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**Vaccines and Global Health: The Week in Review**
**6 December 2014**
**Center for Vaccine Ethics & Policy (CVEP)**

*This weekly summary targets news, events, announcements, articles and research in the vaccine and global health 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 and Global Health: 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 6,500 entries.*

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***Request an email version:** Vaccines and Global Health: The Week in Review is published as a single email summary, scheduled for release each Saturday evening before midnight (EDT in the U.S.). If you would like to receive the email version, please send your request to david.r.curry@centerforvaccineethicsandpolicy.org.*

**POLIO** [to 6 December 2014]
*Public Health Emergency of International Concern (PHEIC)*

**GPEI Update: Polio this week - *As of 3 December 2014***
Global Polio Eradication Initiative
*[Editor's Excerpt and text bolding]*
Full report: http://www.polioeradication.org/Dataandmonitoring/Poliothisweek.aspx
:: In the north of Madagascar, supplementary immunization activities are planned for December in response to the outbreak of circulating vaccine derived poliovirus. National Immunization Days are planned for January. The aim is to boost immunity across the country against all strains of poliovirus using trivalent oral polio vaccine.
:: For the first time ever, only 1 case of wild poliovirus has been reported in Africa in the last 4 months. The case had onset of paralysis on 11 August in Somalia.

***Afghanistan***

:: Two new wild poliovirus type 1 (WPV1) cases were reported in the past week in Afghanistan, 1 in Behsud district (previously uninfected in 2014) of Nangarhar province and 1 in Qalat district of Zabul province (previously uninfected in 2014). The most recent case had onset of paralysis on 5 November in Kandahar district.

:: The total number of WPV1 cases for 2014 in Afghanistan is now 23 compared to 11 at this time last year.

:: Given the growing outbreak in neighbouring Pakistan, Afghanistan continues to conduct supplementary immunization activities (SIAs) to limit the spread of imported polioviruses. Subnational Immunization Days (SNIDs) are planned in high risk areas of the south and east using bivalent oral polio vaccine (OPV) on 7 – 9 and 21 – 23 December.

***Pakistan***

:: Eight new wild poliovirus type 1 (WPV1) cases were reported in the past week. Two are from Balochistan province (1 in Killa Abdullah district and 1 in Killa Saifulah district, which has not previously been infected in 2014); 5 from Khyber Pakhtunkhwa (KP) province (2 from Peshawar district, 2 from Tank district and 1 from Swat district, which has not reported cases so far in 2014); and 1 from Shikarpur in Sindh province, which has also not reported cases so far in 2014. The total number of WPV1 cases in Pakistan in 2014 is now 268, compared to 70 at this time last year. The most recent WPV1 case had onset of paralysis on 16 November, from Peshawar, KP.

:: Immunization activities are continuing with particular focus on known high-risk areas, in particular newly opened previously inaccessible areas of FATA. At exit and entry points of conflict-affected areas that are still inaccessible during polio campaigns, 100 permanent vaccination points are being used to reach internally displaced families as they move in and out of the inaccessible area. Over 1 million people have been vaccinated in the past few months at transit points and in host communities, including over 850,000 children under 10 years old. -

***West Africa***

:: The Ebola crisis in western Africa is impacting on the implementation or polio eradication activities in Liberia, Guinea and Sierra Leone. Supplementary immunization activities in these countries have been postponed and the quality of acute flaccid paralysis surveillance has markedly decreased this year.

:: Even as polio programme staff across West Africa support efforts to control the Ebola outbreak affecting the region, efforts are being made in those countries not affected by Ebola to vaccinate children against polio.

**::::::**

**EBOLA/EVD** [to 6 December 2014]

*Public Health Emergency of International Concern (PHEIC); "Threat to international peace and security" (UN Security Council)*

***Editor's Note: Last week's two Ebola/EVD milestones***

The first milestone was that UNMEER and WHO leaders reported on progress against the so-called 70-70-60 target announced for December 1. While offering upbeat reports on progress in the three most-affected countries and Mali, officials confirmed that the target would not be fully met, noting continuing data reporting issues and a flare-up of EVD in the western part of Sierra Leone (in particular, see the briefing transcript by WHO ADG Bruce Aylward just below).

For reference, the 70-70-60 target was established as UNMEER was launching operations in early October and was intended to "ensure that by 1 December, 70% of people with Ebola who died of the disease could be buried with a safe and dignified manner that would minimise the risk of spread, and also that 70% of people with the disease could be treated in a manner that would isolate them and prevent further spread of the disease" during the initial 60 days of action.

WHO ADG Bruce Aylward made clear in his press briefing that:

*"…The last two big things I think that we've learned is, and I want to be absolutely clear on this, is that while there's been progress towards 70-70, real progress and meaningful progress, this is not good enough to stop Ebola. And probably the single biggest alarming thing that I hear as I work in these countries and speak to people outside is that great, now that we're on track, because the disease is slowing down with this 70% achievement, to stopping Ebola.*

*"You're not on track by getting 70-70-60; you have reached a way, an important milestone along the way. You've managed to slow down the outbreak and we're seeing now in some areas what we call, bend the curve, of the outbreak which of course is very, very important. But that is not going to get you to zero. You eventually have to get 100% safe burials, you eventually have to get 100% of people into treatment facilities and you also have got to complement that with the strategies around case finding and contact tracing. Now that the case numbers have come down enough, that is going to be the big emphasis in those low incidence areas to get this thing finished…*

*… So as we go forward, right now the key thing is to complete the investment. We've got to get to 100% safe burials, 100% isolation and then 100% of cases being found, contacts being 7 traced. That's how you stop Ebola."*

In reporting on the status of the next milestone goal – 100-100-90 (100% safe burials, 100% effective isolation/contact tracing, by 1 January 2015) – WHO and UNMEER officials largely deferred on assessing the probability of meeting that target or the implications of missing it.

The second milestone was the first significant engagement of the larger economic and social implications of the EVD crisis and a "post-EVD" re-building process. The UN Economic and Social Council sponsored a special meeting titled "Ebola: A threat to sustainable development" on 5 December 2014. This meeting included briefings by UNMEER, WHO, affected countries and other stakeholders, and an extended panel discussion facilitated by Dr. Paul Farmer of PIH (Partners in Health). Video and other content on this meeting is also just below.

Please note that our more extensive coverage of Ebola/EVD activity – including detailed coverage of UNMEER and other INGO/agency activity – will now be available at the end of this digest. Please also note that many of the organizations and journals we cover continue to publish important EVD content which is threaded throughout this edition.

## **WHO – Ebola/EVD Press Conference (Geneva, 1 December 2014)**

1 Dec 2014 - Subject: Ebola briefing: WHO response and challenges to control the Ebola outbreak. Speaker: Bruce Aylward, Assistant Director General in charge of the operational response WHO response and challenges to control the Ebola outbreak
Speakers: Dr Bruce Aylward, WHO Assistant Director-General, Polio and Emergencies
:: Video of the press briefing
:: Audio of the press briefing mp3, 49 Mb [01:11:00]
:: Transcript of the press briefing pdf, 236kb

## UN Economic and Social Council: Special meeting on "Ebola: A threat to sustainable development"

5 December 2014

As the United Nations and the international community step up efforts to respond to the Ebola outbreak, the Economic and Social Council is convening a Special Meeting on 5 December 2014 at UN Headquarters in New York to discuss in-depth the economic and social impact of Ebola on the affected countries, the region and the rest of the world identify solutions for a comprehensive and multi-sectoral response.

:: Programme

Following opening statements by the Secretary General, WHO DC, UNMEER leadership, and affected countries, an interactive session of experts discussing the issues above was facilitated by Dr. Paul Farmer, Partners in Health.

:: Concept note

*Objectives of the event*

The ECOSOC Special Event aims to:
-Provide context on the economic and social impact of Ebola in affected countries, their neighbours and the rest of the world;
-Situate the Ebola crisis in the context of the global health equity agenda;
-Identify concrete ways to link the current response to longer-term systems strengthening in all three affected countries;
-Explore specific policy recommendations and mechanisms needed to address the multidimensional nature of the Ebola outbreak; and
-Propose appropriate, short, medium and long term solutions.

*Expected Outcome*

The outcome of the event will be a summary by the President of ECOSOC, highlighting the main conclusions and proposals for follow-up actions.

*Video Segments - English*
-Martin Sajdik (ECOSOC) on Ebola - Pre... 00:17:01
-David Nabarro (UN Special Envoy), Ebo... 00:09:29
-Margaret Chan (WHO), Ebola: A threat... 00:11:52
-Affected Member States Guinea, Sierra... 00:43:26
-Sam Kahamba Kutesa (GA President), Eb... 00:06:23
-Ban Ki-moon, Ebola: A threat to susta... 00:06:21
-Martin Sajdik (ECOSOC), Ebola: A Thre... 00:06:32

5 December 2014
SG/SM/16398-DEV/3156-ECOSOC/6654
Secretary-General Tells Economic and Social Council Ebola's 'Hard Lessons' Show Universal Quality Health Coverage Critical to Post-2015 Development Agenda
Following are UN Secretary-General Ban Ki-moon's remarks at the Economic and Social Council meeting on Ebola: a threat to sustainable development, in New York today…

5 December 2014
ECOSOC/6653
Ebola Epidemic Could Drain $3-4 Billion from Sub-Saharan African Economy, Reverse Peacebuilding Gains in Hardest-Hit Nations, Economic and Social Council Told
The deadly Ebola outbreak could inflict $3-4 billion in losses on the Sub-Saharan African economy and had already begun to erode economic growth in the hardest-hit countries, the Economic and Social Council heard today as it considered how the epidemic could endanger sustainable development…

## WHO: Ebola Virus Disease (EVD)

Situation report – 3 December 2014 [WHO Roadmap]
*Summary*

**A total of 17,145 confirmed, probable, and suspected cases of Ebola virus disease (EVD)** have been reported in five affected countries (Guinea, Liberia, Mali, Sierra Leone, and the United States of America) and three previously affected countries (Nigeria, Senegal and Spain) up to the end of 30 November. There have been **6070 reported deaths**. Reported case incidence is slightly increasing in Guinea (77 confirmed cases reported in the week to 30 November), stable or declining in Liberia (43 new confirmed cases in the 5 days to 28 November), and is still rising in Sierra Leone (537 new confirmed cases in the week to 30 November). The case fatality rate across the three most-affected countries in all cases with a recorded definitive outcome is 72%; in hospitalized patients the case fatality rate is 60%....

WHO congratulates Spain on ending Ebola transmission
2 December 2014

WHO's contribution to the Ebola response - Feature
1 December 2014

**::::::**

## WHO & Regionals [to 6 December 2014]

:: Global Alert and Response (GAR): Disease Outbreak News (DONs)
Middle East respiratory syndrome coronavirus (MERS-CoV) – Saudi Arabia 2 December 2014

Between 3 and 19 November 2014, the National IHR Focal Point for the Kingdom of Saudi Arabia (KSA) notified WHO of 18 additional cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection, including 4 deaths….

…Globally, the WHO has been notified of 927 laboratory-confirmed cases of infection with MERS-CoV, including at least 338 related deaths.
*WHO advice*

Based on the current situation and available information, WHO encourages all Member States to continue their surveillance for acute respiratory infections and to carefully review any unusual patterns….

…WHO does not advise special screening at points of entry with regard to this event nor does it currently recommend the application of any travel or trade restrictions.

:: The Weekly Epidemiological Record (WER) for 5 December 2014, vol. 89, 49 (pp. 545–560) includes:

- Invasive bacterial vaccine-preventable disease sentinel hospital surveillance network: summary of a strategic review and next steps, 2008–2014
- African Programme for Onchocerciasis Control: progress report, 2013–2014
  http://www.who.int/entity/wer/2014/wer8949.pdf?ua=1

:: Call for nominations for the Immunization Practices Advisory Committee (IPAC)
pdf, 124kb 04 December 2014
Deadline for application 2 February 2015

:: New WHO guide to prevent and control cervical cancer
3 December 2014

New guidance from WHO aims to help countries better prevent and control cervical cancer. The disease is one of the world's deadliest – but most easily preventable – forms of cancer for women, responsible for more than 270,000 deaths annually, 85% of which occur in developing countries. The new "Comprehensive cervical cancer control: a guide to essential practice" will be launched at the World Cancer Leaders' Summit in Melbourne, Australia on 3 December 2014...

***WHO Regional Offices***

WHO African Region AFRO
:: HIV prevention: offering hope to victims of sexual violence - *01 December 2014*

WHO Region of the Americas PAHO
:: Training on clinical management of Ebola begins for medical and nursing professionals from Latin America (12/03/2014)

WHO South-East Asia Region SEARO
WHO brings Partners together for Ebola Preparedness
5 December 2014

WHO brought together representatives from Member States, donors, response partners and collaborating centres to update them on Ebola Virus Disease.

Led by the Regional Director, Dr Poonam Khetrapal Singh, WHO experts briefed partners on preparedness of the South-East Asia Region. The Partners Meeting on Ebola Virus Disease was held at WHO's South-East Asia Regional Office in New Delhi on 5 December 2014.

WHO European Region EURO
:: Spain ends Ebola transmission 03-12-2014

WHO Eastern Mediterranean Region EMRO

:: International Day of Persons with Disabilities, 3 December 2014

This year's theme is "Sustainable Development: The Promise of Technology". Technology can be a way to break down barriers for people with disability as devices become faster, cheaper and more accessible. In recognition of its importance, WHO is launching the Global Cooperation on Assistive Health Technology (GATE) initiative in partnership with United Nations (UN) agencies, international organizations, professional organizations, academia and organizations for people with disabilities.

On this year's International Day of Persons with Disabilities, WHO is renewing its commitment to continue to work constructively with governments towards inclusion and equal opportunities for people with disabilities.

:: Suspected Ebola virus disease case in Pakistan 3 December 2014

*Joint press release by the Ministry of National Health Services, Regulation and Coordination and the World Health Organization (WHO) on follow-up on the suspected Ebola virus disease case*

2 December 2014, Islamabad – The Ministry of National Health Services, Regulation and Coordination in coordination with the National Institute of Health and WHO has sent a four member federal rapid response team consisting of an epidemiologist, laboratory technologist and infectious disease control consultant to undertake an investigation of the suspected Ebola case identified yesterday by Karachi airport authorities and transferred to an appropriate isolation ward at the Jinnah Postgraduate Medical Centre.

Although the clinical picture of the patient is much better than upon his arrival, federal and provincial health authorities together with WHO consider it imperative to pursue full compliance with anti-Ebola protocol. Having returned from the city of Monrovia, the capital of Liberia, less than 21 days ago, the patient remains epidemiologically linked with the disease until biologically proven otherwise…

WHO Western Pacific Region WPRO

:: Churches champion health in Vanuatu

VANUATU, 3 December 2014 – Hundreds of families in Vanuatu accessed free health services such as eye screening and child immunization, thanks to the leadership of the Presbyterian Church of Vanuatu, with support from the Vanuatu Ministry of Health and WHO. This event is part of growing Pacific-wide movement where communities and local organizations are reaching beyond their normal activities to promote health.

**UNICEF Watch** [to 6 December 2014]

Sierra Leone: In communities at risk, the fight against Ebola and malaria goes hand in hand

FREETOWN/GENEVA/NEW YORK, 5 December 2014 - Around 2.4 million people will receive anti-malarial drugs during a UNICEF-supported campaign that begins today. As the malaria transmission season peaks in Sierra Leone, the move aims to reduce cases of malaria, ease the strain on the health system and allow true cases of Ebola to be found and treated.

**NIH Watch** [to 6 December 2014]

:: Researchers conduct comprehensive genomic study of sub-Saharan Africans

December 4, 2014 — New data resource will enhance disease research and genomic diversity studies.

:: NIH takes step to speed the initiation of clinical research by ensuring use of single IRB
December 3, 2014 — The draft NIH policy proposes that all NIH-funded multi-site studies should use a single IRB.

:: NIH statement on World AIDS Day 2014
December 2, 2014 — Remarkable progress has been made in the fight against HIV/AIDS since the first annual World AIDS Day was commemorated 26 years ago.

:: Sophisticated HIV diagnostics adapted for remote areas
December 1, 2014 — New tool is low-cost, with no electricity needed — NIH study.

**Global Fund Watch** [to 6 December 2014]
:: PEPFAR and Partners Launch Pediatric Initiative
01 December 2014
On the occasion of World AIDS Day 2014, the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), the Pediatric HIV Treatment Initiative (PHTI) and the Global Fund to Fight AIDS, Tuberculosis and Malaria announced a new Global Pediatric Antiretroviral (ARV) Commitment-to-Action." The Commitment-to-Action brings together leading organizations to accelerate the development of new, high-priority pediatric ARV co-formulations for first- and second-line treatment by 2017…

:: Global Fund Backs Plan to End AIDS by 2030
01 December 2014
GENEVA – On World AIDS Day, the Global Fund to Fight AIDS, Tuberculosis and Malaria declared its strong support for a new roadmap developed by UNAIDS, Fast Track: Ending the AIDS Epidemic by 2030. UNAIDS argues that the pace of responding to HIV in the next five years will be fundamental to ending the epidemic…

**European Medicines Agency Watch** [to 6 December 2014]
03/12/2014
No evidence that Fluad vaccine caused deaths in Italy
*EMA Committee review reassures Member States over safety of flu vaccine*
The Pharmacovigilance Risk Assessment Committee (PRAC) of the European Medicines Agency (EMA) has concluded that there is no evidence that Fluad, a flu vaccine manufactured by Novartis, has caused serious events including deaths in Italy. These reports led the Italian Medicines Agency (AIFA) to suspend the use of two batches of Fluad as a precautionary measure on 27 November 2014…

**Industry Watch** [to 6 December 2014]
:: Pfizer Completes Acquisition of Baxter's Marketed Vaccines
December 01, 2014
NEW YORK--(BUSINESS WIRE)--Pfizer Inc. (NYSE:PFE) today announced that it has completed the acquisition of Baxter International Inc.'s portfolio of marketed vaccines. The portfolio that was acquired consists of NeisVac-C and FSME-IMMUN/TicoVac. As previously

announced, Pfizer also acquired a portion of Baxter's facility in Orth, Austria, where these vaccines are manufactured…

NeisVac-C is a vaccine that helps protect against meningitis caused by group C meningococci(MenC)…MenC is one of the most prevalent meningococcal serogroups in many parts of the world and vaccination with NeisVac-C has been shown to be highly effective.

