

A young child is shown from the chest up, looking down. A hand is administering a vaccine into the child's upper arm. The child's arm has a small, dark, circular mark on the shoulder. The background is white.

Vaccination Programs in Africa: Strengths, Weaknesses, and Opportunities for Improvement

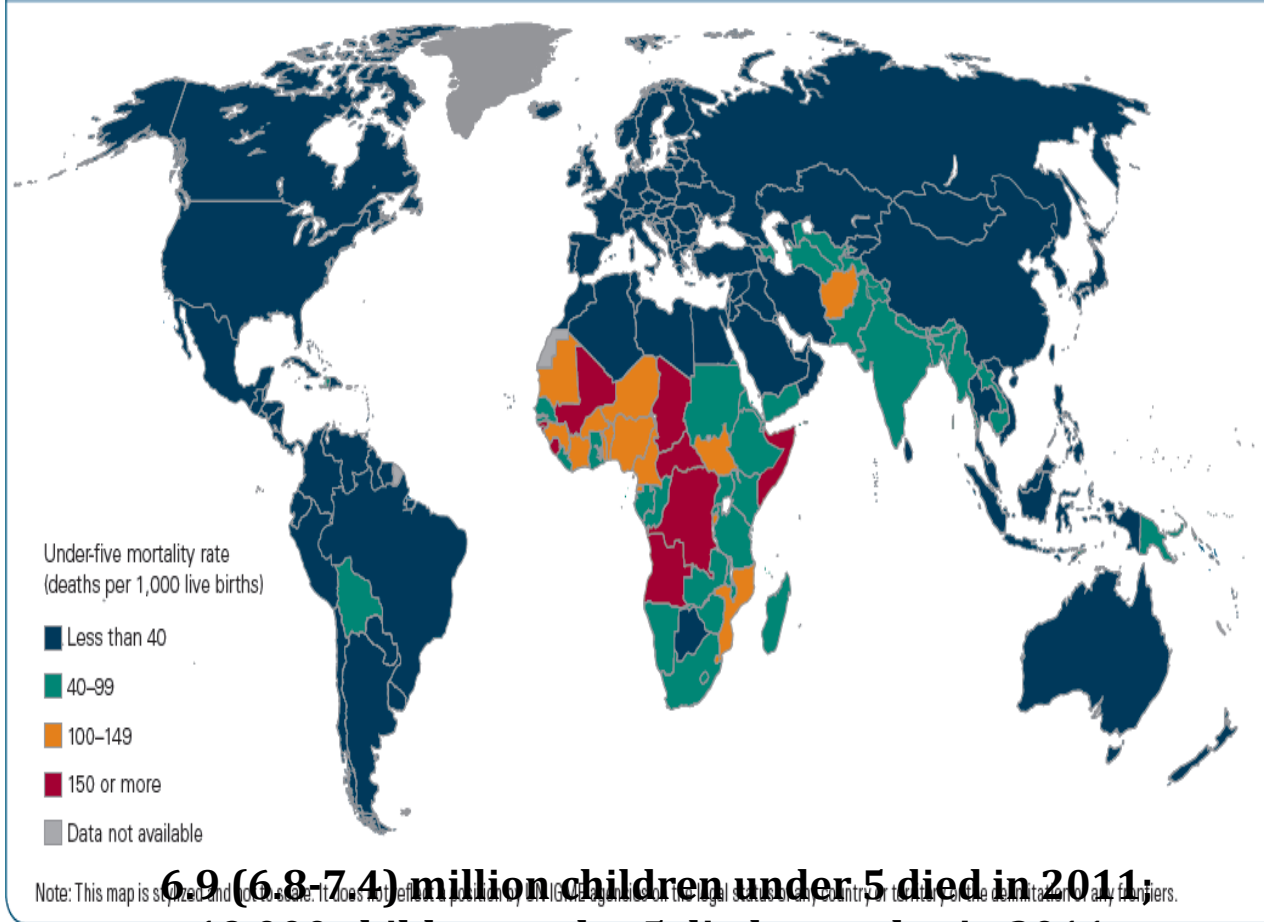
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MAP
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Children in Sub-Saharan Africa and Southern Asia face a higher risk of dying before their fifth birthday



6.9 (6.8-7.4) million children under 5 died in 2011;

19 000 children under 5 died everyday in 2011;

