followers – will engage its followers through social media. In-stadium advertisements and announcements during matches will highlight the tremendous opportunity the world has to end polio and save millions of lives through childhood vaccination. Fans will be encouraged to join the team in the effort to eradicate only the second disease in history. The partnership will use the tagline "More than a Goal. End Polio," a play on FC Barcelona's tagline, 'More than a Club.'"
http://www.gatesfoundation.org/press-releases/Pages/fc-barcelona-and-foundation-team-up-110728.aspx\

The **Weekly Epidemiological Record (WER) for 29 July 2011**, vol. 86, 31 (pp 325–340) includes: Cholera, 2010; Monthly report on dracunculiasis cases, January–May 2011
http://www.who.int/entity/wer/2011/wer8631.pdf

Twitter Watch

A selection of items of interest this week from a variety of twitter feeds. This capture is highly selective and by no means intended to be exhaustive.

GAVIAlliance GAVI Alliance
Our @UNICEF & @WHOnews partners on the ground are working hard to protect children in the #HornofAfrica from measles: http://ht.ly/5QIXk

CDCgov CDC.gov
Find out what's planned for the Public Health Informatics conference. Please visit: go.usa.gov/KiZ

pahowho PAHO/WHO
PAHO, Seventh-day Adventists Partner to Strengthen Health Efforts in the Americas bit.ly/n8cFaa @adventistchurch #adventist #PAHOWHO

GAVIAlliance GAVI Alliance
Today is World #HepatitisDay. Since 2000, 267 million infants have been immunised against hepatitis B w/ #GAVI support! gavialliance.org/library/news/s…

TheLancet The Lancet
10 million injecting drug users worldwide have hepatitis C and 1.3 million have hepatitis B bit.ly/nmyF1b #hepatitisday

TheLancet The Lancet
Hepatitis affects half a billion people globally. World Health Assembly declares today World Hepatitis Day bit.ly/oJNA6x #hepatitisday

GAVIAlliance GAVI Alliance
The @UNICEF site shows supplies of life-saving #vaccines for @GAVIAlliance countries: http://bit.ly/pCeyDE /via @orinlevine

NPRHealth NPR Health News
by GlobalHealth
Vaccine Mistrust Spreading To The Developing World http://n.pr/pGeg3A

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. 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
July 19, 2011; 155 (2)
http://www.annals.org/content/current
[Reviewed last week]

British Medical Bulletin
Volume 98 Issue 1 June 2011
http://bmb.oxfordjournals.org/content/current
[Reviewed earlier; No relevant content]

British Medical Journal
30 July 2011 Volume 343, Issue 7817
http://www.bmj.com/content/current
[No relevant content]

Clinical Infectious Diseases
Volume 53 Issue 3 August 1, 2011
http://www.journals.uchicago.edu/toc/cid/current
[Reviewed earlier]

Cost Effectiveness and Resource Allocation
(accessed 1 August 2011)
http://www.resource-allocation.com/
[No new relevant content]

Emerging Infectious Diseases
Volume 17, Number 8–August 2011
http://www.cdc.gov/ncidod/EID/index.htm
Research
Spread of Measles Virus D4-Hamburg, Europe, 2008–2011
A. Mankertz et al.

Abstract
A new strain of measles virus, D4-Hamburg, was imported from London to Hamburg in December 2008 and subsequently spread to Bulgaria, where an outbreak of >24,300 cases was observed. We analyzed spread of the virus to demonstrate the importance of addressing hard-to-reach communities within the World Health Organization European Region regarding access to medical care and vaccination campaigns. The D4-Hamburg strain appeared during 2009–2011 in Poland, Ireland, Northern Ireland, Austria, Greece, Romania, Turkey, Macedonia, Serbia, Switzerland, and Belgium and was repeatedly reimported to Germany. The strain was present in Europe for >27 months and led to >25,000 cases in 12 countries. Spread of the virus was prevalently but not exclusively associated with travel by persons in the Roma ethnic group; because this travel extends beyond the borders of any European country, measures to prevent the spread of measles should be implemented by the region as a whole.

