



SEACFMD Slaughterhouse Surveillance in Laos and Myanmar

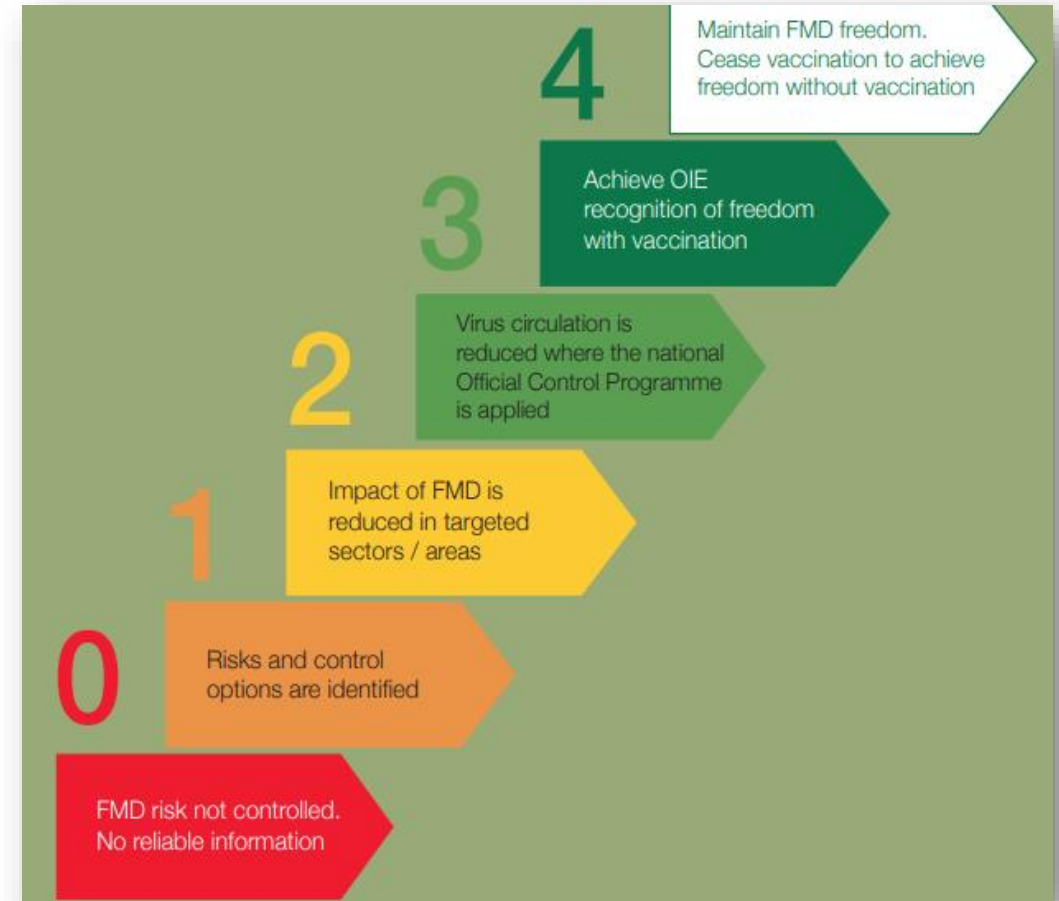
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Growing and Protecting New Zealand



Background: FMD Progressive Control Pathway (PCP)

