



EHM outbreak Diagnosis and epidemiology

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Growing and Protecting New Zealand



Objectives in handling outbreak

- 1. Make a diagnosis**
- 2. Instigate quarantine & movement restrictions**
- 3. Understand the epidemiology**
- 4. Determine origin of outbreak**
- 5. Removal of quarantine restrictions**



1. Diagnosis

1. Clinical signs, particularly:

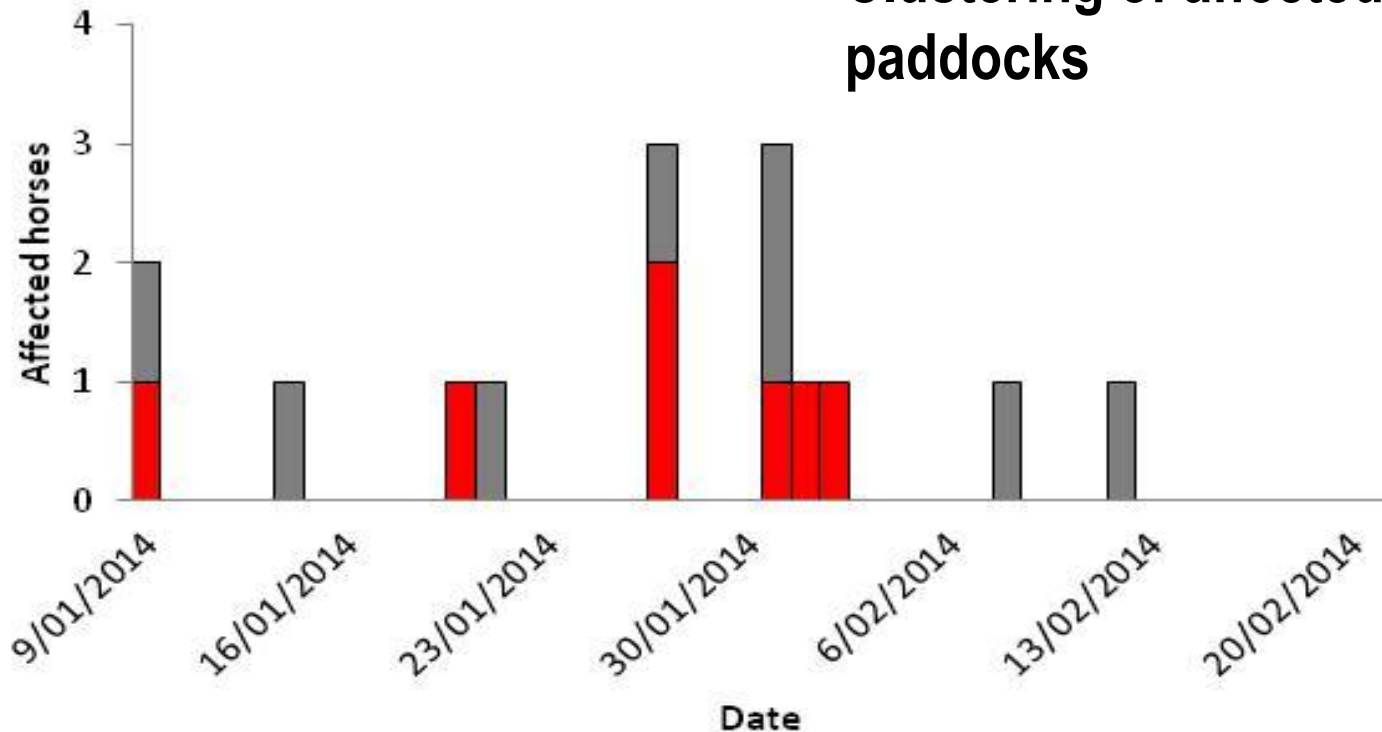
- fever
- urinary incontinence
- ataxia
- paralysis



1. Diagnosis

2. Outbreak epidemiology

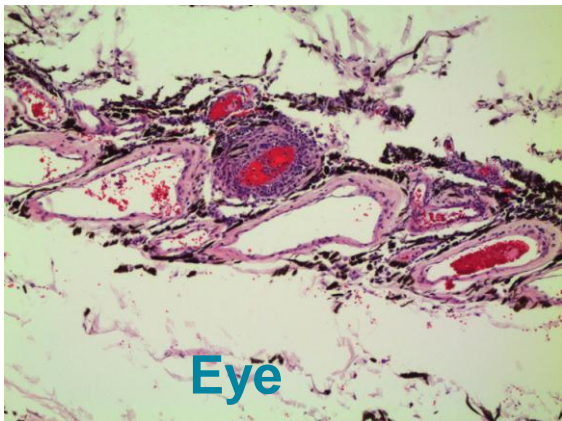
- Disease occurring between contacts
- Clustering of affected horses in paddocks