Cost-effectiveness of Sick Leave Policies for Health Care Workers with Influenza-like Illness, Brazil, 2009

N.V.V.P. Mota et al.

Abstract
We describe the effect of influenza-like illness (ILI) during the outbreak of pandemic (H1N1) 2009 on health care worker (HCW) absenteeism and compare the effectiveness and cost of 2 sick leave policies for HCWs with suspected influenza. We assessed initial 2-day sick leaves plus reassessment until the HCW was asymptomatic (2-day + reassessment policy), and initial 7-day sick leaves (7-day policy). Sick leaves peaked in August 2009: 3% of the workforce received leave for ILI. Costs during May–October reached R$798,051.87 (≈US $443,362). The 7-day policy led to a higher monthly rate of sick leave days per 100 HCWs than did the 2-day + reassessment policy (8.72 vs. 3.47 days/100 HCWs; $p<0.0001$) and resulted in higher costs (US $609 vs. US $1,128 per HCW on leave). ILI affected HCW absenteeism. The 7-day policy was more costly and not more effective in preventing transmission to patients than the 2-day + reassessment policy.

Health Affairs
July 2011; Volume 30, Issue 7
New Directions In System Innovations
http://content.healthaffairs.org/content/current
[Reviewed earlier; No relevant content]

Health Economics, Policy and Law
Volume 6 - Issue 03 - 2011 http://journals.cambridge.org/action/displayIssue?jid=HEP&tab=currentissue
[Reviewed earlier]

Human Vaccines
Volume 7, Issue 7 July 2011
http://www.landesbioscience.com/journals/vaccines/toc/volume/7/issue/7/
[Reviewed earlier]

International Journal of Infectious Diseases
Volume 15, Issue 7 pp. e437-e508 (July 2011)
http://www.sciencedirect.com/science/journal/12019712
[No relevant content]

JAMA
July 27, 2011, Vol 306, No. 4, pp 343-450
http://jama.ama-assn.org/current.dtl
[No relevant content]

Journal of Infectious Diseases
Volume 204 Issue 4 August 15, 2011
http://www.journals.uchicago.edu/toc/jid/current
PERSPECTIVE
David M. Morens, Edward C. Holmes, A. Sally Davis, and Jeffery K. Taubenberger
Global Rinderpest Eradication: Lessons Learned and Why Humans Should Celebrate Too
J Infect Dis. (2011) 204(4): 502-505 doi:10.1093/infdis/jir327
Extract

After more than a decade of effort by the Global Rinderpest Eradication Programme (GREP) of the UN Food and Agricultural Organization (FAO), the Organisation mondiale de la santé (Office international des épizooties [OIE]), and the International Atomic Energy Agency (IAEA), among others [3– 5], the veterinary disease rinderpest (Figure 1) was declared eradicated on 25 May 2011 [6]. Since rinderpest virus does not cause human disease, why is this achievement important to humans?

Since at least the Roman era, rinderpest (German for "cattle plague") has been indirectly responsible for countless human deaths resulting from agricultural losses that led to famine and disease. The Ethiopian poem cited above refers to an African rinderpest panzootic that caused rapid loss of virtually all of the cattle, buffaloes, elands, and wild swine, as well as many sheep, goats, and wildlife species, such as antelopes, gazelles, giraffes, hartebeest, and wildebeest (the "Great Ethiopian Famine" of 1887–1892 [2, 7– 11]). Rinderpest virus (RPV) not only infects cattle but also infects >40 other domestic and wild artiodactyl species. It has been credited with decimation of native African wildlife species and even the decline of the European bison.

