Syndromic Surveillance in Integrated Disease Surveillance Project (IDSP) and Pre Hospital Emergency Care in India

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Presentation structure

– Background on Disease Surveillance in India
– Andhra Pradesh H1N1 scenario
– The Polio story
Acknowledgements

• Government of Andhra Pradesh, India, State Surveillance Unit
• Integrated Disease Surveillance Project – Resources – Disease Surveillance in India - Dr. Sampath K Krishnan [www.idsp.nic.in](http://www.idsp.nic.in)
• Resources from - World Health Organization – National Polio Surveillance Project, India [www.npsuindia.org](http://www.npsuindia.org)
• Press Information Bureau, Government of India [www.pib.nic.in](http://www.pib.nic.in)
Coordinates – Saharsa, Bihar, India
25.89786 Latitude and 86.58671 Longitude

Photo courtesy: BMGF

WPV 1 transmission over the years

Picture courtesy: NPSP-India
Disease surveillance in India

• Disease surveillance in India has always been practiced by the states (health being a state subject)

• Many gaps, different states differ in degree and quality of surveillance, different priorities in diseases, lack of uniformity

• Till 1997, disease surveillance was component of disease specific national health programs
Need for National Disease Surveillance

- Importance of disease surveillance was realized only after the Cholera outbreak in Delhi (1988 - about 1500 deaths) and the Plague outbreak in Surat (1994 - about 100 deaths).
  - Significant mortality and morbidity
  - Severe economic consequences
National Surveillance Programme for Communicable Diseases (NSPCD)

- NSPCD was therefore launched by the Centre in 1997-98 in 5 pilot districts of the country (centrally funded) and over the years extended to cover 101 districts in all 35 states and UTs in the country.

- This programme was based on outbreak reporting (as and when outbreaks occur) with weekly reporting of epidemic prone diseases directly from districts (including nil reporting) to the Centre.
Districts covered under NSPCD

- 1997-98 (25 districts)
- 1998-99 (20 districts)
- 2000-01 (35 districts)
- 2001-02 (20+1 districts*)

* The district of Shimla taken as a special case during 2002-03

Information from [www.idsp.nic.in](http://www.idsp.nic.in)
NSPCD to Integrated Disease Surveillance Project (IDSP)

- NSPCD significantly improved the capacity to detect, investigate and respond to outbreaks, yet it was not case based & did not give complete picture of disease burden in the country.

- Thus, Integrated Disease Surveillance Project (IDSP) was conceptualized with the objectives:
  - To establish a nation wide decentralized system of disease surveillance for timely and effective public health action, and to
  - Improve the efficiency of disease surveillance for use in health planning, management and evaluating control strategies.
Phasing of Integrated Disease Surveillance Project

Phase II (05-06)

Phase I (04-05)

Phase III (06-07)

Information from www.idsp.nic.in
3 Levels in IDSP

- **Syndromic Surveillance**
  - Frontline Health Workers in Villages – Health Centers

- **Presumptive Surveillance**
  - Health Facilities with Physicians

- **Laboratory Surveillance**
  - Facilities with Laboratory
Weekly Surveillance System (IDSP)

Sub-Centres

P.H.C.s

C.H.C.s

Dist.Hosp.

Med.Col.

P.H.Lab.

Programme Officers

S.S.U.

C.S.U.

D.S.U.

Pvt. Practitioners

Nursing Homes

Private Hospitals

Private Labs.

Corporate Hospitals

Other Hospitals: ESI, Municipal Rly., Army etc.

Information from www.idsp.nic.in
Target diseases in IDSP

Regular Weekly Surveillance
- Malaria
- ADD (Cholera)
- Typhoid
- Tuberculosis
- Measles
- Polio
- Plague
- Unusual Syndromes
- State Specific Diseases

Sentinel Surveillance
- HIV, HBV, HCV
- Accidents
- Water Quality
- Outdoor Air Quality

Community-based Surveys
- NCD Risk factors

Information from [www.idsp.nic.in](http://www.idsp.nic.in)
### State performance ranking – IDSP (June 2008)
(n=15 states)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>States reporting &gt;10 outbreaks in a quarter</td>
<td>66%</td>
</tr>
<tr>
<td>Percent outbreaks confirmed and documented</td>
<td>2/3 states confirm &lt;50% outbreaks</td>
</tr>
<tr>
<td></td>
<td>1/3 states confirm 25% outbreaks</td>
</tr>
<tr>
<td>Reporting from PHCs</td>
<td>53% states have &lt;90% reporting</td>
</tr>
<tr>
<td></td>
<td>26% states have &lt;60% report</td>
</tr>
<tr>
<td>Data analysis and feedback</td>
<td>No state where both state and district provide feedback</td>
</tr>
<tr>
<td></td>
<td>20% states only some district give feedback</td>
</tr>
<tr>
<td>Full time SSO</td>
<td>53% states 6m-1year</td>
</tr>
<tr>
<td></td>
<td>33% states &lt;6m</td>
</tr>
<tr>
<td>State Lab Coordinator</td>
<td>80% states NO LAB COORDINATOR</td>
</tr>
<tr>
<td>Private sector reporting</td>
<td>Except Goa, all states have &lt;50% reporting</td>
</tr>
<tr>
<td></td>
<td>50% states have &lt;25% private sector reporting</td>
</tr>
</tbody>
</table>

**Overall performance: 40% states scored <50%**

Information from [www.idsp.nic.in](http://www.idsp.nic.in)
Pilot on Short Messaging Service (SMS) based IDSP
Pilot on Web based IDSP
Lessons from H1N1
H1N1 +ve cases in 2009 from Andhra Pradesh

