Understanding the Roles of Different Bodies in Vaccine Decision Making: The Caribbean EPI Experience

Prof J Peter Figueroa
Department of Community Health & Psychiatry
University of the West Indies
Kingston, Jamaica

Fondation Merieux, France, November 2012
Acknowledgement

• Dr Beryl Irons – PAHO Expanded Program of Immunization (EPI) Coordinator for the Caribbean Sub-region 1995 - 2010
The CAREC Member Countries

1 million square miles of ocean

21 countries + French territories
Caribbean Epidemiology Centre (CAREC) Member Countries

- There are 21 countries/territories (English and Dutch speaking)
- Combined population: 6.9 million persons
- Population varies from: 4,000 - 2.7 million
- Geographic size: 34 – 214,970 square km
Caribbean Travel and Tourism, 2010

- The Caribbean hosts a large transitory population
- 17.3 million stay-over arrivals
- 19 million cruise-ship arrivals

- Risk of infectious diseases is increased

Total figures for 2010; CTO webpage
Caribbean – Historical Perspective

• History of slavery and colonialism
• 1938 Labour unrest throughout Caribbean
• 1944 Universal suffrage
  National movements grow
• 1948 University of the West Indies formed
• 1958 West Indies Federation
• 1962 Independence for Jamaica, T&T
• 1973 CARICOM is formed
The Principal Notifiable Communicable Diseases Jamaica 1954

1. Measles
2. Influenza
3. Enteric fever
4. Pulmonary TB
5. Poliomyelitis
6. Chicken Pox
7. Dysentery
8. Diphtheria
9. Non Respiratory TB
10. Meningitis

Source: LS Grant W I Med J 1956;5:44
### Reported Cases of Diphtheria, Tetanus and Pertussis, Jamaica - 1954-1962

<table>
<thead>
<tr>
<th>Year</th>
<th>Diphtheria</th>
<th>Tetanus</th>
<th>Pertussis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>51</td>
<td>35</td>
<td>2,178</td>
</tr>
<tr>
<td>1955</td>
<td>47</td>
<td>27</td>
<td>288</td>
</tr>
<tr>
<td>1956</td>
<td>41</td>
<td>66</td>
<td>1,259</td>
</tr>
<tr>
<td>1957</td>
<td>4</td>
<td>53</td>
<td>263</td>
</tr>
<tr>
<td>1958</td>
<td>38</td>
<td>80</td>
<td>2,646</td>
</tr>
<tr>
<td>1959</td>
<td>22</td>
<td>87</td>
<td>1,109</td>
</tr>
<tr>
<td>1960</td>
<td>77</td>
<td>105</td>
<td>149</td>
</tr>
<tr>
<td>1961</td>
<td>20</td>
<td>114</td>
<td>162</td>
</tr>
<tr>
<td>1962</td>
<td>80</td>
<td>136</td>
<td>3,157</td>
</tr>
</tbody>
</table>
Vaccination coverage in the Caribbean was low until the 1980s

1970  Regional DPT3 coverage - 38%
1972  Polio epidemic in Trinidad
1982  Polio epidemic in Jamaica
       Measles was endemic
# Poliomyelitis Epidemics in Jamaica

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
<th>Deaths</th>
<th>Case Fatality Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>759</td>
<td>94</td>
<td>12.4</td>
</tr>
<tr>
<td>1957</td>
<td>395</td>
<td>11</td>
<td>2.8</td>
</tr>
<tr>
<td>1960</td>
<td>132</td>
<td>8</td>
<td>6.1</td>
</tr>
<tr>
<td>1964</td>
<td>60</td>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td>1982</td>
<td>60</td>
<td>3</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Source: Ashley et al. J Trop Ped 1985;31:323
Polio Vaccination Programs
Jamaica 1957 - 1982

1957  IPV mass campaign children 0-4 years
1960  IPV mass campaign
1962  OPV mass campaign
1964-71 Annual OPV mass campaigns
       coverage (3 doses) < 30%
1972  OPV mass campaign - 50% (at least 1 dose)
1975-79 Routine OPV - coverage < 25%
1981  coverage = 45%
1982  OPV mass campaign for all persons < 30 yrs in response to the polio epidemic
## Policy Initiatives to Improve Immunization in the Caribbean

