

Center for Vaccine Ethics and Policy

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Vaccines: The Week in Review 20 October 2012 Center for Vaccine Ethics & Policy (CVEP)

This weekly summary targets news, events, announcements, articles and research in the global vaccine ethics and policy space and is aggregated from key governmental, NGO, international organization and industry sources, key peer-reviewed journals, and other media channels. This summary proceeds from the broad base of themes and issues monitored by the Center for Vaccine Ethics & Policy in its work: it is not intended to be exhaustive in its coverage. Vaccines: The Week in Review is also posted in pdf form and as a set of blog posts at <http://centerforvaccineethicsandpolicy.wordpress.com/>. This blog allows full-text searching of over 3,500 entries.

Comments and suggestions should be directed to

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Media Release: HPV Vaccination Not Associated with Increased Sexual Activity Among Girls

Kaiser Permanente Study First to Examine Clinical Markers of Sexual Activity After HPV Vaccine
Media Release Excerpt:

ATLANTA, Oct. 15, 2012 /PRNewswire/ -- The human papillomavirus (HPV) vaccine known as Gardasil is not associated with an increase in pregnancy, sexually transmitted infections, or contraceptive counseling, according to a Kaiser Permanente study published online today in the journal *Pediatrics*.

Since 2006, the Centers for Disease Control and Prevention has recommended that girls ages 11–12 receive three doses of the vaccine to protect them from HPV, which is transmitted through sexual activity and can cause genital warts and cervical, penile, vaginal, and head and neck cancers. The vaccine is also recommended for females ages 13–26 who did not receive the vaccine when they were younger, and for males ages 11–21.

But the vaccine has been slow to catch on. By 2010, fewer than half of girls eligible for Gardasil had received even one dose. Since the introduction of Gardasil, there have been concerns—raised both in peer-reviewed literature and the popular media—that use of the vaccine might lead to increased sexual activity, due in part to the mistaken belief that Gardasil protects against pregnancy and sexually transmitted diseases other than HPV. This new study, which was an independent research project funded by Kaiser Permanente and Emory University, shows there is no evidence to support these concerns.

"Our study found a very similar rate of testing, diagnosis and counseling among girls who received the vaccine and girls who did not," said Robert Bednarczyk, PhD, an epidemiologist and the study's lead author. "We saw no increase in pregnancies, sexually transmitted

infections or birth control counseling – all of which suggest the HPV vaccine does not have an impact on increased sexual activity..."

<http://www.prnewswire.com/news-releases/hpv-vaccination-not-associated-with-increased-sexual-activity-among-girls-174131171.html>

See also article abstract in *Pediatrics* [Journal Watch below] and *New York Times* editorial [Media Watch below]

Speech - *Beyond 2015: The Future of Development Goals next generation of MDGs*

Remarks to the 4th OECD World Forum, Round Table 2, October 17, 2012, New Delhi

Otaviano Canuto, Vice President, Poverty Reduction and Economic Management, The World Bank

<http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:23295537~pagePK:34370~piPK:34424~theSitePK:4607,00.html>

Editor's Excerpt:

"...At the Rio+20 Summit, the international community agreed to adopt a new set of universal sustainable development goals (SDGs), a more focused and quantitative set of goals directly addressing environmental and social sustainability. Integrating this framework with the next set of goals has a number of advantages: it will help donors, practitioners, and policy makers face a consolidated set of incentives and accountabilities, and it will help more inextricably link sustainability and development, further diminishing the legitimacy of the "grow now, clean up later" argument.

Most importantly, it will foster synergies among our development objectives: for instance, how can we alleviate poverty without addressing water and sanitation problems? Water is essential for livelihood security, reducing health risks, eradicating hunger, minimizing vulnerability to water-related disasters, and fostering pro-poor economic growth. Furthermore, women almost exclusively bear the burden of water-hauling. This not only exposes them to safety risks in many cases, but also reduces or entirely eliminates their time for education and productive activities, consequently holding them back from seizing opportunities for economic empowerment.

A number of issues on the design of the SDGs remain to be discussed, but we already have a clear picture of the elements required for them to be effective.

First, a meaningful SDGs framework will embrace the need to move beyond GDP to a more comprehensive accounting of nations' wealth, including natural, human, social, and physical capital—thereby providing countries with the means to monitor their progress.

Second, it should encompass all three pillars of sustainable development, based on indicators of inclusiveness and equity in addition to environmental sustainability.

Third, the SDGs will inevitably include a mix of local and global public goods, and should thus be crafted in a way that enables geographic differentiation in targets, perhaps with a globally agreed minimum standard. It makes sense to include both top-down and bottom-up approaches: the former involves translating a global objective into national commitments, while the latter entails countries committing to individual levels of effort, the sum of which is the global goal.

Fourth, contrary to the results-based MDGs, targeting relative or absolute gains with respect to specific indicators, the SDGs will likely benefit from a blend of results-based targets for 2030 (or even 2050, 2100) and policy targets for the shorter term.

Finally, the complexity of sustainability may require more detailed and precise goals that simplify the operationalization of goals into policy changes. Ideally, we would include a limited number of easy-to-communicate goals – comparable to the MDG poverty goals – and a series of more precise, sector-specific goals...”

The **Weekly Epidemiological Record (WER) for 19 October 2012**, vol. 87, 42 (pp. 401–412) includes:

- Antigenic and genetic characteristics of zoonotic influenza viruses and development of candidate vaccine viruses for pandemic preparedness

<http://www.who.int/entity/wer/2012/wer8742.pdf>

Update: *Polio this week - As of 17 Oct 2012*

Global Polio Eradication Initiative

[Editor's Extract]

- World Polio Day, October 24: Polio eradication partners around the world are marking the first World Polio Day since India was removed from the list of countries with active transmission of wild poliovirus. This development opened up a historic opportunity to complete polio eradication in the remaining endemic countries, powered by the World Health Assembly declaration of an 'emergency for global public health' and implemented through national emergency programmes run by the governments of Afghanistan, Nigeria and Pakistan.

- Since World Polio Day last year, the number of new cases of polio has declined (from 467 at this time last year to 171 this year)

Afghanistan

- **Four new cases were reported in the past week.** All cases were type WPV1. These cases occurred in Kandahar, Khost, Kunar, and Paktya provinces. This brings the total number of cases for 2012 to 25. The most recent case was the one in Paktya Province, with onset of paralysis on 1 October.

