Hendra virus in the field – Risk profiling and management

Dr Nina Kung
Principal Veterinary Epidemiologist
Deputy Chief Veterinary Officer
Biosecurity Queensland
Department of Agriculture & Fisheries

IMED 2018
Vienna, Austria
3 November 2018
Hendra virus

• Unknown outbreak in a horse racing stable in Hendra, Brisbane in September 1994 with 20 horses and 2 human infected
• Shortly after the Sept 1994 incident researchers isolated the virus
• Up to date, there were 99 horses and 7 human infected
• Originally called Acute Equine Respiratory Syndrome
• Name was then changed to Equine Morbillivirus
• Since reclassified with Nipah virus (first identified in 1999) as member of the new genus - Henipavirus in the Paramyxovirus family
  (Measles, Mumps, Distemper, human parainfluenza)
• Hendra & Nipah viruses have the ability to infect different species
  – horses, pigs, dogs, cats, etc
  – human
Hendra virus spillover events
Infected property risk profiling

- Case history
- Horse
  - Recent movement, health, behaviour, social status
- Horse management
  - Supplementary feeding, water, movement within property
- Property
  - Pasture condition, stabled (+/-), other feral animals
- Vegetation
  - Location and stage of fruiting/flowering trees or shrubs
- Flying-fox activity
  - Spats, faeces, eaten fruit/flowers/seeds
- Potential bat-horse interaction site(s)
  - Evidences of activity around and under the trees or shrubs
Conclusion

• Flying-foxes (fruit bats)
  – Activities driven by food sources influenced by climate changes, especially after extreme weather events.
  – Unusual foraging choices – poisonous plants
  – Hendra virus shedding in relation to their immunity and health status

• Horses
  – All infected horses were paddock horses
  – Sex, age, breed and health status prior to HeV infection did not play a significant role
  – Horse personality such as dominance and inquisitiveness could have brought the horses closer to the environment with flying–fox foraging activities

• Human
  – Awareness of FF activities and perception of Hendra virus risk on their property
  – Decision on horse husbandry
    • locations of water/feed troughs, night yarding under/close to flowering/fruiting trees
    • Hendra virus vaccination (available since 1 Nov 2012)
Acknowledgement

• Biosecurity Queensland, Department of Agriculture & Fisheries
• New South Wales Department of Primary Industry
• Department of Agriculture and Water Resources
• Australian Animal Health Laboratory
• Infected property owners