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

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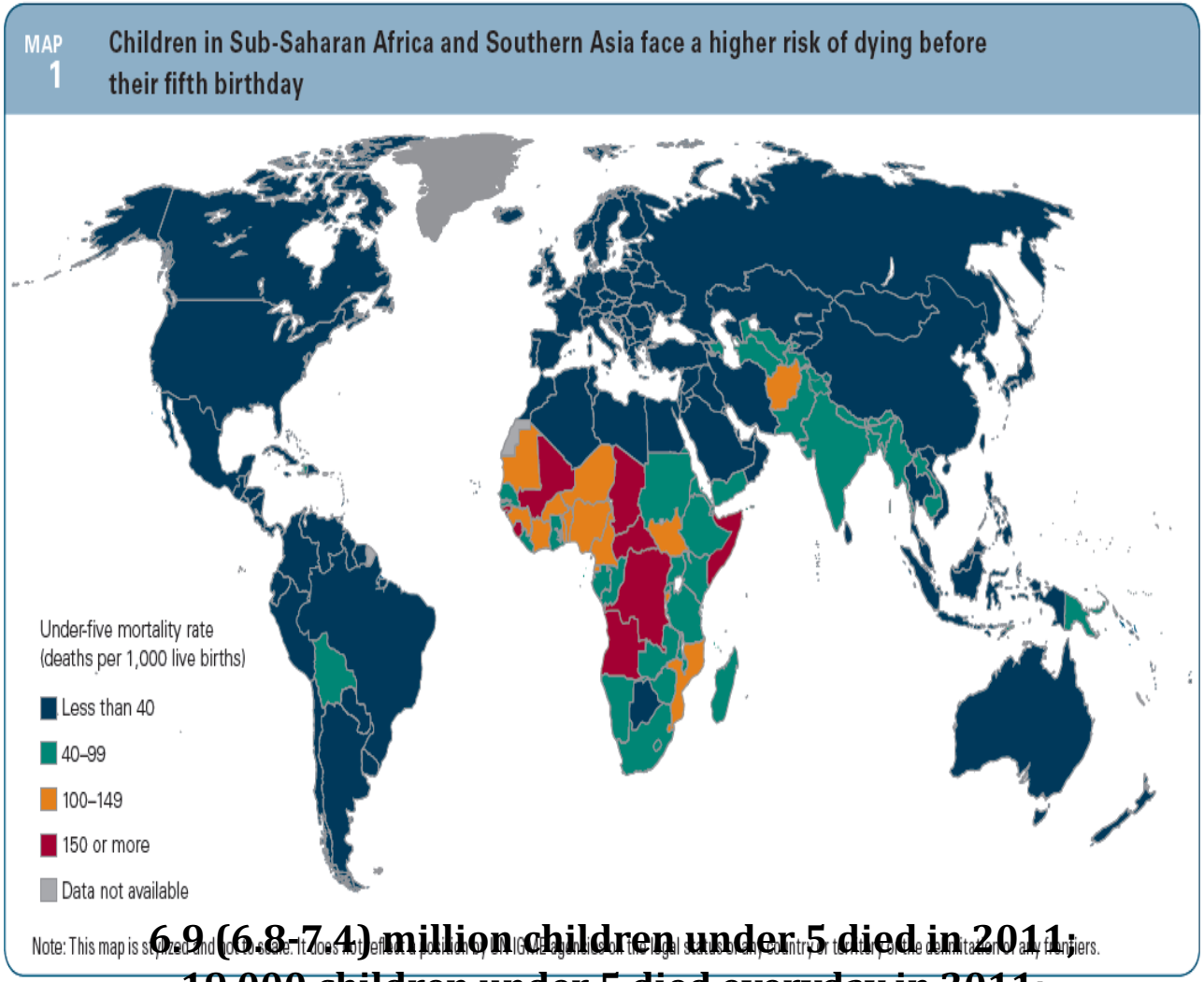


6.9 (6.8-7.4) million children under 5 died in 2011;

19 000 children under 5 died <u>everyday</u> in 2011;