**1.5 million under 5 deaths were due to vaccine preventable diseases
in 2010;**

**Approx. 4106 under 5 deaths everyday from vaccine preventable
diseases in 2010;**

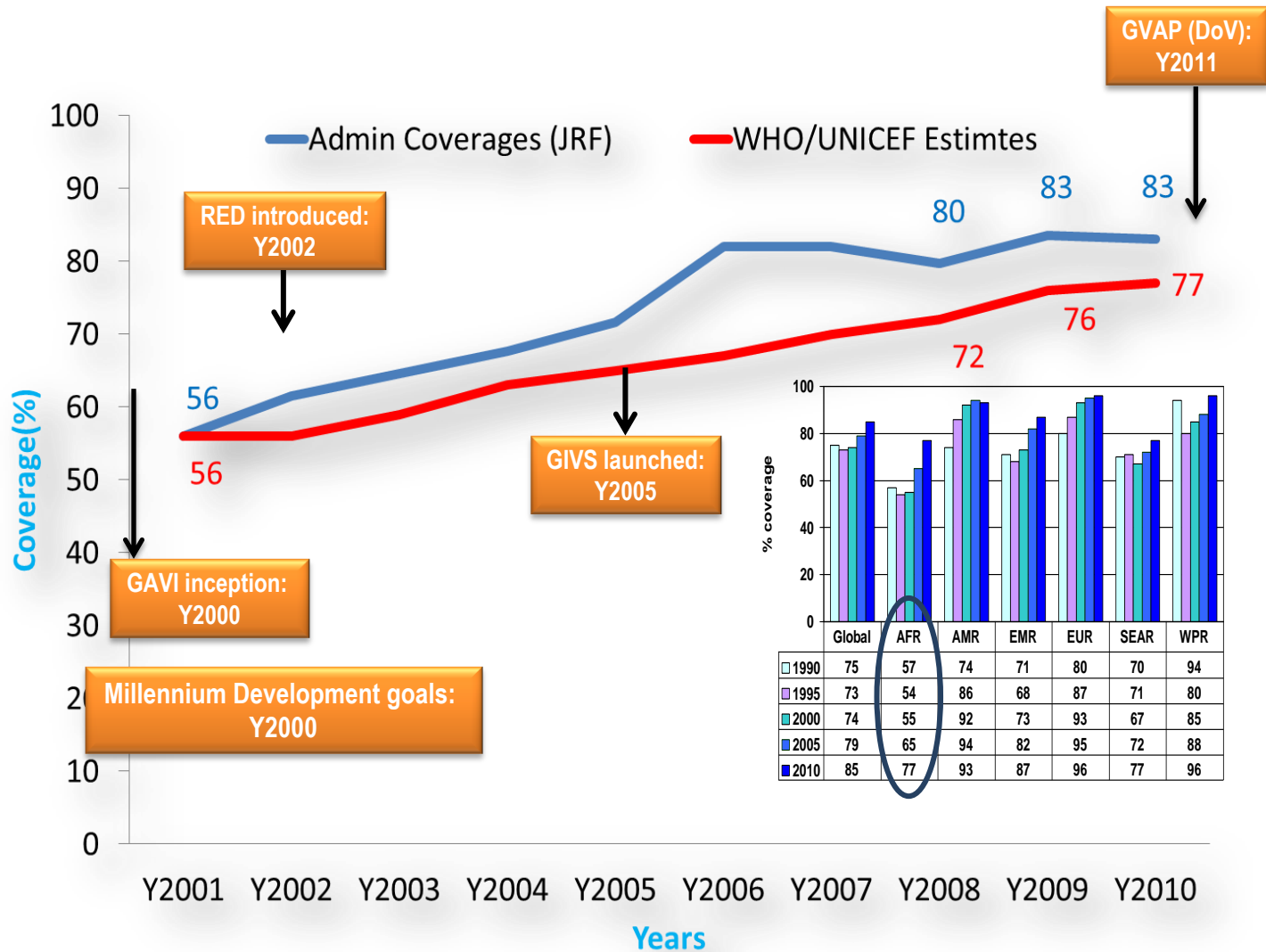
**48.7% OF ALL GLOBAL UNDER 5 DEATHS OCCUR IN SUB-
SAHARAN AFRICA**

UNICEF: Levels & Trends in Child Mortality Re.

Strengths



DPT3 Coverage in Africa, 2001-2010



Source: WHO Regional Office for Africa

Country support

GAVI support

- most African countries rely on GAVI for funding their EPI progra
- performance-based system measured using WHO estimates an
- Supports introduction of new vaccines



Guidance from WHO/UNICEF

- WHO AFRO
- WHO Task Force on Immunisation
- SAGE (Strategic Advisory Group of Experts),



Many other donors supporting vaccines and vaccination programs.....