FSME-IMMUN/TicoVac is a vaccine that helps protect against tick-borne encephalitis (TBE), an infection of the brain, which is transmitted by the bite of ticks infected with the TBE-virus… FSME-IMMUN/TicoVac is approved in 30 countries and has been marketed for over 30 years with approximately 120 million doses produced since 1976….

**DCVMN / PhRMA / EFPIA / IFPMA / BIO Watch** [to 6 December 2014]

:: BIO Applauds House Passage of Ebola Treatments Bill, Urges Swift Action by President Obama to Sign into Law

*Bill strengthens FDA tropical disease priority review voucher program to incentivize new cures*

December 05, 2014

WASHINGTON--(BUSINESS WIRE)--The Biotechnology Industry Organization (BIO) applauds the unanimous House passage late Wednesday of the Adding Ebola to the FDA Priority Review Voucher Program Act. The Act would add Ebola to the Food and Drug Administration's (FDA) tropical disease priority review voucher program, under which developers of a vaccine or treatment for a qualifying tropical disease receive a voucher for FDA priority review for another product of its choice.

"I urge President Obama to act swiftly to sign into law this important legislation, which has now passed both chambers of Congress with unanimous bipartisan support."

The Act would make several other important changes to the program, allowing the Secretary of Health and Human Services to more easily add to the list of diseases which qualify for the program. The Act would also allow the vouchers to be sold and transferred multiple times by manufacturers, increasing their value. In addition, the Act would shorten the timeline for notifying FDA of the intention to submit a priority review voucher, providing companies with greater flexibility. These changes would help harmonize the tropical disease priority review voucher program with the rare pediatric disease priority review voucher program…

**CDC/MMWR Watch** [to 6 December 2014]

http://www.cdc.gov/media/index.html

:: Early Data Suggests Potentially Severe Flu Season - Press Release

Thursday, December 4, 2014

Early data suggests that the current 2014-2015 flu season could be severe. The Centers for Disease Control and Prevention (CDC) urges immediate vaccination for anyone still unvaccinated this season and recommends prompt treatment with antiviral drugs for people at high risk of complications who develop flu.

So far this year, seasonal influenza A H3N2 viruses have been most common. There often are more severe flu illnesses, hospitalizations, and deaths during seasons when these viruses predominate. For example, H3N2 viruses were predominant during the 2012-2013, 2007-2008, and 2003-2004 seasons, the three seasons with the highest mortality levels in the past decade. All were characterized as "moderately severe."

Increasing the risk of a severe flu season is the finding that roughly half of the H3N2 viruses analyzed are drift variants: viruses with antigenic or genetic changes that make them different

from that season's vaccine virus. This means the vaccine's ability to protect against those viruses may be reduced, although vaccinated people may have a milder illness if they do become infected. During the 2007-2008 flu season, the predominant H3N2 virus was a drift variant yet the vaccine had an overall efficacy of 37 percent and 42 percent against H3N2 viruses.

"It's too early to say for sure that this will be a severe flu season, but Americans should be prepared," said CDC director Tom Frieden, M.D., M.P.H. "We can save lives with a three-pronged effort to fight the flu: vaccination, prompt treatment for people at high risk of complications, and preventive health measures, such as staying home when you're sick, to reduce flu spread."…

**::** MMWR Weekly, December 5, 2014 / Vol. 63 / No. 48

- Chikungunya Cases Identified Through Passive Surveillance and Household Investigations — Puerto Rico, May 5–August 12, 2014
- Pertussis Epidemic — California, 2014
- Respiratory Syncytial Virus — United States, July 2012–June 2014
- Notes from the Field: Transmission of Chikungunya Virus in the Continental United States — Florida, 2014
- Announcements: National Influenza Vaccination Week — December 7–13, 2014

**FDA Watch** [to 6 December 2014]
http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/default.htm
*No new digest content identified.*

**GAVI Watch** [to 6 December 2014]
http://www.gavialliance.org/library/news/press-releases/
*No new digest content identified.*

**BMGF - Gates Foundation Watch** [to 6 December 2014]
http://www.gatesfoundation.org/Media-Center/Press-Releases
*No new digest content identified.*

**IAVI Watch** [6 December 2014]
World AIDS Day 2014: Honoring their memories. Partnering toward a vaccine.
*No new digest content identified.*

**European Vaccine Initiative Watch** [to 6 December 2014]
http://www.euvaccine.eu/news-events
*No new digest content identified.*

**IVI Watch** [to 6 December 2014]
http://www.ivi.org/web/www/home
*No new digest content identified.*

**PATH Watch** [to 6 December 2014]
http://www.path.org/news/
*No new digest content identified.*

**Sabin Vaccine Institute Watch** [to 6 December 2014]
http://www.sabin.org/updates/pressreleases
*No new digest content identified.*

## ***Reports/Research/Analysis/Commentary/Conferences/Meetings/Book Watch/Tenders***

*Vaccines and Global Health: 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

### Adding It Up 2014: The Costs and Benefits of Investing in Sexual and Reproductive Health

UNFPA, Guttmacher Institute
2014 :: 56 pages
ISBN: 978-1-934387-18-4
Pdf: English

The 2014 edition of Adding It Up expands the scope of the report and provides new estimates of the needs for and costs and benefits of sexual and reproductive health interventions in the following key areas: contraceptive services; maternal, newborn and other pregnancy-related care; selected services related to HIV prevention; and treating women for four other common STIs.

*[Excerpt from press release]*

Prioritizing sexual and reproductive health will save millions of lives, says new report
4 December 2014

UNITED NATIONS, New York – A staggering 225 million women in developing countries want to avoid pregnancy but are not using modern contraceptives, and tens of millions of women do not receive the basic pregnancy and delivery care they need. These are the findings of Adding It Up: The Costs and Benefits of Investing in Sexual and Reproductive Health 2014, a report released today by the Guttmacher Institute and UNFPA….

…The benefits of family planning and other essential sexual and reproductive health services – such as pregnancy and newborn care, services for pregnant women living with HIV, and treatment for four other sexually transmitted infections – can dramatically improve maternal and newborn survival, reduce rates of unsafe abortion and nearly eliminate the transmission of HIV from mothers to newborns…

## ***Journal Watch***

*Vaccines and Global Health: 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*

**The American Journal of Bioethics**
Volume 14, Issue 12, 2014
http://www.tandfonline.com/toc/uajb20/current
[Reviewed earlier]

**American Journal of Infection Control**
Volume 42, Issue 12, p1255-1346 December 2014
http://www.ajicjournal.org/current
[Reviewed earlier]

**American Journal of Preventive Medicine**
Volume 47, Issue 6, p689-852, e11-e14 December 2014
http://www.ajpmonline.org/current
[Reviewed earlier]

**American Journal of Public Health**
Volume 104, Issue 12 (December 2014)
http://ajph.aphapublications.org/toc/ajph/current
[Reviewed earlier]

**American Journal of Tropical Medicine and Hygiene**
December 2014; 91 (6)
http://www.ajtmh.org/content/current
**Modular Laboratories—Cost-Effective and Sustainable Infrastructure for Resource-Limited Settings**
Daniel J. Bridges*, James Colborn, Adeline S. T. Chan, Anna M. Winters, Dereje Dengala, Christen M. Fornadel and Barry Kosloff
Author Affiliations
Akros, Cresta Golfview Grounds, Lusaka, Zambia; President's Malaria Initiative, U.S. Centers for Disease Control and Prevention, Mozambique; Entomology Branch, Centers for Global Health, U.S. Centers for Disease Control and Prevention, Atlanta, Georgia; Abt Associates Inc., Bethesda, Maryland; President's Malaria Initiative, U.S. Agency for International Development, Washington, DC; London School of Hygiene and Tropical Medicine, Faculty of Tropical Infectious Diseases, Department of Clinical Research, London, United Kingdom; ZAMBART Project, University of Zambia School of Medicine, Lusaka, Zambia
*Abstract.*
High-quality laboratory space to support basic science, clinical research projects, or health services is often severely lacking in the developing world. Moreover, the construction of suitable

facilities using traditional methods is time-consuming, expensive, and challenging to implement. Three real world examples showing how shipping containers can be converted into modern laboratories are highlighted. These include use as an insectary, a molecular laboratory, and a BSL-3 containment laboratory. These modular conversions have a number of advantages over brick and mortar construction and provide a cost-effective and timely solution to offer high-quality, user-friendly laboratory space applicable within the developing world.

**Evaluation of Targeted Mass Cholera Vaccination Strategies in Bangladesh: A Demonstration of a New Cost-Effectiveness Calculator**

Christopher Troeger, David A. Sack and Dennis L. Chao*
Author Affiliations
Center for Statistics and Quantitative Infectious Diseases, Vaccine and Infectious Disease Division, Fred Hutchinson Cancer Research Center, Seattle, Washington; Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland

*Abstract*
Growing interest in mass vaccination with oral cholera vaccine in endemic and epidemic settings will require policymakers to evaluate how to allocate these vaccines in the most efficient manner. Because cholera, when treated properly, has a low case fatality rate, it may not be economically feasible to vaccinate an entire population. Using a new publicly available calculator for estimating the cost-effectiveness of mass vaccination, we show how targeting high-risk subpopulations for vaccination could be cost-effective in Bangladesh. The approach described here is general enough to adapt to different settings or to other vaccine-preventable diseases.

**Economic and Disease Burden of Dengue Illness in India**

Donald S. Shepard, Yara A. Halasa, Brij Kishore Tyagi, S. Vivek Adhish, Deoki Nandan, K. S. Karthiga, Vidya Chellaswamy, Mukul Gaba, Narendra K. Arora*, the INCLEN Study Group
Author Affiliations
Brandeis University, Waltham, Massachusetts; Centre for Research in Medical Entomology, Madurai, India; National Institute of Health and Family Welfare, New Delhi, India; INCLEN Trust International, New Delhi, India

*Abstract*
Between 2006 and 2012 India reported an annual average of 20,474 dengue cases. Although dengue has been notifiable since 1996, regional comparisons suggest that reported numbers substantially underrepresent the full impact of the disease. Adjustment for underreporting from a case study in Madurai district and an expert Delphi panel yielded an annual average of 5,778,406 clinically diagnosed dengue cases between 2006 and 2012, or 282 times the reported number per year. The total direct annual medical cost was US$548 million. Ambulatory settings treated 67% of cases representing 18% of costs, whereas 33% of cases were hospitalized, comprising 82% of costs. Eighty percent of expenditures went to private facilities. Including non-medical and indirect costs based on other dengue-endemic countries raises the economic cost to $1.11 billion, or $0.88 per capita. The economic and disease burden of dengue in India is substantially more than captured by officially reported cases, and increased control measures merit serious consideration.

**Annals of Internal Medicine**
2 December 2014, Vol. 161. No. 11
http://annals.org/issue.aspx

Ideas and Opinions

Chikungunya: Establishing a New Home in the Western Hemisphere FREE

Davidson H. Hamer, MD; and Lin H. Chen, MD
Safe Management of Patients With Serious Communicable Diseases: Recent Experience With Ebola Virus FREE
Alexander Isakov, MD, MPH; Aaron Jamison, EMT-P; Wade Miles, EMT-P; and Bruce Ribner, MD, MPH
Preparing for Critical Care Services to Patients With Ebola FREE
Brooke K. Decker, MD; Jonathan E. Sevransky, MD, MHS; Kevin Barrett, RN; Richard T. Davey, MD; and Daniel S. Chertow, MD, MPH

**BMC Health Services Research**
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**BMC Infectious Diseases**
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***Research article***
**Persistent low carriage of serogroup A Neisseria meningitidis two years after mass vaccination with the meningococcal conjugate vaccine, MenAfriVac**
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BMC Infectious Diseases 2014, 14:663 doi:10.1186/s12879-014-0663-4
Published: 4 December 2014
*Abstract (provisional)*
Background
The conjugate vaccine against serogroup A Neisseria meningitidis (NmA), MenAfriVac, is currently being introduced throughout the African meningitis belt. In repeated multicentre cross-sectional studies in Burkina Faso we demonstrated a significant effect of vaccination on NmA carriage for one year following mass vaccination in 2010. A new multicentre carriage study was performed in October-November 2012, two years after MenAfriVac mass vaccination.
Methods
Oropharyngeal samples were collected and analysed for presence of N. meningitidis (Nm) from a representative selection of 1-29-year-olds in three districts in Burkina Faso using the same procedures as in previous years. Characterization of Nm isolates included serogrouping, multilocus sequence typing, and porA and fetA sequencing. A small sample of invasive isolates collected during the epidemic season of 2012 through the national surveillance system were also analysed.
Results
From a total of 4964 oropharyngeal samples, overall meningococcal carriage prevalence was 7.86%. NmA prevalence was 0.02% (1 carrier), significantly lower (OR, 0.05, 95% CI, P?=?0.005, 0.006-0.403) than pre-vaccination prevalence (0.39%). The single NmA isolate was sequence type (ST)-7, P1.20,9;F3-1, a clone last identified in Burkina Faso in 2003. Nm serogroup W (NmW) dominated with a carriage prevalence of 6.85%, representing 87.2% of

the isolates. Of 161 NmW isolates characterized by molecular techniques, 94% belonged to the ST-11 clonal complex and 6% to the ST-175 complex. Nm serogroup X (NmX) was carried by 0.60% of the participants and ST-181 accounted for 97% of the NmX isolates. Carriage prevalence of serogroup Y and non-groupable Nm was 0.20% and 0.18%, respectively. Among the 20 isolates recovered from meningitis cases, NmW dominated (70%), followed by NmX (25%). ST-2859, the only ST with a serogroup A capsule found in Burkina Faso since 2004, was not found with another capsule, neither among carriage nor invasive isolates.
Conclusions
The significant reduction of NmA carriage still persisted two years following MenAfriVac vaccination, and no cases of NmA meningitis were recorded. High carriage prevalence of NmW ST-11 was consistent with the many cases of NmW meningitis in the epidemic season of 2012 and the high proportion of NmW ST-11 among the characterized invasive isolates.

***Research article***

**Identifying an appropriate PCV for use in Senegal, recent insights concerning Streptococcus pneumoniae NP carriage and IPD in Dakar**

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*Abstract (provisional)*
Background
Since 2000, the Global Alliance for Vaccines and Immunization (GAVI) and WHO have supported the introduction of the Pneumococcal Conjugate Vaccine (PCV) in the immunization programs of developing countries. The highest pneumococcal nasopharyngeal carriage rates have been reported (40-60%) in these countries, and the highest incidence and case fatality rates of pneumococcal infections have been demonstrated in Africa.
Methods
Studies concerning nasopharyngeal pneumococcal carriage and pneumococcal infection in children less than 5?years old were conducted in Dakar from 2007 to 2008. Serotype, antibiotic susceptibility and minimum inhibitory concentrations were determined. In addition, among 17 overall publications, 6 manuscripts of the Senegalese literature published from 1972 to 2013 were selected for data comparisons.
Results
Among the 264 children observed, 132 (50%) children generated a nasopharyngeal (NP) positive culture with Streptococcus pneumoniae. The five most prevalent serotypes, were 6B (9%), 19?F (9%), 23?F (7.6%), 14 (7.6%) and 6A (6.8%). Fifteen percent of the strains (20/132) showed reduced susceptibility to penicillin and 3% (4/132) showed reduced susceptibility to anti-pneumococcal fluoroquinolones. Among the 196 suspected pneumococcal infections, 62 (31.6%) Streptococcus pneumoniae were isolated. Serogroup 1 was the most prevalent serotype (21.3%), followed by 6B (14.9%), 23?F (14.9%) and 5 (8.5%). Vaccine coverage for PCV-7, PCV-10 and PCV-13, were 36.2% (17/47), 66% (31/47) and 70.2% (33/47) respectively. Reduced susceptibility to penicillin and anti-pneumococcal fluoroquinolones was 6.4% and 4.3%, respectively, and the overall lethality was 42.4% (14/33).
Conclusions
This study confirms a high rate of carriage and disease caused by Streptococcus pneumoniae serotypes contained within the current generation of pneumococcal conjugate vaccines and

consistent with reports from other countries in sub-Saharan Africa prior to PCV introduction. Antimicrobial resistance in this small unselected sample confirms a low rate of antibiotic resistance. Case-fatality is high. Introduction of a high valency pneumococcal vaccine should be a priority for health planners with the establishment of an effective surveillance system to monitor post vaccine changes.