- A delegation that included the governors of Kandahar and Helmand, the Ministry of Public Health, UNICEF, and WHO met Bill Gates in Abu Dhabi on 9 October to discuss the enhanced engagement of the President, challenges to monitoring vaccination team performance and possible new technologies to help improve team performance.

- National Immunization Days (NID) were held during 14–16 October. The launch of this campaign coincided with Global Handwashing Day. Polio information was distributed to children at this time.

Nigeria

- **Four new cases were reported in the past week.** All were type WPV1. The cases occurred in Kaduna, Kano, Katsina, and Sokoto states. The most recent case was the one from Kaduna State, with onset of paralysis on 22 September. The total number of cases for 2012 is 97.

Pakistan

- **One new case of WPV was reported in the past week,** WPV1 in the Bajour District of Federally Administrated Tribal Areas. This brings the total number of cases for 2012 to 44. This was the most recent case, with onset of paralysis on 25 September.

- National immunization Days were held during 15–17 October, excluding North and South Waziristan. In Quetta, Balochistan, investigations have begun into the fatal shooting of a

volunteer vaccinator. Apart from parts of Quetta, the campaign continued in the rest of the province.

The **MMWR Weekly for October 19, 2012** / Vol. 61 / No. 41 includes:


- Announcement: World Polio Day — October 24, 2012

World Polio Day (October 24) was established by Rotary International over a decade ago to commemorate the birth of Jonas Salk, who led the first team to develop a vaccine against poliomyelitis. Use of this inactivated poliovirus vaccine and subsequent widespread use of the oral poliovirus vaccine developed by Albert Sabin led to establishment of the Global Polio Eradication Initiative (GPEI) in 1988. Since then, GPEI has reduced polio worldwide by 99%; however, in 2012, transmission of indigenous wild poliovirus has continued uninterrupted in three countries (Nigeria, Afghanistan, and Pakistan) (1). In April 2012, the World Health Assembly declared the completion of polio eradication a programmatic emergency for global public health (2).

As of October 9, 2012, a total of 162 polio cases had been reported during the year, with 97% reported from three countries (Nigeria, Afghanistan and Pakistan). The number of polio cases reported is the lowest number ever recorded worldwide during a 9-month period. Eradication of polio is an important public health priority for CDC. On December 2, 2011, the CDC Emergency Operations Center was activated to strengthen the agency's partnership engagement through GPEI. Additional information regarding CDC's polio eradication activities is available at <http://www.cdc.gov/polio/updates>, and additional information about GPEI and the global partnership is available at <http://www.polioeradication.org>.

References

[CDC. Progress toward poliomyelitis eradication—Afghanistan and Pakistan, January 2011–August 2012. MMWR 2012;61:790–5.](#)

2. World Health Assembly. Poliomyelitis: intensification of the global eradication initiative. Agenda item A65/20. Geneva, Switzerland: World Health Organization; 2012. Available at http://apps.who.int/gb/ebwha/pdf_files/wha65/A65_20-en.pdf  Accessed October 15, 2012.

Conferences/Reports/Research/Analysis/Book Watch

Vaccines: The Week in Review has expanded its coverage of new reports, books, research and analysis published independent of the journal channel covered in *Journal Watch* below. Our interests span immunization and vaccines, as well as global public health, health governance, and associated themes. If you would like to suggest content to be included in this service, please contact David Curry at: david.r.curry@centerforvaccineethicsandpolicy.org

Report: Preventive Care and Healthy Ageing: A Global Perspective

Source: Economist Intelligence Unit (EIU), sponsored by Pfizer
October 2012

<http://digitalresearch.eiu.com/healthyageing/>

The report “concludes that when governments increase investment in healthy ageing, healthcare costs go down. The report, which sheds light on ways countries are promoting preventive healthcare, suggests preventive care can pay dividends for cash-strapped governments...(and) provides a deep dive on Brazil, China, India, Japan, Russia, South Africa,

the United Kingdom, and the United States, highlights compelling insights about the factors contributing to this global healthcare challenge:

- Age-related, infectious diseases such as pneumonia and influenza, as well as noninfectious chronic diseases like heart disease and stroke, are affecting older adults for longer periods of time,¹ adding to healthcare costs and severely impacting a person's productivity and need for support¹
- Global healthcare reforms, increased mobility and evolving attitudes mean that governments must foot the bill for caring for their older citizens,¹ and these governments are finding it difficult to keep up with the rise in chronic conditions since, to date, most healthcare systems have focused on treating acute illness¹
- Immunization is highlighted in the report as one of the most cost-effective preventive measures for older people, but that measure is vastly underused due to structural and social barriers.

In developing countries, where they struggle with basic medical services, preventive care measures are seen as unaffordable luxuries.

<http://www.businesswire.com/news/home/20121010005187/en/Report-Reveals-Programs-Promote-Healthy-Ageing-Reduce>

Report Excerpt:

Vaccines: The low-hanging fruit

Vaccines offer a quick, cost-effective and easy way of reducing infectious disease. But adult immunisation rates remain low in both developed and developing countries. Why is this highly effective preventive measure under-used?

Older people with chronic conditions such as respiratory diseases, heart disease, kidney failure and diabetes are more susceptible to infectious diseases. Adults aged 60 years or older continue to be the highest-risk group for tetanus, while those older than 50 years are at greater risk for death and severe disability from influenza than younger people. In the UK, between 3,000 and 4,000 people die from influenza each year, and large numbers are hospitalised owing to the disease. More than 85% of influenza-related deaths occur in individuals over the age of 65 years. Thus, vaccination can significantly lower the risk of influenza-related hospitalisation and death and reduce the associated costs of the disease. A Spanish study showed that for older people with cardiac disease, influenza vaccination reduced the risk of winter mortality by 37%.

Despite its proven benefits, vaccination for ageing populations remains below the rate recommended by the World Health Organisation. As a result, millions of people worldwide continue to die from vaccine-preventable diseases. Although a vaccine against hepatitis B was developed in 1981, around 600,000 adults died from the disease in 2002 (latest available figure).