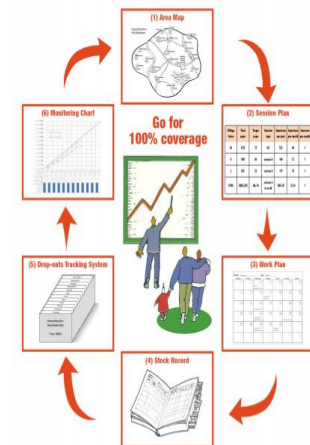
The RED Approach

- The Reaching Every District (RED) approach was implemented by WHO in 2002
- It is an innovative strategy aimed at improving stagnating immunisation coverage and effectiveness in Africa
- The RED approach outlines five operational components:
 - **Effective planning and management of resources:** ensuring effective management of human, financial and material resources at every governing level.
 - **Reaching all target populations:** reach out to previously under-served, un-reached communities, in giving support and access to services.
 - **Supportive supervision:** providing local staff with on-site training by supervisors.
 - **Monitoring for action:** promoting the use of data for action through utilization of data quality self-assessment tools at all governing levels.
 - **Linking services with communities:** linking communities with health services, through regular meetings between communities and health staff.

Microplanning for Immunization Service Delivery
Using the Reaching Every District (RED) Strategy

A WHO-UNICEF document

Put these R.E.D tools into action



Introduction of New & Under-utilised Vaccines

- Hepatitis B (Hep) and *Haemophilus influenza type B (Hib)* have been largely introduced into EPI successfully
- Significant but slow process over the years
 - Hep B and Hib vaccines first licenced in 1981 and 1985 respectively in the US
 - 20 years later in 2005 in Africa, 70% had introduced Hep B and 26 % had introduced Hib
- Pnuemo and Rota vaccines are still relatively new and still expensive
- By 2010 only 7 countries had introduced pneumo and/or rotavirus vaccines
- Since improved with GAVI support
 - PCV roll out in 25 African countries since 2010
 - Since 2011 10 African countries have introduced Rota vaccines

Introduction of New & Under-utilised Vaccines

- MenAfriVac – modern vaccine success story
- Developed in India within 10 years @ less than US\$0.50/dose
 - 1st introduced in 2010 in Burkina Faso, Mali and Niger
 - In 2011 Cameroon, Chad, and Nigeria introduced the vaccine
 - In 2012 Benin, Ghana, Senegal, and Sudan introduced the vaccine
- Great success to date – e.g. 94% reduction in meningitis following a mass campaign in Chad

Meningitis Vaccine Project
Eliminating epidemic meningitis as a public health problem in sub-Saharan Africa

About MVP | Meningitis | Research and development | Vaccine introduction | Publications and resources

Our mission

Eliminating epidemic meningitis in sub-Saharan Africa

The Meningitis Vaccine Project (MVP) is a partnership between PATH and the World Health Organization.

The mission of the MVP is to eliminate meningitis as a public health problem in sub-Saharan Africa through the development, testing, introduction, and widespread use of conjugate meningococcal vaccines.

Our objectives are:

- To develop meningococcal conjugate vaccines that are appropriate for use in Africa.
- To monitor the effectiveness and safety of the vaccines in controlled clinical trials.
- To create pathways for the licensure of vaccines.
- To assure production in sufficient volume at a price that facilitates wide use in Africa.
- To investigate innovative ways to finance the procurement of vaccines through local, country, and other global programs.
- To introduce the vaccines through mass and routine immunization in synergy with other public health programs.

'Once such an initiative is accepted by all the countries, and a commitment is made, epidemic meningitis will be a thing of the past.'

Prof. Francis Nkurumah, Chair of MVP's Project Advisory Group

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World Health Organization | PATH

Introduction of New & Under-utilised Vaccines

Gavi
The Vaccine Alliance

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You are here: Types of support > New and underused vaccines support > Human papillomavirus vaccine

Human papillomavirus vaccine support

Gavi's response The issue

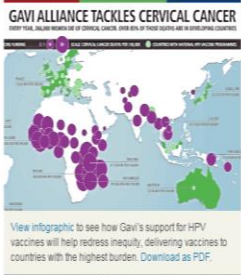
Record low price agreed for HPV vaccines

A record low price for HPV vaccines has opened the door for poor countries to vaccinate millions of girls against a devastating women's cancer.

Thanks to the Vaccine Alliance, the poorest countries now have access to a sustainable supply of HPV vaccines for as low as US\$ 4.50 per dose. The same vaccines can cost more than \$100 in developed countries and the previous lowest public sector price was \$13 per dose.