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**BMC Public Health**
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***Research article***
**Sexual behavior and factors associated with young age at first intercourse and HPV vaccine uptake among young women in Germany: implications for HPV vaccination policies**
Cornelius Remschmidt, Michaela Fesenfeld, Andreas M Kaufmann and Yvonne Deleré
Author Affiliations
BMC Public Health 2014, 14:1248 doi:10.1186/1471-2458-14-1248
Published: 5 December 2014
*Abstract* (provisional)
Background
In Germany, immunization against human papillomaviruses (HPV) is free of charge for all females aged 12 to 17 years. Since HPV infection rates rise soon after first intercourse, immunization against HPV should be completed before sexual debut. Knowledge of country-specific data on age at first intercourse and related risk factors is important to optimize prevention of HPV and other sexually transmitted infections. Therefore, the primary aim of this study was to describe sexual behavior in young women in Germany. Secondary aims were to identify factors that are (i) associated with younger age at first intercourse and (ii) with HPV vaccine uptake.
Methods
Between 2010 and 2012, we conducted a cross-sectional study among randomly selected women aged 20 to 25 years in Germany. We used a structured, self-administered questionnaire to collect sociodemographic data, information on sexual habits such as age at first intercourse, and information on HPV vaccine uptake. We used univariate and multivariate logistic regression analyses to identify factors associated with younger age at first intercourse and with HPV vaccine uptake.
Results
A total of 823 women (response rate: 14.2%) participated, 785 (95.4%) of which reported having had intercourse already. 70% of these women experienced first intercourse before the age of 18 years. However, less than 5% were younger than 14 years at sexual debut. Younger age at first intercourse was independently associated with a higher number of sexual partners, smoking, and past pregnancies.
Conclusion

In Germany, only a small proportion of women experienced first intercourse before the age of 14 years. Younger age at first intercourse was associated with behavior that might increase the risk of getting infected with HPV or other sexually transmitted infections. To optimize HPV vaccination strategies in Germany and to cover a large proportion of women before their sexual debut and particularly those who are at increased risk for HPV infections, HPV vaccination series should be completed before the age of 14 years in Germany.

**BMC Research Notes**
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**Bulletin of the World Health Organization**
Volume 92, Number 12, December 2014, 849-924
http://www.who.int/bulletin/volumes/92/12/en/
**Health-system resilience: reflections on the Ebola crisis in western Africa**
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Bulletin of the World Health Organization 2014;92:850. doi:
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Disease outbreaks and catastrophes can affect countries at any time, causing substantial human suffering and deaths and economic losses. If health systems are ill-equipped to deal with such situations, the affected populations can be very vulnerable.1

The current Ebola virus disease outbreak in western Africa highlights how an epidemic can proliferate rapidly and pose huge problems in the absence of a strong health system capable of a rapid and integrated response. The outbreak began in Guinea in December 2013 but soon spread into neighbouring Liberia and Sierra Leone.2 In early August 2014, Ebola was declared an international public health emergency.2

At the time the outbreak began, the capacity of the health systems in Guinea, Liberia and Sierra Leone was limited. Several health-system functions that are generally considered essential were not performing well and this hampered the development of a suitable and timely response to the outbreak. There were inadequate numbers of qualified health workers.3 Infrastructure, logistics, health information, surveillance, governance and drug supply systems were weak. The organization and management of health services was sub-optimal. Government health expenditure was low whereas private expenditure – mostly in the form of direct out-of-pocket payments for health services – was relatively high.4

The last decade has seen increased external health-related aid to Guinea, Liberia and Sierra Leone. However, in the context of Millennium Development Goals 4, 5 and 6, most of this aid has been allocated to combat human immunodeficiency virus infection, malaria and tuberculosis, with much of the residual going to maternal and child health services. Therefore,

relatively little external aid was left to support overall development of health systems.[5] This lack of balanced investment in the health systems contributes to the challenges of controlling the current Ebola outbreak. Weak health systems cannot be resilient.[6–8] A strong health system decreases a country's vulnerability to health risks and ensures a high level of preparedness to mitigate the impact of any crises.

Frequently, the response by governments and external partners to a health crisis posed by a communicable disease, such as Ebola, is to focus solely on reducing transmission and the effect of the disease. However, such a response is insufficient. Febrile individuals need to be screened for Ebola – even if most of them have fevers caused by other infections – and those found to be negative for Ebola still need to be treated rather than simply turned away. Even in the worst-affected areas, women still need antenatal services, safe delivery and postnatal care. Many people will travel to seek care for unrelated conditions in areas that they perceive to be Ebola-free, putting enormous strain on the health system in so-called "non-Ebola" areas. Routine services need to be assured while dealing with the direct effects of an epidemic. Otherwise, more people may die – of unrelated causes – from a general breakdown of health services than as a direct result of the epidemic.

If this Ebola outbreak does not trigger substantial investments in health systems and adequate reforms in the worst-affected countries, pre-existing deficiencies in health systems will be exacerbated. The national governments, assisted by external partners, need to develop and implement strategies to make their health systems stronger and more resilient. Only then can they meet the essential health needs of their populations and develop strong disaster preparedness to address future emergencies. In the short-term, nongovernmental organizations, civil society and international organizations will have to bolster the national health systems, both to mitigate the direct consequences of the outbreak and to ensure that all essential health services are being delivered. However, this assistance should be carefully coordinated under the leadership of the national governments and follow development effectiveness principles. We expect health systems in the worst-affected areas to be left in a very weak state once the outbreak has ended. Hopefully, after the epidemic has ended, economic growth and government health spending will eventually rebound, with increased domestic investments in health systems. For the foreseeable future however, the negative economic impact on the affected countries[9] means that substantial external financing will be needed to build stronger national and subnational health systems.

References

***Systematic Review***

**Effectiveness of travel restrictions in the rapid containment of human influenza: a systematic review**

Ana LP Mateus, Harmony E Otete, Charles R Beck, Gayle P Dolan & Jonathan S Nguyen-Van-Tam

*Abstract*

Objective

To assess the effectiveness of internal and international travel restrictions in the rapid containment of influenza.

Methods

We conducted a systematic review according to the requirements of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement. Health-care databases and grey literature were searched and screened for records published before May 2014. Data extraction and assessments of risk of bias were undertaken by two researchers independently. Results were synthesized in a narrative form.

Findings
The overall risk of bias in the 23 included studies was low to moderate. Internal travel restrictions and international border restrictions delayed the spread of influenza epidemics by one week and two months, respectively. International travel restrictions delayed the spread and peak of epidemics by periods varying between a few days and four months. Travel restrictions reduced the incidence of new cases by less than 3%. Impact was reduced when restrictions were implemented more than six weeks after the notification of epidemics or when the level of transmissibility was high. Travel restrictions would have minimal impact in urban centres with dense populations and travel networks. We found no evidence that travel restrictions would contain influenza within a defined geographical area.
Conclusion
Extensive travel restrictions may delay the dissemination of influenza but cannot prevent it. The evidence does not support travel restrictions as an isolated intervention for the rapid containment of influenza. Travel restrictions would make an extremely limited contribution to any policy for rapid containment of influenza at source during the first emergence of a pandemic virus.

**Post-licensure deployment of oral cholera vaccines: a systematic review**

Stephen Martin, Anna Lena Lopez, Anna Bellos, Jacqueline Deen, Mohammad Ali, Kathryn Alberti, Dang Duc Anh, Alejandro Costa, Rebecca F Grais, Dominique Legros, Francisco J Luquero, Megan B Ghai, William Perea & David A Sack

*Abstract*
Objective
To describe and analyse the characteristics of oral cholera vaccination campaigns; including location, target population, logistics, vaccine coverage and delivery costs.
Methods
We searched PubMed, the World Health Organization (WHO) website and the Cochrane database with no date or language restrictions. We contacted public health personnel, experts in the field and in ministries of health and did targeted web searches.
Findings
A total of 33 documents were included in the analysis. One country, Viet Nam, incorporates oral cholera vaccination into its public health programme and has administered approximately 10.9 million vaccine doses between 1997 and 2012. In addition, over 3 million doses of the two WHO pre-qualified oral cholera vaccines have been administered in more than 16 campaigns around the world between 1997 and 2014. These campaigns have either been pre-emptive or reactive and have taken place under diverse conditions, such as in refugee camps or natural disasters. Estimated two-dose coverage ranged from 46 to 88% of the target population. Approximate delivery cost per fully immunized person ranged from 0.11–3.99 United States dollars.
Conclusion
Experience with oral cholera vaccination campaigns continues to increase. Public health officials may draw on this experience and conduct oral cholera vaccination campaigns more frequently.

*PERSPECTIVES*

**Defining disrespect and abuse of women in childbirth: a research, policy and rights agenda**

Lynn P Freedman, Kate Ramsey, Timothy Abuya, Ben Bellows, Charity Ndwiga, Charlotte E Warren, Stephanie Kujawski, Wema Moyo, Margaret E Kruk & Godfrey Mbaruku
doi: 10.2471/BLT.14.137869

**Dilemmas of evaluation: health research capacity initiatives**
Donald C Cole, Garry Aslanyan, Alison Dunn, Alan Boyd & Imelda Bates
doi: 10.2471/BLT.14.141259

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Volume 59 Issue 12 December 15, 2014
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[Reviewed earlier]

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[Reviewed earlier]

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Volume 20, Number 12—December 2014
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Volume 24, Issue 6, 01 December 2014
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Volume 19, Issue 48, 04 December 2014
http://www.eurosurveillance.org/Public/Articles/Archives.aspx?PublicationId=11678
*Research articles*
**Preparedness for admission of patients with suspected Ebola virus disease in European hospitals: a survey, August-September 2014**
by MD de Jong, C Reusken, P Horby, M Koopmans, M Bonten, JD Chiche, C Giaquinto, T Welte, F Leus, J Schotsman, H Goossens, on behalf of the PREPARE consortium and affiliated clinical networks
*Perspectives*
**Overcoming healthcare workers' vaccine refusal – competition between egoism and altruism**

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Vaccination reduces the risk of becoming infected with and transmitting pathogens. The role of healthcare workers (HCWs) in controlling and limiting nosocomial infections has been stressed repeatedly. This has also been recognised at a political level, leading the European Council of Ministers in 2009 to encourage coverage of 75% seasonal influenza vaccine in HCWs. Although there are policies, recommendations and well-tolerated vaccines, still many HCWs refuse to get vaccinated. This article uses literature from psychology and behavioural economics to understand vaccination decisions and the specific situation of HCWs. HCWs are expected to be highly motivated to protect others. However, their individual vaccination decisions follow the same principles (of weighting individual risks) as everyone else's vaccination decisions. This will lead to decisional conflict in a typical social dilemma situation, in which individual interests are at odds with collective interests. Failure to get vaccinated may be the result. If we understand the motivations and mechanisms of HCWs' vaccine refusal, interventions and campaigns may be designed more effectively. Strategies to increase HCWs' vaccine uptake should be directed towards correcting skewed risk perceptions and activating pro-social motivation in HCWs.

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[Reviewed earlier]

**Global Health Governance**
[Accessed 6 December 2014]
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**Determinants of Global Collective Action in Health: The Case of the UN Summit on Non-communicable Diseases**
November 30, 2014
Chantal Blouin, Laurette Dube, Ebony Bertorelli and Monique Moreau

This article presents a case study of the policy process leading to the UN High-Level Meeting on non-communicable diseases (NCDs). The case study tests an analytical framework to understand the factors influencing successful global collective to address chronic diseases. Using this framework, we highlighted four factors explaining the weak outcome of this process. We observed a relatively weak mobilization and advocacy of civil society at the national and global level. Second, the financial context of that time, especially in industrial countries, has created the conditions where it is politically and fiscally difficult for donor countries to undertake financial commitments to support global actions. Thirdly, we observe that health actors have done an incorrect assessment as to where the policy process. Finally, we observed a certain lack of clarity on the rationale for global collective action; the key obstacle here is the economic case has not been sufficiently and visibly made to motivate and trigger policy change. After the Summit in the fall of 2011, the global health diplomacy around chronic diseases control and prevention continued. Future research should examine if the proposed analytical framework is a useful tool to analyze these further steps and to prepare for health diplomacy.

**Plants, Patents and Biopiracy: The Globalization of Intellectual Property Rights and Traditional Medicine**
– November 30, 2014

Suchita Shah

A controversial international debate has arisen between those who call for stronger intellectual property legislation to protect their scientific innovation, and those who claim 'biopiracy' of their traditional medical knowledge (TMK) under such legislation. This paper firstly presents and contextualises the debate, then argues that the difficulty in its resolution has been fuelled by three main factors: first, the lack of an integrated and comprehensive international rights-based system for TMK, which is mirrored in domestic legislation; second, attempts to redress perceived iniquities present legal, political and logistical problems to developing countries; third, when faced with these constraints, developing countries themselves may not act in the best interests of their TMK holders. The case of India, based on original fieldwork, illustrates these issues. Due to the complex nature of TMK and diverse positions on its protection, a broad international sui generis system of rights for TMK holders seems a distant prospect in reality. With a view to advancing the debate, this paper highlights local, national, regional and global initiatives to protect TMK holders, examining in particular the potential of four key processes – forum-shifting, linkages to public health, use of transnational networks and normative change in order to achieve incremental gains.

**Global Public Health**
Volume 9, Supplement 1, 2014
http://www.tandfonline.com/toc/rgph20/.Uq0DgeKy-F9#.U4onnCjDU1w
*This Special Supplement is dedicated to all the Afghan and international health workers who sacrificed their lives during the rebuilding of the Afghan health system.*
[Reviewed earlier]

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http://content.healthaffairs.org/content/current
*Collaborating For Community Health*
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Volume 16, Issue 2 December 2014
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Volume 10 - Special Issue 01 January 2015

http://journals.cambridge.org/action/displayIssue?jid=HEP&tab=currentissue
*SPECIAL ISSUE: Global Financial Crisis, Health and Health Care*
*Overview*

## Financial impact of the GFC: health care spending across the OECD

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*Abstract*
Since the onset of the global financial crisis (GFC), health spending has slowed markedly or fallen in many OECD countries after years of continuous growth. However, health spending patterns across the 34 countries of the OECD have been affected to varying degrees. This article examines in more detail the observed downturn in health expenditure growth, analysing which countries and which sectors of health spending have been most affected. In addition, using more recent preliminary data for a subset of countries, this article tries to shed light on the prospects for health spending trends. Given that public sources account for around three-quarters of total spending on health on average across the OECD, and, in an overall context of managing public deficits, the article focuses on the specific areas of public spending that have been most affected. This study also tries to link the observed trends with some of the main policy measures and instruments put in place by countries. The investigation finds that while nearly all OECD countries have seen health spending growth decrease since 2009, there is wide variation as to the extent of the slowdown, with some countries outside of Europe continuing to see significant growth in health spending. While all sectors of spending appear to have been affected, initial analysis appears to show the greatest decreases has been experienced in pharmaceutical spending and in areas of public health and prevention.

**Health Policy and Planning**
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## The emergence, growth and decline of political priority for newborn survival in Bolivia

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Accepted September 16, 2013.
*Abstract*
Bolivia is expected to achieve United Nations Millennium Development Goal Four, reducing under-five child mortality by two-thirds between 2021 and 2025. However, progress on child mortality reduction masks a disproportionately slow decline in newborn deaths during the 2000s. Bolivia's neonatal mortality problem emerged on the policy agenda in the mid-1990s and grew through 2004 in relationship to political commitments to international development goals and the support of a strong policy network. Network status declined later in the decade. This study draws upon a framework for analysing determinants of political priority for global health initiatives to understand the trajectory of newborn survival policy in Bolivia from the early 1990s. A process-tracing case study methodology is used, informed by interviews with 26 individuals with close knowledge of newborn survival policy in the country and extensive document analysis. The case of newborn survival in Bolivia highlights the significance of political commitments to international development goals, health policy network characteristics

(cohesion, composition, status and key actor support) and political transitions and instability in shaping agenda status, especially decline—an understudied phenomenon considering the transitory nature of policy priorities. The study suggests that the sustainability of issue attention therefore become a focal point for health policy networks and analyses.

## Global Fund investments in human resources for health: innovation and missed opportunities for health systems strengthening

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Accepted September 16, 2013.

*Abstract*

Background

Since the early 2000s, there have been large increases in donor financing of human resources for health (HRH), yet few studies have examined their effects on health systems.

Objective To determine the scope and impact of investments in HRH by the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), the largest investor in HRH outside national governments.

Methods

We used mixed research methodology to analyse budget allocations and expenditures for HRH, including training, for 138 countries receiving money from the Global Fund during funding rounds 1–7. From these aggregate figures, we then identified 27 countries with the largest funding for human resources and training and examined all HRH-related performance indicators tracked in Global Fund grant reports. We used the results of these quantitative analyses to select six countries with substantial funding and varied characteristics—representing different regions and income levels for further in-depth study: Bangladesh (South and West Asia, low income), Ethiopia (Eastern Africa, low income), Honduras (Latin America, lower-middle income), Indonesia (South and West Asia, lower-middle income), Malawi (Southern Africa, low income) and Ukraine (Eastern Europe and Central Asia, upper-middle income). We used qualitative methods to gather information in each of the six countries through 159 interviews with key informants from 83 organizations. Using comparative case-study analysis, we examined Global Fund's interactions with other donors, as well as its HRH support and co-ordination within national health systems.

Results

Around US$1.4 billion (23% of total US$5.1 billion) of grant funding was allocated to HRH by the 138 Global Fund recipient countries. In funding rounds 1–7, the six countries we studied in detail were awarded a total of 47 grants amounting to US$1.2 billion and HRH budgets of US$276 million, of which approximately half were invested in disease-focused in-service and short-term training activities. Countries employed a variety of mechanisms including salary top-ups, performance incentives, extra compensation and contracting of workers for part-time work, to pay health workers using Global Fund financing. Global Fund support for training and salary support was not co-ordinated with national strategic plans and there were major deficiencies in the data collected by the Global Fund to track HRH financing and to provide meaningful assessments of health system performance.

Conclusion

The narrow disease focus and lack of co-ordination with national governments call into question the efficiency of funding and sustainability of Global Fund investments in HRH and their effectiveness in strengthening recipient countries' health systems. The lessons that emerge from this analysis can be used by both the Global Fund and other donors to improve co-ordination of investments and the effectiveness of programmes in recipient countries.

