



FMD and Global FMD situation

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Regional Workshop on FMD and other TADs

Yur'evets, Vladimir, Russian Federation
29/11/2017 - 30/11/2017



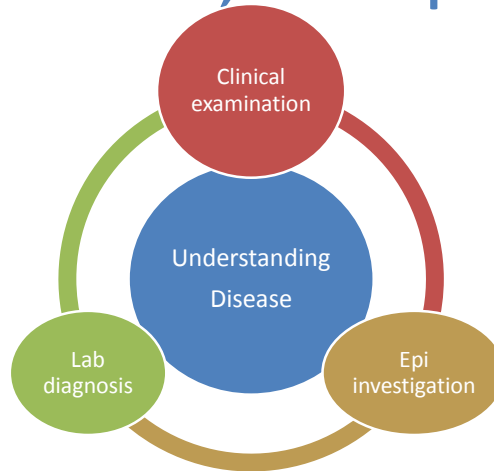
Foot and Mouth Disease

We will be talking about

- FMD key facts
- The global situation
- The 7 FMD Pools
- The Global Monthly Report

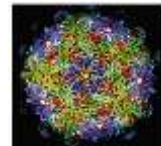


Before FMD, one step back

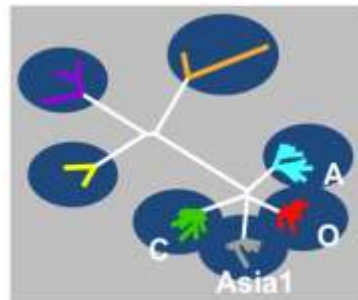


FMD key facts

Picornavirus: non-enveloped
RNA virus



7 serotypes: infection with
one serotype does not
protect against infection
with a different serotype





FMD key facts

Main domestic livestock species affected are: cattle, small ruminants, pigs, water buffalo

Incubation period 1-14 days most likely 2-6 days. Most important routes of infection are inhalation or oral ingestion. Relatively lower doses needed for infection by inhalation compared to oral ingestion.



Pigs relatively more susceptible to oral infection compared to ruminants



FMD key facts

Virus present in all secretions and excretions

Virus excretion begins 2 days before the appearance of clinical signs (4 days before in milk).

Excretion ceases approximately 4-5 days after



Pigs produces very large quantities of virus in expired air: they are important amplifiers



FMD key facts

- **Fever**, depression, milk drop
- **Lameness/recumbency**
- **Drizzling of saliva in cattle**
- **Vesicular lesions** mainly found on **tongue, mouth, lips and feet**
- In some cases lesions occur also on the **snout, muzzle, teats, skin and rumen**
- **Sudden death young animals**
- Abortion
- chronic disease (mastitis, lameness, heat intolerance)
- **Disease severity varies** depending on **host, virus, dose, and immunity**



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FMD key facts – Lesion aging

Day of clinical disease	Description
Day 1	Blanching of epithelium followed by formation of fluid filled vesicle
Day 2	Freshly ruptured vesicles characterized by raw epithelium, a clear edge to the lesion and no deposition of fibrin
Day 3	Lesions start to lose their sharp demarcation and bright red color. Deposition of fibrin starts to occur.
Day 4	Considerable fibrin deposition has occurred and regrowth of epithelium is evident at the periphery of the lesion.
Day 7	Extensive scar tissue formation and healing has occurred. Some fibrin deposition is usually still present.

Useful technique in cattle and small ruminants. Lesions in the MOUTH should be used, foot lesions are inaccurate due to secondary infections.



