Deliberations of the IEAG

24-25 June 2009
Issues for the IEAG

• Epidemiology has not matched projections – should programme maintain same intensity in 2009-10?

• What challenge do VDPVs pose to the programme?

• Should mop-ups in response to WPV3 in UP & Bihar.

• Multifocal strategy for PE - sanitation, diarrhea, Zinc, improving RI coverage.

• Vaccine projections for rest of 2009 & early 2010.
Are we on the right path?

(question from Uttar Pradesh)
The epidemiologic, virologic, genetic, operational & technical evidence all suggest that India is firmly on the right path to finish eradication.
Epidemiologic & Virologic Evidence
Epidemiologic evidence: 1\textsuperscript{st} time both viruses very geographically restricted in both UP & Bihar

Epidemiologic evidence: longest period with no type 1 or 3 outbreak outside endemic areas

<table>
<thead>
<tr>
<th>State</th>
<th>WPVs</th>
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<tr>
<td>Uttar Pradesh**</td>
<td>11</td>
<td>41</td>
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<td>Bihar</td>
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<td><strong>Total</strong></td>
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* data as on 19\textsuperscript{th} June 2009

** One case reported mixture of P1 wild & P3 wild
Epidemiologic evidence: very geographically restricted in Bihar

Kosi River flood plain, Bihar, India
- Type 1 Polio – 2007
- Type 1 Polio – 2008
- Type 1 Polio – 2009

Persistence of Type 1 polio in Bihar – 2007-09
Epidemiologic evidence: **lowest levels of both type 1 & type 3 at same time**

* data as on 19th June 2009
Virologic evidence: elimination of all but 1 genetic lineage of type 1 poliovirus

2006

2007

2008

2009*

Grey 1 ▲  89
Grey 2 □  38
Grey 3 ★  2
Black 1 ▼  11
Black 2 ■  12
Pink 1 ▲  459
Yellow 2 □  11
Yellow 3 ★  14
Yellow 4 ○  4

Grey 1 ▲  29
Grey 2 □  14
Grey 3 ★  1
Black 1 ▼  1
Pink 1 ▲  32
Yellow 2 □  3
Yellow 3 ★  2

Grey 1 ▲  2
Grey 2 □  2
Pink 1 ▲  71

*as of 22nd Jun, 2009
Virologic Evidence: *lowest detection levels ever* for both type 1 & 3 poliovirus in Mumbai sewage

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- **Positive for P1 wild poliovirus**
- **Negative for wild poliovirus**
- **Positive for P3 wild poliovirus**
- **Samples not collected due to fire**

*Data as on 13th June 2009*
Operational Evidence
Operational Evidence: *lowest resistance ever*, UP

% Xr & Xs remaining in CMC High Risk Areas, UP, April 08 –09

*Average of 3,000 Xr households each SIA

Resistance to OPV is currently at an all time low

- 3.2%
- 1.7%
Operational evidence: clear identification of missed populations in UP

~ 300,000 children immunized in May 09
Operational evidence: decreasing proportion of missed children in migratory communities, UP

N= 47,378 52,243 19,094 81,283 113,044 130,290 52,243 122,161

% unimmunized

Operational evidence: decreasing proportion of missed children in migratory communities, UP

Source of data: NPSP monitoring
Operational Evidence: **Overall SIA quality in Bihar, incl. high risk districts, remains very good**

Percent unimmunized children detected by monitors during street surveys at the end of SIA

- **Bihar**
- **HR districts**: Darbhanga, Khagaria, Saharsa & Samastipur
Operational Evidence: **lowest refusal levels ever in Bihar**

X-R is down to 1124 Households – lowest ever

Source: SIA Coverage/X Data- GoB
**Operational Evidence:** clear identification of last hardest-to-reach populations in Bihar