**Aid for health in times of political unrest in Mali: does donors' way of intervening allow protecting people's health?**

Elisabeth Paul1,*, Salif Samaké2, Issa Berthé2, Ini Huijts3, Hubert Balique4 and Bruno Dujardin5

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*Abstract*

Mali has long been a leader in francophone Africa in developing systems aimed at improving aid effectiveness, especially in the health sector. But following the invasion of the Northern regions of the country by terrorist groups and a coup in March 2012, donors suspended official development assistance, except for support to NGOs and humanitarian assistance. They resumed aid after transfer of power to a civil government, but this was not done in a harmonized framework. This article describes and analyses how donors in the health sector reacted to the political unrest in Mali. It shows that despite its long sector-wide approach experience and international agreements to respect aid effectiveness principles, donors have not been able to intervene in view of safeguarding the investments of co-operation in the past decade, and of protecting the health system's functioning. They reacted to the political unrest on a bilateral basis, stopped working with their ministerial partners, interrupted support to the health system which was still expected to serve populations' needs and took months before organizing alternative and only partial solutions to resume aid to the health sector. The Malian example leads to a worrying conclusion: while protecting the health system's achievements and functioning for the population should be a priority, and while harmonizing donors' interventions seems the most appropriate way for that purpose, donors' management practices do not allow for reacting adequately in times of unrest. The article concludes by a number of recommendations.

**Health Research Policy and Systems**

http://www.health-policy-systems.com/content

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**Human Vaccines & Immunotherapeutics** (formerly Human Vaccines)

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**Addressing the global health burden of sickle cell disease**

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*Abstract*
A review of the clinical manifestations of sickle cell disease (SCD), available therapeutic interventions and a necessarily limited assessment of progress with their implementation in Nigeria (the country with the largest number of affected individuals worldwide) was recently published in this journal. Despite a disappointing dearth of targeted therapy for a condition whose molecular basis has been well understood for half a century, there is a wealth of evidence-based supportive interventions, including antibiotic and vaccination prophylaxis against early bacteraemic mortality, childhood stroke risk prevention, patient and population education and screening and community care provision that are simple and inexpensive to implement. There is a real opportunity for international collaboration to drive an improvement in healthcare provision for this condition.

**Time is (still) of the essence: quantifying the impact of emergency meningitis vaccination response in Katsina State, Nigeria**

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*Abstract*
Background
In 2009, a large meningitis A epidemic affected a broad region of northern Nigeria and southern Niger, resulting in more than 75 000 cases and 4000 deaths. In collaboration with state and federal agencies, Médecins Sans Frontières (MSF) intervened with a large-scale vaccination campaign using polysaccharide vaccine. Here the authors analyze the impact (cases averted) of the vaccination response as a function of the timing and coverage achieved.
Methods
Phenomenological epidemic models were fitted to replicate meningitis surveillance data from the Nigerian Ministry of Health/WHO surveillance system and from reinforced surveillance conducted by MSF in both vaccinated and unvaccinated areas using a dynamic, state–space framework to account for under-reporting of cases.
Results
The overall impact of the vaccination campaigns (reduction in meningitis cases) in Katsina State, northern Nigeria, ranged from 4% to 12%. At the local level, vaccination reduced cases by as much as 50% when campaigns were conducted early in the epidemic.
Conclusions
Reactive vaccination with polysaccharide vaccine during meningitis outbreaks can significantly reduce the case burden when conducted early and comprehensively. Introduction of the conjugate MenAfriVac vaccine has reduced rates of disease caused by serogroup A Neisseria meningitidis in the region. Despite this, reactive campaigns with polysaccharide vaccine remain a necessary and important tool for meningitis outbreak response.

## Perceptions of foreign health aid in East Africa: an exploratory baseline study

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*Abstract*
Background
There is insufficient literature on the perceptions of aid recipients with respect to foreign health aid administration and impact. This study sought to identify perceptions of foreign health aid among individuals, health care workers (HCWs), and policymakers in three East African countries: Kenya, Uganda, and Ethiopia. Each country receives substantial foreign aid and shares regional proximity.
Methods
A qualitative exploratory study design was adopted and 81 questionnaires were administered to individuals, HCWs and policymakers. Questionnaires ascertained perceptions of foreign aid, health aid and the USA. Responses were compared between groups and across countries.
Results
Perceptions of how much foreign aid a community receives varied between individuals ('a little'), HCWs ('some') and policymakers ('a lot'). Respondents were positive towards the USA irrespective of the level of aid they perceived came from the USA. Opinions regarding the impact of aid varied by country and by profession. Aid priorities were similar among all

countries and participants, with health care, education and economic development among the primary sectors reported.
Conclusions
More research is needed on perceptions of aid recipients. The findings of this pilot study highlight the need for inclusion of these stakeholders in order to better inform decisions regarding foreign aid.

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**JAMA**
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**JAMA Pediatrics**
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Viewpoint | December 2014
**Ebola Virus Disease and Children - What Pediatric Health Care Professionals Need to Know** FREE
Georgina Peacock, MD, MPH1; Timothy M. Uyeki, MD, MPH, MPP1; Sonja A. Rasmussen, MD, MS1
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JAMA Pediatr. 2014;168(12):1087-1088. doi:10.1001/jamapediatrics.2014.2835.
…WHAT IS KNOWN ABOUT EVD IN CHILDREN?
*Transmission of Ebolavirus to Children*
Because EVD outbreaks have typically occurred in low-resource settings, detailed information about pediatric cases has not been systematically collected. Based on available data, children and adolescents often comprise a small percentage of EVD cases. For example, in an outbreak in Zaire in 1995 in which more than half of the population was younger than 18 years, only 9% of the 315 EVD cases were younger than 18 years.5 Similarly, 147 of 823 (18%) reported EVD cases reported from the current outbreak in Guinea were children,6 and 13.8% of cases from 4 affected countries were younger than 15 years.4 Investigators have suggested that the low number of pediatric EVD cases may be owing to cultural practices in which children are kept away from sick family members, resulting in reduced ebolavirus transmission.4
*Manifestations of EVD in Children*

A unique challenge facing pediatricians is being able to distinguish EVD signs and symptoms from features of much more common pediatric infectious diseases. Typically, children may present with nonspecific signs and symptoms of EVD similar to those in adults, which initially include fever, headache, myalgia, abdominal pain, and weakness, followed several days later by vomiting, diarrhea, and, less commonly, unexplained bleeding or bruising. However, data are very limited. This highlights the key issue of eliciting a history of exposure to Zaire ebolavirus including a travel history and especially any recent direct contact with the blood or bodily fluids of a person who was sick or died from suspected or confirmed Zaire ebolavirus infection.
In the 2000-2001 Sudanebolavirus outbreak in Uganda, all children with laboratory-confirmed EVD were febrile, while only 16% had hemorrhage.[7] Respiratory (eg, cough and dyspnea) and gastrointestinal symptoms were common among children, while central nervous system signs were rare.[7]

The overall case-fatality proportion in the current outbreak is estimated at 70.8%, including 73.4% in children younger than 15 years, 66.1% for those aged 15 to 44 years, and 80.4% for those older than 44 years.[4] However, in the Sudanebolavirus outbreak in Uganda during 2000-2001, children younger than 5 years were reported to be at increased risk for illness and death.[6] The authors hypothesized that this was owing to more prolonged contact with ill caregivers (in this outbreak, young uninfected children were often admitted to EVD treatment unit isolation wards with their ill parents because of the reluctance of other adults to care for them).[7]

Given the impact of this EVD outbreak on the health care infrastructure in the most severely affected countries, the health of children is likely to be seriously impacted because of challenges to providing routine care (eg, immunizations and hospitalizations for common illnesses) in affected countries.

*Considerations for the Pediatric Health Care Professional*

Pediatric health care professionals should have a high index of suspicion for EVD if the child has compatible signs and symptoms and a history of travel from an affected country within the past 21 days. It is essential that health care professionals take a detailed travel history. Malaria, measles, typhoid fever, and other infectious diseases are also endemic in West Africa and should be included in the differential diagnosis of a febrile pediatric traveler from West Africa. Information on high- and low-risk exposures and case definitions for the United States are available at http://www.cdc.gov/vhf/ebola/hcp/case-definition.html. If EVD is suspected, appropriate infection-control precautions (eg, standard, droplet, and contact) should be implemented immediately and the state health department should be promptly notified. The CDC developed an algorithm to evaluate travelers returning from areas with cases of EVD (http://www.cdc.gov/vhf/ebola/pdf/ebola-algorithm.pdf). Laboratory specimens should be processed according to CDC guidance (http://www.cdc.gov/vhf/ebola/pdf/ebola-lab-guidance.pdf).

CONCLUSIONS

Health care professionals, including those who care for children, should be familiar with the clinical features of EVD and should inquire about recent travel to affected West African countries when assessing patients with compatible illness. Prompt implementation of recommended infection-control measures and appropriate reporting to state health departments are essential to prevent further transmission. Based on previous outbreaks and limited data from the current epidemic to date, children may be at lower risk for EVD than adults. Therefore, health care professionals should also consider other common infectious diseases prevalent in West Africa when evaluating ill children from this region, while maintaining a high level of suspicion for EVD.

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**Journal of Global Ethics**
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**Journal of Global Infectious Diseases (JGID)**
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[Reviewed earlier]

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*Special Issue: SYMPOSIUM: Concussions and Sports*
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**Journal of Medical Ethics**
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**Criminalising contagion**
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Accepted 29 October 2014
This special issue is the third in a series published by the BMJ Group.1 ,2 The papers published here arose from a call for papers linked to a project funded by the Economic and Social Research Council: 'Criminalising Contagion: Legal and Ethical Challenges of Disease Transmission and the Criminal Law', undertaken by David Gurnham, Hannah Quirk and myself. Since January 2013, we have held four seminars, which have brought together academics, healthcare professionals, representatives from charities, the Crown Prosecution Service, the Law Commission and the media. While the focus of these seminars was largely on the sexual transmission of disease (ie, HIV and herpes), the recent Ebola outbreak has highlighted the importance of addressing the broader questions as to whether, and if so when, the criminal law should be used in the context of disease transmission.3

**Journal of Medical Internet Research**
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**Bioinformatics analysis and genetic diversity of the poliovirus**

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*Abstract*

Poliomyelitis, a disease which can manifest as muscle paralysis, is caused by the poliovirus, which is a human enterovirus and member of the family Picornaviridae that usually transmits by the faecal–oral route. The viruses of the OPV (oral poliovirus attenuated-live vaccine) strains can mutate in the human intestine during replication and some of these mutations can lead to the recovery of serious neurovirulence. Informatics research of the poliovirus genome can be used to explain further the characteristics of this virus. In this study, sequences from 100 poliovirus isolates were acquired from GenBank. To determine the evolutionary relationship between the strains, we compared and analysed the sequences of the complete poliovirus genome and the VP1 region. The reconstructed phylogenetic trees for the complete sequences and the VP1 sequences were both divided into two branches, indicating that the genetic relationships of the whole poliovirus genome and the VP1 sequences are very similar. This branching indicates that the virulence and pathogenicity of poliomyelitis may be associated with the VP1 region. Sequence alignment of the VP1 region revealed numerous mutation sites in which mutation rates of >30% were detected. In a group of strains recorded in the USA, mutation sites and mutation types were the same and this may be associated with their distribution in the evolutionary tree and their genetic relationship. In conclusion, the genetic evolutionary relationships of poliovirus isolate sequences are determined to a great extent by the VP1 protein, and poliovirus strains located on the same branch of the phylogenetic tree contain the same mutation spots and mutation types. Hence, the genetic characteristics of the VP1 region in the poliovirus genome should be analysed to identify the transmission route of poliovirus and provide the basis of viral immunity development.

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**Journal of Virology**
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**The Lancet**
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*Comment*
**Ebola virus disease: clinical care and patient-centred research**
Ian Roberts, Anders Perner
*Preview* /
It is often stated that there are no proven therapies for Ebola virus disease but that potential treatments, including blood products, immune therapies, and antiviral drugs, are being evaluated.1 This view is inaccurate. Ebola virus disease is a febrile illness with severe gastrointestinal symptoms. Nausea, vomiting, and diarrhoea cause profound water and electrolyte depletion leading to circulatory collapse and death.2–4 Raised blood concentrations of urea and creatinine, indicators of severe dehydration and impaired renal function, are strongly correlated with mortality.
*Comment*
**Chikungunya virus control: is a vaccine on the horizon?**
Ann M Powers a
Vector-borne diseases such as malaria and dengue are among the most prevalent and important infectious diseases in the world. For example, WHO estimated that 40% of the world's population is at risk of dengue virus infection and up to 100 million infections might occur annually.1 West Nile virus and Lyme disease are prominent examples of vector-borne diseases, with over 5600 and 31 000 human cases estimated, respectively, in 2012 in the USA alone.2, 3 Another arthropod-borne virus, chikungunya virus, which has caused over 2·5 million infections worldwide over the past decade, is spreading throughout the Americas and has recently been reported in the USA.4
Ideally, for both public health and economic reasons, options would be available for control of these infections before they cause large outbreaks. For chikungunya virus, on the island of La Reunion, about 300 000 cases were reported during the course of a 2005—06 outbreak, with an estimated economic cost of €43·9 million (in 2006 values).5, 6 The cost of a delayed response to introduction of a new arboviral disease could be as much as 346 times as high as the cost of preparedness through surveillance for the outbreak event.7 Additional preparedness efforts, including the availability of effective and safe vaccines, could further reduce the scope and harms of an eventual outbreak.

A chikungunya virus vaccine candidate was developed in the USA before the large outbreaks that started in 2004 in coastal Kenya. Phase 2 clinical trials were done on the live-attenuated vaccine candidate[8] before further development was discontinued because of an absence of funding and questions regarding the eventual marketing of the vaccine.[9] However, with the continued expansion of the chikungunya epidemic, Lee-Jah Chang and colleagues[10] have reinvigorated chikungunya virus vaccine development with a report in The Lancet detailing the completion of a phase 1 clinical trial on the VRC virus-like particle (VLP) vaccine candidate, VRC-CHKVLP059-00-VP. This dose-escalation, open-label clinical trial included 25 participants and assessed the safety, tolerability, and immunogenicity of the candidate vaccine administered on weeks 0, 4, and 20 at ascending doses of 10 μg (n=5), 20 μg (n=10), and 40 μg (n=10). This VLP vaccine, which had previously been shown to protect non-human primates against virus infection,[11] elicited antibody development in all participants.[10] Importantly, neutralising antibodies persisted for at least 6 months in all participants in all dose groups, which suggests that the vaccine could provide long-term protection against the virus.

The development of a VLP vaccine is a new approach in vaccine technology—one that should result in a safer option than more traditional approaches such as killed vaccines or live-attenuated candidates. A VLP contains the outer structural proteins of the virus—the ones that would typically be recognised by the immune system. None of the viral genetic material is present, and so no live virus could ever be generated. The absence of any live virus also provides a manufacturing advantage because no high-containment facilities would be needed for production. In this study,[10] no serious adverse events were reported and tenderness at the injection site was the only localised symptom (present in nine of 25 participants). Mild systemic reactions including headache, malaise, myalgia, and nausea were reported in ten participants. Overall, the safety data reported suggest that the vaccine would be well tolerated.

Additionally, the investigators noted increasing concentrations of antibodies after booster doses. All participants were antibody positive after the second dose, with the antibody concentrations reaching a peak 4 weeks after the third dose. Although multiple doses can be a challenge in developing countries, alternative formulations of the VLP might increase immunogenicity. For example, inclusion of an adjuvant could lead to equally high concentrations of antibody in fewer doses. Importantly, the concentrations of antibodies detected in participants at week 4—ie, after the initial dose—seemed to be similar to those in patients who had recovered from wild-type infections. Another important aspect of the study was the inclusion of several genotypes, or variants, in the antibody analysis. The VLP vaccine generated antibodies against these distinct variants, suggesting that the vaccine would be effective against any strain of the virus, including the type circulating in the Americas.

Although this VLP vaccine candidate exhibits a range of properties that suggest it would be a good vaccine option, there is always concern about whether a vaccine for a vector-borne virus will be licensed. Development of vaccines for orphan agents is challenging because the market might not be large enough to justify the investment. The cost of development of a vaccine—from preclinical studies to vaccine registration—is estimated to be US$200—500 million.[12] Yet, even with this need for substantial funding, vaccines are still the most cost-effective strategy for disease prevention.[13] Despite these limitations, there is optimism for vaccine development, with the findings that a vaccine for another vector-borne disease, dengue, could be made available at an affordable price,[14] and policy makers in affected countries have expressed interest in public-sector use of a dengue vaccine.[15] In view of the burden of chikungunya outbreaks, which have affected up to 63% of local populations in a matter of months,[16] the continued development of this VLP vaccine candidate, along with other vaccine options, should be encouraged.

## Safety and tolerability of chikungunya virus-like particle vaccine in healthy adults: a phase 1 dose-escalation trial

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*Summary*

Background

Chikungunya virus—a mosquito-borne alphavirus—is endemic in Africa and south and southeast Asia and has recently emerged in the Caribbean. No drugs or vaccines are available for treatment or prevention. We aimed to assess the safety, tolerability, and immunogenicity of a new candidate vaccine.

Methods

VRC 311 was a phase 1, dose-escalation, open-label clinical trial of a virus-like particle (VLP) chikungunya virus vaccine, VRC-CHKVLP059-00-VP, in healthy adults aged 18—50 years who were enrolled at the National Institutes of Health Clinical Center (Bethesda, MD, USA). Participants were assigned to sequential dose level groups to receive vaccinations at 10 μg, 20 μg, or 40 μg on weeks 0, 4, and 20, with follow-up for 44 weeks after enrolment. The primary endpoints were safety and tolerability of the vaccine. Secondary endpoints were chikungunya virus-specific immune responses assessed by ELISA and neutralising antibody assays. This trial is registered with ClinicalTrials.gov, NCT01489358.