For HPV demonstration programmes, Gavi will cover the full cost of HPV vaccines. However, countries introducing HPV vaccine nationally are required to meet the standard co-financing commitment.

HPV vaccines are available in the routine immunisation programmes of mostly high-income countries. And yet of the 266,000 women in the world who die of cervical cancer every year, more than 85% are in low-income countries where access to cancer screening and treatment services is often lacking.



View infographic to see how Gavi's support for HPV vaccines will help redress inequity, delivering vaccines to countries with the highest burden. Download as PDF.

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The Lancet, Volume 381, Issue 9879, Page 1688, 18 May 2013
doi:10.1016/S0140-6736(13)61058-2 [Cite or Link Using DOI](#)

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GAVI injects new life into HPV vaccine rollout

[The Lancet](#)

The news had been long awaited. Since their approval, health experts and campaigners, including *The Lancet*, have called for the vaccines against the human papillomaviruses (HPV) that cause cervical cancer to become available at a much cheaper price.

A few years ago, Merck's quadrivalent HPV vaccine, Gardasil, held the unflattering title of most expensive childhood immunisation in the world, costing US\$360 for the required three doses. GlaxoSmithKline's (GSK) Cervarix was not much better at about \$335. These prices meant the vaccines were prohibitively expensive for low-income countries where most HPV infections and deaths from cervical cancer occur. Now, thanks to negotiations between the [Gavi Alliance](#) and the manufacturers, new record low prices have been secured. Merck has agreed to supply its vaccine at \$4.50 per dose and GSK at \$4.60 per dose. The previous lowest public sector price was \$13.

The price reduction is a great achievement, especially as Gavi will cofinance the vaccine with the poorest countries paying the smallest share of the costs. Pilot vaccination programmes are due to start in several African nations and Laos this year. Rwanda is already set for national rollout next year. By 2020, Gavi hopes to protect 30 million girls in 40 countries.

- HPV – Human Papilloma Virus vaccine now GAVI approved in over 20 countries
- Cost down to US\$4.40 per dose
- Successful demonstration campaigns in several African countries (where GAVI provides full cost)
- Introduction of HPV nationally requires countries to co-finance the vaccine