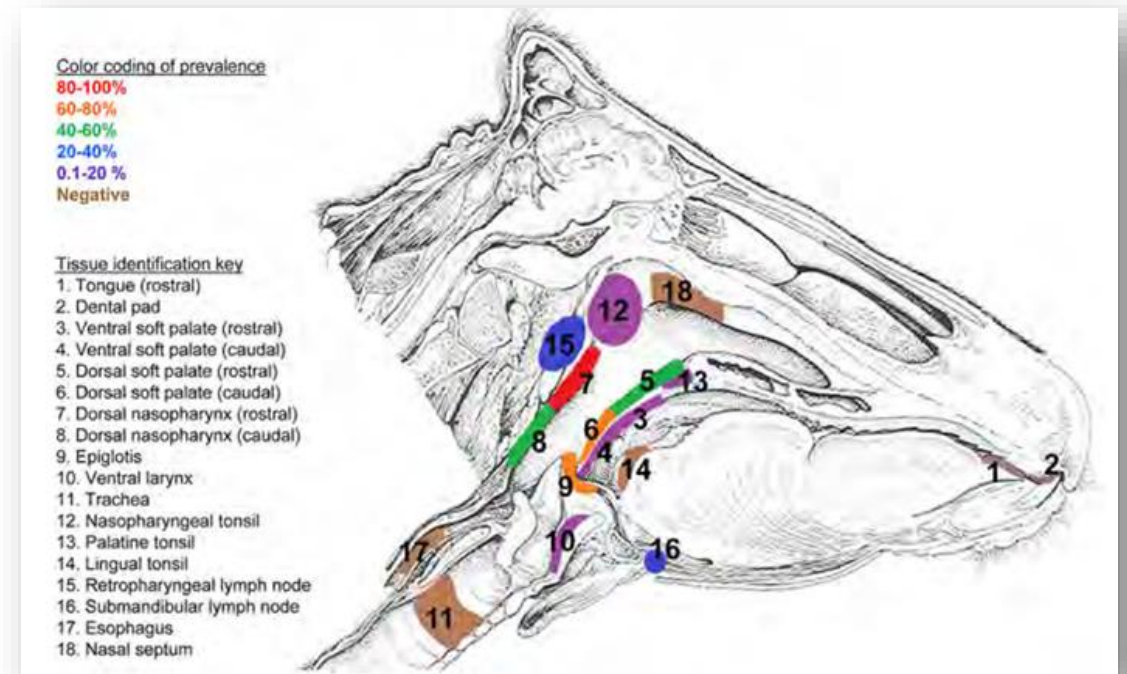
- PCP indicates that knowledge of FMD circulation is vital to control
 - Outbreak reporting/sampling is currently the main surveillance tool used
 - Sampling of outbreaks can be difficult
 - In addition, widespread circulation of some FMD serotypes/topotypes/strains in the region may result in partial immunity to fulminant disease



Slaughterhouse sampling pilot

a possible complement to existing FMD surveillance

- **Aim:** To test whether virus can be recovered at slaughter from the pharyngeal region of healthy cattle and buffalo in Laos and Myanmar
- **How:** New Zealand staff with high level of participation and assistance by local government veterinary authorities and local OIE staff
- **Pros:**
 - Minimises staff travel
 - No handling of live animals
 - Uses cheap disposable swabs
- **Cons:**
 - Shipment of samples to reference laboratories for typing



Persistence of FMDV in experimental cattle: dorsal nasopharynx (red) is a site for virus persistence. This is a similar location that is sampled by probang in live animals.

Slaughterhouse sampling – Materials and Methods

- **“Swab-based” sampling of cattle at slaughterhouses**
 - Serum: test for circulating virus and antibodies
 - Swabs (dry): 3 mucosal sites on head to compare best location for surveillance
 - Point of origin and epidemiology information collected from trader
- **All samples collected from 262 animals** (132 Laos, 130 Myanmar)
 - 209 cattle, 53 buffalo
- **Testing:**
 - PCR detection and ELISA NSP serology by the Pirbright Institute (OIE World Reference Laboratory for FMD)