In developing countries, overstretched healthcare systems that struggle to meet immediate needs have tended to underfund immunisation programmes, which are sometimes perceived as burdensome. For example, vaccines require an extensive infrastructure to ensure the "cold chain" that extends from manufacturing through shipment to final distribution and administration. They also require careful waste management and specific medical training. Once established, however, vaccination programmes are highly cost-effective.

Furthermore, existing programmes rarely target older people. In India, for example, the government does not have an adult immunisation strategy; vaccination schemes are limited to children. By contrast, in Brazil the government has successfully used the country's passion for soap operas to increase awareness and immunisation rates among the elderly (see Country perspectives).

Meanwhile, developed countries have also struggled to achieve universal adult immunisation. The problem is often a lack of awareness. "One of the biggest challenges of implementation and delivery is to develop a vaccine mindset for adults," says Pierce Gardner, who served for many years as the American College of Physicians' liaison representative to the Advisory Committee on Immunization Practices at the Centers for Disease Control and Prevention.

Developed countries have had some success in using the private sector to increase immunisation rates. In the US and the UK, retailers have created profitable flu vaccination business lines that help to bring shoppers into their stores and pharmacies.

Community pharmacists can also act as vaccination advocates. In Japan, a 2009 study showed that pharmacists who provided information about influenza risks and vaccination benefits to their elderly customers had a take-up rate of 82%, compared with 70% in a control group..."

Report: [The Compelling Need for Game-Changing Influenza Vaccines: An Analysis of the Influenza Vaccine Enterprise and Recommendations for the Future](#)

Source: CIDRAP

"From the CIDRAP Comprehensive Influenza Vaccine Initiative (CCIVI), the report follows a review of more than 12,000 peer-reviewed publications, documents, transcripts and notes dating back to 1936 and interviews and follow up with 88 experts in influenza vaccine research, development, and use."

- [Full CCIVI report](#)

- [Executive summary](#)

Oct 15, 2012, [press release](#)

Report: *Global Tuberculosis Report 2012*

Source: WHO

October 2012

http://apps.who.int/iris/bitstream/10665/75938/1/9789241564502_eng.pdf

Extract:

Key findings

- Progress towards global targets for reductions in TB cases and deaths continues.

The Millennium Development Goal (MDG) target to halt and reverse the TB epidemic by 2015 has already been achieved. New cases of TB have been falling for several years and fell at a rate of 2.2% between 2010 and 2011. The TB mortality rate has decreased 41% since 1990 and the world is on track to achieve the global target of a 50% reduction by 2015. Mortality and incidence rates are also falling in all of WHO's six regions and in most of the 22 high-burden countries that account for over 80% of the world's TB cases. At country level, Cambodia demonstrates what can be achieved in a low-income and high-burden country: new data show a 45% decrease in TB prevalence since 2002.

- However, the global burden of TB remains enormous. In 2011, there were an estimated 8.7 million new cases of TB (13% co-infected with HIV) and 1.4 million people died from TB, including almost one million deaths among HIV-negative individuals and 430 000 among people who were HIV-positive. TB is one of the top killers of women, with 300 000 deaths among HIV-negative women and 200 000 deaths among HIV-positive women in 2011. Global progress also conceals regional variations: the African and European regions are not on track to halve 1990 levels of mortality by 2015.

- **Access to TB care has expanded substantially since the mid-1990s**, when WHO launched a new global TB strategy and began systematically monitoring progress. Between 1995 and 2011, 51 million people were successfully treated for TB in countries that had adopted the WHO strategy, saving 20 million lives.
- **Progress in responding to multidrug-resistant TB (MDR-TB) remains slow.** While the number of cases of MDR-TB notified in the 27 high MDR-TB burden countries is increasing and reached almost 60,000 worldwide in 2011, this is only one in five (19%) of the notified TB patients estimated to have MDR-TB. In the two countries with the largest number of cases, India and China, the figure is less than one in ten; scale-up is expected in these countries in the next three years.
- **There has been further progress in implementing collaborative TB/HIV activities** (first recommended by WHO in 2004). These saved an estimated 1.3 million lives between 2005 and the end of 2011. In 2011, 69% of TB patients were tested for HIV in the African Region, up from 3% in 2004. Globally, 48% of the TB patients known to be living with HIV in 2011 were started on antiretroviral therapy (ART); coverage needs to double to meet WHO's recommendation that all TB patients living with HIV are promptly started on ART. Kenya and Rwanda are top performers in HIV testing and provision of ART.
- **Innovations in diagnostics are being implemented.** The roll-out of Xpert MTB/RIF, a rapid molecular test that can diagnose TB and rifampicin resistance within 100 minutes, has been impressive. Between its endorsement by WHO in December 2010 and the end of June 2012, 1.1 million tests had been purchased by 67 low- and middle-income countries; South Africa (37% of purchased tests) is the leading adopter. A 41% price reduction (from US\$ 16.86 to US\$ 9.98) in August 2012 should accelerate uptake.
- **The development of new drugs and new vaccines is also progressing.** New or re-purposed TB drugs and novel TB regimens to treat drug-sensitive or drug-resistant TB are advancing in clinical trials and regulatory review. Eleven vaccines to prevent TB are moving through development stages.
- **There are critical funding gaps for TB care and control.** Between 2013 and 2015 up to US\$ 8 billion per year is needed in low- and middle-income countries, with a funding gap of up to US\$ 3 billion per year. International donor funding is especially critical to sustain recent gains and make further progress in 35 low-income countries (25 in Africa), where donors provide more than 60% of current funding.
- **There are also critical funding gaps for research and development.** US\$ 2 billion per year is needed; the funding gap was US\$ 1.4 billion in 2010...

UN report: [Status of the Convention on the Rights of the Child](#) - Indigenous children on the sidelines of society

Source: UN - Report of the Secretary-General

Co-drafted by UNICEF and the Office of the High Commissioner for Human Rights on behalf of the Secretary-General and presented annually to the Third Committee by UNICEF at UN headquarters in New York.

http://www.unicef.org/media/files/ANNEX_VI_Report_of_the_SG_on_the_Status_of_the_Convention_on_the_Rights_of_the_Child.pdf

Media Release excerpt:

"Indigenous children face extreme forms of exclusion and discrimination and are often deprived of access to education, health services, birth registration and social protection, UNICEF said today in a report presented to the United Nations.