No. of clusters of field huts identified for OPV coverage in Kosi riverine area

![Bar chart showing the number of hut clusters identified for OPV coverage in Kosi riverine area from May 2007 to May 2009.](image-url)
...but the coverage in field huts of Kosi area remains sub-optimal

% unimmunized children in field huts in Kosi riverine area

~ 3,000 children checked each round

Source of data: NPSP monitoring
Kosi River Sub Region, Bihar
Operations: massive scale up of satellite units in kosi river area is currently underway
Operational evidence: increasing coverage of migratory communities in key states in each SNID

# children: 0.5 mn in each round

# children: 0.5 mn in each round

# children: 1.1 mn in each round
Technical Evidence
**Technical Evidence:** mOPV1 formulation & products are being optimized for west UP & Bihar

**March 2009:** DCG(I) increased minimum potency release standard for mOPV1 from $10^{6.15}$ to $10^{6.3}$.

**March 2009:** DCG(I) licensed high-titre Sanofi-Pasteur mOPV1 ($10^{6.7}$).

**August 2009:** result of trial comparing impact of high-titre mOPV1 (& IPV) in setting of western Uttar Pradesh.
Technical Evidence: new bivalent OPV can improve WPV3 control while eradicating WPV1

Seroconversion after 2\textsuperscript{nd} bOPV, India, 2008-9

New bOPV Product

bOPV: superior to tOPV & almost as good as mOPVs
The epidemiologic, virologic, genetic, operational & technical evidence all suggest that India is firmly on the right path to finish eradication.
And finally…in 2007 UP went into the high season with worse virus genetics and weaker tools but still stopped type 1 polio then!

* data as on 19th Jun 2009
Recommendations
IEAG Reaffirms 28 June-5 July SIA Plan
The epidemiologic progress & availability of bOPV allow refining of SIA strategy & areas covered in each round.
IEAG Recommendation: differentiation of risk zones in UP & Bihar for SIA planning
IEAG Recommendation: bOPV (part 1)

Areas of Compromised OPV Efficacy (UP/Bihar)

- **mOPVs**: remain key tool for interrupting wild poliovirus (+ two tOPV campaigns per year)

- **bOPV**: to complement aggressive use of mOPV1 by maintaining immunity against WPV3 (vs. mOPV3)
  - after WPV1 eradication, bOPV can maintain type 1 immunity while interrupting WPV3 with mOPV3
IEAG Recommendation: bOPV (part 2)

High-risk areas bordering areas of indigenous WPV1 & 3 transmission (incl. migrants/Mumbai)

- bOPV campaigns should complement tOPV campaigns to optimize immunity against all 3 types

Re-infected & Outbreak Areas (outside UP & Bihar)

- mOPV mop-ups remain primary tool to interrupt WPV
- in areas of concurrent WPV1 & WPV3 outbreaks bOPV campaigns/mop-ups should be primary strategy
IEAG Recommendation: SIAs, 2009
Uttar Pradesh, Bihar, Delhi, Mumbai & Migrants

- Bihar: mix of tOPV & mOPV1
- UP: mix of mOPV1 & mOPV3
- mOPV1
- bOPV (1&3) mOPV1

SNID Statewide

SNID Statewide

mOPV MOP-UPs
Infected Districts

SNID Infected & HR Zones

SNID Infected

Early Aug
Early Sept
Oct
Nov
Dec
IEAG Recommendation: SIAs, 2009
Uttar Pradesh, Bihar, Delhi, Mumbai & Migrants

**Aug**
Statewide

**Sep**
Statewide

**Nov**
Zones 1&2

**Dec**
Infected & HR Zones

**UP, Delhi & adjoining**

**Bihar**

- **mOPV1**
- **mOPV3**
- **tOPV**
- **bOPV**
IEAG Recommendation: SIAs, 2010

- tOPV
- mOPV1
- mOPV3
- bOPV (1&3)

NID

SNID Statewide

SNID Infected & HR Zones

mOPV MOP-UPs
Infected Districts

mOPV MOP-UPs
Infected Districts
IEAG Recommendation: Mop-ups

- **Objective:** to interrupt all remaining WPV in 2009-10
  
  In next 6 months:
  
  – any WPV 1 anywhere in India
  
  – any WPV 3 outside of Zone 1&2 in UP or Bihar

  In subsequent 6 months (if no type 1 after Dec):
  
  – any WPV 3 anywhere in India

- mOPVs remain vaccine of choice for mop-ups.