Findings

25 participants were enrolled from Dec 12, 2011, to March 22, 2012, into the three dosage groups: 10 μg (n=5), 20 μg (n=10), and 40 μg (n=10). The protocol was completed by all five participants at the 10 μg dose, all ten participants at the 20 μg dose, and eight of ten participants at the 40 μg dose; non-completions were for personal circumstances unrelated to adverse events. 73 vaccinations were administered. All injections were well tolerated, with no serious adverse events reported. Neutralising antibodies were detected in all dose groups after the second vaccination (geometric mean titres of the half maximum inhibitory concentration: 2688 in the 10 μg group, 1775 in the 20 μg group, and 7246 in the 40 μg group), and a significant boost occurred after the third vaccination in all dose groups (10 μg group p=0·0197, 20 μg group p<0·0001, and 40 μg group p<0·0001). 4 weeks after the third vaccination, the geometric mean titres of the half maximum inhibitory concentration were 8745 for the 10 μg group, 4525 for the 20 μg group, and 5390 for the 40 μg group.

Interpretation

The chikungunya VLP vaccine was immunogenic, safe, and well tolerated. This study represents an important step in vaccine development to combat this rapidly emerging pathogen. Further studies should be done in a larger number of participants and in more diverse populations.

Funding

Intramural Research Program of the Vaccine Research Center, National Institute of Allergy and Infectious Diseases, and National Institutes of Health.

*Seminar*

## Hepatitis B virus infection

Christian Trépo, Henry L Y Chan, Anna Lok

*Preview* /

Hepatitis B virus infection is a major public health problem worldwide; roughly 30% of the world's population show serological evidence of current or past infection. Hepatitis B virus is a partly double-stranded DNA virus with several serological markers: HBsAg and anti-HBs, HBeAg and anti-HBe, and anti-HBc IgM and IgG. It is transmitted through contact with infected blood and semen. A safe and effective vaccine has been available since 1981, and, although variable, the implementation of universal vaccination in infants has resulted in a sharp decline in prevalence.

*Hypothesis*

**The immune response and within-host emergence of pandemic influenza virus**

Dr Leslie A Reperant PhD a b, Prof Thijs Kuiken PhD a, Prof Bryan T Grenfell PhD c d, Prof Albert D M E Osterhaus PhD a b

*Summary*

Zoonotic influenza viruses that are a few mutations away from pandemic viruses circulate in animals, and can evolve into airborne-transmissible viruses in human beings. Paradoxically, such viruses only occasionally emerge in people; the four influenza pandemics that occurred in the past 100 years were caused by zoonotic viruses that acquired efficient transmissibility. Emergence of a pandemic virus in people can happen when transmissible viruses evolve in individuals with zoonotic influenza and replicate to titres allowing transmission. We postulate that this step in the genesis of a pandemic virus only occasionally occurs in human beings, because the immune response triggered by zoonotic influenza virus also controls transmissible mutants that emerge during infection. Therefore, an impaired immune response might be needed for within-host emergence of a pandemic virus and replication to titres allowing transmission. Immunocompromised individuals—eg, those with comorbidities, of advanced age, or receiving immunosuppressive treatment—could be at increased risk of generating transmissible viruses and initiating chains of human-to-human infection.

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*Comment*

**Prevention of neonatal pneumonia and sepsis via maternal immunisation**

Amy Sarah Ginsburg, Ajoke Sobanjo-ter Meulen, Keith P Klugman

*Preview |*

Pneumonia is the leading killer of children younger than 5 years, and the greatest risk of mortality from pneumonia in childhood is in the neonatal period.1 Substantial reductions in childhood pneumonia deaths have been hindered by a lack of progress in addressing neonatal mortality. Deaths in the neonatal period constitute 41·6% of the 6·3 million children who die annually before their fifth birthday.2 In 2010, there were an estimated 1·7 million cases of neonatal sepsis and 510 000 cases of neonatal pneumonia.

*Comment*

**Political economy analysis for nutrition policy**

Michael R Reich, Yarlini Balarajan

*Preview |*

The past decade has seen increasing global policy attention to nutrition. Concrete steps have been taken to construct a global governance architecture for nutrition and also to mobilise resources for action.1 Efficacious, low-cost interventions exist,2 and there is greater consensus around technical issues, including the role of nutrition-specific and nutrition-sensitive

interventions in addressing malnutrition in different settings.3 The economic argument to invest in nutrition is well developed, supported by cost-benefit analyses and studies that quantify the cost to scale up interventions.

*Article*

**Annual rates of decline in child, maternal, HIV, and tuberculosis mortality across 109 countries of low and middle income from 1990 to 2013: an assessment of the feasibility of post-2015 goals**

Dr Stéphane Verguet PhD a, Prof Ole Frithjof Norheim PhD b, Zachary D Olson MA a, Gavin Yamey MD c, Prof Dean T Jamison PhD c

*Summary*

Background

Measuring a country's health performance has focused mostly on estimating levels of mortality. An alternative is to measure rates of decline in mortality, which are more sensitive to changes in health policy than are mortality levels. Historical rates of decline in mortality can also help test the feasibility of future health goals (eg, post-2015). We aimed to assess the annual rates of decline in under-5, maternal, tuberculosis, and HIV mortality over the past two decades for 109 low-income and middle-income countries.

Methods

For the period 1990—2013, we estimated annual rates of decline in under-5 mortality (deaths per 1000 livebirths), the maternal mortality ratio (deaths per 100 000 livebirths), and tuberculosis and HIV mortality (deaths per 100 000 population per year) using published data from UNICEF and WHO. For every 5-year interval (eg, 1990—95), we defined performance as the size of the annual rate of decline for every mortality indicator. Subsequently, we tested the feasibility of post-2015 goals by estimating the year by which countries would achieve 2030 targets proposed by The Lancet's Commission on Investing in Health (ie, 20 deaths per 1000 for under-5 mortality, 94 deaths per 100 000 for maternal mortality, four deaths per 100 000 for tuberculosis mortality, and eight deaths per 100 000 for HIV mortality) at observed country and aspirational best-performer (90th percentile) rates.

Findings

From 2005 to 2013, the mean annual rate of decline in under-5 mortality was 4·3% (95% uncertainty interval [UI] 3·9—4·6), for maternal mortality it was 3·3% (2·5—4·1), for tuberculosis mortality 4·1% (2·8—5·4), and for HIV mortality 2·2% (0·1—4·3); aspirational best-performer rates per year were 7·1% (6·8—7·5), 6·3% (5·5—7·1), 12·8% (11·5—14·1), and 15·3% (13·2—17·4), respectively. The top two country performers were Macedonia and South Africa for under-5 mortality, Belarus and Bulgaria for maternal mortality, Uzbekistan and Macedonia for tuberculosis mortality, and Namibia and Rwanda for HIV mortality. At aspirational rates of decline, The Lancet's Commission on Investing in Health target for under-5 mortality would be achieved by 50—64% of countries, 35—41% of countries would achieve the 2030 target for maternal mortality, 74—90% of countries would meet the goal for tuberculosis mortality, and 66—82% of countries would achieve the target for HIV mortality.

Interpretation

Historical rates of decline can help define realistic targets for Sustainable Development Goals. The gap between targets and projected achievement based on recent trends suggests that countries and the international community must seek further acceleration of progress in mortality.

Funding

Bill & Melinda Gates Foundation, NORAD.

**Tuberculosis in pregnancy: an estimate of the global burden of disease**

Jordan Sugarman BSc a, Charlotte Colvin PhD b, Allisyn C Moran PhD b, Dr Olivia Oxlade PhD a

*Summary*

Background

The estimated number of maternal deaths in 2013 worldwide was 289 000, a 45% reduction from 1990. Non-obstetric causes such as infectious diseases including tuberculosis now account for 28% of maternal deaths. In 2013, 3·3 million cases of tuberculosis were estimated to occur in women globally. During pregnancy, tuberculosis is associated with poor outcomes, including increased mortality in both the neonate and the pregnant woman. The aim of our study was to estimate the burden of tuberculosis disease among pregnant women, and to describe how maternal care services could be used as a platform to improve case detection.

Methods

We used publicly accessible country-level estimates of the total population, distribution of the total population by age and sex, crude birth rate, estimated prevalence of active tuberculosis, and case notification data by age and sex to estimate the number of pregnant women with active tuberculosis for 217 countries. We then used indicators of health system access and tuberculosis diagnostic test performance obtained from published literature to determine how many of these cases could ultimately be detected.

Findings

We estimated that 216 500 (95% uncertainty range 192 100—247 000) active tuberculosis cases existed in pregnant women globally in 2011. The greatest burdens were in the WHO African region with 89 400 cases and the WHO South East Asian region with 67 500 cases in pregnant women. Chest radiography or Xpert RIF/MTB, delivered through maternal care services, were estimated to detect as many as 114 100 and 120 300 tuberculosis cases, respectively.

Interpretation

The burden of tuberculosis disease in pregnant women is substantial. Maternal care services could provide an important platform for tuberculosis detection, treatment initiation, and subsequent follow-up.

Funding

United States Agency for International Development.

**The Lancet Infectious Diseases**

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*Editorial*

## Rationality and coordination for Ebola outbreak in west Africa

The Lancet Infectious Diseases

According to WHO, as of Oct 31, 2014, 13 540 people have been diagnosed with Ebola virus disease in eight countries—including 4951 deaths. Transmission remains persistent and widespread in Guinea (1667 cases, 1018 deaths), Liberia (6535 cases, 2413 deaths), and Sierra Leone (5338 cases, 1510 deaths). Dedicated doctors, nurses, and other health-care workers have made great efforts to contain the epidemic. WHO reports that 450 of these health-care workers have developed the disease and more than 230 have died. WHO has attributed these cases to the shortage and improper use of personal protective equipment, and lack of trained medical personnel.

Health-care workers returning from west Africa, who have put their lives at risk to help others, have been quarantined in several US states, such as New York and New Jersey; more

recently, Illinois has started imposing the same measures. Quarantine measures in the USA were put in place after Craig Spencer returned from Guinea and travelled around New York City before he fell ill. A further development was the decision by Louisiana health officials to ban anyone who travelled from Ebola-affected parts of west Africa, and hence Ebola researchers were told not to come to the American Society of Tropical Medicine and Hygiene meeting held recently in New Orleans…

*Article*

**Dynamics and control of Ebola virus transmission in Montserrado, Liberia: a mathematical modelling analysis**

Joseph A Lewnard BA a b †, Martial L Ndeffo Mbah PhD a b †, Jorge A Alfaro-Murillo PhD a b, Prof Frederick L Altice MD a c, Luke Bawo MPH d, Tolbert G Nyenswah MPH d, Prof Alison P Galvani PhD a b

Summary

Background

A substantial scale-up in public health response is needed to control the unprecedented Ebola virus disease (EVD) epidemic in west Africa. Current international commitments seek to expand intervention capacity in three areas: new EVD treatment centres, case ascertainment through contact tracing, and household protective kit allocation. We aimed to assess how these interventions could be applied individually and in combination to avert future EVD cases and deaths.

Methods

We developed a transmission model of Ebola virus that we fitted to reported EVD cases and deaths in Montserrado County, Liberia. We used this model to assess the effectiveness of expanding EVD treatment centres, increasing case ascertainment, and allocating protective kits for controlling the outbreak in Montserrado. We varied the efficacy of protective kits from 10% to 50%. We compared intervention initiation on Oct 15, 2014, Oct 31, 2014, and Nov 15, 2014. The status quo intervention was defined in terms of case ascertainment and capacity of EVD treatment centres on Sept 23, 2014, and all behaviour and contact patterns relevant to transmission as they were occurring at that time. The primary outcome measure was the expected number of cases averted by Dec 15, 2014.

Findings

We estimated the basic reproductive number for EVD in Montserrado to be 2·49 (95% CI 2·38—2·60). We expect that allocating 4800 additional beds at EVD treatment centres and increasing case ascertainment five-fold in November, 2014, can avert 77 312 (95% CI 68 400—85 870) cases of EVD relative to the status quo by Dec 15, 2014. Complementing these measures with protective kit allocation raises the expectation as high as 97 940 (90 096—105 606) EVD cases. If deployed by Oct 15, 2014, equivalent interventions would have been expected to avert 137 432 (129 736—145 874) cases of EVD. If delayed to Nov 15, 2014, we expect the interventions will at best avert 53 957 (46 963—60 490) EVD cases.

Interpretation

The number of beds at EVD treatment centres needed to effectively control EVD in Montserrado substantially exceeds the 1700 pledged by the USA to west Africa. Accelerated case ascertainment is needed to maximise effectiveness of expanding the capacity of EVD treatment centres. Distributing protective kits can further augment prevention of EVD, but it is not an adequate stand-alone measure for controlling the outbreak. Our findings highlight the rapidly closing window of opportunity for controlling the outbreak and averting a catastrophic toll of EVD cases and deaths.

Funding

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**Medical Decision Making (MDM)**
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**The Milbank Quarterly**
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**Nature Medicine**
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http://www.nature.com/nm/journal/v20/n12/index.html
*Nature Medicine | Editorial*
**Principled compassion**
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*Abstract*
Investigational drugs can save or extend lives, and seriously ill patients not able to take part in clinical trials should have access to such drugs whenever possible. In a climate of increased public pressure for this access—often termed compassionate use—five states in the US have passed so-called 'right to try' legislation. These laws are ill advised, as they are not likely to substantially increase access and have the potential to compromise the clinical trial system.
*Nature Medicine | News*
**University travel bans and quarantines may impede Ebola response**
Cassandra Willyard
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Travel to and from West Africa has become increasingly burdensome for researchers and health workers helping to curb the spread of an Ebola outbreak that has killed nearly 5,000 people in the past year. In October, US universities began banning campus-sponsored travel to Liberia, Sierra Leone and Guinea and began strongly discouraging travel to these countries for personal reasons, including volunteer work. As of 29 October, the guidelines set by the US Centers for Disease Control and Prevention advise health officials to monitor the condition of those arriving from Ebola-affected countries for 21 days—the maximum incubation period for the disease. But some institutions are also asking these individuals to stay away from campus during that time, regardless of their exposure to the virus. Although these policies are designed to prevent the spread of Ebola, they may also be hampering the response to the outbreak in West Africa.

"Universities in a time of crisis have historically been able to step up and provide not just research and other resources like that, but really personnel and expertise," says Phuoc Le, a physician at the University of California, San Francisco (UCSF) who was headed to Liberia on 6 November to work with a nonprofit called Last Mile Health. Whereas UCSF is encouraging doctors and nurses to go to West Africa, Le adds, others are "putting up multiple barriers that are hard for individual faculty or staff to overcome."

For example, as of early November, when this story went to press, Stanford University School of Medicine is prohibiting Stanford-related travel to the countries affected by Ebola and is adopting the 21-day rule, regardless of whether travelers are symptomatic or came into contact with infected individuals. Columbia University in New York has advised staff and students to avoid traveling to West Africa. Anyone wishing to make the trip must apply for an exception and sign a letter emphasizing that "evacuation of patients with Ebola symptoms may not be achievable." Travelers must also submit an evacuation plan in case of emergency…

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**New England Journal of Medicine**
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http://www.nejm.org/toc/nejm/medical-journal
*Original Article*
**Chimpanzee Adenovirus Vector Ebola Vaccine — Preliminary Report**
Julie E. Ledgerwood, D.O., Adam D. DeZure, M.D., Daphne A. Stanley, M.S., Laura Novik, M.A., Mary E. Enama, M.A., Nina M. Berkowitz, M.P.H., Zonghui Hu, Ph.D., Gyan Joshi, M.S., Aurélie Ploquin, Ph.D., Sandra Sitar, M.S., Ingelise J. Gordon, R.N., Sarah A. Plummer, C.R.N.P., LaSonji A. Holman, F.N.P., Cynthia S. Hendel, C.R.N.P., Galina Yamshchikov, M.S., Francois Roman, M.D., Alfredo Nicosia, Ph.D., Stefano Colloca, Ph.D., Riccardo Cortese, M.D., Robert T. Bailer, Ph.D., Richard M. Schwartz, Ph.D., Mario Roederer, Ph.D., John R. Mascola, M.D., Richard A. Koup, M.D., Nancy J. Sullivan, Ph.D., Barney S. Graham, M.D., and the VRC 207 Study Team
November 26, 2014DOI: 10.1056/NEJMoa1410863
*Abstract*

Background
The unprecedented 2014 epidemic of Ebola virus disease (EVD) has prompted an international response to accelerate the availability of a preventive vaccine. A replication-defective recombinant chimpanzee adenovirus type 3–vectored ebolavirus vaccine (cAd3-EBO), encoding the glycoprotein from Zaire and Sudan species that offers protection in the nonhuman primate model, was rapidly advanced into phase 1 clinical evaluation.
Full Text of Background...
Methods
We conducted a phase 1, dose-escalation, open-label trial of cAd3-EBO. Twenty healthy adults, in sequentially enrolled groups of 10 each, received vaccination intramuscularly in doses of 2×1010 particle units or 2×1011 particle units. Primary and secondary end points related to safety and immunogenicity were assessed throughout the first 4 weeks after vaccination.
Full Text of Methods...
Results
In this small study, no safety concerns were identified; however, transient fever developed within 1 day after vaccination in two participants who had received the 2×1011 particle-unit dose. Glycoprotein-specific antibodies were induced in all 20 participants; the titers were of greater magnitude in the group that received the 2×1011 particle-unit dose than in the group that received the 2×1010 particle-unit dose (geometric mean titer against the Zaire antigen, 2037 vs. 331; P=0.001). Glycoprotein-specific T-cell responses were more frequent among those who received the 2x1011 particle-unit dose than among those who received the 2×1010 particle-unit dose, with a CD4 response in 10 of 10 participants versus 3 of 10 participants (P=0.004) and a CD8 response in 7 of 10 participants versus 2 of 10 participants (P=0.07).
Full Text of Results...
Conclusions
Reactogenicity and immune responses to cAd3-EBO vaccine were dose-dependent. At the 2×1011 particle-unit dose, glycoprotein Zaire–specific antibody responses were in the range reported to be associated with vaccine-induced protective immunity in challenge studies involving nonhuman primates. Clinical trials assessing cAd3-EBO are ongoing. (Funded by the Intramural Research Program of the National Institutes of Health; VRC 207 ClinicalTrials.gov number, NCT02231866.)