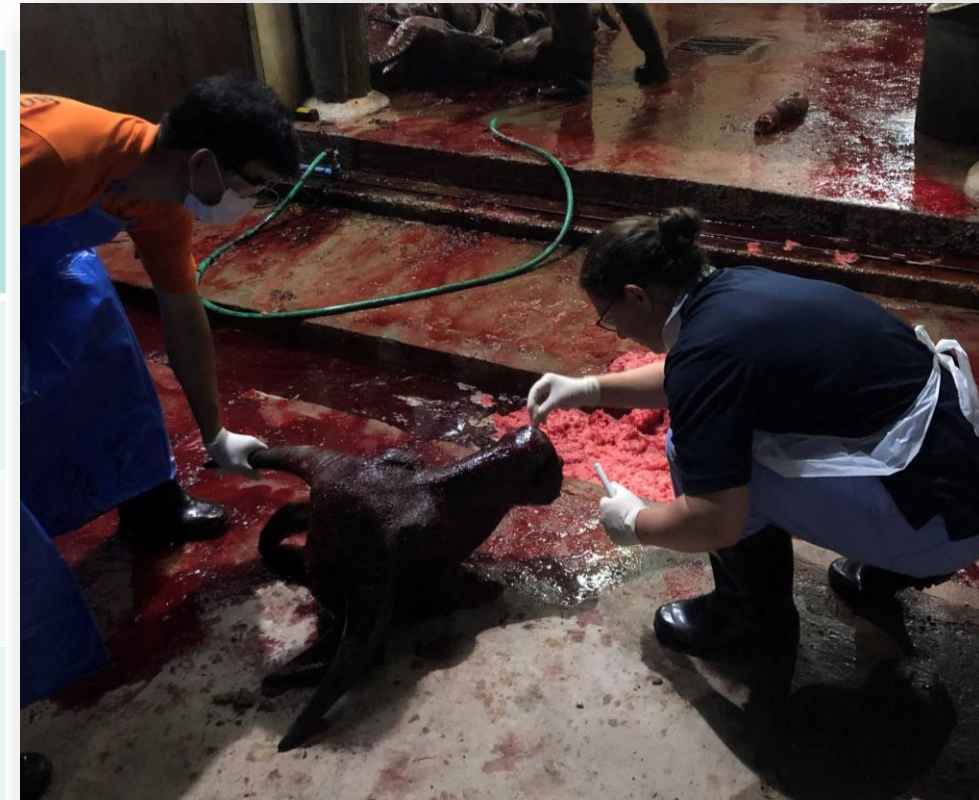


Sampling buffalo heads – Dongdou SH, Vientiane, Laos

Results – NSP ELISA and PCR

(note: PCR positive cutoff ct \leq 40)

	NSP ELISA pos	NS PCR pos	OR PCR pos	DNP PCR pos	PCR pos any site
Cattle	85/209 (40.7%)	4/209 (1.9%)	4/209 (1.9%)	10/209 (4.8%)	14/209 (6.7%)
Buffalo	14/53 (26.4%)	0/53 (0%)	2/53 (3.8%)	4/53 (7.5%)	5/53 (9.4%)
Total	99/262 (37.8%)	4/262 (1.5%)	6/262 (2.3%)	14/262 (5.3%)	19/262 (7.3%)



Nasal swab taken from a buffalo head at Dongdou Slaughterhouse (Vientiane, Laos)

NS = nasal, OR = oral, DNP = dorsal nasopharyngeal

Conclusions

- Swabs can detect FMD virus RNA in 7% of healthy cattle and buffalo
 - As expected, dorsal nasopharynx was the most sensitive site (5.3% positive animals)
- Epidemiology information to Province/Township and in some cases to District/Village level, traceable to individual animals
- Slaughterhouse surveillance may allow for determination of circulating FMDV strains even in the absence of reported outbreaks
- FMDV typing: in progress



Using the TCOR penside PCR test in Nongduang SH

Summary

- FMD virus RNA can be found in 4-7% of healthy cattle and buffalo in Laos and Myanmar
- Molecular typing of these viruses will help our understanding of the molecular epidemiology in the region, including vaccine selection
- Slaughterhouse sampling may be a useful tool for enhancing FMDV surveillance in endemic regions
 - Regional laboratory support critical

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Questions?