The Ethiopian tragedy exemplifies the importance of animal disease to humans. Without cattle to plow fields and fertilize crops with dung, the once-fertile Ethiopian lands became a graveyard. Planting and harvesting ceased; vast destruction of the native fauna …

Eileen F. Dunne, Maya Sternberg, Lauri E. Markowitz, Geraldine McQuillan, David Swan, Sonya Patel, and Elizabeth R. Unger
Human Papillomavirus (HPV) 6, 11, 16, and 18 Prevalence Among Females in the United States—National Health and Nutrition Examination Survey, 2003–2006: Opportunity to Measure HPV Vaccine Impact?
J Infect Dis. (2011) 204(4): 562-565 doi:10.1093/infdis/jir342

Abstract
The 2003–2006 National Health and Nutrition Examination Surveys were used to assess human papillomavirus (HPV) types 6, 11, 16, and 18 DNA detection from females aged 14–59 years who self-collected cervicovaginal swab specimens. Prevalence was 8.8% (95% confidence interval [CI], 7.8%–10.0%) and was highest among women aged 20–24 years (18.5%; 95% CI, 14.9%–22.8%). Age group, education, marital status, and sexual behavior were associated with detection. These data provide baseline information before HPV vaccine introduction. Early impact of vaccine in the United States may be determined by a reduction in the prevalence of HPV 6, 11, 16, and 18 infection among young women.

Susan Hariri, Elizabeth R. Unger, Maya Sternberg, Eileen F. Dunne, David Swan, Sonya Patel, and Lauri E. Markowitz

Prevalence of Genital Human Papillomavirus Among Females in the United States, the National Health and Nutrition Examination Survey, 2003–2006

J Infect Dis. (2011) 204(4): 566-573 doi:10.1093/infdis/jir341

Abstract
Background. Genital human papillomaviruses (HPV) include >40 sexually transmitted viruses. Most HPV infections do not progress to disease, but infection with certain types of HPV can cause cervical and other anogenital and oropharyngeal cancer, and other types of HPV are associated with anogenital warts. HPV vaccines prevent infection with HPV 16 and 18, which account for 70% of cases of cervical cancer, and HPV 6 and 11, which cause 90% of the cases of anogenital warts.
Methods. Using data and self-collected cervicovaginal specimens from 4150 females, 14–59 years of age, from consecutive National Health and Nutrition Examination Surveys (2003–2006), we estimated the prevalence of type-specific HPV DNA and examined sociodemographic and sexual determinants.
Results. The overall prevalence of HPV was 42.5% in females 14–59 years of age and varied significantly by age, race or ethnicity, and number of sex partners. Individual type prevalence was less than 7%, ranging from <0.5% through 6.5%. The most common type was nononcogenic HPV 62 (found in 6.5% of subjects), followed by HPV 53 and HPV 16 (4.7%), both of which are oncogenic types. The most prevalent species was nononcogenic α3.
Conclusions. HPV infection is common among US females, with the highest burden of infection found in young females 20–24 years of age. Monitoring trends in HPV type distribution will contribute to our understanding of the early impact of HPV vaccines.

The Lancet
Jul 30, 2011 Volume 378 Number 9789 p373 - 456
http://www.thelancet.com/journals/lancet/issue/current
The Lancet continues to re-publish in its weekly edition selected content from its *Lancet Series* titled:
New Decade of Vaccines dated 9 June 2011 available at:
http://www.thelancet.com/series/new-decade-of-vaccines

The Lancet Infectious Disease
Aug 2011 Volume 11 Number 8 p579 - 650

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

Review

The revised global yellow fever risk map and recommendations for vaccination, 2010: consensus of the Informal WHO Working Group on Geographic Risk for Yellow Fever

Emily S Jentes, Gilles Poumerol, Mark D Gershman, David R Hill, Johan Lemarchand, Rosamund F Lewis, J Erin Staples, Oyewale Tomori, Annelies Wilder-Smith, Thomas P Monath, for the Informal WHO Working Group on Geographic Risk for Yellow Fever

Preview

The changing epidemiology of yellow fever and continued reports of rare but serious adverse events associated with yellow fever vaccine have drawn attention to the need to revisit criteria for the designation of areas with risk for yellow fever virus activity, and to revise the vaccine recommendations for international travel. WHO convened a working group of international experts to review factors important for the transmission of yellow fever virus and country-specific yellow fever information, to establish criteria for additions to or removal from the list of countries with risk for yellow fever virus transmission, to update yellow fever risk maps, and to revise the recommendations for vaccination for international travel.

