Global Polio Eradication

Current Situation, prospects for 2010, and plans for the future

World Health Organization
Rotary International
CDC
UNICEF
Wild Poliovirus infected districts*, 2009

- District infected with wild polio virus type 1
- District infected with wild polio virus type 3
- District infected with more than one type of wild poliovirus

*Excludes viruses detected from environmental surveillance and vaccine derived polioviruses

Data in WHO/HQ as of 9 March 2010

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Poliovirus Transmission, 2009

Definitions and Geographic Focus

Endemic Areas

Re-established Transmission*

Recent Importation

*at least 12 months of transmission after introduction

1247 Cases in 4 Countries

142 Cases in 4 Countries

207 Cases in 15 Countries

Nigeria

Pakistan

Afghanistan

India
'Requests the Director General to develop a new strategy for a renewed fight to eradicate poliomyelitis drawing on experience from regions where poliomyelitis is eradicated & on operations research'.
Outcomes of 2009 Programme of Work

• new approaches in each endemic area.

• new vaccines: high-titre mOPV1, bivalent OPV, IPV.

• Independent Evaluation of Major Barriers.
Median Age and OPV Status of Polio Cases, ‘Endemic’ Countries, 2008 and 2009

India
18 months

Pakistan
16 months

Afghanistan
18 months

Nigeria
24 months

As of 05 January 2010, WHO data

OPV, Oral Polio Vaccine
Building support in Nigeria: impact of engaging sub-national & local leaders in 2009

Feb: Nigeria's state Governors sign 'Abuja Commitments on Polio'

June: Sultan of Sokoto & traditional leaders constitute Polio Committee

Increased human resources & logistic support in Kosi

No. of field hut clusters

SIA Rounds

May '07
Dec '07
May '08
Mar '09
May '09
Aug '09
Nov '09
Dec '09
Jan '10
Feb '10
Improving access in Afghanistan & Pakistan: engaging all parties

Taliban: 'children to be immunized for polio'.
September 2009

NATO/ISAF: 'Days of Tranquility for polio'.
October 2009

Security-compromised polio reservoir areas.
Improving quality in key areas in Pakistan: enhancing accountability

Performance of the October NID

February 2009
PM Gilani announces Action Plan

October 2009
President Zardari opens NIDs
Endemic countries*
Countries with outbreak(s) due to imported wild poliovirus, 2003-2009
Importations from Nigeria (Viral origin)
Sustained transmission of an imported wild poliovirus (onset prior to 2008, and still active as of November 2009)
Importations from India (Viral origin)
Importations and outbreaks in non-endemic areas
Wild poliovirus spread, 2008-2009

*Data in HQ as of 10 November 2009

Countries infected with wild poliovirus in 2009, for the first time since 2003
Wild Poliovirus*, 13 Jan 2009 – 12 Jan 2010

23 polio-infected countries

Data in WHO HQ as of 12 Jan 2010

Major polio outbreak affected areas, 2009

- West Africa
- Central Africa
- South/Central Africa
- Horn of Africa

Endemic countries

Case or outbreak following importation (0 - 6 months)
Phases of the West Africa Polio Outbreak

"Eastern" West Africa epidemiologic curve

"Western" West Africa epidemiologic curve

Data in WHO/HQ as of 15 March 2010    NB: Includes 4 advance notifications (W1): 2 for Mauritania, in Feb 10 and 2 for Senegal, in Feb 10
Central Africa Polio Outbreak

Southern part of Central Africa

WPV3 distribution

Northern part of Central Africa

WPV3 distribution

Data in WHO/HQ as of 15 March 2010
Horn of Africa WPV1 Outbreak curve 2008-2010

Data in WHO/HQ as of 15 March 2010
Summary of status as at end 2009

Epidemiology

• Endemics: Significant progress in Nigeria, less progress in India, Pakistan, Afghanistan

• Outbreaks: HoA outbreak resolved, significant transmission continuing in far West Africa (WPV1) & northern Central Africa (WPV3); sporadic transmission persisting in Angola (WPV1)

Operations

• Improved speed of WPV & cVDPV detection and response

• Progress in SIA quality monitoring

• Development of new SIA tactics (SIAD)

Research & application

• bOPV developed, trialled, and used for the first time (Afghanistan Dec 09)
What are the risks and how are they being addressed?
Independent Evaluation of Major Barriers to Polio Eradication, 2009