<table>
<thead>
<tr>
<th>Year</th>
<th>Initiative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1973</td>
<td>SPACGEM (Plan to control GE and malnutrition)</td>
</tr>
<tr>
<td>1974</td>
<td>Maternal &amp; Child Health Strategy</td>
</tr>
<tr>
<td>1975</td>
<td>CAREC (Caribbean Epidemiology Centre) was set up</td>
</tr>
<tr>
<td>1977</td>
<td>PAHO inaugurates EPI in the Americas</td>
</tr>
<tr>
<td>1977</td>
<td>PAHO Revolving Fund for Vaccines</td>
</tr>
<tr>
<td>1978-80</td>
<td>EPI in CAREC member countries initiated and an Immunization officer is appointed</td>
</tr>
<tr>
<td></td>
<td>CAREC – Lab and surveillance support</td>
</tr>
<tr>
<td>1980</td>
<td>Routine immunization: DPT, OPV, Measles, BCG</td>
</tr>
<tr>
<td>1980</td>
<td>Annual EPI managers’ meeting started</td>
</tr>
<tr>
<td>1982</td>
<td>Last case of poliomyelitis</td>
</tr>
</tbody>
</table>
Elimination of Vaccine Preventable Diseases in the Caribbean

Dates of last indigenous cases:

1982  Poliomyelitis
1991  Measles

- Importations of measles:
  1997  (Bahamas, Trinidad and Tobago)

1994  Diphtheria
1999  Congenital Rubella Syndrome
2002  Rubella
2000  Neonatal Tetanus
Other Vaccine Preventable Diseases Reported in the Caribbean - 2011

- Tetanus: 3 adult cases in 3 countries
- Pertussis: 2 cases in 2 countries
- H. influenza: 2 cases of meningitis, 4 cases of pneumonia
- Mumps: 23 cases in 3 countries
- Rotavirus: 160 cases in 12 countries
- Chicken Pox: 5152 cases in 16 countries
Key Factors in the Success of EPI in the Caribbean

Technical leadership – strong, clear, unified
PAHO – high quality technical assistance
CAREC support – surveillance and laboratory
Government commitment & resources
National Plans of Action (costed)
Population understands the value of vaccination
Primary health care services – well developed
Annual EPI Managers meetings
Horizontal co-operation among countries
Effective technical strategies
EPI Revolving Fund for Vaccines
Dedicated health staff
PAHO TAG on Vaccine Preventable Diseases

• Formed in 1980
• Leading experts from the Americas chaired by Dr D.A. Henderson
• Ciro de Quadrous was secretary to the TAG and he led an excellent PAHO team which supported the countries
• The TAG met annually with the EPI managers from all the PAHO countries and others – surveillance and lab staff
• Technical decisions were made in a transparent way based on the science and the experience of the country programs
• EPI managers heard the discussions first hand, participated in the decisions and understood them.
• This was a public health and social movement, a shared vision and responsibility with solidarity and accountability
• It motivated the EPI managers and their national teams
PAHO EPI Program

• Each sub-region had an annual meeting of EPI managers supported by the PAHO EPI team
• The PAHO team was very proactive in supporting countries and addressing problems
• Strong focus on building routine immunization within primary health care
• EPI program set one clear strategic objective at a time eg Polio elimination, then Measles elimination, then Rubella elimination
PAHO EPI Program

• PAHO developed and fine tuned their elimination strategies through implementing the programs, assessing progress, analysing the experience and distilling the lessons.

• Lessons learned in one sub-region were rapidly applied throughout the Americas

• The political directorate of countries was kept abreast of progress and they set the strategic EPI elimination goals

• This greatly facilitated countries providing the necessary resources
Caribbean EPI Managers Annual Meeting

• The Caribbean was the first sub-region to achieve elimination of polio, measles, rubella and congenital rubella syndrome

• Ciro recognised the value of testing the elimination strategies in the Caribbean first

• Although there were many countries the overall population was small, the health infrastructure was good and staff committed

• There was sufficient variation in conditions and settings to draw useful lessons for the Americas
First Caribbean Immunization Officer
Henry Smith 1977 - 1996
Caribbean EPI Managers Annual Meeting

• This was highly valued by Caribbean EPI staff
• Five full days were devoted to the meeting
• An overview of progress was presented
• Each country had to report on their status
• Countries shared experiences and “best practice”
• Updates by experts in the field were done
• Plenary discussions were held to ensure that the key points and decisions were understood by all
• Each country’s EPI plan was reviewed in groups and suggestions made to address problems
• The plan’s were costed and resource gaps identified
Emphasis was on Capacity Building