Fact and fiction in tuberculosis vaccine research: 10 years later

Stefan HE Kaufmann

Preview

Tuberculosis is one of the most deadly infectious diseases. The situation is worsening because of co-infection with HIV and increased occurrence of drug resistance. Although the BCG vaccine has been in use for 90 years, protection is insufficient; new vaccine candidates are therefore needed. 12 potential vaccines have gone into clinical trials. Ten are aimed at prevention of tuberculosis and, of these, seven are subunit vaccines either as adjuvanted or viral-vectored antigens. These vaccines would be boosters of BCG-prime vaccination.

Medical Decision Making (MDM)

July/August 2011; 31 (4)

http://mdm.sagepub.com/content/current

[Reviewed earlier]

Nature

Volume 475 Number 7357 pp423-538 28 July 2011

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

[No relevant content]

Nature Medicine

July 2011, Volume 17 No 7

http://www.nature.com/nm/index.html

[Reviewed earlier; No relevant content]

New England Journal of Medicine
July 28, 2011 Vol. 365 No. 4
http://content.nejm.org/current.shtml

Original Articles

Protective Effect of Natural Rotavirus Infection in an Indian Birth Cohort

B.P. Gladstone and Others

Background
More than 500,000 deaths are attributed to rotavirus gastroenteritis annually worldwide, with the highest mortality in India. Two successive, naturally occurring rotavirus infections have been shown to confer complete protection against moderate or severe gastroenteritis during subsequent infections in a birth cohort in Mexico. We studied the protective effect of rotavirus infection on subsequent infection and disease in a birth cohort in India (where the efficacy of oral vaccines in general has been lower than expected).
Methods
We recruited children at birth in urban slums in Vellore; they were followed for 3 years after birth, with home visits twice weekly. Stool samples were collected every 2 weeks, as well as on alternate days during diarrheal episodes, and were tested by means of enzyme-linked immunosorbent assay and polymerase-chain-reaction assay. Serum samples were obtained every 6 months and evaluated for seroconversion, defined as an increase in the IgG antibody level by a factor of 4 or in the IgA antibody level by a factor of 3.
Results
Of 452 recruited children, 373 completed 3 years of follow-up. Rotavirus infection generally occurred early in life, with 56% of children infected by 6 months of age. Levels of reinfection were high, with only approximately 30% of all infections identified being primary. Protection against moderate or severe disease increased with the order of infection but was only 79% after three infections. With G1P[8], the most common viral strain, there was no evidence of homotypic protection.
Conclusions
Early infection and frequent reinfection in a locale with high viral diversity resulted in lower protection than has been reported elsewhere, providing a possible explanation why rotavirus vaccines have had lower-than-expected efficacy in Asia and Africa.
(Funded by the Wellcome Trust.)

Supported by the Wellcome Trust.

Review Article

Genomic Medicine: Microbial Genomics and Infectious Diseases

D.A. Relman

[Free full text]

Extract

The pace of technical advancement in microbial genomics has been breathtaking. Since 1995, when the first complete genome sequence of a free-living organism, Haemophilus influenzae, was published,1 1554 complete bacterial genome sequences (the majority of which are from pathogens) and 112 complete archaeal genome sequences have been determined, and more than 4800 and 90, respectively, are in progress.2 A total of 41 complete eukaryotic genome sequences have been determined (19 from fungi), and more than 1100 are in progress. Complete reference genome sequences are available for 2675 viral species, and for some of these species, a large number of strains have

been completely sequenced. Nearly 40,000 strains of influenza virus[3] and more than 300,000 strains of human immunodeficiency virus (HIV) type 1 have been partially sequenced.[4] However, the selection of microbes and viruses for genome sequencing is heavily biased toward the tiny minority that are amenable to cultivation in the laboratory, numerically dominant in particular habitats of interest (e.g., the human body), and associated with disease….