Indigenous peoples constitute 15 per cent of the world's poor and one-third of the world's extremely poor rural people. Politically vulnerable, indigenous peoples are subject to displacement and migration whether being forcibly removed from ancestral land or having to leave because of environmental degradation or the loss of traditional livelihoods.

Children in indigenous communities are at the core of UNICEF's equity agenda as they are often disadvantaged and disenfranchised from progress in health, education and protection.

Deprived of access to services available to non-indigenous children, indigenous children face numerous challenges from disabilities, HIV and AIDS and gender-based issues.

Many indigenous children are not in school due to the distance to the nearest school, the lack of bilingual instruction or a lack of consistency between the school calendar and seasonal employment typical of farming or hunter-gathering and pastoral occupations.

When in school, indigenous children are subject to language discrimination, low literacy rates, low enrolment, high dropout rates and disparities in national academic achievements.

As disaggregated statistics on indigenous children are not readily available, the report calls for better monitoring that should ultimately would lead to better access to basic services.

http://www.unicef.org/media/media_66215.html

Report: 2012 World Disasters Report

Source: International Federation of Red Cross Red Crescent Societies

October 2012

"Migration is a phenomenon that grows every year and affects in some way virtually every country. Many migrants move voluntarily – looking perhaps for economic opportunities, or for different lifestyles. But for others, migration is not a choice. More and more people are forced to flee their homes and communities because of many factors including conflicts, persecution, disasters and poverty. It is their plight that is the focus of the 2012 World Disasters Report."

Full report: <http://www.ifrcmedia.org/assets/pages/wdr2012/download/index.html>

<http://www.ifrcmedia.org/assets/pages/wdr2012/>

[Editor's Note: Very limited mention of vaccines, immunization in report]

Extract:

p.85

"...Other than in the immediate aftermath of a major disaster, such as an earthquake, when there are very specific health threats, most displaced populations fall prey to the same health problems as non-displaced population – but in greater numbers. Even in contexts of active conflict, mortality more typically reflects inflated risk of existing patterns of disease than deaths due directly to military action. The principal impact of conflict, in other words, is that the health system becomes less capable, or incapable, of providing child immunizations, supporting skilled delivery of a child, and other key measures supporting population health..."

Journal Watch

Vaccines: The Week in Review continues its weekly scanning of key peer-reviewed 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

American Journal of Public Health

Volume 102, Issue 11 (November 2012)

<http://ajph.aphapublications.org/toc/ajph/current>

[Reviewed earlier; No relevant content]

Annals of Internal Medicine

16 October 2012, Vol. 157. No. 8

<http://www.annals.org/content/current>

[No relevant content]

BMC Public Health

(Accessed 20 October 2012)

<http://www.biomedcentral.com/bmcpublichealth/content>

Research article

Systematic review of studies evaluating the broader economic impact of vaccination in low and middle income countries

Rohan Deogaonkar, Raymond Hutubessy, Inge Putten, Silvia Evers, Mark Jit

BMC Public Health 2012, 12:878 (16 October 2012)

Open Access

Abstract (provisional)

Background

Most health economic evaluations of childhood vaccination only capture the health and short-term economic benefits. Measuring broader, long-term effects of vaccination on productivity and externalities could provide a more complete picture of the value of vaccines.

Method

MEDLINE, EconLit and NHS-EED databases were searched for articles published between January 1990 and July 2011, which captured broader economic benefits of vaccines in low and middle income countries. Studies were included if they captured at least one of the following categories on broader economic impact: outcome-related productivity gains, behaviour-related productivity gains, ecological externalities, equity gains, financial sustainability gains or macroeconomic benefits.

Results

Twenty-six relevant studies were found, including observational studies, economic models and contingent valuation studies. Of the identified broader impacts, outcome-related productivity gains and ecological externalities were most commonly accounted for. No studies captured behaviour-related productivity gains or macroeconomic effects. There was some evidence to show that vaccinated children 8--14 years of age benefit from increased cognitive ability. Productivity loss due to morbidity and mortality was generally measured using the human capital approach. When included, herd immunity effects were functions of coverage rates or based on reduction in disease outcomes. External effects of vaccines were observed in terms of

equitable health outcomes and contribution towards synergistic and financially sustainable healthcare programs.

Conclusion

Despite substantial variation in the methods of measurement and outcomes used, the inclusion of broader economic impact was found to improve the attractiveness of vaccination. Further research is needed on how different tools and techniques can be used in combination to capture the broader impact of vaccination in a way that is consistent with other health economic evaluations. In addition, more country level evidence is needed from low and middle income countries to justify future investments in vaccines and immunization programs. Finally, the proposed broader economic impact framework may contribute towards better communication of the economic arguments surrounding vaccine uptake, leading to investments in immunization by stakeholders outside of the traditional health care sector such as ministries of finance and national treasuries.

British Medical Bulletin

Volume 103 Issue 1 September 2012

<http://bmb.oxfordjournals.org/content/current>

[Reviewed earlier]

British Medical Journal

20 October 2012 (Vol 345, Issue 7879)

<http://www.bmj.com/content/345/7879>

[No relevant content]

Bulletin of the World Health Organization

Volume 90, Number 10, October 2012, 713-792

<http://www.who.int/bulletin/volumes/90/10/en/index.html>

[Reviewed earlier]

Cost Effectiveness and Resource Allocation

(Accessed 20 October 2012)

<http://www.resource-allocation.com/>

[No new relevant content]

Emerging Infectious Diseases

Volume 18, Number 10—October 2012

<http://www.cdc.gov/ncidod/EID/index.htm>

[Reviewed earlier; No relevant content]

Eurosurveillance

Volume 17, Issue 42, 18 October 2012

<http://www.eurosurveillance.org/Public/Articles/Archives.aspx?PublicationId=11678>

[No relevant content]

Global Health Governance

[Volume V, Issue 2: Spring 2012](#)

[Reviewed earlier]

Globalization and Health

[Accessed 20 October 2012]

<http://www.globalizationandhealth.com/>

[No new relevant content]

Health Affairs

October 2012; Volume 31, Issue 10

<http://content.healthaffairs.org/content/current>

Theme: Current Challenges In Comparative Effectiveness Research

[No specific relevant content on vaccines/immunization]

Health and Human Rights

Vol 14, No 1 (2012)