• Of the 610 cases reported from Hyderabad – 450 (74%) were resident of Hyderabad

• Remaining 160 cases were from 14/23 districts in the state or from other states

Reporting Districts for H1N1 +ve cases in 2009 (N=675)

- 90% Hyderabad
- 10% From rest of state (9 Districts)
Syndromic Surveillance and Case based reports correlation – H1N1 / Influenza like illness

- **Infected by H1N1**
  - **Is ill**
    - Seeks medical care
      - Clinical diagnosis / specimen obtained
        - Health authority reports to IDSP
          - Notified to IDSP
    - Does not seek medical care
      - Specimen not obtained
        - False negative test results
          - Not notified to IDSP
          - Not notified to IDSP
  - **Is not ill**
    - Not notified to IDSP
    - Not notified to IDSP

- **S Forms**
  - Case based data of H1N1 +ve from IPM & P-Forms
Polio Summit – February 2012

Photo courtesy: www.pib.nic.in

Photo courtesy: www.pib.nic.in
In the mid-2000s, when scientists questioned whether the campaign to rid the world of polio could succeed, skeptics pointed to a problem that some called PAIN. That stood for Pakistan, Afghanistan, India and Nigeria—the four had never managed to stop the spread of polioviruses within their borders and continued to send viruses, like embers off a fire, to re-ignite outbreaks in places that had previously halted transmission.

"This is huge for us. It has taken more than a decade and tens of millions of health-workers, managers and a lot of mobilization to get to this point," says Hamid Jafari, project manager for the World Health Organization's National Polio Surveillance Project, based in New Delhi.

In the two poor northern states ...—Uttar Pradesh and Bihar—more than half a million babies are born every month. On the twice-annual national vaccination days, 2.3 million vaccinators visit 209 million households.
Location of wild poliovirus cases by type, 2011*

<table>
<thead>
<tr>
<th>State</th>
<th>P1</th>
<th>P3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Bengal</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

* data as on 11 November 2011

Onset of paralysis - 13 January
Howra, West Bengal

Data from NPSP-India
Wild poliovirus cases, India

Year to date Wild poliovirus cases:
1 case in 2011 compared to 40 in 2010

* data as on 11 November 2011

Data from NPSP-India
Location of poliovirus

1999: 1126 cases
2000: 265 cases
2001: 268 cases
2002: 1600 cases
2003: 225 cases
2004: 134 cases

Data from NPSP-India
Poliovirus spread 2003-2005

18 countries with imported virus that originated in Nigeria.

Data from NPSP-India
"India's success is really the result of visionary determination and dogged persistence," says Liam Donaldson, former head of the U.K.'s Health Protection Agency and chair of an independent expert panel that monitors the polio eradication effort. "This achievement is thanks to the country's leaders and to many talented and dedicated individuals working both for the government and for its partner agencies."

But D. A. Henderson of the Center for Biosecurity at University of Pittsburgh Medical Center, who led the campaign to eradicate smallpox, thinks some credit for the resurgence of the global polio effort should be directed toward the founder of Microsoft. "We've got a guy by the name of Bill Gates who has taken this very seriously," Henderson says. "And I think he has done a lot to get attention at high levels in the different governments, India included, which I think has made a big difference."
Location of existing reporting units, India

2000
Number of RU’s = 8453

2002
Number of RU’s = 8945

2004
Number of RU’s = 9527

Data from NPSP-India
When too much polio is around.....

Surveillance sensitivity is adequate enough to detect majority of polio cases

Slide courtesy NPSP-India
When transmission is very low.....

Surveillance sensitivity is not good enough to pick majority of polio cases

Inclusion of borderline/ambiguous cases increases sensitivity and leads to detection of nearly all polio cases

- Classical AFP cases
- Polio cases
- Non-AFP cases
- Borderline/ambiguous AFP cases

Slide courtesy NPSP-India
Location of poliovirus, 2002

SNIDs 2003

Data collection for action

Data as on 26th April 2003

Slide courtesy NPSP-India
Epidemiology of poliovirus subcluster of B2d (Yellow) – U.P.

Dec 03 - Feb 05

Travel from GZA to Delhi & after onset to Aligarh
Prime Minister’s Speech at Polio Summit

The Prime Minister, Dr. Manmohan Singh addressed the Polio Summit in Delhi today. Following is the text of Prime Minister’s address on the occasion:-

More money for health must also result in more health for the money. Beyond investments, we, therefore need greater capacities for decentralized health care planning and management. This will require greater focus on human resource development as well as on technological innovation and information systems that can support such decentralization.

Just as the polio campaign saw the Central and State Governments working closely with a common purpose, I am confident that the vision of universal health care will unite all of us in a concerted effort to preserve, to protect and promote the health of all our people.”
Government announces national policy for containment of antimicrobial resistance

The widespread irrational use of antimicrobials in the Indian health care system and its contribution to emerging drug resistance has often been voiced as a major cause of concern. Several reasons have been cited for this malaise that plagues human, veterinary and agriculture sectors in India. Some of these include regulatory gaps, inability to enforce the existing regulations, over the counter availability of antimicrobials, lack of awareness amongst prescribers and clients.

One-Health collaborations in Tamil Nadu rabies control initiative: lessons for the future

A recent assessment of rabies in Tamil Nadu conducted by RCZI demonstrated one such model for intersectoral collaboration.

ALL ABOUT ZOONOSES

In recent decades, emerging diseases have cast a wide net of fear with new infections breaking into human populations.

ZOONOSES FOR:

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Global Partners Location

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