1. Diagnosis

3. Laboratory tests

- Routine bloods - NSF
- CSF: xanthochromia & ↑protein
- Histology
- PCR for DNA: CSF, CNS, blood vessels
- Serology: high/rising titres
affected & contact horses



2. Quarantine & movement restrictions

1. Biosecurity and quarantine

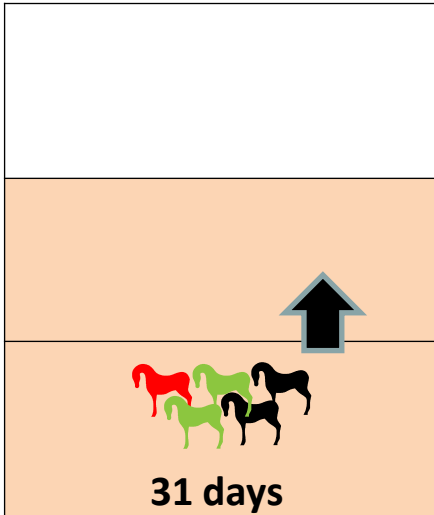
- Reducing fomite transmission
- minimum contact with horses.
- Cleaning and Disinfection

2. Understanding risk - clinical & laboratory surveillance.

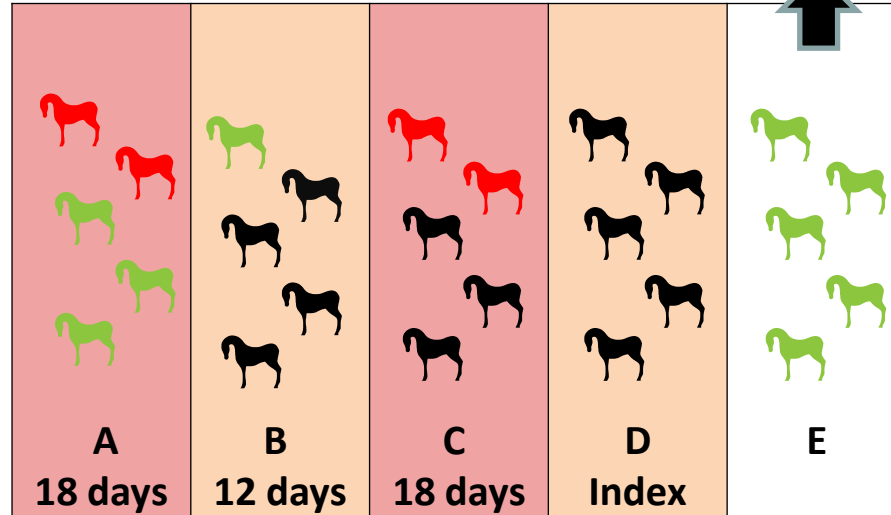


3. Understanding risk through laboratory testing

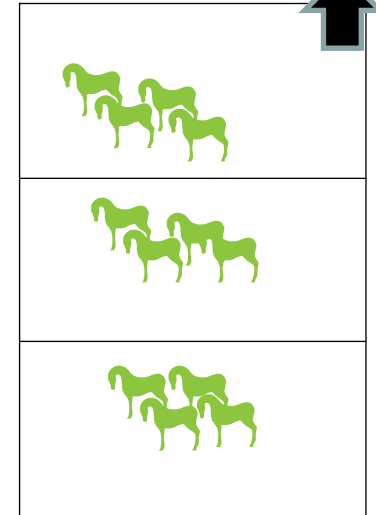
New affected area



High risk area



Unaffected area



3. Circulation of virus pre-detection

- **Index case contacted ~7 other mares 9 days prior signs**
 - All but one of these = EHV1 VNT titres $\geq 1:128$
 - Absence of signs due to low dose of virus?



3. Molecular epidemiology

Neuropathogenic strain of EHV1 [D752]

- more likely → EHM than the wild type virus [N752]
- <15yo are 8 x less likely → EHM than horses >20yo

- Eight affected mares had **D752**
- One affected mare had both **D752** & N752
- Limited samples available for testing



4. How was it introduced?

1. Reactivation of latently infected resident mare through stress?
2. Introduction of mare shedding virus [NZ or foreign]?
3. Introduction of virus through fomite etc?
4. Mutation of EHV1 N752 → **D752** or like genotype?



5. Removal of quarantine restrictions

- **After 21 days quarantine since last clinical case**
- **37 mares tested (foals not tested)**
- **No further of virus excretion in affected & high risk paddocks:
PCR - nasal swabs & blood**
- **Sensitivity vs. Specificity**
- **Repeat tests in 7 days if samples positive**



Acknowledgements

- Joe Mayhew (Massey); Isobel Gibson (NZVP); Wendy McDonald, David Pulford, Richard Spence, Grant Munro, Kelly Buckle (IDC)