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

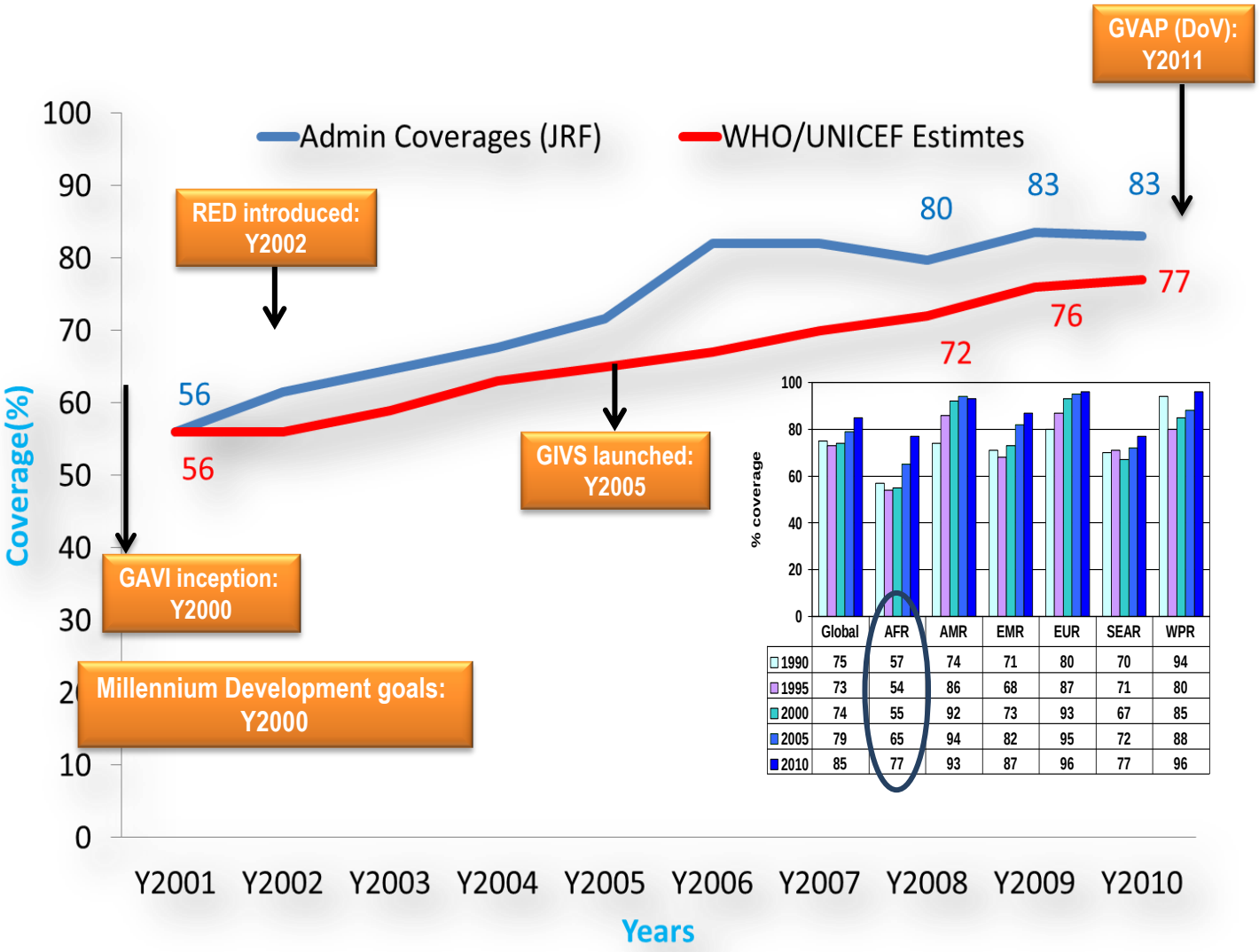
Approx. 4106 under 5 deaths <u>everyday</u> from vaccine preventable diseases in 2010;

