Deliberations of the IEAG

28-29 May 2008
Questions to the IEAG

• where are we in polio eradication?
• what are the risks to finishing?
• what do we do next to reduce risks?
• what are our contingency plans?
Where are we in polio eradication?
### Location of poliovirus by type, 2008*

*data as on 24th May 2008*

<table>
<thead>
<tr>
<th>State</th>
<th>P1</th>
<th>P3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bihar</td>
<td>1</td>
<td>178</td>
<td>179</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>0</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Delhi</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Haryana</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Orissa</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>West Bengal</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4</td>
<td>236</td>
<td>240</td>
</tr>
</tbody>
</table>

*Note: The table shows the distribution of poliovirus types P1 and P3 across different states in India for the year 2008. The data was collected as of 24th May 2008.*
Lowest ever level of WPV1, India

* data as on 24th May 2008
Protection against type 1 polio* is at its highest level ever in UP, Bihar

Last quarter 2007

First Quarter 2008

* direct protection by vaccination against type 1 polio among children aged 0-4 yrs UP, Bihar
Type 1 eradication is on track with mini-IEAG deliberations of Dec '08

<table>
<thead>
<tr>
<th>Year</th>
<th><strong>UP</strong> (south west)</th>
<th><strong>Bihar</strong> (HR blocks)</th>
<th><strong>Other</strong> (Mumbai, W Bengal, Delhi, Harayana)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>&lt; 5 cases (Jan-Jun)</td>
<td>&lt; 15 cases (Jan-Mar)</td>
<td>&lt; 5 cases (Jan-Jun)</td>
</tr>
<tr>
<td>2009</td>
<td>On track</td>
<td>On track</td>
<td>On track</td>
</tr>
</tbody>
</table>
Progress reflects intensive use of mOPV1...
...intensification in highest risk areas such as Kosi river area...

Government of Bihar
- Close monitoring by Bihar Secretary (health)
- 13 State monitors deputed to high risk blocks
- Additional funding for mobility of district officials
- Close supervision of blocks by district & state monitors

UNICEF: increase in community mobilizers to >500
WHO: increased SMOs & FVs

Field volunteers increased from 117 to 164
...and detailed planning to reach the hardest-to-reach areas

Focus on coverage of temporary field huts
Type 3 eradication is lagging behind mini-IEAG deliberations:

<table>
<thead>
<tr>
<th>Year</th>
<th>UP</th>
<th>Bihar</th>
<th>Other (Mumbai, W Bengal, Delhi, Harayana)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>&lt; 50 (Jan-Jun)</td>
<td>&lt; 100 (Jan-Jun)</td>
<td>&lt; 25 (Jan-Jun)</td>
</tr>
<tr>
<td>2009</td>
<td>Slightly behind schedule</td>
<td>Behind schedule</td>
<td>On track</td>
</tr>
</tbody>
</table>
This outbreak reflects the historically low level of type 3 immunity.
BUT THE WORST TYPE 3 MAY BE OVER!

WPV3 Polio Cases by month, UP and Bihar, 2007-08

* data as on 24th May 2008
Q1  Where are we in polio eradication?

A1  Type 1: on track

Type 3: slightly behind schedule

NOTE: a minimum of 12 months without a virus is needed to consider an area 'polio-free'.
What are the risks to finishing eradication?
Risk of Continued Endemic WPV1 - 2008

Based on:

- time since most recent confirmed case
- history of orphan strains – 2006-2008
- other indicators of surveillance quality
Risk of Continued Imported WPV1s - 2008

? Risk among migrants

Local WPV1
Nov’07 to Mar’08!

Maharashtra

West Bengal
Percent Stool Culture Results Reported within 14 Days of Sample Receipt in the Laboratory

- Qtr1-07
- Qtr2-07
- Qtr3-07
- Qtr4-07
- Qtr1-08
- Qtr2-08

Within 14 days

New algorithm implemented

Data as on 24th May, 2008
Percent ITD Results Reported within 21 days of Receipt of Samples in Mumbai*, Lucknow, Chennai Laboratories

New algorithm implemented

* Does not include ITD of isolates from National labs that do not perform ITD

data as on 24th May, 2008
Mean Number of days from Paralysis Onset to ITD Result for Samples with WPV

New algorithm implemented

data as on 24th May, 2008
Risk: suboptimal scale of mop-ups
(recent India mop-ups compared to WHA resolution, 2006)
Some ongoing type 3 immunity gaps, especially in UP

Qtr 4, 2007

Qtr 1, 2008

* direct protection by vaccination against type 3 polio among children aged 0-4 yrs
RISK: relationship between type 3 rounds (Dec 06-Nov 07) & recent WPV3 cases, UP

Persistent transmission of indigenous strains

Transmission due to insufficient vaccination
Programme fatigue
+ community fatigue
VACCINE SECURITY

• mOPV3 runs out within 3 months.