*Online First*
*Perspective*

## Evaluating Ebola Therapies — The Case for RCTs

Edward Cox, M.D., M.P.H., Luciana Borio, M.D., and Robert Temple, M.D.

December 3, 2014
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The worst Ebola epidemic in history is ongoing. With the number of deaths from Ebola virus disease (EVD) already in the thousands and predicted to rise to tens of thousands,[1] the situation is tragic. No treatments have yet been shown to be safe and effective in patients with EVD. Some candidate therapies have shown benefit in animal models of infection, and others have shown activity against certain Ebola strains in cell culture, but concerns have been raised about possible toxicity of some of these agents. There is an urgent need to identify therapies that are effective and safe, and well-designed clinical trials are the fastest and most reliable way to achieve that goal.

Studying investigational therapies for EVD presents scientific, practical, and ethical challenges. Not surprisingly, there has been substantial debate about the best and most

appropriate study approaches.[2,3] It is generally agreed that a trial with a concurrent control group, in which patients are randomly assigned to receive the test drug plus the best available supportive care (BASC) or to BASC alone, would be the most efficient and reliable way to evaluate the safety and effectiveness of candidate products. Some people in the health care community, however, have argued against such trials, urging instead use of a historical control — that is, making investigational drugs as widely available as their supply allows and then comparing mortality rates among treated patients with rates that would have been expected absent the drugs, on the basis of past experience with EVD. The desire to allow all patients access to investigational drugs is understandable, but there are strong reasons to doubt the ability of such "historically controlled" studies to distinguish effective therapies from ineffective ones.

Insofar as such studies cannot reliably identify effective treatments, their use could have tragic consequences. If historical comparisons falsely suggest a benefit or fail to detect modest but meaningful clinical effectiveness, the investigational drug might be erroneously adopted as effective or discarded as ineffective. Possible consequences include exposure of subsequent patients to harm or to lack of effect from the mistakenly adopted treatment and failure to use a drug with a real, though modest, ability to improve survival, as well as failure to further develop an intervention that provides meaningful benefit.

Historically controlled studies compare study outcomes with outcomes in an external group that is thought to be similar to the study participants. The challenge of such trials is identifying a pertinent historical experience. If the two groups are not similar, observed differences in results may be unrelated to the therapy, instead reflecting underlying differences between the groups or differences in supportive care.

Case fatality rates in past outbreaks of EVD have ranged from less than 50% to more than 80%,[4] and even limited supportive care probably improves survival rates. Thus, the historical case fatality rates are irrelevant if current study patients receive better supportive care. Without clear knowledge of the mortality that would be expected with the study's level of supportive care, a historically controlled study cannot determine whether a treatment has helped or harmed patients.[5] In a randomized trial, by contrast, all patients would receive similar supportive care, so that the effect (or lack of effect) of the added treatment could be assessed. Moreover, such a trial could detect even a small but meaningful benefit that a historically controlled trial could not credibly identify.

Randomized, controlled trials (RCTs) with a BASC control group are a powerful tool for evaluating effects of an investigational therapy. Randomization ensures reasonable similarity of the test and control groups and protects against various imbalances and biases that could lead to erroneous conclusions. Properly designed RCTs that give reliable answers are critical to identifying urgently needed treatments for responding to the ongoing Ebola crisis and any future outbreaks.

The number of infected patients greatly exceeds the supply of certain investigational agents. Regardless of debates over trial design or ethics, when there are only limited supplies, most patients cannot receive specific antiviral therapy. RCTs for evaluating these agents will therefore not be depriving patients of treatment but will provide a pathway for identifying effective treatments as rapidly and reliably as possible. Even when sufficient supplies are available, RCTs will provide the definitive answer on effectiveness, in a generally quicker fashion than alternative trial designs.

When preclinical data suggest that a candidate treatment has a low likelihood of clinical effectiveness or may have substantial toxicity, RCTs including a BASC group are the most efficient and reliable way to identify benefits or harm. Given the accelerated development of

Ebola drugs (which involves, for example, proceeding on the basis of only limited phase 1 data and little or no traditional phase 2 data) and preliminary data suggesting potential for adverse effects, such drugs need to be evaluated in RCTs with an appropriate control group so that any harm can be detected. Otherwise, it may not be possible to distinguish serious adverse drug effects from manifestations of EVD.

Some public health authorities are reluctant to support RCTs, which they see as traditional and slow trials.[3] However, advances in trial design can and should be incorporated into Ebola RCTs. For example, such trials should include ongoing monitoring of results (e.g., group-sequential designs), adaptive elements, and other trial efficiencies to reduce the time required to identify an effective treatment, particularly a very effective treatment. If one investigational drug clearly shows benefit, trials should incorporate it into the new standard of care for all treatment groups thereafter. Then a regimen adding a different investigational therapy to the new standard of care could be compared with the new standard of care alone. If multiple investigational drugs are simultaneously available for clinical testing, an RCT could include more than one drug and a shared control group. Trials could be designed to assess effects on survival (recovery from disease) as the most important and measurable end point.

RCTs will yield the safety and effectiveness data that are so desperately needed and will do so ethically, giving all patients in a study an equal opportunity to receive the often limited supply of investigational drugs. So far, investigational drugs have generally been used in the few patients treated in the United States or Europe. An RCT with sites in West Africa, the United States, and Europe could result in more equitable distribution, because random allocation provides a fair means of deciding who has access to limited quantities of an investigational drug.

Scientists at the National Institutes of Health, in collaboration with the Food and Drug Administration, the Biomedical Advanced Research and Development Authority, the Department of Defense, and clinicians caring for patients with EVD in the United States, are leading efforts to develop and implement such trials. They have developed a protocol for an RCT with a BASC control group that will use Bayesian analytic methods, allow for the study of more than one investigational drug using a shared control group, and permit incorporation of a therapy into the regimen for the standard-of-care group once it has been shown to be effective against Ebola. The trial will be initiated first in the United States, with an opportunity for subsequent expansion to affected countries in West Africa. Establishing such trials in those countries is likely to have additional beneficial effects, such as improving supportive care.

Conducting such trials in affected regions will be challenging. It is critical for public health leaders to articulate the rationale for conducting scientifically valid trials, to work closely with local health authorities, and to engage community leaders so that trials can be acceptable to the affected populations. Such efforts are essential if we are to correctly identify therapies that will benefit patients with EVD now and in the future.

Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

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*Source Information*

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**The Pediatric Infectious Disease Journal**

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**Trends of Pneumococcal Meningitis in Children After Introduction of the 13-Valent Pneumococcal Conjugate Vaccine in France**

Levy, Corinne MD; Varon, Emmanuelle MD; Picard, Capucine MD; Béchet, Stéphane MSc; Martinot, Alain MD; Bonacorsi, Stéphane MD; Cohen, Robert MD

*Abstract*

Background:

Streptococcus pneumoniae remains an important cause of bacterial meningitis in children younger than 2 years. Here, we analyzed data from an active surveillance network established 12 years ago by the Pediatric Infectious Disease Group and the Pediatric Clinical and Therapeutical Association to analyze the impact of pneumococcal conjugate vaccine (PCV7 implemented in 2002 and PCV13 in 2010) on pneumococcal meningitis (PM).

Methods:

Two hundred twenty-seven pediatric wards working with 168 microbiology departments throughout France were asked to report all cases of PM.

Results:

From 2001 to 2012, among 4808 bacterial meningitis cases, 1406 cases of PM (29.2%) were reported. After PCV13 implementation, from 2009 to 2012, the number of cases significantly decreased by 27.4% (P = 0.041, Cuzick trend test). For children younger than 2 years, the decrease was 28.2% (P = 0.039, Cuzick trend test). In the same period, the decrease was 66.7% in cases due to 6 additional PCV13 types, and the number of cases due to nonvaccine types remained stable. In 2012, the non-PCV13 serotype represented 67.6% of cases and were mainly represented by 12F (15%), 24F (15%), 22F (7%) and 15B/C (7%). For 88.6% of cases, initial antibiotic treatment was vancomycin with a third-generation cephalosporin. Overall mortality was 10.6%, most deaths (86.4%) occurred before day 15.

Conclusions:

Two years after the PCV13 implementation, we found an impact on PM cases particularly for children younger than 2 years.

**Pediatrics**

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*Article*

**Sinusitis and Pneumonia Hospitalization After Introduction of Pneumococcal Conjugate Vaccine**

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iDepartment of Communicable Disease Control and Prevention, Stockholm County Council, Sweden; and
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*Abstract*

BACKGROUND AND OBJECTIVE: Streptococcus pneumoniae is a major cause of pneumonia and sinusitis. Pneumonia kills >1 million children annually, and sinusitis is a potentially serious pediatric disease that increases the risk of orbital and intracranial complications. Although pneumococcal conjugate vaccine (PCV) is effective against invasive pneumococcal disease, its effectiveness against pneumonia is less consistent, and its effect on sinusitis is not known. We compared hospitalization rates due to sinusitis, pneumonia, and empyema before and after sequential introduction of PCV7 and PCV13.

METHOD: All children 0 to <18 years old hospitalized for sinusitis, pneumonia, or empyema in Stockholm County, Sweden, from 2003 to 2012 were included in a population-based study of hospital registry data on hospitalizations due to sinusitis, pneumonia, or empyema. Trend analysis, incidence rates, and rate ratios (RRs) were calculated comparing July 2003 to June 2007 with July 2008 to June 2012, excluding the year of PCV7 introduction.

RESULTS: Hospitalizations for sinusitis decreased significantly in children aged 0 to <2 years, from 70 to 24 cases per 100 000 population (RR = 0.34, P < .001). Hospitalizations for pneumonia decreased significantly in children aged 0 to <2 years, from 450 to 366 per 100 000 population (RR = 0.81, P < .001) and in those aged 2 to <5 years from 250 to 212 per 100 000 population (RR = 0.85, P = .002). Hospitalization for empyema increased nonsignificantly. Trend analyses showed increasing hospitalization for pneumonia in children 0 to <2 years before intervention and confirmed a decrease in hospitalizations for sinusitis and pneumonia in children aged 0 to <5 years after intervention.

CONCLUSIONS: PCV7 and PCV13 vaccination led to a 66% lower risk of hospitalization for sinusitis and 19% lower risk of hospitalization for pneumonia in children aged 0 to <2 years, in a comparison of 4 years before and 4 years after vaccine introduction.

*Article*

## Changes in Child Mortality Over Time Across the Wealth Gradient in Less-Developed Countries

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bCenter for Health Policy and the Center for Primary Care and Outcomes Research, Stanford University, Stanford, California

*Abstract*

BACKGROUND: It is unknown whether inequalities in under-5 mortality by wealth in low- and middle-income countries (LMICs) are growing or declining.

METHODS: All Demographic and Health Surveys conducted between 2002 and 2012 were used to measure under-5 mortality trends in 3 wealth tertiles. Two approaches were used to estimate changes in under-5 mortality: within-survey changes from all 54 countries, and between-survey changes for 29 countries with repeated survey waves. The principal outcome measures include annual decline in mortality, and the ratio of mortality between the poorest and least-poor wealth tertiles.

RESULTS: Mortality information in 85 surveys from 929 224 households and 1 267 167 women living in 54 countries was used. In the subset of 29 countries with repeat surveys, mortality declined annually by 4.36, 3.36, and 2.06 deaths per 1000 live births among the poorest, middle, and least-poor tertiles, respectively (P = .031 for difference). The mortality ratio declined from 1.68 to 1.48 during the study period (P = .006 for trend). In the complete set of 85 surveys, the mortality ratio declined in 64 surveys (from 2.11 to 1.55), and increased in 21 surveys (from 1.58 to 1.88). Multivariate analyses suggest that convergence was associated with good governance (P ≤ .03 for 4 governance indicators: government effectiveness, rule of law, regulatory quality, and control of corruption).

CONCLUSIONS: Overall, under-5 mortality in low- and middle-income countries has decreased faster among the poorest compared with the least poor between 1995 and 2012, but progress in some countries has lagged, especially with poor governance.

*Article*

## Adolescent Vaccine Co-administration and Coverage in New York City: 2007–2013

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eImmunization Services Division/National Center for Immunization and Respiratory Diseases/Centers for Disease Control & Prevention, Atlanta, Georgia

Abstract

OBJECTIVES: To investigate adolescent vaccination in New York City, we assessed tetanus, diphtheria, and acellular pertussis (Tdap), meningococcal conjugate (MCV4), and human papillomavirus (HPV) vaccine uptake, vaccine co-administration, and catch-up coverage over time.

METHODS: We analyzed data from the Citywide Immunization Registry, a population-based immunization information system, to measure vaccine uptake and co-administration, defined as a Tdap vaccination visit where MCV4 or HPV vaccine was co-administered, among 11-year-olds. Catch-up vaccinations were evaluated through 2013 for adolescents born 1996 to 2000, by birth cohort. HPV vaccination among boys included data from 2010 to 2013.

RESULTS: Adolescent vaccine administration was greatest during the back-to-school months of August to October and was highest for Tdap. Although MCV4 uptake improved over the study years, HPV vaccine uptake among girls stagnated; boys achieved similar uptake of HPV vaccine by 2012. By 2013, 65.4% had MCV4 co-administered with Tdap vaccine, whereas 28.4% of girls and 25.9% of boys had their first dose of HPV vaccine co-administered. By age 17, Tdap and MCV4 vaccination coverage increased to 97.5% and 92.8%, respectively, whereas ≥1-dose and 3-dose HPV vaccination coverage were, respectively, 77.5% and 53.1% for girls and 49.3% and 21.6% for boys. Age-specific vaccination coverage increased with each successive birth cohort (P < .001).

CONCLUSIONS: From 2007 to 2013, there were greater improvements in Tdap and MCV4 vaccination than HPV vaccination, for which co-administration with Tdap vaccine and coverage through adolescence remained lower. Parent and provider outreach efforts should promote timely HPV vaccination for all adolescents and vaccine co-administration.

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*Research Article*
**What Are Fair Study Benefits in International Health Research? Consulting Community Members in Kenya**
Maureen Njue, Francis Kombe, Salim Mwalukore, Sassy Molyneux, Vicki Marsh mail
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DOI: 10.1371/journal.pone.0113112
*Abstract*
Background
Planning study benefits and payments for participants in international health research in low-income settings can be a difficult and controversial process, with particular challenges in balancing risks of undue inducement and exploitation and understanding how researchers should take account of background inequities. At an international health research programme in Kenya, this study aimed to map local residents' informed and reasoned views on the effects of different levels of study benefits and payments to inform local policy and wider debates in international research.
Methods and Findings
Using a relatively novel two-stage process community consultation approach, five participatory workshops involving 90 local residents from diverse constituencies were followed by 15 small group discussions, with components of information-sharing, deliberation and reflection to situate normative reasoning within debates. Framework Analysis drew inductively and deductively on voice- recorded discussions and field notes supported by Nvivo 10 software, and the international research ethics literature. Community members' views on study benefits and payments were diverse, with complex contextual influences and interplay between risks of giving 'too many' and 'too few' benefits, including the role of cash. While recognising important risks for free choice, research relationships and community values in giving 'too many', the greatest concerns were risks of unfairness in giving 'too few' benefits, given difficulties in assessing indirect costs of participation and the serious consequences for families of underestimation, related to perceptions of researchers' responsibilities.
Conclusions
Providing benefits and payments to participants in international research in low-income settings is an essential means by which researchers meet individual-level and structural forms of ethical

responsibilities, but understanding how this can be achieved requires a careful account of social realities and local judgment. Concerns about undue inducement in low-income communities may often be misplaced; we argue that greater attention should be placed on avoiding unfairness, particularly for the most-poor.

*Research Article*

**Quantifying the Impact of Expanded Age Group Campaigns for Polio Eradication**

Bradley G. Wagner mail, Matthew R. Behrend, Daniel J. Klein, Alexander M. Upfill-Brown, Philip A. Eckhoff, Hao Hu

Published: December 01, 2014

DOI: 10.1371/journal.pone.0113538

*Abstract*

A priority of the Global Polio Eradication Initiative (GPEI) 2013–2018 strategic plan is to evaluate the potential impact on polio eradication resulting from expanding one or more Supplementary Immunization Activities (SIAs) to children beyond age five-years in polio endemic countries. It has been hypothesized that such expanded age group (EAG) campaigns could accelerate polio eradication by eliminating immunity gaps in older children that may have resulted from past periods of low vaccination coverage. Using an individual-based mathematical model, we quantified the impact of EAG campaigns in terms of probability of elimination, reduction in polio transmission and age stratified immunity levels. The model was specifically calibrated to seroprevalence data from a polio-endemic region: Zaria, Nigeria. We compared the impact of EAG campaigns, which depend only on age, to more targeted interventions which focus on reaching missed populations. We found that EAG campaigns would not significantly improve prospects for polio eradication; the probability of elimination increased by 8% (from 24% at baseline to 32%) when expanding three annual SIAs to 5–14 year old children and by 18% when expanding all six annual SIAs. In contrast, expanding only two of the annual SIAs to target hard-to-reach populations at modest vaccination coverage—representing less than one tenth of additional vaccinations required for the six SIA EAG scenario—increased the probability of elimination by 55%. Implementation of EAG campaigns in polio endemic regions would not improve prospects for eradication. In endemic areas, vaccination campaigns which do not target missed populations will not benefit polio eradication efforts.

**PLoS Medicine**

(Accessed 6 December 2014)

http://www.plosmedicine.org/

*Health in Action*

**Tracking Rural Health Facility Financial Data in Resource-Limited Settings: A Case Study from Rwanda**

Chunling Lu mail, Sandy Tsai, John Ruhumuriza, Grace Umugiraneza, Solange Kandamutsa, Phillip P. Salvatore, Zibiao Zhang, Agnes Binagwaho, Fidele Ngabo

Published: December 02, 2014

DOI: 10.1371/journal.pmed.1001763

*Summary Points*

:: Tracking financial data for rural health facilities is difficult in low-income countries because of unstandardized accounting practices and the absence of effective health financial information tracking systems.