Core Evaluation Team

Process

- 28 independent experts.
- 24 'person-months'.
- 5 teams: India, Nigeria, Afghanistan, Pakistan & International Spread.
- Country & issue-specific 'road-maps' & recs.
Major Epidemiologic/Operational Risks and Strategic Interventions

1. **Risk**: Stopping International Spread of Polioviruses

**Interventions:**

- Synchronized SIAs in the WPV importation belt of sub-Saharan Africa to increase population immunity
- Improve SIA performance and timely monitoring
- Support to increase low routine immunization coverage
  - RED, capacity building, improved data quality/monitoring
Trends in Countries Infected with Indigenous vs. Imported Polio, 2000-2009

Cases

<table>
<thead>
<tr>
<th>Year</th>
<th>Indigenous</th>
<th>Imported</th>
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<tbody>
<tr>
<td>2000</td>
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<td>2</td>
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<tr>
<td>2009</td>
<td>1</td>
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</tbody>
</table>
Routine EPI Coverage & Polio Outbreak Risk

Countries >80% DTP3 2005-7

Routine OPV3 & risk of single vs. multi-case outbreak

193 WHO Member States. Date of slide: 10 February 2009
Synchronized SIAs

Synchronized Polio Campaign
19 countries; 85 million children
6 Mar & 24 Apr 2010
Impact of Outbreak Response Activities

*Polio cases last 4 months*

10 of the 19 're-infected countries' in 2009 have not reported a case in the last 4 months.
Median response time following an importation event in a country, 2005-2009

All importation events are included - exclude SIA occurring after onset.

Data as of 05Jan2010
Major Epidemiologic/Operational Risks and **Strategic Interventions**

1. **Risk:** Stopping Transmission in the 4 Polio-Endemic Countries (types 1 and 3 oscillation)

**Interventions:**

- Bivalent OPV for all 4 countries
- Reaching unvaccinated and under-vaccinated populations → country-specific tactics and operational approaches

*(focus on “persistent districts”, sub-national advocacy, environmental surveillance, operational research)*
Global Polio Cases by Serotype, 2001-2009

Source: WHO/Polio database 193 WHO Member States
mOPV: monovalent Oral Polio Vaccine
Polio Cases, India, 1998-2009

89% of cases since 2007 are P3

* data as on 31st December 2009
Reported 'Indigenous' Polio Cases

2008-2009 comparison

**Total cases**

- Nigeria
- India
- Pakistan
- Afghan

**Type 1 cases**

- Nigeria
- India
- Pakistan
- Afghan
Bivalent OPV (bOPV): Performance & uptake, 2009-2010

Protection after 2 doses (%)

Type 1

- tOPV: 53%
- bOPV: 86%

Type 3

- tOPV: 49%
- bOPV: 71%

- Introduced
- Priority Q1
- Priority Q2-3
Major Epidemiologic/Operational Risks and Strategic Interventions

1. **Risk**: Stopping Transmission in the 4 Re-established Transmission Countries

**Interventions:**

- Provide resources/technical support comparable to that for endemic countries
- Improve SIA performance and timely monitoring
- Support to increase low routine immunization coverage
  - RED, capacity building, improved data quality/monitoring
- Enhance AFP surveillance sensitivity to detect virus
Duration of most recent polio outbreaks

Is the problem 'insufficient number' or 'insufficient quality' of polio campaigns?

Data as of 11 Jan 2010
Reported polio cases in areas of 're-established' transmission*

* as of 10 Feb 2010
Today, I declare the war against polio in Chad

H.E. the President of Chad
M. Idriss Deby
6 March 2010
Risks: Polio Financing Base

Historic, 1988-2009

Recent Trend

2010-12 Funding Gap: US$ $1.4 billion

‘Other’: Gov'ts of Angola, Austria, Australia, Azerbaijan, Belgium, Brunei, Czech Republic, Cyprus, Finland, Hungary, Iceland, Ireland, Kuwait, Liechtenstein, Luxembourg, Malaysia, Mali, Malta, Monaco, Namibia, New Zealand, Oman, Portugal, Qatar, Rep of Korea, Saudi Arabia, Singapore, Spain, Switzerland, Turkey, United Arab Emirates, Yemen; African Development Bank; AG Fund; American Red Cross; De Beers, Inter-American Development Bank, Central Emergency Response Fund (CERF), International Federation of Red Cross & Red Crescent Societies, Oil for Food Programme, OPEC Fund, Sanofi Pasteur; Saudi Arabian Red Crescent Society, Smith Kline Biologicals, UNICEF National Committees, UNICEF Regular Resources, United Arab Emirates Red Crescent Society, Shinnyo-en WHO Regular Budget, Wyeth.
Prospects for 2010