• There is minimum flexibility to respond to epidemiologic developments.

• There is no OPV tendered beyond early-2009 (only country in the world!).
Q2 What are the risks to eradication progress?

A2 Major risks:

- Continued type 1 transmission in Bihar/EUP,
- Expansion of type 3 outbreak in UP,
- Sub-optimal mop-up scale & operations,
- Programme fatigue,
- Vaccine security.
What do we do next to reduce risks?
1) Finish type 1 in Bihar.
2) Mop-up type 1 everywhere.
3) Prepare to eradicate type 3 in 2009 (esp. from West UP!)
Strategic importance/risk of Bihar!
Location of poliovirus by type, 2008*

* data as on 6th June 2008

<table>
<thead>
<tr>
<th>State</th>
<th>P1</th>
<th>P3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bihar</td>
<td>1</td>
<td>187</td>
<td>188</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>1</td>
<td>61</td>
<td>62</td>
</tr>
<tr>
<td>Delhi</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Haryana</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Orissa</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>West Bengal</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5</td>
<td>253</td>
<td>258</td>
</tr>
</tbody>
</table>
P1 Polio cases, Uttar Pradesh, Uttarakhand, Delhi and Haryana

* data as on 6th June 2008
NIDuSNIDuS, July 08 to Feb 09
as recommended by IEAG (Dec 2007)

SNID area – Jul to Dec 08

1 mOPV1 + 2 mOPV3 rounds
## Vaccine type - 2008

<table>
<thead>
<tr>
<th>Round</th>
<th>Uttar Pradesh</th>
<th>Bihar</th>
<th>Mumbai/Thane/Raigad</th>
<th>Delhi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>mOPV1</td>
<td>mOPV1</td>
<td>mOPV1</td>
<td>mOPV1</td>
</tr>
<tr>
<td>Feb</td>
<td>mOPV1</td>
<td>mOPV1</td>
<td>mOPV1</td>
<td>mOPV1</td>
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<tr>
<td>Mar</td>
<td>mOPV3</td>
<td>mOPV3</td>
<td>mOPV3</td>
<td>mOPV1</td>
</tr>
<tr>
<td>Apr</td>
<td>mOPV1</td>
<td>mOPV1</td>
<td>mOPV3/tOPV</td>
<td>mOPV1</td>
</tr>
<tr>
<td>May</td>
<td></td>
<td>mOPV1 (HR blocks)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jun</td>
<td>mOPV3</td>
<td>mOPV1</td>
<td>mOPV3</td>
<td>mOPV3</td>
</tr>
<tr>
<td>Jul</td>
<td>mOPV1</td>
<td>mOPV3</td>
<td>mOPV1</td>
<td>mOPV1</td>
</tr>
<tr>
<td>Sep</td>
<td>mOPV1</td>
<td>mOPV1</td>
<td>mOPV1</td>
<td>mOPV1</td>
</tr>
<tr>
<td>Nov</td>
<td>mOPV3</td>
<td>mOPV1*</td>
<td>mOPV3</td>
<td>mOPV3</td>
</tr>
</tbody>
</table>
As well as eradicating type 1, SIA strategy is also tailored to type 3 immunity gap in UP

* direct protection by vaccination against type 3 polio among children aged 0-4 yrs
IEAG Recommendation: SIA Quality

- **Bihar**: the highest priority of the entire programme must be to continue improving/sustaining SIA quality in the HR blocks of Bihar.

- **UP**: highest priority is areas of WPV3 persistence (i.e. west UP, central UP).

- Other States: continued focus on mobile populations of UP & Bihar (esp. in Harayana, Punjab, Delhi, Mumbai).
IEAG Recs: Communications

'SocMob Network': IEAG endorses the expansion of the Network and communications review plan.