• The annual EPI managers meeting was a learning experience for all
• Horizontal technical co-operation was used to build capacity especially through in-depth evaluations of EPI country programs
• These were conducted by a team including the Caribbean EPI coordinator, a PAHO staff member, EPI managers from other Caribbean countries, as well as the EPI manager and other EPI and surveillance staff of the country being reviewed
Ensuring Sustainability of the Caribbean EPI Program

• The EPI programs in the countries proceeded at the pace that the countries’ resources could manage.
• Countries were encouraged to establish a specific line item for immunization in their budgets and to make vaccination mandatory for school entry
• All vaccines were paid for by the country
• Between 90% - 100% of the cost of countries’ EPI programs was borne by the Governments.
• Only Guyana (and Haiti) received GAVI funding
• Some support was provided in the form of technical assistance, training and special programs
The countries owned their EPI Programs

The political directorate of countries set the strategic EPI elimination goals and monitored progress:

- 1988 CARICOM Health Ministers resolve to eliminate Measles by 1995
- 1998 CARICOM Council for Human and Social Development (COSOD) resolves to eliminate Rubella and Congenital Rubella Syndrome by the end of the year 2000
Caribbean Epidemiology Centre (CAREC) Council Meeting 2011

- Requests the Director of CAREC with PAHO to prepare a proposal for the region wide use of Pneumococcal Vaccine 13 in view of its efficacy and cost effectiveness.
- Urges the Director of CAREC with PAHO to prepare a Plan of Action for presentation to Ministers on the introduction of Human Papilloma Vaccine in the region
- This is to be presented to the Caucus of Health Ministers in September 2011
## Milestones in the Elimination of Measles in the English-Speaking Caribbean

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-82</td>
<td>Routine Measles immunization introduced</td>
</tr>
<tr>
<td>1988</td>
<td>CARICOM Health Ministers resolve to eliminate Measles by 1995</td>
</tr>
<tr>
<td>1989</td>
<td>EPI managers prepare Plan of Action</td>
</tr>
<tr>
<td>1991</td>
<td>Measles mass campaign (9 months-14 years)</td>
</tr>
<tr>
<td>1991</td>
<td>NGOs attend EPI managers meeting</td>
</tr>
<tr>
<td>1991</td>
<td>Steps to strengthen surveillance</td>
</tr>
<tr>
<td>1992</td>
<td>Last indigenous case of measles</td>
</tr>
<tr>
<td>1995-97</td>
<td>Measles mass campaign (1-9 years)</td>
</tr>
</tbody>
</table>
Measles Elimination Strategy

1. Strengthen Expanded Program of Immunization
2. “Catch up” mass campaign
3. “Keep up” high routine coverage
4. “Follow up” mass campaigns periodically
5. Improve surveillance
6. Investigate all suspected cases
7. Active control of outbreaks
8. Outreach vaccination activities
9. Social mobilization
Approaches to Improving Surveillance

1. Built on the national surveillance systems
2. Conducted evaluations of national surveillance
3. Put greater emphasis on improving surveillance as immunization coverage increased
4. Periodic revision of case definitions & criteria
5. “First contact” approach to measles surveillance
6. Use of indicators to monitor performance of the surveillance system
7. Prompt provision of laboratory results
8. Regular Feedback to the field
Strategy to eliminate CRS:

• Mass Vaccination of adults of both sexes aged 1 - 39 years using MMR
• Surveillance of fever rash and CRS
• Vaccinate 95% of each birth cohort using two doses of MMR
Impact of Measles & Rubella Elimination Strategies in CAREC Member Countries 1980 - 2011

No. of Reported cases

Year

% Vaccinated

Source: Rubella & Measles cases reported to EPI-CAREC.
Elimination of Poliomyelitis, Measles, Rubella and CRS in the Caribbean

Dates of last indigenous cases:

• 1982 Poliomyelitis
• 1991 Measles
  ▪ Importations of measles:
    1997 (Bahamas, Trinidad and Tobago)
    1998, 2008 and 2011 (Jamaica)
• 1999 Congenital Rubella Syndrome
• 2001 Rubella
  ▪ Importation of rubella: 2008 (Bermuda)