"…Vaccines

In the same way that genome sequences reveal drug-resistance profiles, vulnerabilities, and synthetic capabilities of microbes and viruses, these sequences also provide clues about antigenic repertoire. This information can be exploited for vaccine design and other immunoprophylactic interventions. Genome-based antigen discovery has also been undertaken for more complex pathogens. One approach, known as reverse vaccinology, involves cloning and expressing all proteins that are predicted (from the organism's complete genome) to be secreted or surface-associated, starting with the complete genome sequence (Figure 3).[80] After immunizing mice with each of the proteins, each of the corresponding antiserum samples is tested for its ability to neutralize or kill the original target organism. On the basis of this approach, a small group of proteins from group B meningococcus,[81] a pathogen that has so far eluded vaccine development, has shown promise as a candidate multivalent subunit vaccine. A similar approach has been taken with group B streptococcus[82] and extraintestinal pathogenic E. coli.[83] Protective antigens that are discovered through these sorts of methods may have been previously ignored because they are not immunogenic during natural infections.

Future Directions

Without question, the techniques for microbial and viral genome sequencing are becoming increasingly rapid and less expensive. Genome sequencing of a microbe or virus will soon be easier than characterization of its growth-based behavior in the laboratory. In the next 3 to 5 years, direct shotgun sequencing of the DNA and RNA in a clinical sample may become a routine matter. What is less clear is how clinically relevant information will be most effectively extracted from the ensuing massive amounts of data. In the near term, genomic and metagenomic analyses of microbes are most likely to be useful in areas such as the cataloguing and understanding of microbial and viral diversity in the human body, the identification of molecular determinants of virulence and symbiosis, and real-time tracking of particular strains of pathogens. Such analyses will also provide a deeper understanding of how pathogens spread and cause disease and will identify new targets for therapies and antigens for vaccines. Thoughtfully designed clinical and epidemiologic studies will be required to see the full realization of these benefits."

The Pediatric Infectious Disease Journal
August 2011 - Volume 30 - Issue 8 pp: A9-A10,633-728,e130-e154
http://journals.lww.com/pidj/pages/currenttoc.aspx
[Reviewed last week]

Pediatrics
July 2011, VOLUME 128 / ISSUE 1
http://pediatrics.aappublications.org/current.shtml

[Reviewed earlier]

Pharmacoeconomics
August 1, 2011 - Volume 29 - Issue 8 pp: 637-730
http://adisonline.com/pharmacoeconomics/pages/currenttoc.aspx
[Reviewed earlier]

PLoS One
[Accessed 1 August 2011]
http://www.plosone.org/article/browse.action;jsessionid=577FD8B9E1F322DAA533C413369CD6F3.ambra01?field=date

The Role of Vaccine Coverage within Social Networks in Cholera Vaccine Efficacy
Elisabeth D. Root, Sophia Giebultowicz, Mohammad Ali, Mohammad Yunus, Michael Emch
Abstract
Background
Traditional vaccine trial methods have an underlying assumption that the effect of a vaccine is the same throughout the trial area. There are, however, many spatial and behavioral factors that alter the rates of contact among infectious and susceptible individuals and result in different efficacies across a population. We reanalyzed data from a field trial in Bangladesh to ascertain whether there is evidence of indirect protection from cholera vaccines when vaccination rates are high in an individual's social network.
Methods
We analyzed the first year of surveillance data from a placebo-controlled trial of B subunit-killed whole-cell and killed whole-cell-only oral cholera vaccines in children and adult women in Bangladesh. We calculated whether there was an inverse trend for the relation between the level of vaccine coverage in an individual's social network and the incidence of cholera in individual vaccine recipients or placebo recipients after controlling for potential confounding variables.
Results
Using bari-level social network ties, we found incidence rates of cholera among placebo recipients were inversely related to levels of vaccine coverage (5.28 cases per 1000 in the lowest quintile vs 3.27 cases per 1000 in the highest quintile; $p = 0.037$ for trend). Receipt of vaccine by an individual and the level of vaccine coverage of the individual's social network were independently related to a reduced risk of cholera.
Conclusions
Findings indicate that progressively higher levels of vaccine coverage in bari-level social networks can lead to increasing levels of indirect protection of non-vaccinated individuals and could also lead to progressively higher levels of total protection of vaccine recipients.

