OVERVIEW OF THE AFRICAN ROTAVIRUS SURVEILLANCE NETWORK

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Background and Rationale

- 43 published studies on the etiology of diarrhoea in Africa between 1975 and 1992
- less than 50% of these studies had sample sizes of more than 100
- only 5 countries in Africa in which rotaviruses had been G typed (Cunliffe et al, 1998)

There was clearly the need to highlight the importance of research into diarrhoea diseases and development of the requisite manpower rotavirus diarrhoea studies in Africa.
Primary Objective

- Providing training and the enabling environment for rotavirus research

Surveillance Activities

- Basic rotavirus epidemiology
- Strain characterization

Baseline data on rotavirus disease

Harnessing capability and coordinating activities
African Rotavirus Network Pioneers

1998
• 10 countries
• 14 Institutions

Mexico, 2004
1998
- 10 countries
- 14 institutions

2003
- 19 Countries
- 20 Institutions
Activities

- The ARN, with funding from WHO and its partners, has conducted four African Rotavirus Workshops.

- Three Rotavirus in Africa Symposium at regional scientific meetings over the past 6 years.

- More than 3,000 rotavirus positive specimens have been analyzed and characterized by enzymatic and molecular methods.

*Mexico, 2004*
## West Africa

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Assay</th>
<th>No</th>
<th>Age (yrs)</th>
<th>% +ve</th>
<th>Site</th>
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<tbody>
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<td>Cote d’Ivoire</td>
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Peak infection during October to March
Most common strains detected were:
- G1 (30.5%)
- G3 (12.7%)
- G2 (9.1%)
- G9 (6.1%)

Emergence of G9 strains in 1998/9
Absence of G4 strains
Nigerian G2 strains un-typable with standard PCR primers
  - mutations in the G2 primer region?

Detection of G5 and G10 rotavirus strains

Detection of unusual G&P combination
- G3[P6] – short electropherotype
## East and Central Africa

<table>
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<th>Country</th>
<th>Year</th>
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Common strains
- G1 (63.0%)
- G2 (21.0%)
- G3 (7.8%)
- G4 (7.8%)

20% of strains non-typable
- P[8] most common P type (35.5%)

Mexico, 2004
## Southern Africa

<table>
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<tr>
<th>Country</th>
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<th>% +ve</th>
<th>Site</th>
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Winter Peaks between March and July

Commonly detected strains

- G1 (88%)
- G2 (5.8%)
- G3 (2.7%)

- G4 strains detected in only South Africa
- P[8] common (35.6%)
### North Africa

<table>
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- **Commonly detected Strains**
  - **G1** (61.2%)
  - **G4** (14.6%)
  - **P[8]** common P type – 44.8%
Summary of Results across Africa

- G1 strains most common (> 50%)
- G3 strains commonly detected (25%)
- G2 strains occur in “waves”
- G4 and G8 strains isolated sporadically
- G9 strains emerging across continent
- Mixed serotype profiles are common
- P[4] genotypes were uncommon except Ghana

- P[6] genotype most common (50%)
- P[8] genotype present in 40% of strains
- unusual VP4 profiles detected
Planned Activities

- Continue with surveillance
  - Core
  - enhanced
- Develop Regional Labs
- Conduct Hospital Based Studies
- Expand Network
Acknowledgement

• WHO
• RVP
• PATH
• MRC (RSA)
• Polio Research Foundation, South Africa
• MRC/DPRU, MEDUNSA, South Africa

Mexico, 2004