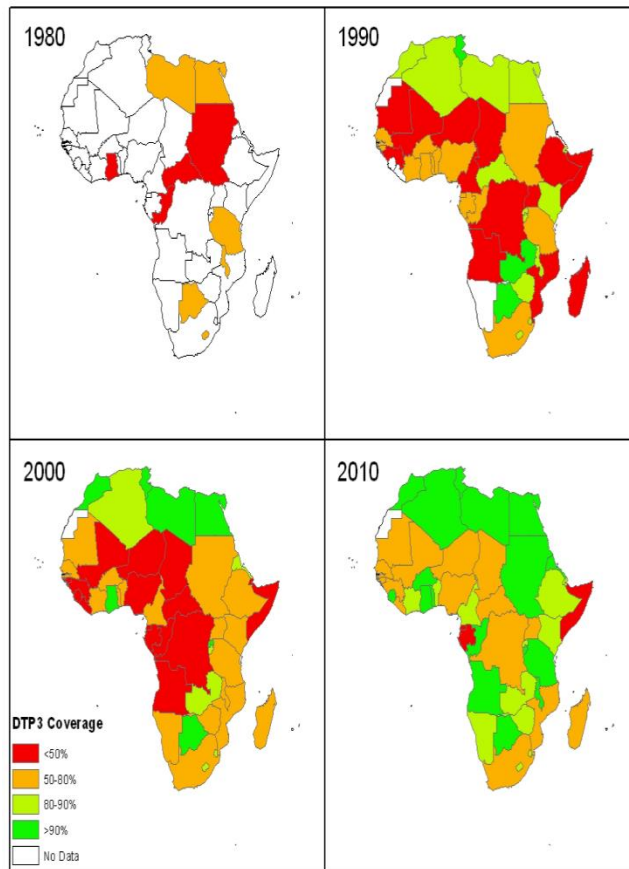
Weaknesses



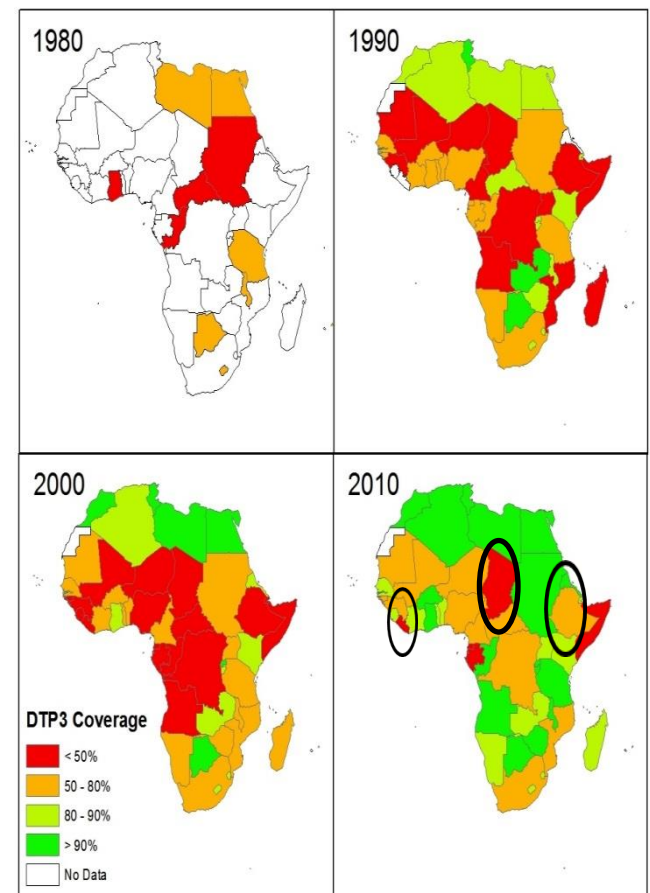
Data Quality

- Data collection largely still paper based in Africa
- Questionable data quality raised in several reports – incomplete data, reporting not timely, inconsistent use of coverage monitoring charts....
 - Ronveaux O, Rickert D, Hadler S, Groom H, Lloyd J et al. The immunization data quality audit: verifying the quality and consistency of immunization monitoring systems. *Bull World Health Organ* 2005; 83(7):503-10.
 - Bosch-Capblanch X, Ronveaux O, Doyle V, Remedios V, Bchir A. Accuracy and quality of immunization information systems in forty-one low income countries. *Trop Med Int Health* 2009; 14(1):2-10.
- No robust monitoring & evaluation systems in place
- WHO coverage estimates are not consistent

Data available July
2011



Data available July
2012



- Significant differences in individual country's immunisation coverage between the initial and retrospectively modified WHO/UNICEF coverage estimates.
- Chad, Ethiopia, Liberia, Cameroon, Sao Tome and Principe, and Sierra Leone show reductions in 2010 DTP3 coverage ranging from 6 to 36%.
- Zimbabwe, Uganda, Senegal, Madagascar and Rwanda have increases in 2010 DTP3 coverage ranging from 11 to 20%

Communication

- Poor communication about vaccines and vaccine programmes can lead to rumours and/or anti-vaccination

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PLOS ONE

Policy Forum

What Led to the Nigerian Boycott of the Polio Vaccination Campaign?

Ayodun Samuel Jegede

Vaccination is a crucial tool for preventing and controlling disease, but its use has been plagued by controversies worldwide [1–6]. In this article, I look at the controversy surrounding the immunization program against polio in Nigeria, in which three states in northern Nigeria in 2003 launched the polio immunization campaign. I discuss the problems caused by the boycott, its implications, and how it was resolved. Finally, I make recommendations for the future to prevent a similar situation from arising.

Methods
For this article, I consulted relevant books, journals (online and print), Internet materials, and newspaper articles. In particular, I also searched for documentary materials on the history of vaccination in northern Nigeria, factors responsible for the boycott, and ethical issues arising from the boycott.

The Kick Polio Out of Africa Campaign
Due to the difficulty faced by some national governments in containing polio outbreaks, the World Health Organization (WHO) in 1988 launched the Global Polio Eradication Initiative



Figure 1. The Kick Polio Out of Africa Campaign

This photo shows a group of people, including children and adults, sitting in front of a building with a sign that reads 'CHICKEN COOKING'.

In 1996 alone, mass immunization campaigns were launched by National Immunization Days (Figure 2), were flanked by parades, surveillance, training of community health workers at the local level, and door-to-door campaigns [10,11].

which accounted for 1 worldwide and 85% from the African region.

NIGERIA: Muslim suspicion of polio vaccine lingers on

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LAGOS, 19 success of may rest of of India, St Nigerian de conducting immunis

The team, Thursday, i nominated Nasir Islam organisatio leaders.