<http://hhrjournal.org/index.php/hhr>

[Reviewed earlier]

Health Economics, Policy and Law

[Volume7](#) / [Issue04](#) / October 2012, pp 383 - 384

<http://journals.cambridge.org/action/displayIssue?jid=HEP&tab=currentissue>

Special Issue: End of Life Care and Evaluation

[No specific relevant content on vaccines/immunization]

Health Policy and Planning

Volume 27 Issue 7 October 2012

<http://heapol.oxfordjournals.org/content/current>

[Reviewed earlier]

Human Vaccines & Immunotherapeutics (formerly Human Vaccines)

Volume 8, Issue 10 October 2012

<http://www.landesbioscience.com/journals/vaccines/toc/volume/8/issue/10/>

[Reviewed earlier]

International Journal of Infectious Diseases

[October 2012](#), [Vol. 16](#), [No. 10](#)

<http://www.ijidonline.com/>

[Reviewed earlier; No relevant content]

JAMA

October 17, 2012, Vol 308, No. 15

<http://jama.ama-assn.org/current.dtl>

[No relevant content]

Journal of Health Organization and Management

Volume 26 issue 6 - Published: 2012

<http://www.emeraldinsight.com/journals.htm?issn=1477-7266&show=latest>

[Reviewed earlier; No relevant content]

Journal of Infectious Diseases

Volume 206 Issue 10 November 15, 2012

<http://www.journals.uchicago.edu/toc/jid/current>

EDITORIAL COMMENTARIES

Editor's choice: Reconsidering Hand Hygiene Monitoring

Titus L. Daniels

J Infect Dis. (2012) 206(10): 1488-1490 doi:10.1093/infdis/jis549

Extract

Hand hygiene (HH) is a fundamental component of any successful infection prevention and control program. Healthcare professionals and the public now accept the performance of HH before and after patient contact as an essential and expected behavior. Despite this broad acceptance of the importance of performing HH, compliance rates among healthcare professionals remain unacceptably low [1, 2]. Some might argue that these publicized rates are artificially low because of the small sampling of actual opportunities. Others may contend that the publicized rates are artificially high because of imperfect observation methodologies. Both are probably correct.

Direct observation of healthcare workers (HCW) interacting with patients and the environment continues to be considered the gold standard for assessing HH compliance [3]. Multiple challenges exist with this methodology. First, the investment in human capital all but ensures that undersampling will occur. As shown by Fries and colleagues, a 60-minute observation period captured only 0.5%–1.7% of the average total number of opportunities per day [4]. Observations are also generally limited to work shifts when a full complement of personnel is available for administrative tasks (ie, daytime). Further, the direct observation strategy for measuring HH compliance has long been limited by the “Hawthorne effect,” which refers to a change in behavior that results from the direct visualization of activities. Anecdotally, virtually every healthcare epidemiologist can almost certainly retell a conversation in which an HCW recounted performing HH only when observers were present and conducting compliance audits. Though many organizations attempt to mitigate this effect by using unknown, nonstaff, volunteer, or other types of “secret” observers, over time most individuals working in patient care units will be able to determine the purpose of any person not usually identified as...

Journal of Global Infectious Diseases (JGID)

July-September 2012

Volume 4 | Issue 3 Page Nos. 139-186

<http://www.jgid.org/currentissue.asp?sabs=n>

[Reviewed earlier]

Journal of Medical Ethics

October 2012, Volume 38, Issue 10

<http://jme.bmj.com/content/current>

[Reviewed earlier]

Journal of Medical Microbiology

November 2012; 61 (Pt 11)

<http://jmm.sgmjournals.org/content/current>

[No relevant content]

Journal of the Pediatric Infectious Diseases Society (JPIDS)

Volume 1 Issue 3 September 2012

<http://jpids.oxfordjournals.org/content/current>

[Reviewed earlier; No relevant content]

The Lancet

Oct 20, 2012 Volume 380 Number 9851 p1359 – 1444 e7

<http://www.thelancet.com/journals/lancet/issue/current>

Editorial

Tuberculosis—from ancient plague to modern-day nemesis

The Lancet

Preview

This week sees the launch of the WHO Global Tuberculosis Report 2012. This annual report provides the latest data and analysis about the tuberculosis epidemic and progress made in prevention, care, and control of the disease from 182 member states and a total of 204 countries and territories with over 99% of the disease burden. As well as improvements in measurement and reporting, which include more country and prevalence surveys, for the first time the burden of tuberculosis in women and children and estimates of lives saved by the implementation of collaborative tuberculosis/HIV activities are documented.

Unexpected high levels of multidrug-resistant tuberculosis present new challenges for tuberculosis control

Sven Hoffner

Preview

Most international recommendations for tuberculosis control have been developed for multidrug-resistant (MDR) tuberculosis prevalence of up to around 5%. Yet we now face prevalence up to ten times higher in some places, where almost half of the patients with infectious disease are transmitting MDR strains of *Mycobacterium tuberculosis*.¹ The highest prevalence of MDR tuberculosis documented to date, 47·8%, was reported in 2011, in Minsk,

Belarus.¹ Among patients with infectious (smear-positive) pulmonary disease, MDR tuberculosis was seen in 35·3% of newly detected cases and in no less than 76·5% of previously treated patients.

The Lancet Infectious Disease

Oct 2012 Volume 12 Number 10 p737 – 816 e1

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

[Reviewed earlier]

Medical Decision Making (MDM)

September–October 2012; 32 (5)

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

[Reviewed earlier]

The Milbank Quarterly

A Multidisciplinary Journal of Population Health and Health Policy

September 2012 Volume 90, Issue 3 Pages 417–629

<http://onlinelibrary.wiley.com/doi/10.1111/milq.2012.90.issue-3/issuetoc>

[Reviewed earlier; No relevant content]

Nature

Volume 490 Number 7420 pp309-440 18 October 2012

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

[No relevant content]

Nature Immunology

October 2012, Volume 13 No 10 pp901-1019

<http://www.nature.com/ni/journal/v13/n10/index.html>

Focus issue:

Checks and Balances in the Immune System

[Reviewed earlier]

Nature Medicine

October 2012, Volume 18 No 10 pp1443-1592

<http://www.nature.com/nm/journal/v18/n10/index.html>

[No relevant content]