On the Treatment of Airline Travelers in Mathematical Models
Michael A. Johansson, Neysarí Arana-Vizcarrondo, Brad J. Biggerstaff, J. Erin Staples, Nancy Gallagher, Nina Marano
Abstract

The global spread of infectious diseases is facilitated by the ability of infected humans to travel thousands of miles in short time spans, rapidly transporting pathogens to distant locations. Mathematical models of the actual and potential spread of specific pathogens can assist public health planning in the case of such an event. Models should generally be parsimonious, but must consider all potentially important components of the system to the greatest extent possible. We demonstrate and discuss important assumptions relative to the parameterization and structural treatment of airline travel in mathematical models. Among other findings, we show that the most common structural treatment of travelers leads to underestimation of the speed of spread and that connecting travel is critical to a realistic spread pattern. Models involving travelers can be improved significantly by relatively simple structural changes but also may require further attention to details of parameterization.

PLoS Medicine
(Accessed 1 August 2011)
http://www.plosmedicine.org/article/browse.action?field=date
[No relevant content]

Science
29 July 2011 vol 333, issue 6042, pages 489-660
http://www.sciencemag.org/current.dtl
[No relevant content]

Science Translational Medicine
27 July 2011 vol 3, issue 93
http://stm.sciencemag.org/content/current
Review: Vaccines
Assessing the Safety of Adjuvanted Vaccines
S. Sohail Ahmed, Stanley A. Plotkin, Steven Black, and Robert L. Coffman
Abstract
Despite the very low risk-to-benefit ratio of vaccines, fear of negative side effects has discouraged many people from getting vaccinated, resulting in reemergence of previously controlled diseases such as measles, pertussis, and diphtheria. Part of this fear stems from the lack of public awareness of the many preclinical and clinical safety evaluations that vaccines must undergo before they are available to the general public, as well as from misperceptions of what adjuvants are or why they are used in vaccines. The resultant "black box" leads to a preoccupation with rare side effects (such as autoimmune diseases) that are speculated, but not proven, to be linked to some vaccinations. The focus of this review article is to open this black box and provide a conceptual framework for how vaccine safety is traditionally assessed. We discuss the strengths and shortcomings of tools that can be and are used preclinically (in animal studies), translationally (in biomarker studies with human sera or cells), statistically (for disease epidemiology), and clinically (in the design of human trials) to help

ascertain the risk of the infrequent and delayed adverse events that arise in relation to adjuvanted vaccine administration.

Tropical Medicine & International Health
August 2011 Volume 16, Issue 8 Pages 905–1041
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-3156/currentissue
[Reviewed earlier]