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

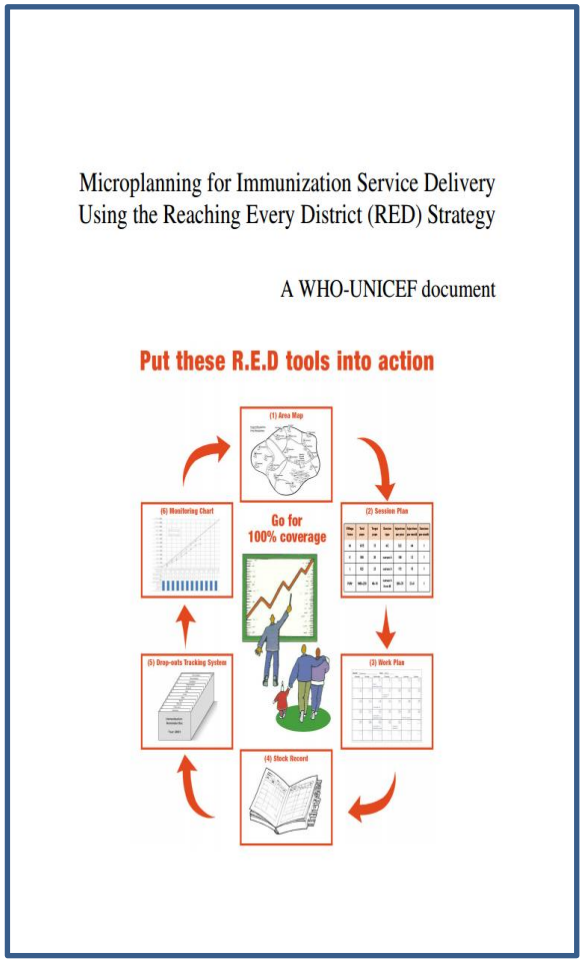
Guidance from WHO/UNICEF

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

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.



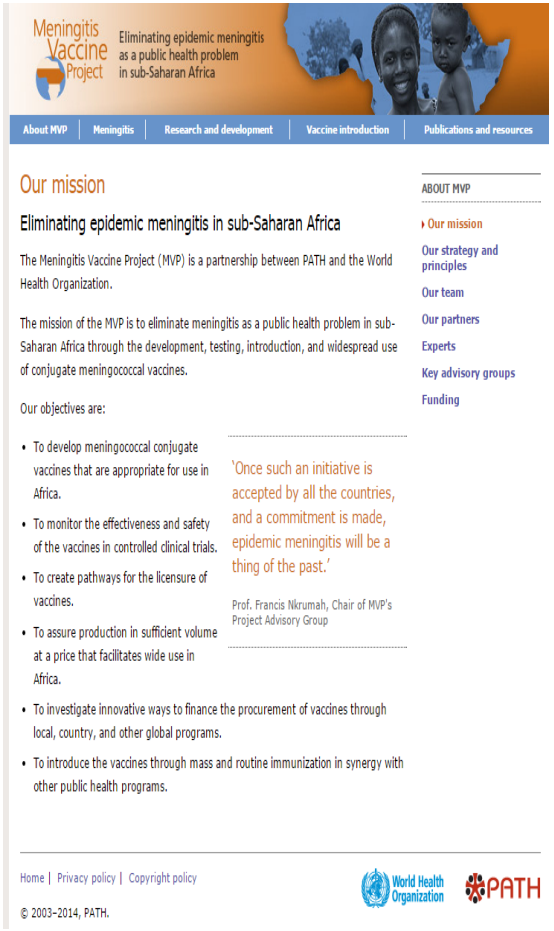
Introduction of New & Under-utilised Vaccines