Nature Reviews Immunology

October 2012 Vol 12 No 10

<http://www.nature.com/nri/journal/v12/n10/index.html>

[No relevant content]

New England Journal of Medicine

October 18, 2012 Vol. 367 No. 16

<http://content.nejm.org/current.shtml>

[No relevant content]

OMICS: A Journal of Integrative Biology

September 2012, 16(9)

<http://online.liebertpub.com/toc/omi/16/9>

[No relevant content]

The Pediatric Infectious Disease Journal

October 2012 - Volume 31 - Issue 10 pp: 9-1105,e176-e188

<http://journals.lww.com/pidj/pages/currenttoc.aspx>

[Reviewed earlier]

Pediatrics

October 2012, VOLUME 130 / ISSUE 4

<http://pediatrics.aappublications.org/current.shtml>

[No relevant content]

Pediatrics eFirst Pages**Sexual Activity–Related Outcomes After Human Papillomavirus Vaccination of 11- to 12-Year-Olds**

Robert A. Bednarczyk, Robert Davis, Kevin Ault, Walter Orenstein, and Saad B. Omer
Pediatrics peds.2012-1516; Published online October 15, 2012 (10.1542/peds.2012-1516)

Abstract

OBJECTIVE: Previous surveys on hypothesized sexual activity changes after human papillomavirus (HPV) vaccination may be subject to self-response biases. To date, no studies measured clinical markers of sexual activity after HPV vaccination. This study evaluated sexual activity–related clinical outcomes after adolescent vaccination.

METHODS: We conducted a retrospective cohort study utilizing longitudinal electronic data from a large managed care organization. Girls enrolled in the managed care organization, aged 11 through 12 years between July 2006 and December 2007, were classified by adolescent vaccine (HPV; tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis, adsorbed; quadrivalent meningococcal conjugate) receipt. Outcomes (pregnancy/sexually transmitted infection testing or diagnosis; contraceptive counseling) were assessed through December 31, 2010, providing up to 3 years of follow-up. Incidence rate ratios comparing vaccination categories were estimated with multivariate Poisson regression, adjusting for health care–seeking behavior and demographic characteristics.

RESULTS: The cohort included 1398 girls (493 HPV vaccine–exposed; 905 HPV vaccine–unexposed). Risk of the composite outcome (any pregnancy/sexually transmitted infection testing or diagnosis or contraceptive counseling) was not significantly elevated in HPV vaccine–exposed girls relative to HPV vaccine–unexposed girls (adjusted incidence rate ratio: 1.29, 95% confidence interval [CI]: 0.92 to 1.80; incidence rate difference: 1.6/100 person-years; 95% CI:

–0.03 to 3.24). Incidence rate difference for Chlamydia infection (0.06/100 person-years [95% CI: –0.30 to 0.18]) and pregnancy diagnoses (0.07/100 person-years [95% CI: –0.20 to 0.35]), indicating little clinically meaningful absolute risk differences.

CONCLUSIONS: HPV vaccination in the recommended ages was not associated with increased sexual activity–related outcome rates.

Pharmacoeconomics

November 1, 2012 - Volume 30 - Issue 11 pp: 981-1096

<http://adisonline.com/pharmacoeconomics/pages/currenttoc.aspx>

[No relevant content]

PLoS One

[Accessed 20 October 2012]

<http://www.plosone.org/article/browse.action;jsessionid=577FD8B9E1F322DAA533C413369CD6F3.ambra01?field=date>

Effectiveness of HBV Vaccination in Infants and Prediction of HBV Prevalence Trend under New Vaccination Plan: Findings of a Large-Scale Investigation

Shi-gui Yang, Bing Wang, Ping Chen, Cheng-bo Yu, Min Deng, Jun Yao, Chun-xia Zhu, Jing-jing Ren, Wei Wu, Bin Ju, Jian-feng Shen, Yu Chen, Ming D. Li, Bing Ruan, Lanjuan Li

PLoS ONE: Research Article, published 19 Oct 2012 10.1371/journal.pone.0047808

Abstract

Background

Hepatitis B virus (HBV) infection remains a severe public health problem. Investigating its prevalence and trends is essential to prevention.

Methods

To evaluate the effectiveness of HBV vaccination under the 1992 Intervention Program for infants and predicted HBV prevalence trends under the 2011 Program for all ages. We conducted a community-based investigation of 761,544 residents of 12 counties in Zhejiang Province selected according to their location, population density, and economic development. The HBV prevalence trends were predicted by a time-shifting approach. HBV surface antigen (HBsAg) and alanine amino transferase (ALT) were determined.

Results

Of the 761,544 persons screened for HBsAg, 54,132 were positive (adjusted carrier rate 6.13%); 9,455 had both elevated ALT and a positive HBsAg test (standardized rate 1.18%). The standardized HBsAg carrier rate for persons aged ≤20 years was 1.51%. Key factors influencing HBV infection were sex, age, family history, drinking, smoking, employment as a migrant worker, and occupation. With the vaccination program implemented in 2011, we predict that by 2020, the HBsAg carrier rate will be 5.27% and that for individuals aged ≤34 years will reach the 2% upper limit of low prevalence according to the WHO criteria, with a standardized rate of 1.86%.

Conclusions

The national HBV vaccination program for infants implemented in 1992 has greatly reduced the prevalence of HBV infection. The 2011 program is likely to reduce HBV infection in Zhejiang Province to a low moderate prevalence, and perinatal transmission is expected to be controlled by 2020.

PLoS Medicine

(Accessed 20 October 2012)

<http://www.plosmedicine.org/article/browse.action?field=date>

Policy Forum

Human Rights Research and Ethics Review: Protecting Individuals or Protecting the State?

Joseph J. Amon, Stefan D. Baral, Chris Beyrer, Nancy Kass Policy Forum, published 16 Oct 2012

doi:10.1371/journal.pmed.1001325

Summary Points

- Recently there has been a dramatic expansion in research conducted in low- and middle-income countries, as well as research ethics committees (RECs) in these countries.
- RECs in low- and middle-income countries have little experience overseeing human rights research and may be subject to government control or influence that may favor the interests of the state over the interests of individual research participants.
- Many human rights investigators are trained in disciplines with ethical codes and professional norms, but do not typically engage RECs nor see human rights documentation as research, and they tend to view REC approval as counterproductive to the protection of research participants.
- Case studies of human rights research can provide important lessons on navigating conflicts of interest posed by some local (i.e., in country) RECs.
- Expanding the use of community engagement and developing strong ethical operating principles can help ensure that individuals and researchers are protected in human rights research and investigations.