Sentinel Surveys: IEAG strongly endorses the plan for 4-monthly quantitative surveys of public opinion and requests sharing of the results of the 1st survey by August 2008.

Media: programme should use appropriate milestones (eg. 12 months without a virus in a state) to strengthen media understanding & population/political support.
IEAG Recommendation: Mop-ups (1)

Role: through end-2008, mop-up in response to:

- any WPV 1 in India
- any WPV 3 outside UP or Bihar

Strategy:

- Core Group meeting within 24 hours.
- investigate & assess risk within 72 hrs of index case (with genetic sequencing data within 36-72 hours).
- at least 3 house-to-house mOPV rounds; 1st within 2 weeks.
- minimum of 5 million children (may be larger in UP/Bihar!).
Mop-up Management:

- Federal level: establish multi-agency core group/task force to manage mop-up process & coordinate with states.
- Develop contingency plan for mop-up communications.
- State level: develop 'polio emergency mop-up plan' with indicators, responsibilities, etc based on Union guidance.

Vaccine:

- maintain stockpile of 75 m doses of mOPV1 & mOPV3; REVIEW & REPLENISH EVERY 3 MONTHS
- if high-titre mOPV1 trial shows >10% efficacy over regular mOPV1, preferentially use this for mop-ups & HR area SIAs.
### IEAG Recommendations: SIA schedule & Vaccines, 2009-2011

<table>
<thead>
<tr>
<th>Year</th>
<th>NIDs</th>
<th>SNIDs</th>
<th>註釋</th>
</tr>
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<tbody>
<tr>
<td>2009</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– tOPV</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Q1</td>
<td></td>
</tr>
<tr>
<td>2010-11</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– tOPV</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Q1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– 2 x mOPV3 in Q2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– 2 x in Q3-4 (mOPV1/3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– UP, Bihar, Mumbai &amp; risk areas</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** largescale mops-ups must be planned for 2009-2010
IEAG Recs: Vaccine Security

Pre-qualified Vaccine: only WHO-prequalified products or, in the case of mOPVs, 'WHO-recommended' products, should be used for routine & supplementary immunization activities.

OPV Tender: GoI should consider taking advantage of the 24-month UNICEF global OPV tender (target to issue: June 2008) to secure OPV supply & price.

OPV Licensing: IEAG urges immediate licensing of additional mOPV1 & mOPV3 products to ensure security of supply & optimize price at this critical point in the eradication effort.
IEAG Recs: Integrating into Routine EPI

**Routine EPI:** IEAG highlights that high coverage is vital to protecting against WPV re-introductions, preventing cVDPV emergence & meeting community needs. IEAG stresses that all states must plan for minimum coverage of >80%.

**Routine Vaccine Stockouts:** IEAG is alarmed by state reports of regular stockouts and highlights the need for sufficient Union capacity to track & manage this vital area.
Q3 what should we do next to reduce risks?

A3 STOP TYPE 1 IN BIHAR, and....

- continue focus on SIA quality in HR areas of Bihar & WUP
- markedly enhance mop-up strategy,
- ensure appropriate/flexible mOPV mix,
- continue to refine excellent communications work.,
- improve vaccine security (add'l products, longer tender)
- improve fundamentals of routine EPI (e.g. supply!)
What are appropriate contingency plans?
Moradabad study shows persistent immunity gaps in very young children (% children sero positive for P1)
These immunity gaps are much higher than seen in other countries.

Studies done in 2005

Indian Council of Medical Research
IEAG Recs: Programme Research

**mOPV1 trial:** if high-titre mOPV1 trial shows >10% efficacy gain over regular mOPV1, this should preferentially be used for mop-ups & HR area SIAs.

**Bivalent OPV trial:** IEAG urges immediate DCG(I) decision (pending since Jan '08) or trial must be delayed until mid-2009.

**IPV:** as part of contingency planning, a trial should compare the impact of mOPV1 vs. full-dose IPV vs. fractional-dose (1/5th) IPV on immunity gaps in very young children (approx. 6 mos).

**AFP seroprevalence study in West UP:** IEAG urges immediate start of study & sharing initial results by end-2008.
Conclusion
India is now leading the intensified polio eradication effort & with aggressive mop-ups could be the 1st endemic country to interrupt all type 1 by end-2008.