:: Poor-quality financial data hinders monitoring and evaluation of health facility performance.

:: We present a five-step procedure developed for gathering financial data from 21 health centers in two rural districts of Rwanda.
:: The five-step procedure generated financial data with internal consistency and a low percentage of reports of "missing" for in-kind support (donated goods and services). In-kind support (mainly medicine and equipment) accounted for a large proportion of the total expenditure of health centers.
:: We report challenges faced by the project and make suggestions for how Rwanda's national web-based financial data collection system can be improved.
Knowledge gained from the Rwanda field experience may inform other low-income countries on how to establish an information system to track health facility financial data.

**PLoS Currents: Outbreaks**
http://currents.plos.org/outbreaks/
(Accessed 6 December 2014)
[No new relevant content]

**PLoS Neglected Tropical Diseases**
http://www.plosntds.org/
(Accessed 6 December 2014)
*Research Article*
**Comparative Effectiveness of Different Strategies of Oral Cholera Vaccination in Bangladesh: A Modeling Study**
Dobromir T. Dimitrov, Christopher Troeger, M. Elizabeth Halloran, Ira M. Longini, Dennis L. Chao mail
Published: December 04, 2014
DOI: 10.1371/journal.pntd.000334
*Abstract*
Background
Killed, oral cholera vaccines have proven safe and effective, and several large-scale mass cholera vaccination efforts have demonstrated the feasibility of widespread deployment. This study uses a mathematical model of cholera transmission in Bangladesh to examine the effectiveness of potential vaccination strategies.
Methods & Findings
We developed an age-structured mathematical model of cholera transmission and calibrated it to reproduce the dynamics of cholera in Matlab, Bangladesh. We used the model to predict the effectiveness of different cholera vaccination strategies over a period of 20 years. We explored vaccination programs that targeted one of three increasingly focused age groups (the entire vaccine-eligible population of age one year and older, children of ages 1 to 14 years, or preschoolers of ages 1 to 4 years) and that could occur either as campaigns recurring every five years or as continuous ongoing vaccination efforts. Our modeling results suggest that vaccinating 70% of the population would avert 90% of cholera cases in the first year but that campaign and continuous vaccination strategies differ in effectiveness over 20 years. Maintaining 70% coverage of the population would be sufficient to prevent sustained transmission of endemic cholera in Matlab, while vaccinating periodically every five years is less effective. Selectively vaccinating children 1–14 years old would prevent the most cholera cases per vaccine administered in both campaign and continuous strategies.

Conclusions
We conclude that continuous mass vaccination would be more effective against endemic cholera than periodic campaigns. Vaccinating children averts more cases per dose than vaccinating all age groups, although vaccinating only children is unlikely to control endemic cholera in Bangladesh. Careful consideration must be made before generalizing these results to other regions.

*Author Summary*

Bangladesh has a high burden of cholera and may become the first country to use cholera vaccine on a large scale. Mass cholera vaccination may be hard to justify to international funding agencies because of the modest efficacy of existing vaccines and their limited duration of protection. However, mass cholera vaccination can induce high levels of indirect protection in a population, i.e., protecting even unvaccinated individuals by lowering cholera incidence, and a case for cost-effective cholera vaccination could be made. Mathematical modeling is one way to predict the magnitude of indirect protection conferred by a proposed vaccination program. Here, we predict the effectiveness of various mass cholera vaccination strategies in Bangladesh using a mathematical model. We found that maintaining high levels of vaccination coverage in children could be very effective in reducing the burden of cholera, and secondary transmission of cholera would virtually stop when 70% of the population is vaccinated. Mathematical modeling may play a key role in planning widespread cholera vaccination efforts in Bangladesh and other countries.

**PLoS Pathogens**

http://journals.plos.org/plospathogens/
(Accessed 6 December 2014)
Pearls

**War and Infectious Diseases: Challenges of the Syrian Civil War**

Sima L. Sharara, Souha S. Kanj mail
Published: November 13, 2014
DOI: 10.1371/journal.ppat.100443

*Overview*

Syria's ongoing three-year civil war has displaced 6.5 million Syrians, left hundreds of thousands wounded or killed by violence, and created a vacuum in basic infrastructures that will reverberate throughout the region for years to come. Beyond such devastation, the civil war has introduced epidemics of infections that have spread through vulnerable populations in Syria and neighboring countries. In this article, we discuss the growing epidemics of poliomyelitis, measles, and cutaneous leishmaniasis in Syria and the region to examine the impact of conditions of war on the spread of infectious diseases in a public health emergency of global concern.

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

(Accessed 6 December 2014)
http://www.pnas.org/content/early/
[No new relevant content]

**Pneumonia**
Vol 5 (2014)
https://pneumonia.org.au/index.php/pneumonia/issue/current
*Special Issue "Pneumonia Diagnosis"*
[Reviewed earlier]

**Public Health Ethics**
Volume 7 Issue 3 November 2014
http://phe.oxfordjournals.org/content/current
*Special Symposium on Dual Loyalities: Health Providers Working for the State*
[Reviewed earlier]

**Qualitative Health Research**
December 2014; 24 (12*)*
http://qhr.sagepub.com/content/current
*Special Issue: Concepts in Promoting Health*
[Reviewed earlier]

**Revista Panamericana de Salud Pública/Pan American Journal of Public Health (RPSP/PAJPH)**
September 2014 Vol. 36, No. 3
http://www.paho.org/journal/index.php?option=com_content&view=article&id=151&Itemid=266&lang=en
[Reviewed earlier]

**Risk Analysis**
October 2014 Volume 34, Issue 10 Pages 1775–1967
http://onlinelibrary.wiley.com/doi/10.1111/risa.2014.34.issue-10/issuetoc
[Reviewed earlier]

**Science**
5 December 2014 vol 346, issue 6214, pages 1149-1260
http://www.sciencemag.org/current.dtl
[New issue; No relevant content]

**Social Science & Medicine**
Volume 120, In Progress (November 2014)
http://www.sciencedirect.com/science/journal/02779536/118
[Reviewed earlier]

**Tropical Medicine and Health**

Vol. 42(2014) No. 4
https://www.jstage.jst.go.jp/browse/tmh/42/4/_contents
[Reviewed earlier]

**Tropical Medicine & International Health**
November 2014 Volume 19, Issue 11 Pages 1293–1390
http://onlinelibrary.wiley.com/doi/10.1111/tmi.2014.19.issue-11/issuetoc
[Reviewed earlier]

**Vaccine**
Volume 32, Issue 52, Pages 7033-7184 (12 December 2014)
http://www.sciencedirect.com/science/journal/0264410X/32/52
[Reviewed earlier]

**Vaccine: Development and Therapy**
(Accessed 6 December 2014)
http://www.dovepress.com/vaccine-development-and-therapy-journal
[No new relevant content]

**Vaccines — Open Access Journal**
(Accessed 6 December 2014)
http://www.mdpi.com/journal/vaccines
[No new relevant content]

**Value in Health**
Volume 17, Issue 7 November 2014
http://www.valueinhealthjournal.com/current
[Reviewed earlier]

## ***From Google Scholar & other sources: Selected Journal Articles, Newsletters, Dissertations, Theses, Commentary***

**BMC Biology**
http://www.biomedcentral.com/bmcbiol/content
*Interview*
**Vaccines, emerging viruses, and how to avoid disaster**
Rino Rappuoli
Author Affiliations
Novartis Vaccines, Siena 53100, Italy
BMC Biology 2014, 12:100 doi:10.1186/s12915-014-0100-6
29 November 2014

*Abstract*

Rino Rappuoli is a graduate of Siena University, where he also earned his PhD before moving to the Sclavo Research Center, the Italian vaccine institute, also in Siena. He then spent two years in the USA, mostly at Harvard with John Murphy and Alwin Pappenheimer working on a new diphtheria vaccine based on a non-toxic mutant of diphtheria toxin which has since become the basis for conjugate vaccines against haemophilus, meningococcus, and pneumococcal infections, before returning to the Sclavo Research Center where he developed an acellular vaccine based on a mutant pertussis toxin. With many achievements in vaccine development to his credit, he is now Global Head of Vaccines Research and Development for Novartis Vaccines in Siena, and has most recently pioneered reverse vaccinology, in which the genome of the pathogen is screened for candidate antigenic and immunogenic vaccine components. We spoke to him about the potential for outbreaks of the kind we are now seeing with Ebolavirus in West Africa, and what can be done to prevent them.

*Q. Ebolavirus disease has been much in the news recently because of the horrendous outbreak in West Africa – but how many other rare, sporadic but severe infections are there that pose an equal threat?*

Well, during the last few years, more or less with every 6 months to a year there has been a new outbreak of an emerging infection. Examples are the influenza viruses - for instance H1N1 in 2009, and H7N9 and H5N1 more recently [1] - the MERS rotavirus in Saudi Arabia [2], and Chikungunya virus in St Martin in 2013 [3], and of course now Ebola virus [4]. So there are many rare but potentially very dangerous diseases or emerging infections regularly breaking out. Ebola virus is by far the most lethal that we have now, but all of the others are very dangerous.

*Q. I know that there are 'flu vaccines, but are there licensed vaccines for any of the others?*

The answer is no - there are no vaccines for SARS, which emerged in 2003, there is no licensed vaccine for MERS, there is no licensed vaccine for Chikungunya, there is no licensed vaccine for Ebola - so for most of these diseases there are no vaccines, because they are too rare to justify the economic investment.

*Q. Is that the only difficultly, or are there other difficulties in developing vaccines for these sorts of diseases? I realise it may be impossible to generalise.*

Most of the time we do have the technologies to make these vaccines. I remember for example when SARS came in 2003/2004 we made a vaccine pretty quickly and brought it to the stage where it was ready to go to phase 1, but when we got to phase 1 the disease had gone away, there was no interest, no incentive to bring it even to phase 1, so we dropped it. For Ebola I think that the technology to make a vaccine has been there for many years, but nobody wanted to invest in it because there was no market, no demand.

*Q. Do you think this is going to have to change in the light of what has happened with Ebola?*

I hope that this humanitarian and health disaster is going to help us to become a little bit smarter in planning the future. I see these emerging infectious diseases as a constant threat. They pose a risk, just as in other areas we have a risk of earthquakes, we have a risk when we drive a car of car accidents, when we buy a house there is a risk of burning the house, and so on - and for all of those risks we prepare ahead of time. We have insurance for cars or we have insurance for houses and we build buildings that are earthquake-resistant. It looks as though the only place where we are not able to make investments ahead of time is health - we always have to wait for the disaster to happen and then we rush and usually with the vaccine we come too late and when the disease is no longer there then everyone forgets and we go from one disaster to another.

*Q. How forward-thinking do we need to be? - How long does it actually take to develop a vaccine, generally?*

For a normal commercial vaccine the time is between 10 and 15 years. Under very accelerated circumstances, like those we have now for Ebola, you can take advantage of previous studies that have been done and try to rush the development of the vaccine, but we do take risks with safety and efficacy when we accelerate so much, so I think we will be wise to develop those vaccines ahead of time.

*Q. How much of a problem is viral mutation?*

It depends on the virus, so for Ebola it is not a problem at all, for MERS it does not seem to be a problem, for SARS it does not seem to be a problem, for Chikungunya it does not seem to be a problem. For influenza it is a problem and for HIV it is a big problem, so it depends on the virus.

*Q. What about the possibility, aired in the Press, that Ebola might become transmissible in an airborne form? Do you have any view on that possibility?*

I believe that it is extremely unlikely. This virus has been there for a long time in the wild in Africa and it has never done it. It has had many opportunities to do it. I don't think that a small exposure to mankind right now is going to do it and the preliminary data from the genetics and genomics of the virus show very good stability so I don't think this is a risk in the short term. So a little bit of good news. But you say one of these diseases pops out about every six months.

*Q. Do you expect that we'll be continuing to see emerging infections we haven't seen before?*

Oh yes, I believe that in six months we will have a new emerging disease. Hopefully the Ebola outbreak will be under control. It will not be in the news and there will be other news about another emerging infection and we will rush into the new one, and instead of doing that I think it would be nice to be able to plan ahead of time. I think we have technologies today by which we could prepare multiple vaccine platforms that could be tested for safety and efficacy against multiple diseases and where you could plug in an antigen from a new emerging infection quickly. We already effectively have this for influenza virus, for which as the virus mutates each year we just plug in the most prevalent haemagglutinin variants to the existing vaccine platform. If the regulatory authorities could approve platforms suitable for use against other pathogens – thus already of proven safety and efficacy – we could have a way of being as ready as possible for unexpected events.

**The Lancet Respiratory Medicine**

Online First

***Comment***

**Paediatric influenza vaccination: time to better protect high-risk groups?**

Harish Nair, Marc-Alain Widdowson

4 December 2014

*Preview*

Paediatric influenza vaccination: time to better protect high-risk groups?

Influenza is an important contributor to severe acute lower respiratory infection (ALRI). It is estimated to cause 20 million cases of influenza-associated ALRI per year worldwide, including 1 million severe ALRI cases, and 28 000—111 500 deaths in children younger than 5 years, mostly in the first 2 years of life... In many countries with few resources, children are very rarely vaccinated against influenza, and antivirals are usually unavailable. Moreover, children could be more susceptible to well documented sequelae of influenza infection, especially

Streptococcus pneumoniae. Unfortunately, pneumococcal vaccine has been introduced in only 40 of the Gavi-eligible countries, and even where introduced, the coverage remains poor.

**Identification of children at risk of influenza-related complications in primary and ambulatory care: a systematic review and meta-analysis**

Peter J Gill DPhil a b, Helen F Ashdown MRCGP a, Dr Kay Wang DPhil a, Prof Carl Heneghan DPhil a, Nia W Roberts MSc Econ c, Prof Anthony Harnden FRCGP a, Susan Mallett DPhil a

*Summary*

Background

Interventions to prevent influenza-related complications are recommended for individuals at the greatest risk of serious clinical deterioration. However, guidelines are based on consensus opinion rather than evidence, and do not specify risk factors in children. We aimed to provide an evidence-based definition of children who are most at risk of such complications.

Methods

In this systematic review, we searched the Medline and Medline In Process, Embase, Science Citation Index, and CINAHL databases for studies published between inception and April 3, 2013. We included studies that reported data for underlying disorders and complications in children presenting in primary or ambulatory care with influenza or influenza-like illness. We requested unpublished data from investigators of studies that had obtained, but not published, relevant data. We analysed data with univariable meta-analysis and individual patient data multivariable meta-analysis methods. The primary outcome was admission to hospital as a proxy for complications of influenza or influenza-like illness.

Findings

We included 28 articles that reported data from 27 studies (14 086 children). Strong risk factors for hospital admission were neurological disorders (univariable odds ratio [OR] 4· 62, 95% CI 2·82—7·55), prematurity (4·33, 2·47—7·58), sickle cell disease (3·46, 1·63—7·37), immunosuppression (2·39, 1·24—4·61), diabetes (2·34, 1·20—4·58), and age younger than 2 years (2·51, 1·71—3·69). However, reactive airways disease including asthma (1·36, 0·82—2·26) and obesity (0·99, 0·61—1·62) were not found to be risk factors. On the basis of individual patient data multivariable analysis (1612 children, four studies), the risk of hospital admission was higher in children with more than one risk factor than in children with just one risk factor, when age younger than 2 years was included as a risk factor (92 [74%] of 124 vs 428 [52%] of 817; difference 22%, 95% CI 13—30%, p<0·0001).

Interpretation

We identified prematurity as a new strong risk factor for influenza-related complications in children. Our findings also support the inclusion of neurological disorders, sickle cell disease, immunosuppression, diabetes, and age younger than 2 years as risk factors in existing guidelines. Interventions to prevent influenza-related complications should be prioritised in these groups, but should also be considered for other children, especially those with more than one risk factor or severe underlying comorbidities.

Funding

UK National Institute for Health Research.

## ***Media/Policy Watch***

This section is intended 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 in 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.

**Al Jazeera**
http://www.aljazeera.com/Services/Search/?q=vaccine
*Accessed 6 December 2014*
[No new, unique, relevant content]

**AP (Associated Press)**
http://hosted.ap.org/dynamic/fronts/HOME?SITE=AP
*Accessed 6 December 2014* Dec 5, 1:22 PM EST
Sierra Leone seeing 80-100 new Ebola cases daily
By EDITH M. LEDERER

Associated Press UNITED NATIONS (AP) -- Sierra Leone said Friday that between 80 and 100 new cases of Ebola are being reported every day and the country now hardest-hit by the deadly virus desperately needs over 1,000 beds to treat victims.

Sierra Leone's Finance Minister Kaifalah Marah painted a grim picture to the U.N. Economic and Social Council Friday of the challenges facing his West African nation which failed to meet a World Health Organization interim goal of isolating 70 percent of Ebola patients and safely burying 70 percent of victims by Dec. 1…

**The Atlantic**
http://www.theatlantic.com/magazine/
*Accessed 6 December 2014*
[No new, unique, relevant content]

**BBC**
http://www.bbc.co.uk/
*Accessed 6 December 2014*
[No new, unique, relevant content]

**Brookings**
http://www.brookings.edu/
*Accessed 6 December 2014*
[No new, unique, relevant content]

**Council on Foreign Relations**
http://www.cfr.org/
*Accessed 6 December 2014*
*Transcript*
DC Event: Launch of the CFR-Sponsored Independent Task Force Report on the Emerging Global Health Crisis of Noncommunicable Diseases

with Mitchell E. Daniels Jr., Thomas E. Donilon, Thomas J. Bollyky, Massimo F. T. Calabresi
December 5, 2014
Experts discuss the newly published Council on Foreign Relations (CFR)-sponsored Independent Task Force on Noncommunicable Diseases, which assesses the NCD crisis in developing countries and recommends a practical, scalable strategy for intervention.