- 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

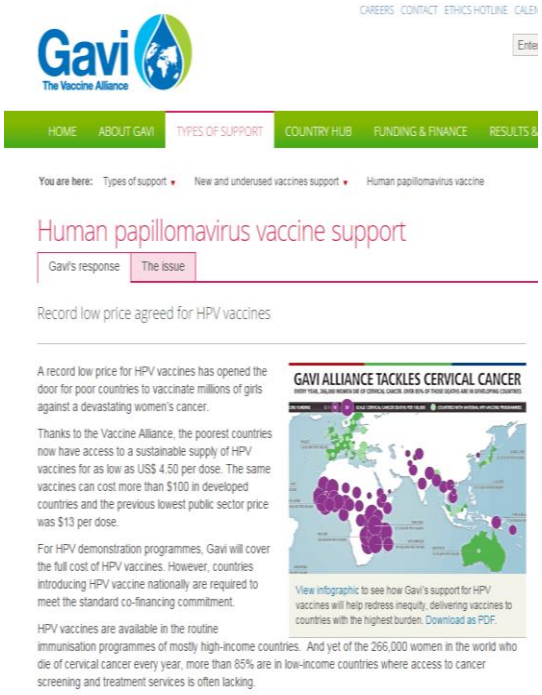
- Pnuemo and Rota vaccines are still relatively new and still expensive
- By 2010 only 7 countries had introduced pneumo and/or rotavirus vaccines
- Since improved with GAVI support
  - PCV roll out in 25 African countries since 2010
  - Since 2011 10 African countries have introduced Rota vaccines

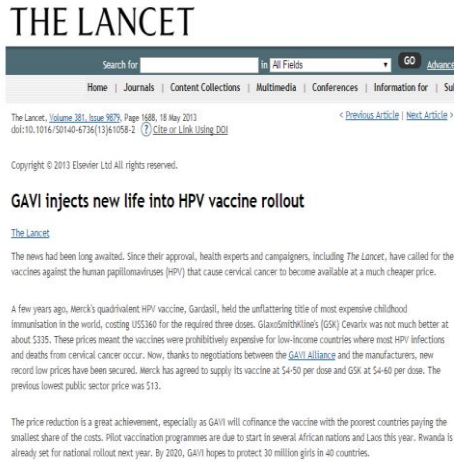
Introduction of New & Under-utilised Vaccines

- 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



Introduction of New & Under-utilised Vaccines





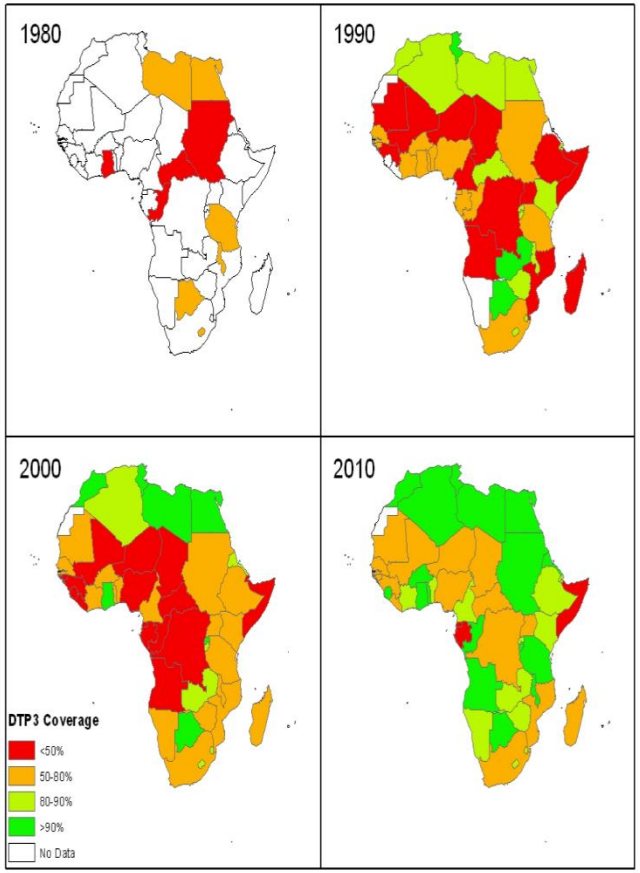
- HPV – Human Papilloma Virus vaccine now GAVI approved in over 20 countries
- Cost down to US$4.40 per dose
- Successful demonstration campaigns in several African countries (where GAVI provides full cost)
- Introduction of HPV nationally requires countries to co-finance the vaccine

