Influenza Surveillance in Papua New Guinea

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Papua New Guinea

- Approx 7 million people
- Rural/Urban: 86/14%
  - Hunter gatherer/
    subsistence farming

Health indicators
- Life expectancy
  - Men 53; Women 55
- Under 5 mortality rate
  - 73 (per 1,000 live births)
Challenges of disease surveillance in PNG

- One of the most culturally diverse countries on earth
  - >850 distinct languages and societies
- Low literacy (56%)
- Health-care staff not used to taking samples for diagnostics
- Courier / shipments
  - Samples to NIC
  - Samples to WHO CC
  - Import of reagents
Influenza Surveillance

- Papua New Guinea Institute of Medical Research (Goroka)
  - PNG National Influenza Centre (NIC)

- Surveillance in PNG since 2008
  - Lopi Clinic (Goroka)
  - Vanimo General Hospital
Influenza Data (2009-2011)

- Increasing capacity for testing
  - 2 extra sites in late 2012
  - 1 extra site in early 2013
Detection of influenza

- Recently adopted a suite of real-time PCR assays which detect influenza A and B viruses (US Centers for Disease Control)
  - Influenza A subtyping
    - H1N1pdm
    - H1 seasonal
    - H3 seasonal
    - H5 bird flu
  - 3x real-time PCR machines
PNG strains characterised at WHO CC (Melbourne)

- H3N2 strains detected from 2008-2009
- H1N1pdm first detected in January 2010
- Virus could not be recovered from a large proportion of samples due to transportation issues
  - 3 flights
  - No dry ice

Virus distribution:

- H1N1pdm
- H3N2
- Not recovered
- A/California/7/2009-like
- A/Perth/18/2009-like
- B/Brisbane/60/2008-like

N=108
Influenza outbreak
(Apr-May 2012)

- Reports of outbreak of ILI in early April
  - NDoH and WHO team travelled to outbreak sites (26th April – 2nd May)
- High attack rates (>50% in some villages)
- Spread to neighbouring Province
- Problems with transport of samples to NIC
- 14 samples received from the 2 Provinces
  - 8 positive for A/H3
- Organising to send samples to WHO CC
Capacity building activities (2011-2012)

- Real-time PCR (CDC)
  - 100% EQAP Panel 10 (July 2011)
- Joint assessment mission from WHO and CDC (June 2011)
  - Review of SOPs and safety procedures
    - Dr Jeff Partridge (WHO, Manila)
    - Dr Patrick Reading (WHO CC, Melbourne)
    - Dr Alex Rosewell (WHO, Port Moresby)
    - Dr Amanda Balish (CDC, Atlanta USA)
Capacity building activities (2011-2012)

- **Staff training opportunities**
  - 2x staff – WHO CC Melbourne (Sept 2011)
  - 1x staff – CEIRS, St Jude Children’s Research Hospital, Memphis (Oct 2011)

- **Cell culture, real-time PCR, genotyping**
Future plans

- Cell culture laboratory
  - Received 3 incubators from WHO, WPRO
  - Planned training from Dr Patrick Reading
  - Shipment of reagents?

- Influenza data to be entered on FluNet
Acknowledgements

- PNG NIC Team
  - PNGIMR staff
  - PNG NDoH
- WHO, WPRO
  - Dr Patrick Reading
  - Dr Jeffrey Partridge
- US Centers for Disease Control
- Lopi Clinic and Vanimo General Hospital
Em tasol

Tenkyu tru

Igat sampela kwestens?