The federal powered 6 the all clear widespread north of Ne



Polio vaccines—"no thank you!" barriers to polio eradication in Northern Nigeria

Maryam Yahya

Author Affiliations

ABSTRACT

This article is an analysis of the boycott of the polio vaccination campaign in northern Nigeria, which has indefinitely stalled global polio eradication targets. The polio immunization drive was brought to a standstill in July 2003 as religious and political leaders in northern Nigeria responded to fears that the vaccines were deliberately contaminated with anti-fertility agents and the HIV virus. The article explores the political and cultural

ing deeper dimensions that have to vaccines in northern Nigeria, in doing

the guardian

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Polio workers in Nigeria shot dead

At least nine health workers gunned down in northern city of Kano amid increasing hostility towards polio immunisation drive

David Smith, Africa correspondent

The Guardian, Friday 8 February 2012 17:55 GMT

every last child

GLOBAL POLIO ERADICATION INITIATIVE

Polio and Prevention | Infected Countries | Data and Monitoring | Post-Eradication | Research | Financing | Media Room

You are here: Infected countries > Nigeria

Nigeria

Status: endemic

Wild poliovirus transmission in Nigeria is limited to a few northern states. The country has never interrupted transmission of wild poliovirus.

Polio Eradication Emergency Plan 2014 for Nigeria [pdf]

Financial resource requirements (2014-2016) for Nigeria

Polio this week in Nigeria

- No new wild poliovirus type 1 (WPV1) cases were reported in the past week. Nigeria's total case count for 2014 remains 6. The most recent case had onset of paralysis on 24 July in Sokoto State Local Government Area (LGA), northern Kano state.
- One new type 2 circulating vaccine-derived poliovirus (cVDPV2) case was reported in the past week in Bida district of Kaduna province. The total number of cVDPV2 cases for 2014 is now 21. This cVDPV2 case had onset of paralysis on 12 September.
- National Immunization Days (NIDs) have been held 1-4 November in most areas of northern Nigeria using trivalent oral polio vaccine (OPV). In some areas of Kano and Yobe states, supplementary immunization activities using inactivated polio vaccine (IPV) and OPV are also taking place in November.

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8 February 2013 Last updated at 11:47 GMT

Nigeria polio vaccinators shot dead in Kano

Nine female polio vaccinators have been killed in two shootings at health centres in northern Nigeria, police have told the BBC.

In the first attack in Kano the polio vaccinators were shot dead by gunmen who drove up on a motor bicycle.

Thirty minutes later gunmen targeted a clinic outside Kano city as the vaccinators prepared to start work.



Nigeria is one of only three countries where polio is still endemic.

