Asian Rotavirus Surveillance Network (ARSN)

Lessons from the first five years
History of ARSN (1)

- 1996 - WHO Exploratory visit to Asia to identify vaccine sites for RRV – *no awareness of RV*
  - Indonesia – only RV data from 1983
  - Vietnam – no hospital/lab testing for RV
  - Thailand/China – lab activities/no surveillance
WHO Priority Activities, 1997

3.1. Better define rotavirus disease burden and strain prevalence

3.1.1. Establish standard surveillance guidelines and establish regional networks

Ref: Consensus Workshop: rotavirus vaccines for the immunization of children in developing countries, WHO 1997
First ARSN Workshop
Bangkok, January 1999
History of ARSN (2)

• 1999: 1st Asian Rotavirus Surveillance Workshop
  – Introduce generic protocol/solicit proposals
• 2000: Arrangements finalized
  – Support from CVP, WHO, Merck, GSK, CDC
• 2001: Surveillance projects begin
• 2002: 2nd Asian Workshop--one year reports
• 2003: 3rd Asian Workshop--two-year reports and planning next steps
2nd Workshop of ARSN
Bangkok, May 2002
Goals of Asian Rotavirus Surveillance Network

• Define the epidemiology and estimate the disease burden of rotavirus in region
• Describe strain distribution
• Prepare data for decisions regarding vaccine introduction
• Develop surveillance that can be used for post-licensure evaluation of vaccine impact
Project Overview

• Prospective hospital-based surveillance for RV diarrhea and strains based on WHO’s “Generic protocol”
  – Other outcomes in some sites – outpatient, costs, intussusception

• Sites
  • 36 sentinel hospitals
  • 9 countries

• Includes variety of settings
  • Rural & urban
  • Different socioeconomic levels
  • Tropical & temperate

• Summary data reported to CDC
Asian Rotavirus Surveillance Network
Collaborating Institutions

- Chinese Academy of Preventive Medicine, Beijing, PRC
- Dong-nan Univ., Nanjing, PRC
- Chinese University of Hong Kong
- Gadjah Mada University, Yogyakarta, Indonesia
- Institute of Paediatrics, Hospital Kuala Lumpur, Malaysia
- CDC, Department of Health, Taiwan, R.O.C.
- Ministry of Public Health, Thailand
- NIHE, Hanoi, Vietnam
- Pasteur Inst., Ho Chi Minh City, Vietnam
- International Vaccine Institute, Seoul, Korea
- Chonbuk Nat’l Univ, Korea
- Inst. Med. Research, Yangon, Myanmar
Rationale for hospital-based surveillance as foundation for disease burden estimation

- **Meaningful data**
  - RV hospitalizations proxy for severe RV disease
- **Can use to estimate deaths**
- **Ease of data collection**
  - Captures children treated in hospitals
  - Time for specimen and data collection
- **Inexpensive**
- **Takes advantage of local lab expertise**
Sites of the Asian Rotavirus Surveillance Network

- Myanmar
- Thailand
- Malaysia
- Indonesia
- Hong Kong
- Taiwan
- Korea
- Vietnam
- China
Lesson 1: Nothing worthwhile is easy
## Rotavirus Detection, Aug 2001--July 2002

<table>
<thead>
<tr>
<th>Site</th>
<th>Start date</th>
<th>No. subjects</th>
<th>% RV+ (no.)</th>
<th>Range % RV+</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>Aug 2001</td>
<td>2079</td>
<td>44 (910)</td>
<td>24 - 65</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Apr 2001</td>
<td>1532</td>
<td>49 (744)</td>
<td>43 – 53</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>Dec 2000</td>
<td>2986</td>
<td>28 (829)</td>
<td>18 – 35</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Feb 2001</td>
<td>1570</td>
<td>59 (921)</td>
<td>47 – 67</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Dec 2001</td>
<td>388</td>
<td>53 (204)</td>
<td>53</td>
</tr>
<tr>
<td>Thailand</td>
<td>Feb 2001</td>
<td>992</td>
<td>44 (436)</td>
<td>38 – 49</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Feb 2001</td>
<td>1374</td>
<td>57 (778)</td>
<td>52 – 59</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Aug 2001</td>
<td>577</td>
<td>52 (302)</td>
<td>47 – 57</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td></td>
<td><strong>11,498</strong></td>
<td><strong>45 (5,124)</strong></td>
<td><strong>18 – 67</strong></td>
</tr>
</tbody>
</table>

**Lesson 2: Real value to collecting current quality data**
Benefits of Regional Collaboration

- Share expertise, costs and experience
- Foundation for training and infrastructure building
- Ensures standardized, comparable data for regional decision-makers
- Builds platform for other international collaborations
- Creates group of regional experts/champions of rotavirus vaccine
- Elevates visibility of disease and results of surveillance among regional and global community
ARSN Accomplishments

Where we have been….

• Defined the epidemiology of rotavirus in Asia
  – Novel findings – high rates of detection, may mean higher disease burden than predicted
  – Regional strain distributions--enhance generalizability of vaccine trial data

• Increased laboratory capacity in Asia
  – Taiwan, Indonesia, Malaysia, Myanmar all developed capacity for strain characterization

• Increased awareness of rotavirus in Asia
  – Ex. Thailand, China

• Developed sites for future vaccine evaluations
ARSN’s Role in Accelerating Rotavirus Vaccine Introduction in Asia

Within each country…
• Work with partners in country to determine data required for vaccine acceptance
• Form collaborations to implement rotavirus surveillance
• Ensure that the data are delivered to the key decision-makers and constituents

Within region…
• Provide structure and share experience to encourage development of additional regional expertise
  – New country-members of ARSN
  – New investigators/colleagues in ARSN sites
  – Laboratory training support
• Internationally…
• Serve as champions of rotavirus vaccine introduction
Next Steps

- Build on network expertise
  - New country partners (e.g. Bangladesh, Cambodia, India, Sri Lanka, Lao PDR, Mongolia)
  - New international partners (RVP)
  - New outcomes (e.g. costs, CE, intussusception)
  - Make sites available for vaccine trials
- Solidify partnerships with public health officials in all countries
- Convert data into action
  - Understand the needs and priorities of decision-makers
  - Understand interests of other key partners
  - Fill gaps in data
  - Get right message to the right audience
Expansion of Asian Rotavirus Surveillance Network

- Funded surveillance in 11/21 VFE countries in region and 2 non-VFE countries (Thailand, Philippines)
- Surveillance will take place in India and Vietnam from other grants
- Rec’d proposals from MOH in Fiji and Khazakstan.