Operational developments

- Bivalent OPV will offer significant operational advantages especially in endemic countries, with a concurrent impact on WPV1 and WPV3 transmission
- Faster detection and response will provide the opportunity to use SIAD mop-up approaches in re-infected areas
- SIAD approaches will also be increasingly used in key security compromised areas to rapidly improve immunity
- District specific planning will improve the chances of reaching children in security compromised and consistently poorly performing areas

Advocacy developments

- Strong political support will be maintained in endemic countries at least for the first 6 months of 2010
- Recent improvements in engaging the highest levels of Government in Angola and Chad
Prospects for 2010

Impact on Epidemiology

• Continued progress in Nigeria & India with the strong possibility of stopping transmission in either or both

• West Africa outbreak can be controlled in the first 6 months with adequate support and attention

• Angola & Chad likely to remain problems for the first 6 months as adequate political and technical support is being accumulated but can be closed out in 2010

• Transmission will continue in both Pakistan and Afghanistan but is likely to be increasingly restricted to security compromised areas
Polio Eradication

The Strategy for 2010-12
Major Objectives

1. Interrupting wild poliovirus in Asia

2. Interrupting wild poliovirus in Africa

3. Enhancing surveillance & outbreak response

4. Strengthening immunization systems
**Major Lessons**

- Virus persists in smaller areas & sub-groups than previously thought.
- Immunity thresholds to stop polio differ, being higher in Asia than Africa.
- Optimizing the balance of mOPVs is much more difficult than anticipated.
- Routes of poliovirus spread & outbreaks are now largely predictable.

**What's Different in 2010-12?**

- **district-specific plans & capacity.**
- **special tactics for underserved groups.**
- 'Geographic' strategy, with OPV campaign & monitoring strategy tailored to local circumstances.
- **bivalent types 1 & 3 OPV (bOPV)**
- **independent campaign monitoring**
- immunization systems strengthening.
- new outbreak response standards.
- pre-planned, synchronized campaigns.
GPEI Priority Intervention Areas at 02 Feb 2010

- Persistent 'endemic' transmission districts (Asia) or states (Africa)
- 'Re-established transmission' states/provinces (solid = SIA priority; hatched = surv. priority)
- 'Active importation' provinces (last 6 months)

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Alignment of Major Epidemiologic Risks with
--Major Proposed Milestones--

Stopping International Spread of Polioviruses:

➢ **mid-2010:** *all new importations (2009) interrupted.*

Stopping Transmission in 4 Re-established Transmission Countries:

➢ **end-2010:** *all re-established viruses interrupted.*

Stopping Transmission in 4 Endemic Countries:

➢ **end-2011:** *2 of 4 endemic countries interrupted.*
➢ **end-2012:** *all endemic virus interrupted.*
Next Steps: Polio Strategic Plan 2010-12

1. Country programme & implementing partner review (2nd week March)

2. 2nd working draft (3rd week March)

3. Final comments (1st week April)

4. Final version for WHA (mid-April)
Wild Poliovirus infected districts*, 10 Sep 2009 – 09 Mar 2010

**Status**
- **Endemic**
- **Active outbreak**

**Country**
- Pakistan
- India
- Afghanistan
- Nigeria
- Senegal
- Mauritania
- Chad
- Sierra Leone
- Mali
- Guinea
- Liberia
- Burkina Faso
- Cameroon
- Angola
- Burundi

**Date of most recent type 1**
- 27-Jan-10
- 23-Jan-10
- 08-Jan-10
- 20-Nov-09
- 14-Feb-10
- 02-Feb-10
- NA
- 28-Nov-09
- 12-Nov-09
- 03-Nov-09
- 26-Oct-09
- 25-Oct-09
- NA
- NA
- 15-Sep-09
- 12-Sep-09

**Date of most recent type 3**
- 17-Feb-10
- 06-Feb-10
- 24-Jan-10
- 03-Jan-10
- NA
- NA
- 08-Jan-10
- NA
- NA
- NA
- NA
- NA
- 15-Oct-09
- NA
- NA

*Excludes viruses detected from environmental surveillance and vaccine derived polioviruses

NA. Date of onset is prior to rolling 6-month period

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