previously they could cause infertility. Boko Haram

clerk spoke out against the polio that new cases of polio were caused

by Nigeria is one of just three

polio vaccinators have been

What now? Escape from Boko Haram

Battle to free the girls

I saw my parents killed

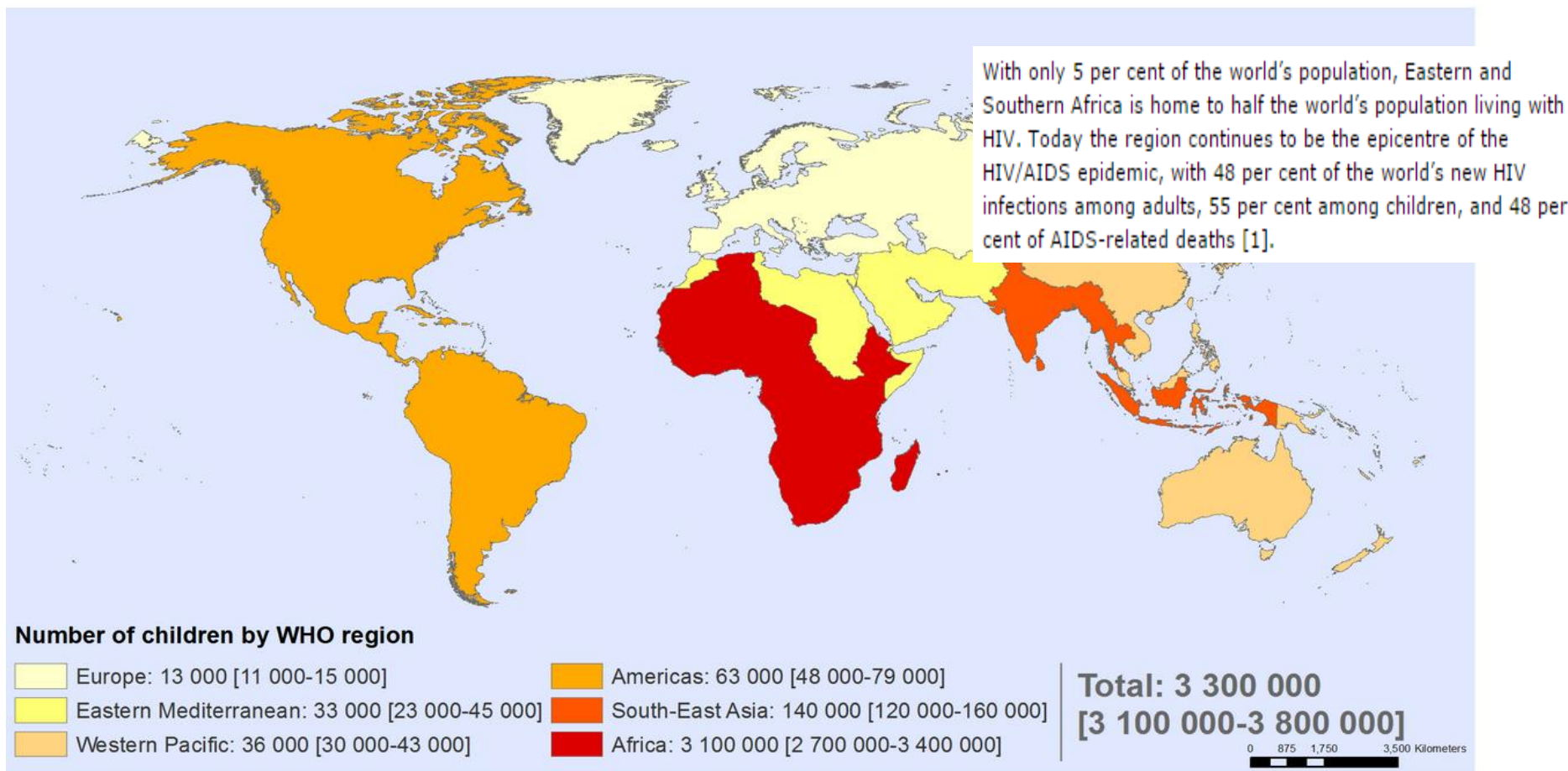
Communication

Polio Boycott in Northern Nigeria

- The allegations that led to the Nigeria Polio crisis:
 - Oral polio vaccine alleged to be a western plot to sterilize girls and women in Nigeria
 - Oral polio vaccine contains the HIV virus
 - Polio vaccine is contaminated with sterilization chemicals
- Northern States in Nigeria banned the polio vaccine in 2003
- WHO Polio Immunisation Campaign cancelled
- Resulted in killing of health care workers who were trying to deliver the vaccine
- Polio spread to many African countries that were previously polio free
- Need to urgently address all concerns about perceived vaccine safety, and be ready to conduct prompt, high-quality outbreak investigations
- Social media is a platform that can be utilised more for communicating information on vaccines

Increasing burden of HIV

Children (<15 years) estimated to be living with HIV, 2011
By WHO region



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever in the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines or which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Public Health Information
and Geographic Information Systems (GIS)
World Health Organization



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Operational Considerations

- Human Resources
- Infrastructure
- Vaccine supply - Stock Outs
- Cold Chain
- Many more...

Opportunities for Improvement



Better Understand our EPI

- We need to better understand local and contextual factors leading unvaccinated and under-vaccinated children in our individual countries
- Several global SRs have been conducted:
 - Non-vaccination and under-vaccination is a significant problem
 - Multiplicity of causes (from individual to societal) highlights the complexity of the issue.
 - A number of themes have emerged from the reviews
 - Weaknesses in the immunisation system
 - Problems with communication and information
 - Knowledge, attitudes and beliefs of parents and health care workers
 - Problems in family structures and community characteristics
 - Calls for a multi-faceted approach