Weaknesses

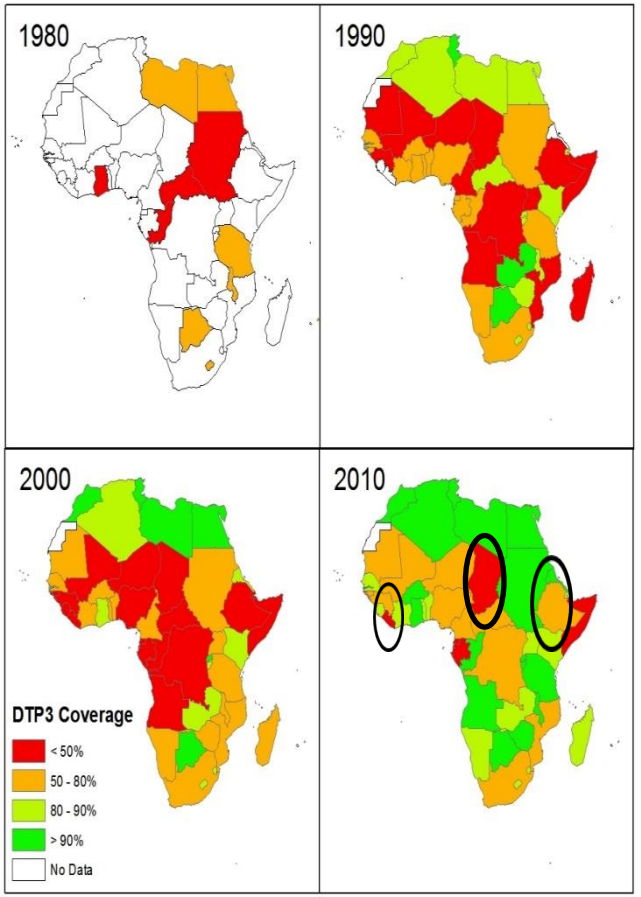
Data Quality

- 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-vaccina gns

Communication

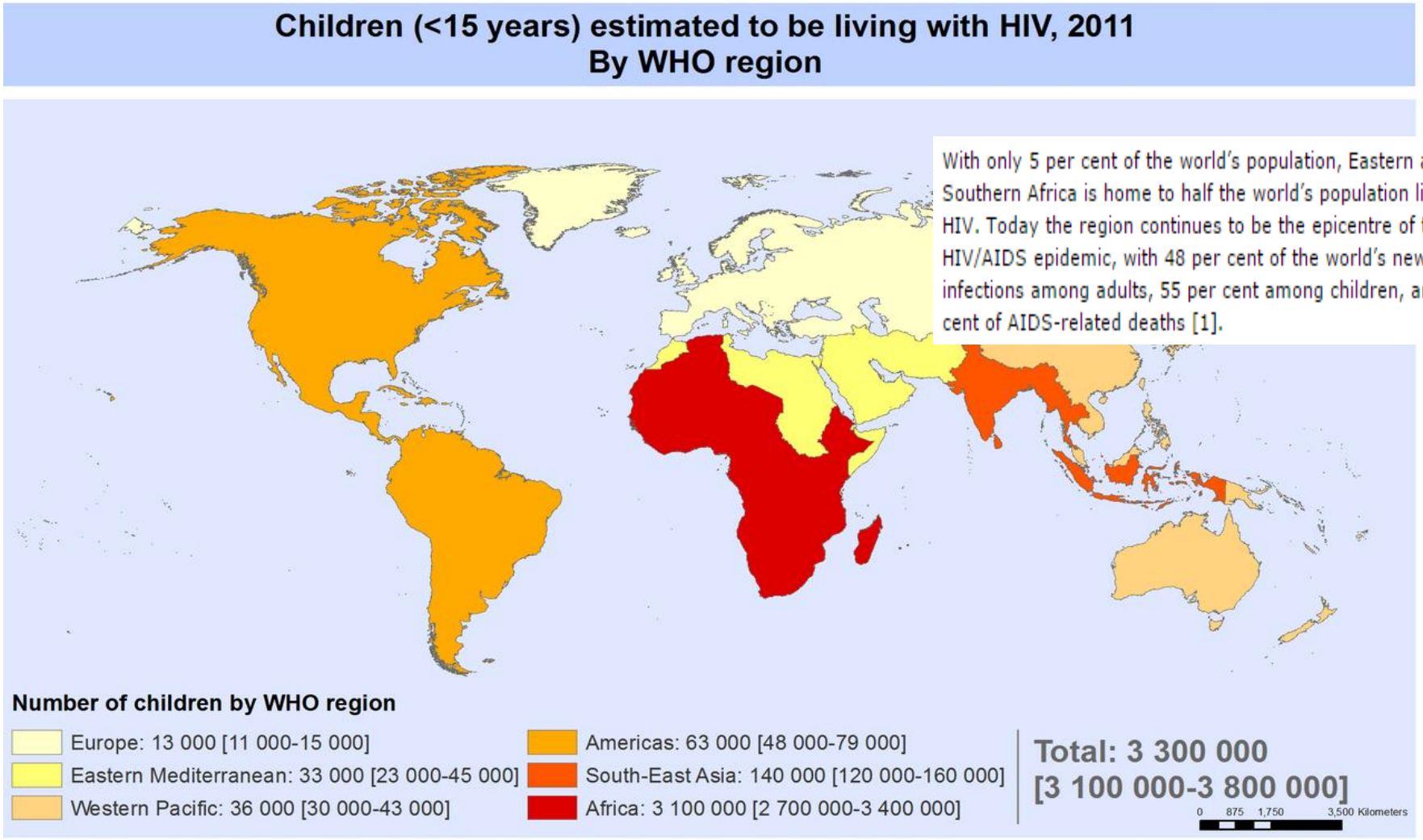
Polio Boycott in Northern Nigeria

- The allegations that led o 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 country 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



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on 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 for 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

World Health Organization

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

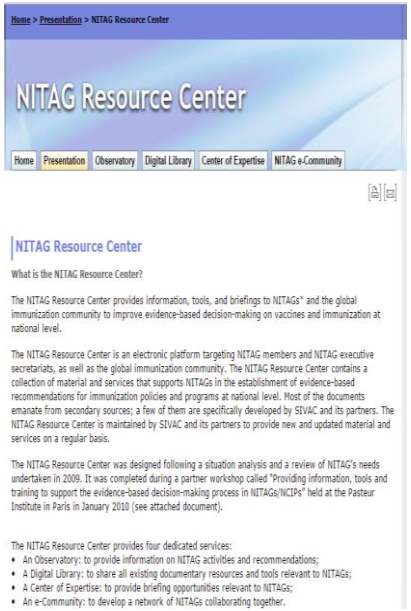
- Good data monitoring systems are essential to ensure we can measure progress as well as the true impact of all the new interventions continuously being introduced into EPI

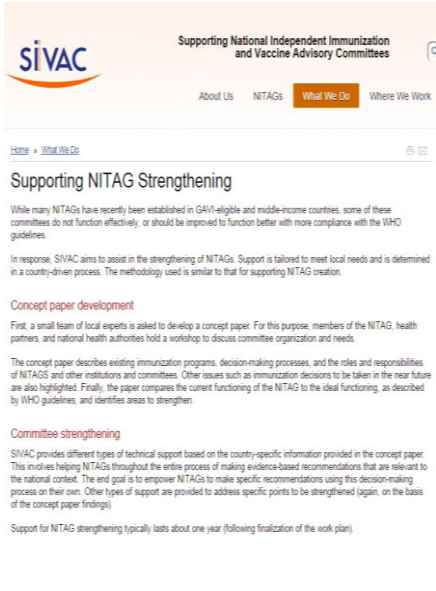
NITAGS

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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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]

1 Vaccines for Africa Initiative, Institute of Infectious Disease and Molecular Medicine, University of Cape Town, Cape Town, South Africa, 2 Division 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 iden*
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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.

“ 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)