**The Economist**
http://www.economist.com/
*Accessed 6 December 2014*
Ebola in graphics
The toll of a tragedy
Dec 4th 2014, 15:58 by The Data Team

**Financial Times**
http://www.ft.com
*Accessed 6 December 2014*
[No new, unique, relevant content]

**Forbes**
http://www.forbes.com/
*Accessed 6 December 2014*
[No new, unique, relevant content]

**Foreign Affairs**
http://www.foreignaffairs.com/
*Accessed 6 December 2014*
[No new, unique, relevant content]

**The Guardian**
http://www.guardiannews.com/
*Accessed 6 December 2014*
[No new, unique, relevant content]

**The Huffington Post**
http://www.huffingtonpost.com/
*Accessed 6 December 2014*
[No new, unique, relevant content]

**Le Monde**
*Accessed 6 December 2014*
http://www.lemonde.fr/
[No new, unique, relevant content]

**New Yorker**
http://www.newyorker.com/
*Accessed 6 December 2014*
[No new, unique, relevant content]

**New York Times**
http://www.nytimes.com/
*Accessed 6 December 2014*
Chronic Diseases Are Killing More in Poorer Countries
4 December 2014
Chronic diseases like cancer and heart disease are rising fast in low- and middle-income countries, striking far younger populations than in rich countries and causing much worse outcomes, according to a new report. Deaths from chronic diseases have risen by more than 50 percent in low- and middle-income countries over the past two decades, according to the report (The Emerging Global Health Crisis), by the Council on Foreign Relations. The increase is part of a shift in global mortality patterns in which infectious diseases, such as malaria and tuberculosis, have declined substantially and are no longer the leading cause of death in the developing world.

**Reuters**
http://www.reuters.com/
[No new, unique, relevant content]

**Wall Street Journal**
http://online.wsj.com/home-page?_wsjregion=na,us&_homepage=/home/us
*Accessed 6 December 2014*
Haider Javed Warraich: The Measles Outbreak Coming Near You
Parents who won't vaccinate their children are reviving once-dead diseases. Will a vaccine mandate be needed?

**Washington Post**
http://www.washingtonpost.com/
*Accessed 6 December 2014*
U.S. designates 35 hospitals to treat Ebola patients
President Obama says the fight against Ebola in West Africa "is not even close to being over."
Lena H. Sun | Health & Science | December 2, 2014

*  *  *  *

## Ebola/EVD: Additional Coverage

**UNMEER [UN Mission for Ebola Emergency Response]** @UNMEER #EbolaResponse
UNMEER's website is aggregating and presenting content from various sources including its own External Situation Reports, press releases, statements and what it titles "developments." We present a composite below from the week ending 6 December 2014.

*UNMEER site: Press Releases & Statement*
:: UN employs 'district-by district' approach in fight against Ebola (1 December 2014)

:: Remarks by David Nabarro, Special Envoy of the Secretary-General on Ebola, to mark the first 60 days of UNMEER, Freetown, Sierra Leone (1 December 2014)

*UNMEER External Situation Reports*

UNMEER External Situation Reports are issued daily (excepting Saturday) with content organized under these headings:

- *Highlights*
- *Key Political and Economic Developments*
- *Human Rights*
- *Response Efforts and Health*
- *Logistics*
- *Outreach and Education*
- *Resource Mobilisation*
- *Essential Services*
- *Upcoming Events*

The "*Week in Review"* will present highly-selected elements of interest from these reports. The full daily report is available as a pdf using the link provided by the report date.

**5 December 2014** | *UNMEER External Situation Report*

*Key Political and Economic Developments*

2. The government of Guinea-Bissau announced on 4 December that it would reopen the country's official border crossings with Guinea within 5 days. Guinea-Bissau had closed the border in August 2014 in an effort to prevent cross-border transmission of EVD. Surveillance measures will be strengthened along the border. The recent summit of Heads of State of the Economic Community of West African States (ECOWAS) held in Ghana had recommended the reopening of borders with the most affected countries to accelerate response efforts and avoid stigmatization of their populations.

3. The United Nations Mission in Liberia (UNMIL) on Thursday said that a member of its military personnel had tested positive for EVD. The patient is receiving treatment at an Ebola Treatment Unit in Monrovia. In line with WHO protocols, the medical team of UNMIL has immediately conducted robust contact tracing to ensure that all those who came into contact with the individual while he was symptomatic have been assessed and quarantined. All areas where the individual is known to have been while symptomatic have been decontaminated.

4. A ceremony scheduled on 4 December for Guinea's Prime Minister to lay the first stone of a new ETC in Matoto commune in Conakry, was cancelled when groups of local youth ransacked the premises. They were reportedly protesting against the establishment of the ETC, arguing that it would lead to a spike in EVD cases in their community. Government officials, diplomats and representatives of non-governmental organizations were forced to leave the site of the planned ceremony due to the tensions.

*Response Efforts and Health*

7. 17,256 confirmed, probable, and suspected cases of EVD have been reported in the three most affected countries, where there have been 6,113 reported deaths.

*Resource Mobilisation*

11. The OCHA Ebola Virus Outbreak Overview of Needs and Requirements, now totaling US$ 1.5 billion, has been funded for $ 993 million, which is around 66 percent of the total ask.

*Essential Services*

15. The EVD crisis is destroying livelihoods, according to a newly released UNDP socioeconomic study. The study shows disproportionate numbers of economically active people are getting infected. In Sierra Leone, for instance, 65% of the sick were in the 15-49 age group. As caregivers, women are especially vulnerable. They represent up to 74% of the people

who get infected in some areas of Guinea. Because women are often responsible for growing and trading food in all three countries, these sectors are also particularly impacted. 97% of respondents in a recent survey reported reduced incomes from farming, petty trading and service delivery. Employment in the informal sector and in education is especially affected in all three countries. The report calls for boosting informal and formal loan schemes and microfinance; investments in the next planting season; promotion of value chains in export-oriented primary commodities; and continuing to build skills among the workforce.

16. As schools remain closed, two million children in Sierra Leone are affected. The Emergency Radio Education Programme (EREP) continues to broadcast daily lessons through 41 radio stations nationwide. Some 47% of 2,489 surveyed households have children listening. The Ministry of Education and UNICEF are working to increase listenership through community outreach. UNICEF is in the process of procuring 50,000 solar powered radios for the most vulnerable households.

**4 December 2014** | UNMEER External Situation Report

*Key Political and Economic Developments*

1. Europe must send more medical staff to West Africa to help rebuild local health systems and tackle the outbreak of EVD, EU Ebola coordinator Christos Stylianides has said, adding that he was in touch with European capitals on additional assistance to counter the disease in Guinea, Liberia, Sierra Leone, and Mali. At European level the mobilisation is "satisfactory but we must not relax our efforts" he indicated. Sweden has already announced that it will send 42 healthcare workers, while Greece is readying its first team. The EU's medical evacuation system is "fully operational" with four planes on standby in Luxembourg and the US, and nine countries ready to treat repatriated staff. Mr. Stylianides is due to present an EVD action plan in December. Brussels is counting on more help;

2. MSF expressed concern on Tuesday about what it called a slow and uneven international response that portends further setbacks. MSF president Dr. Joanne Liu acknowledged an outpouring of financial and construction help from abroad in the past few months, but added that most of the work on tracking, isolating and treating patients, burying the dead and raising awareness to minimize contagion had fallen to the three countries at the heart of the outbreak: Guinea, Liberia and Sierra Leone. "It is extremely disappointing that states with biological disaster response capacities have chosen not to utilize them," Dr. Liu said. "How is it that the international community has left the

*Response Efforts and Health*

8. The WFP-led Emergency Telecommunications Cluster is equipping rapid response teams in Sierra Leone with tools such as satellite phones and portable internet to ensure efficient and effective communication even in the remotest of areas. These teams of 15-20 people include a burial team, medical professionals and contact tracers amongst others, and are managed by the government of Sierra Leone.

*Resource Mobilisation*

13. Guinea, Liberia and Sierra Leone will each receive US$ 500,000 to help curb the impact of EVD on food security and on the livelihoods of people in rural areas. The $ 1.5 million grant from the Africa Solidarity Trust Fund will be used in support of FAO's recently launched Regional Response Programme to tackle agriculture and food security issues related to the EVD outbreak in West Africa.

*Outreach and Education*

18. UNDP in Sierra Leone, working with local NGO One Family People, has completed the first stage of a sensitization campaign for people living with disability, having reached out to 10,000

women, men and children. Thanks to the campaign, people who are deaf, blind or physically impaired received messages in braille, sign language and pictures on how to protect themselves and others.

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*Key Political and Economic Developments*

2. The World Bank said Tuesday that EVD is costing the three most affected countries more than US$ 2 billion, as the virus causes their economies to slow down or shrink. The bank sharply revised down its 2014 and 2015 economic growth estimates for Sierra Leone and Guinea, but said the outlook for Liberia was improving slightly. For 2015, it now forecasts Sierra Leone's economy will shrink 2.0%, down from a 7.7% growth forecast in October and 8.9% before the crisis. Guinea will shrink 0.2% versus October's estimate of 2% growth and a pre-outbreak forecast of 4.3%. In Liberia, where there are signs of progress and increasing economic activity, the bank increased its 2015 GDP growth estimate to 3.0%, up from 1.0% in October, but still less than half the pre-crisis estimate of 6.8%.

3. With more than half of its population already under lockdown, Sierra Leone has now quarantined a sixth district. Tonkolili, in the centre of the country, was added to the growing list of districts which no one is allowed to leave or enter without special dispensation, in an effort to combat the outbreak. The northern districts of Port Loko and Bombali were closed off indefinitely in September, along with the southern district of Moyamba - effectively sealing in more than one million people. With the eastern districts of Kenema and Kailahun also under quarantine, more than half of the population of six million, in six of the nation's 14 districts, now finds itself unable to move freely. Tonkolili is expected to end its quarantine on December 15, according to health ministry officials.

*Response Efforts and Health*

5. Community resistance, denial and resorting to traditional healers remain prevalent in Gbarpolu and Grand Cape Mount counties, Liberia. The high mortality rates in the remote communities affected by the EVD flare ups (e.g. 17 deaths vs 2 survivors as last reported by the Glensyasu community), combined with limited outreach in hard to reach places, contribute to maintaining a worrying trend in the two counties.

10. UNICEF has provided EVD prevention (hygiene and sanitation) supplies and infection control training to wardens and staff of 14 prisons housing juvenile offenders across Liberia.

*Logistics*

12. The WFP-led Emergency Telecommunications Cluster is providing technical support to the International Rescue Committee (IRC) to programme 400 mobile phones to be used for data collection by health workers in Bo, Sierra Leone. Internet equipment provided by standby partners Emergency and Ericsson Response will be sent to the International Humanitarian Partnership camp in Port Loko, to provide 80 organisations with internet access by the end of this week.

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*Key Political and Economic Developments*

2. In his press conference, the SRSG also reported on performance against the targets the UN had set for 1 December: 70 per cent of burials being done safely and 70 per cent of new cases isolated in a treatment facility. He indicated that those targets have been exceeded in most cases. In the case of safe burials, those targets are exceeded in all three countries. The other target – 70 per cent of new cases being isolated – is being exceeded in two of the three countries, in Liberia and Guinea. And it is being exceeded in many places in Sierra Leone – but

some areas remain in serious crisis, and there, targets are not yet being met. Those areas are the focus of UNMEER's efforts now. Nonetheless, the 70/70 target in 60 days was set so the crisis could be turned around, and that has been achieved.

3. Despite the positive news, the SRSG also emphasized that there was still a long way to go. Special Envoy David Nabarro said the disease was slowing down in some districts and increasing in others. He cautioned that the distribution changes from week to week, and the situation can worsen unexpectedly. EVD remains a very complex, multidimensional crisis, and additional efforts remain needed. The strategy that has been designed to get it under control has proven to work, SRSG Banbury said – putting people in treatment facilities, ensuring safe burials, contact tracing and social mobilization. But it needs to be present everywhere, and it need to be supported with logistics, with payments to response workers, with the information management needed for these activities.

4. The SRSG stressed that to achieve the goal of zero cases, the response needs to be present everywhere. As numbers get lower, more and more emphasis needs to be on contact tracing, on surveillance, and on rapid response capabilities. UNMEER and its partners are looking at putting in place a district-by-district strategy for 62 districts in the three countries, with interventions in every district that are appropriate to the circumstances there. That will be the focus for the next 60 days. SRSG Banbury expressed his confidence that 60 days from now the three countries will be in a much better condition than they are now, though that will still require a lot of hard work. There remains a lot to be done to get to zero cases, but the global EVD response is on the right track.

*Response Efforts and Health*

9. The Global Fund to Fight AIDS, Tuberculosis and Malaria has agreed to contribute € 500,000 to bolster UNDP's support to the Malian Ministry of Health. The funds will be used to strengthen preventive measures in health facilities; train and pay health staff, and purchase protective gear.

*Essential Services*

19. Beyla prefecture in Guinea has 45 community agents working as contact tracers in EVD affected areas. Out of these 45 personnel, only 13 staff members received their salaries in November. The 32 others have not been paid for more than a month. UNMEER's FCM has followed up with the prefectoral Ebola response coordinator on this payments issue, and has requested the coordinator to bring this to the attention of the National Ebola Response Cell.

20. In Montserrado, where Monrovia is located, UNDP and the Liberian Ministry of Health have set up a task force to increase communication within communities around denial, stigma, safe burials and hiding of sick people. The group will dispel widely held fears that no one comes back from ETUs, and help locate contacts, secret burials and households hiding sick people.

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*Response Efforts and Health*

7. On Thursday 27 November, the UNMEER ECM in Liberia hosted the first NGO partnership meeting, to seek inputs from a broad range of implementing partners. Building county level capacity to decentralize policy discussions and coordination was deemed of high importance. Partners agreed that UNMEER has a central role in this regard. In addition, partners agreed to rationalize ad hoc coordination and create specific task groups to address issues such as CCC strategy and funding imbalances. The NGO partnership meeting will be held on a bi-weekly basis.

*Outreach and Education*

20. According to UNICEF, women in Samana sub-prefecture (Beyla prefecture), an area where there has been community resistance to EVD response, abandoned plans to march in protest against the presence of EVD responders after a sensitization by women leaders via rural radio. Also in Beyla, an agreement was reached for the establishment of a rapid response team within the prefectural communication commission. This cell plans advocacy activities to overcome community resistance.

21. In Liberia's Grand Geddeh county, WHO, UNICEF, IRC and other partners conducted community engagement activities in Zwedru together with the county health team. The main aim was to have an interactive and informative session with community members and to share health information on EVD. More than 200 EVD posters were distributed. Teams also brought the emergency hotline telephone numbers to the attention of the communities.

*Essential Services*

22. UNICEF formed a partnership with Africa Humanitarian Action this week to expand the coverage of essential health services to 14 primary healthcare facilities in Montserrado County, Liberia, serving 158,181 people, including 26,890 children under five and 7,909 pregnant women. The provision of lifesaving medical and nutritional supplies is key in enabling access to lifesaving interventions.

**World Bank** [to 6 December 2014]
http://www.worldbank.org/en/news/all

:: Transcript of Press Conference with World Bank Group President Jim Yong Kim and President of Sierra Leone Ernest Bai Koroma December 3, 2014

:: Remarks by World Bank Group President Jim Yong Kim in Press Conference with President of Guinea Alpha Condé December 3, 2014

:: Transcript of Press Conference with World Bank Group President Jim Yong Kim and President of Liberia Ellen Johnson Sirleaf December 2, 2014

:: Ebola: New World Bank Group Report Shows Growth Shrinking, Economic Impact Worsening in Guinea, Liberia, and Sierra Leone
December 2, 2014

WASHINGTON, December 2, 2014 – The Ebola epidemic continues to cripple the economies of Guinea, Liberia, and Sierra Leone, and is projected to result in negative or contracting growth in these countries next year as they work to eradicate the virus, according to an Ebola Economic Impact Update released today by the World Bank Group. The report comes as World Bank Group President Jim Yong Kim begins a two-day visit to West Africa to assess the epidemic's impact and discuss with governments and international agencies what steps need to be taken to reach the goal of zero cases as soon as possible.

This report updates the World Bank Group's October 8 analysis of the economic effects of the Ebola crisis on the three hardest-hit countries. GDP growth estimates for 2014 have been revised sharply downward since pre-crisis estimates to 2.2 percent for Liberia (versus 5.9 percent pre-crisis and 2.5 percent in October); and 4.0 percent for Sierra Leone (versus 11.3 percent pre-crisis and 8.0 percent in October); and 0.5 percent for Guinea (versus 4.5 percent pre-crisis and 2.4 percent in October). All three countries had been growing rapidly in recent years and into the first half of 2014.

In addition, the World Bank Group is now projecting negative growth for 2015 of -0.2% in Guinea (down from pre-crisis estimates of 4.3 percent and 2.0 percent in October) and -2.0% in Sierra Leone (down from 8.9 percent and 7.7 percent in October). In Liberia, where there are signs of progress in containing the epidemic and some increasing economic activity, the updated 2015 growth estimate is 3.0 percent, an increase from 1.0 percent in October but still less than half the pre-crisis estimate of 6.8 percent. These latest projections imply forgone income across the three countries in 2014–15 totaling more than $2 billion.

"This report reinforces why zero Ebola cases must be our goal. While there are signs of progress, as long as the epidemic continues, the human and economic impact will only grow more devastating," said Jim Yong Kim, President of the World Bank Group. "As we accelerate the immediate health response, the international community must also do everything we can to help the affected countries back on the road to economic recovery and development."…

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