PLoS Neglected Tropical Diseases

September 2012

<http://www.plosntds.org/article/browseIssue.action>

[Reviewed earlier]

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

(Accessed 20 October 2012)

<http://www.pnas.org/content/early/recent>

[No new relevant content]

Public Health Ethics

Volume 5 Issue 2 July 2012

<http://phe.oxfordjournals.org/content/current>

[Reviewed earlier]

Trends in Molecular Medicine

Volume 18, Issue 10, Pages 575-626 (October 2012)

<http://www.sciencedirect.com/science/journal/14714914>

[Reviewed earlier]

Science

19 October 2012 vol 338, issue 6105, pages 293-428

<http://www.sciencemag.org/current.dtl>

[No relevant content]

Science Translational Medicine

17 October 2012 vol 4, issue 156

<http://stm.sciencemag.org/content/current>

[No relevant content]

Vaccine

Volume 30, Issue 47 pp. 6609-6728 (19 October 2012)

<http://www.sciencedirect.com/science/journal/>

[Reviewed earlier]

Vaccine: Development and Therapy

(Accessed 20 October 2012)

<http://www.dovepress.com/vaccine-development-and-therapy-journal>

[No new relevant content]

Value in Health

Vol 15 | No. 6 | September-October 2012 | Pages 791-990

<http://www.valueinhealthjournal.com/current>

[No relevant content]

From Google Scholar: Dissertations, Theses, Selected Journal Articles

The Journal of Law, Medicine & Ethics, 2012

[Volume 40, Issue 3](#), pages 630–654, Fall 2012

Special Issue: SYMPOSIUM 1: Conflicts of Interest in the Practice of Medicine

The Challenge of Providing the Public with Actionable Information during a Pandemic

Leslie E. Gerwin

Article first published online: 12 OCT 2012

DOI: 10.1111/j.1748-720X.2012.00695.x

Abstract

Analysis of media reporting on the H1N1 vaccine during the 2009 pandemic reveals a dissonance between the nature and content of the reporting, the government's messages, and the public's perceptions of vaccine safety and desirability. Despite careful attention to history and especially the lessons offered by Richard Neustadt and Harvey Fineberg in their study of

the 1976 "Epidemic that Never Was," government officials failed to escape criticism for decisions made and actions taken in the midst of the unfolding contagion threat. Moreover, public opinion polls show that substantial portions of the population failed to hear, believe, or heed the government's messages. Looking at the enduring narrative of the government's vaccine efforts through the lens of newspaper reports exposes six points of distortion. These points — the pervasive uncertainty inherent in a novel contagion; advances in information technology and electronic communications; the new news environment; the political polarization of American society; the infrastructure of the American public health system; and the oddities of public health emergency and vaccination injury compensation laws — interfered with the public's reception of the government's message and infected the public's perception of government veracity and leadership capability. They challenge us to consider whether current planning is sufficient to prepare Americans to respond effectively to a lives-threatening national crisis. If we are to ensure that the public receives and recognizes accurate and actionable information essential for the prevention or containment of a deadly contagion, we will need to understand and address the impact of these distorting forces.

<http://onlinelibrary.wiley.com/doi/10.1111/j.1748-720X.2012.00695.x/abstract>

Media Watch

Beginning in June 2012, *Vaccines: The Week in Review* expanded to alert readers to substantive news, analysis and opinion from the general media on vaccines, immunization, global; public health and related themes. *Media Watch* is not intended to be exhaustive, but indicative of themes and issues CVEP is actively tracking. This section will grow from an initial base of newspapers, magazines and blog sources, and is segregated from *Journal Watch* above which scans the peer-reviewed journal ecology.

We acknowledge the Western/Northern bias in this initial selection of titles and invite suggestions for expanded coverage. WE are conservative in our outlook of adding news sources which largely report on primary content we are already covering above. Many electronic media sources have tiered, fee-based subscription models for access. We will provide full-text where content is published without restriction, but most publications require registration and some subscription level.

BBC

<http://www.bbc.co.uk/>

17 October 2012 Last updated at 06:06 ET

Pakistan polio worker shot dead in Quetta

Gunmen have killed a member of a polio vaccination team in the western Pakistani city of Quetta. The team were administering polio drops to under-fives on the city outskirts when attackers on a motorcycle opened fire. One worker was fatally injured and died on the way to hospital. It is not clear who the gunmen were. The Taliban have issued threats against the polio drive in Pakistan, where polio is still endemic. In July a doctor who was administering polio vaccines was shot dead in the southern city of Karachi...

Officials say the vaccination programme has been suspended in several areas of Quetta following Tuesday's shooting.

<http://www.bbc.co.uk/news/world-asia-19977508>

Economist

<http://www.economist.com/>

Accessed 20 October 2012

[No new unique, relevant content]

Financial Times

<http://www.ft.com>

Accessed 20 October 2012

[No new unique, relevant content]

Forbes

<http://www.forbes.com/>

Accessed 20 October 2012

Foreign Affairs

<http://www.foreignaffairs.com/>

September/October 2012 Volume 91, Number 5

Accessed 20 October 2012

[No new unique, relevant content]

Foreign Policy

<http://www.foreignpolicy.com/>

Accessed 20 October 2012

[No new unique, relevant content]

The Guardian

<http://www.guardiannews.com/>

Accessed 20 October 2012

[No new, unique, relevant content]

The Huffington Post

<http://www.huffingtonpost.com/>

Accessed 20 October 2012

[No new, unique, relevant content]

New Yorker

<http://www.newyorker.com/>

Accessed 20 October 2012

[No new, unique, relevant content]

NPR/National Public Radio [U.S.]

