The Namibian Polio outbreak

Re-introduction into fertile soil

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The index case
- Not necessarily the “first” case
- But somebody who had access to private health care
- 39 year old man from Aranos
- Went to Windhoek for cholecystectomy
- Admitted on 25 April, operated on 27 April
- Discharged over weekend
- Recovered well
- Paralysis onset 8 May

Symptoms and signs
- Rigors and fever
- Stomach pain and tenderness
- Weakness in legs
- Dyspnoea
- Referred to Windhoek
- Intubated and ventilated
- Stool specimen collected on 15 May for polio isolation

Polio virus was isolated
- Specimen referred to NICD

Namibia
- 2 million people
- 20% desert
- 80% semi-arid
- UNDP: Gini coefficient (measuring income disparity in Namibia) as the highest in the world at 70.7 on a scale of 100 with 0 representing perfect equality.
Namibia: Distribution of Non-Polio AFP cases in 2004/06 (as of May 30, 2006)

The fertile soil
- Katutura “a place to stay/ we have no permanent place”
- Partially informal settlement
- 60% of Windhoek’s 200,000
- In 2003 30% of people not adequate sanitation (bucket toilets)
- Reception area: immigrants
- Routine infant immunisation 82%
- Older population: low vaccination coverage or waning immunity

The source
- Angolan virus that had an Indian origin
- From sequence of index case
- PV1-SOAS (poliovirus1 South Asia)
- Genotype closely linked to strains from Benguela province of Angola – May and June 2005
- Angola has a 42% adequate (3x within first year of life) routine infant immunisation rate for polio
- AFP surveillance is 2/100,000 (should be at least 1 per 100,000)
- Adequate stool collection rate (at least 2 stool specimens in 2 weeks of AFP onset) is 88%

Namibia: OPV3 Coverage, 1997–2005
The silent epidemic

- Last case polio case November 2005 Angola
- What happened between then and May 2006?
- Were any cases of AFP missed either in Angola or Namibia despite adequate "rates"?
- How many silent infections (up to 200 for each case of AFP)?

Unusual epidemic

- Of the initial 34 AFP cases...
  - Age range between 5 and 76 years
  - 13 of the 18 cases with age indicated (72%) are aged between 20 and 35 yrs
  - Age: highly unusual for polio
  - Concentration around Windhoek
  - Unusually high death rate 15/96

Possible explanations

- Unvaccinated older people
- Lack of natural exposure in sparsely populated Namibia prior to vaccination
- Primary or secondary vaccine failure
- Higher age
  - Higher attack rate for AFP
  - Increased severity
  - Could explain high mortality
- Exposure and inoculum

The crisis and response

- By the time the diagnosis was out already 7 dead and more than 20 AFP cases
- Now 15 dead and 96 AFP cases
- Awareness
- Vaccination of entire Namibian population with monovalent polio-1 on 21 June 06

Lessons

- Each AFP important
- Political and socio-economic factors remain important