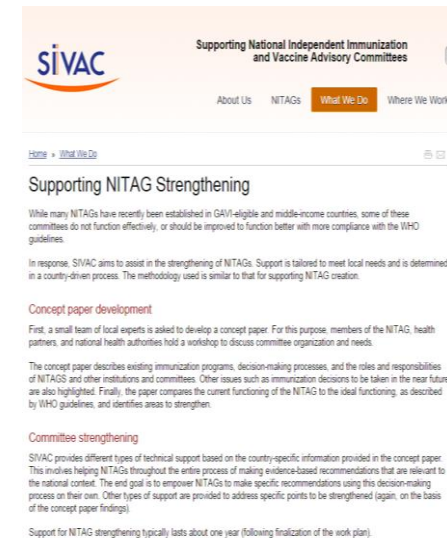
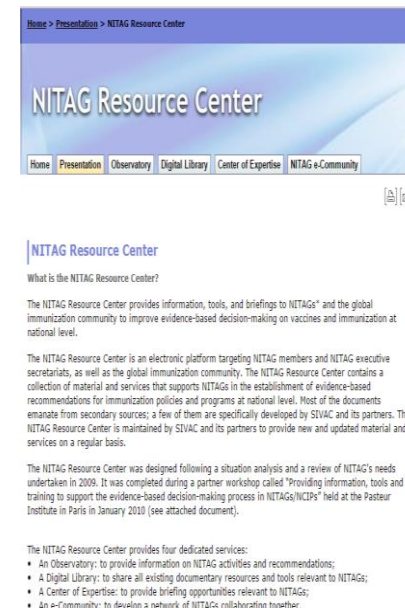
M&E

- Need to invest in robust M&E and data collection systems
- Need to migrate to electronic data monitoring systems
- Use of modern technology should be explored further – smart phones , tablets for field work
- Good data monitoring systems are essential to ensure we can measure progress as well as the true impact of all the new interventions continuously being introduced into EPI

NITAGS

NITAGS – National Immunisation Technical Advisory Groups

- a technical resource providing guidance to national policy makers and programmes managers to enable them to make evidence-based immunisation-related policy and programme decisions
- Many African countries have now established NITAGS, but are not all functioning optimally and need to improve compliance to WHO standards



Capacity for Research

- There is need for increased capacity for conducting locally relevant research to better inform decision making related to vaccination and vaccination programmes in Africa
- Emphasising the general need for increased research on childhood immunisation in Africa without assessing and identifying exactly what areas of research are lacking would be counter-productive

Machingaidze et al. *BMC Health Services Research* 2014, **14**:52
<http://www.biomedcentral.com/1472-6963/14/52>



RESEARCH ARTICLE

Open Access

Trends in the types and quality of childhood immunisations research output from Africa 1970–2010: mapping the evidence base

Shingai Machingaidze^{1,2*}, Gregory D Hussey^{1,2} and Charles S Wiysonge^{1,2,3,4}

Conclusion: A similar proportion of clinical versus operational research output was found. However, an uneven distribution across Africa was observed with only six countries accounting for over half of the research output. The research conducted was of moderate to high quality, with 62% being published in journals with 2010 impact factors greater than two. Urgent attention should be given to the development of research capacity in low performing countries around Africa, with increased focus on the process of turning immunisations programme research evidence into policy and practice, as well as increased focus on issues relating to vaccine financing and sustainability in Africa.

Political Will

- Africa needs to do more for its children – Africa can do more

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PLOS MEDICINE

Policy Forum

Strengthening the Expanded Programme on Immunization in Africa: Looking beyond 2015

Shingai Machingaidze^{1,2*}, Charles S. Wiysonge^{1,2*}, Gregory D. Hussey^{1,2}

¹Vaccines for Africa Initiative, Institute of Infectious Disease and Molecular Medicine, University of Cape Town, Cape Town, South Africa, ²Division of Medical Microbiology, Department of Clinical Laboratory Sciences, University of Cape Town, Cape Town, South Africa

- We call for Africa to rise up and make greater efforts to protect its children from vaccine preventable diseases: *"it is necessary for Africa to take stock, critically assess its position, take ownership of the regional and country-specific problems, and develop precise strategies to overcome the challenges identified"*

- Cour
depe
- Afric
WHC

Conclusion

African countries must be commended for giant steps made in EPI performance. However, there exist wide inter- and intra-country differences, with large numbers of African children remaining unreached, unvaccinated, under-vaccinated, and still dying from VPDs. Immunisation systems strengthening is essential, as most are under-staffed with inadequate resources to function efficiently. Issues of vaccine supply, financing, and sustainability in Africa require urgent attention. Increased political and financial commitment from governments as well as coordinated national and continental evidence-informed efforts by all immunisation stakeholders are needed to both maintain current achievements and make additional progress for EPI in Africa. African leaders must be held accountable for meeting agreed country targets and honouring international commitments made.

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port to



“ It is thrilling that the technology exists to protect people against so many threatening diseases. But sustained and concerted effort will be needed to overcome the many practical barriers to saving children’s lives in the developing world.” (Lancet, 2009)