Vaccine
Volume 29, Issue 35 pp. 5821-6068 (11 August 2011)
http://www.sciencedirect.com/science/journal/0264410X
Short Communication
Developing vaccinology expertise for Africa: Six years and counting
Pages 5821-5823
Charles Shey Wiysonge, Zainab Waggie, Hassan Mahomed, Anthony Hawkridge, Mark Hatherill, Willem A. Hanekom, Gregory D. Hussey
Abstract
There exists high quality evidence showing that interactive educational meetings and workshops can improve healthcare worker performance. This evidence formed the basis for establishing the annual African Vaccinology Course in 2005 at the University of Cape Town in South Africa. The course, which is designed to develop vaccinology expertise for Africa, covers relevant basic sciences pertaining to vaccine-preventable diseases such as epidemiology, immunology and microbiology; discusses specific vaccine-preventable diseases; provides information on vaccine safety, vaccination strategies and evaluation of vaccines; discusses new vaccines in the pipeline; and promotes vaccine advocacy. We hope that course alumni would become strong advocates for childhood immunisation in their respective countries. Such dedicated advocacy should contribute to reducing the time gap between the development of new vaccines and the formulation of policies enabling their introduction in African countries, as well as contributing to more equitable increase in immunisation coverage in our continent.
Reviews
The gold industry standard for risk and cost of drug and vaccine development revisited
Pages 5846-5849
E.S. Pronker, T.C. Weenen, H.R. Commandeur, A.D.M.E. Osterhaus, H.J.H.M. Claassen
Abstract
Gold dimensions of pharmaceutical drug development indicate that it takes on average 11.9 years, with an investment around US$ 0.8 Billion, to launch one product on the market. Furthermore, approximately 22% of the drug candidates successfully complete clinical testing. These universally acknowledged proportions largely originate from one single, much cited publication; Dimasi et al. [5]. However an additional six articles describing new chemical entities (NCE) development were identified, which contain little, if any, information on vaccines. Published cumulative success rates range from 7% to 78% and investments calculations span US$ 0.8 to 1.7 Billion. Obviously this disserves further clarification?

Motivating factors for high rates of influenza vaccination among healthcare workers

Pages 5963-5969

Hana Hakim, Aditya H. Gaur, Jonathan A. McCullers

Abstract

Background

Recent guidance from related regulatory agencies and medical societies supports mandatory vaccination of healthcare workers (HCW) against influenza. At St. Jude Children's Research Hospital, a pediatric oncology referral center, more than 90% of HCWs receive vaccine each year without a policy mandating immunization. Factors associated with HCW uptake of influenza vaccines have not previously been evaluated in a high compliance rate setting.

Methods

A structured, anonymous, electronic questionnaire was distributed in August 2010 to employees (HCW and non-HCW). Demographics, prior receipt of influenza vaccines, reasons for acceptance or refusal of seasonal and 2009 H1N1 pandemic vaccine, and attitudes on mandatory vaccination were assessed.

Results

95.0% of 925 HCWs and 63.1% of all 3227 qualifying employees responded to the survey. 93.8% and 75.2% of HCW reported receiving seasonal and 2009 H1N1 influenza vaccines, respectively, in the 2009–2010 season. Benefits to self and/or patients were cited as the most frequent reasons for accepting seasonal (83.5% and 78.3%, respectively) and 2009 H1N1 (85.9% and 81.1%, respectively) vaccination. 36.6% of HCWs opposed mandating influenza vaccination; 88.2% and 59.9% of whom reported receiving the seasonal and 2009 H1N1 influenza vaccines, respectively. Violation of freedom of choice and personal autonomy were the most frequently reported reasons for opposition.

Conclusion

In this cohort of HCWs with a high influenza vaccination rate, realistic assessments of the potential benefits of vaccination appear to have driven the choice to accept immunization. Despite this, mandating vaccination was viewed unfavorably by a significant minority of vaccinated individuals. Employee concerns over autonomy should be addressed as institutions transition to mandatory vaccination policies.

Risk of disability for US army personnel vaccinated against anthrax, 1998–2005

Pages 6035-6041

Sandra I. Sulsky, Rose S. Luippold, Patrick Garman, Hayley Hughes, Paul J. Amoroso

Abstract

To evaluate the potential for long-term or delayed onset health effects, we extended a previous cohort study of disability separation from the army associated with vaccination against anthrax. Analyses included stratified Cox proportional hazards and multiple logistic regression models. Forty-one percent of 1,001,546 soldiers received at least one anthrax vaccination; 5.21% were evaluated for disability. No consistent patterns or statistically significant differences in risk of disability evaluation, disability determination, or reason for disability were associated with anthrax vaccination. There was a dose-related trend in risk of disability for soldiers with 2 years' service, limited to those entering service in 2000 or later. Divergent patterns in risk suggest confounding by temporal or occupational risks of disability.

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