Public Health

How The Taliban Is Thwarting The War On Polio

by Jackie Northam

October 17, 2012 3:00 PM

<http://www.npr.org/blogs/health/2012/10/17/162595455/how-the-taliban-is-thwarting-the-war-on-polio>

Public Health

At Polio's Epicenter, Vaccinators Battle Chaos And Indifference

by Jason Beaubien

October 17, 2012 4:00 AM

<http://www.npr.org/blogs/health/2012/10/17/162811569/at-polios-epicenter-vaccinators-battle-chaos-and-indifference>

New York Times

<http://www.nytimes.com/>

Accessed 20 October 2012

Editorial

An HPV Vaccine Myth Debunked

Published: October 18, 2012

One of the most preposterous arguments raised by religious and social conservatives against administering a vaccine to girls to protect them from human papillomavirus, or HPV, has been that it might encourage them to become promiscuous. [That notion has now been thoroughly repudiated](#) by a study [published on Monday in Pediatrics](#), a journal of the American Academy of Pediatrics.

Although most women infected with HPV, the most common sexually transmitted virus, experience no symptoms, persistent infections with some strains of the virus can cause cervical and other types of cancer, as well as genital warts. In 2006, the government's top committee of experts on immunization practices recommended that all girls ages 11 or 12, and even some as young as 9, receive the vaccine so that they could develop immunity before they became sexually active. The Centers for Disease Control and Prevention, the American Academy of Pediatrics, the American Cancer Society and the American Academy of Family Physicians have all endorsed the recommendations and attest to the vaccine's safety.

In previous surveys, teenage girls have said they would not modify their sexual behavior after getting the HPV vaccine, but those were based on self-reporting which is not considered highly reliable. The new study, conducted by researchers from Kaiser Permanente and Emory University, analyzed medical data collected by the Kaiser Permanente managed care plan in metropolitan Atlanta. It looked at 1,400 girls who were 11 or 12 in 2006, roughly a third of whom had received the HPV vaccine, and followed them for up to three years.

Over all, there was no difference between girls who had received the vaccine and those who had not in such indicators of sexual activity as pregnancies, sexually transmitted diseases, testing for sexually transmitted diseases and counseling on how to use contraceptives. As one expert said, parents should think of the vaccine as they would a bicycle helmet; it is protection, not an invitation to risky behavior.

A version of this editorial appeared in print on October 19, 2012, on page A30 of the New York edition with the headline: An HPV Vaccine Myth Debunked.

Reuters

<http://www.reuters.com/>

Accessed 20 October 2012

[No new, unique, relevant content]

Wall Street Journal

<http://online.wsj.com/home-page>

Accessed 20 October 2012

[No new unique, relevant content]

Washington Post

<http://www.washingtonpost.com/>

Accessed 20 October 2012

Pork-free vaccine wins cheers from some Hajj pilgrims

By Omar Sacirbey | Religion News Service, Published: October 18

Excerpt

The nearly 3 million Muslims who will make next week's annual hajj pilgrimage to the sacred Saudi Arabian city of Mecca are required to be vaccinated against meningitis.

Swiss pharmaceutical giant Novartis claims to have developed, in 2010, the first anti-meningitis vaccine without pork, which Muslims are forbidden to consume under Islamic law. Many religious authorities have already certified the Menveo vaccine as "halal," or permitted under Islamic law.

Not all Muslims, however, believe the vaccine is truly halal.

Anti-meningitis vaccine was developed in the 1930s, and pork derivatives were and remain an important part of the compound today. But some skeptics say that while Novartis' final product is pork-free, it still uses pork in the manufacturing process, making it ineligible for halal certification.

Novartis, which made \$142 million from Menveo in 2011, did not reply to requests for comment...

http://www.washingtonpost.com/national/on-faith/pork-free-vaccine-wins-cheers-from-some-hajj-pilgrims/2012/10/18/1af743f2-1960-11e2-ad4a-e5a958b60a1e_story.html

Twitter Watch [accessed 20 October 2012 10:43]

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.

[nprGlobalHealth @nprGlobalHealth](#)

Thx everyone for the great chat today on eradicating [#polio](#); ICYMI here's the highlights

<http://n.pr/T5RSv3> [#ChasingPolio](#) [@EndPolioNow](#)

3:28 PM - 19 Oct 12 ·

[Seth Berkley @GAVISeth](#)

Great editorial on why science not politics should drive vaccine decisions: NYTimes: An HPV Vaccine Myth Debunked <http://nyti.ms/VbaVlh>

5:34 AM - 19 Oct 12

[World Bank @WorldBank](#)

New World Bank mobile apps for health, poverty and jobs data: <http://cot.ag/OIxMWZ> Free for iOS and Android. [#opendata](#)

6:08 PM - 18 Oct 12

[Amanda Glassman @glassmanamanda](#)

Can cash transfers help children stay healthy?

[http://siteresources.worldbank.org/INTHDOFFICE/Resources/Burkina_Faso_E2P.pdf ...](http://siteresources.worldbank.org/INTHDOFFICE/Resources/Burkina_Faso_E2P.pdf...)

10:15 AM - 18 Oct 12

[GAVI Alliance @GAVIAlliance](#)

Pakistan is the single largest recipient of GAVI funds worldwide, with more than 36M kids vaccinated. <http://ht.ly/evxwV> @Hoybraten
5:50 AM - 18 Oct 12

[ECDC @ECDC_EU](#)

Cases of [#pertussis](#) (whooping cough) increased in many EU countries since 2011. See [@ECDC_EU](#) guidance and protocols: <http://bit.ly/Tw1HOV>
5:14 AM - 18 Oct 12

[PAHO/WHO @pahowho](#)

Important announcement from the One Team against [#Cholera](#) in Haiti and Dominican Republic [#tt4health](#) <http://new.paho.org/colera/>
12:18 PM - 17 Oct 12

* * * *

Vaccines: The Week in Review is a service of the Center for Vaccines Ethics and Policy ([CVEP](#)) which is solely responsible for its content. Support for this service is provided by its governing institutions – [Department of Medical Ethics, NYU Medical School](#); [The Wistar Institute Vaccine Center](#) and the [Children's Hospital of Philadelphia Vaccine Education Center](#). Additional support is provided by [PATH Vaccine Development Program](#) and the [International Vaccine Institute](#) (IVI), and by vaccine industry leaders including GSK, Merck, Pfizer, and sanofi pasteur (list in formation), as well as the Developing Countries Vaccine Manufacturers Network ([DCVMN](#)). Support is also provided by a growing list of individuals who use this service to support their roles in public health, clinical practice, government, NGOs and other international institutions, academia and research organizations, and industry.

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