- mgnt, speed of response & extent per IEAG recs.
IEAG Recommendations: SIA Quality (part 1)

Improving Kosi River Vaccination

• Fully implement the Intensified Kosi River Plan.

• Ensure presence of government medical officers inside embankment area to review preparations & monitor implementation.

• Identify major transit areas in/out of the Kosi River area & establish continuous OPV vaccination posts at major/key ghats.

• Ensure OPV vaccination during Chaath & major melas.
IEAG Recommendations: SIA Quality (part 2)

Reaching migrant & mobile populations

- In non-endemic states, systematically identify migrant populations & ensure their full immunization when UP & Bihar conduct SNIDs (esp. Punjab, Haryana, Gujarat, West Bengal, Delhi & Mumbai).

- Identify selected trains that play an important role in migrant movement & establish continuous polio immunization.
IEAG Recommendations
Communications & Social Mobilization

Expanded Underserved strategy

- Standard definitions now exist between all partners to identify, list, map and vaccinate these groups during every SIA
- SMNet will expand in U.P. to put more emphasis on ensuring these groups are identified and covered during each SIA
- 40 “high risk BMCs” to begin work in Western U.P. by July
IEAG Recommendations
Communications & Social Mobilization

While endorsing Comms/SocMob priorities as presented:

• 1st priority should be the planned, rapid scale-up of SM-Net in Kosi Riverine Grid area,

• 2nd priority should be implementing the migrant population strategy
IEAG Recommendation: IPV

• Laboratory work on the 5-arm IPV containing trial in Moradabad should be completed by end-Aug at latest.

• Results of the ongoing study on global supply of IPV-containing combination vaccines should be available by Sept 2009 to facilitate Gov't decision-making on IPV.

• IEAG should review the findings of the Moradabad IPV trial & global supply study in mid/late-Sept to guide next steps on potential IPV use to accelerate eradication.
IEAG Recommendations: Research

- Complete western UP AFP seroprevalence study to define current population immunity by age group.

- Initiate enhanced surveillance among household contacts to investigate potential role of older children in transmission.

- Zinc: (a) initiate pilot to investigate operational feasibility in a west UP district during OPV campaign, (b) consider small seroconversion study with co-administration of OPV and zinc.

- Consider bOPV seroconversion study in west UP.
IEAG Recommendation: Surveillance

- **Bihar**: endorses plan to enhance surveillance in Kosi Riverine area & requests NPSP differentiate AFP cases by reporting site (e.g. quack, consultant doctor, etc) to guide further refining of strategy.

- **Delhi**: introduce environmental surveillance to supplement AFP surveillance to detect circulation in UP/Bihar/migrant population.

- **Elsewhere**: continue regular state-level reviews, prioritizing areas at highest risk of importations.
IEAG Recommendations
Vaccine-derived Polioviruses (VDPVs)

• Ensure full investigation of any VDPV to facilitate categorization (i.e. iVDPV, cVDPV or a VDPV).

• Implement follow-up or control activities as per ACPE recommendations for each type of VDPV, *only once the nature of the VDPV is clear.*

• Continue to implement planned SIA strategy with tOPV, bOPV & mOPVs to optimize coverage against all 3 serotypes.
Conclusion
The epidemiologic, virologic, genetic, operational & technical evidence all suggest that India is firmly on the right path to finish eradication.
...the continued, extraordinary efforts of State Governments & Union Government of India are absolutely critical to exploit this unprecedented opportunity.