Lesions 1-2-3

1



2



3



eofmrd



Lesions 4-7-10+

4



7



10+



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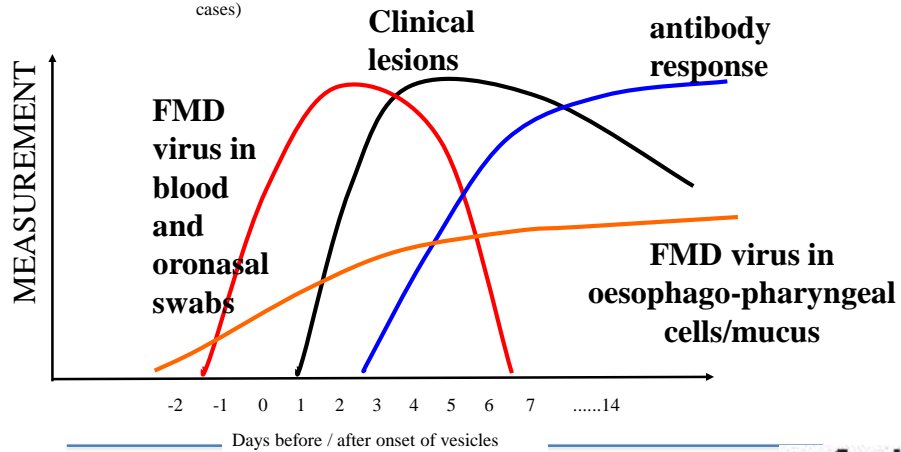


Laboratory testing windows

2 Active surveillance for infected animals (including pre-clinical cases)

1 Rapid confirmation of clinical signs

3 sero-surveillance for FMDV exposed animals



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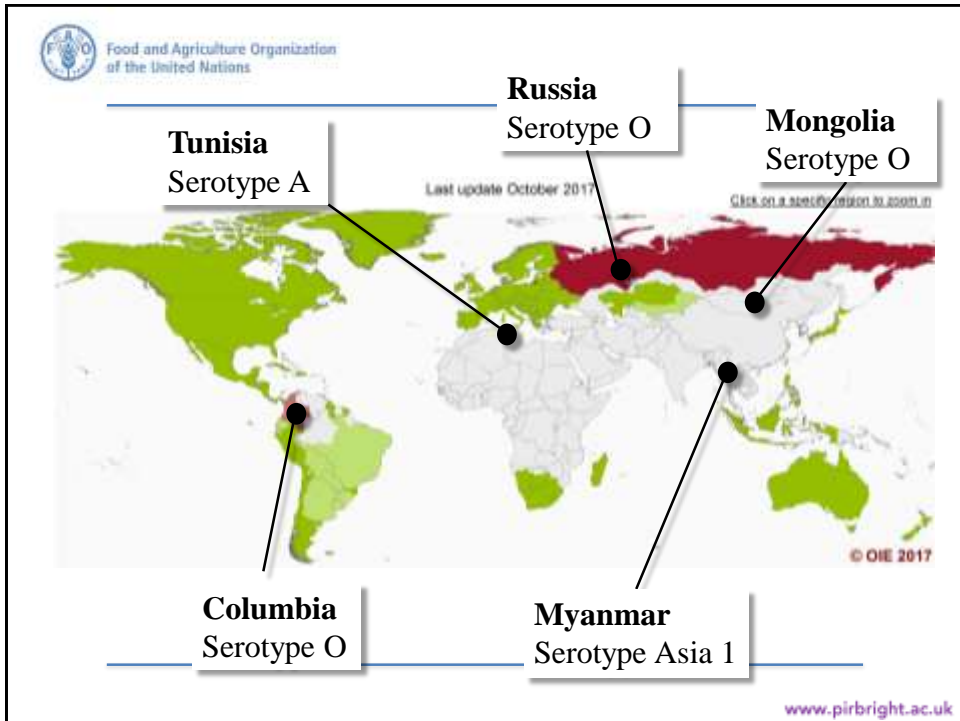
FMD – clinical signs and samples to take

Signs	2 days before	Day 0	Day 1	Day 2	Days 3-4	Days 5-7	Days 8-11	More than 11 days	What can you do?
General health	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Take good care, keep inside but allow fresh air
Temperature	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Plenty of water and soft feed
Salivation	None	None	None	None	None	None	None	None	Clean mouth, give water and soft feed 3 times a day
Lameness	None	None	None	None	None	None	None	None	Clean, dry and disinfect claws every day and keep underground dry
Vesicles	None	None	None	None	None	None	None	None	
Virus present	None	None	None	None	None	None	None	None	Sample vesicular fluid, epithelium, saliva, proflang or blood (serologic cast)
Antibodies present	None	None	None	None	None	None	None	None	Sample sera + red cap blood tube
Sample to take		Blood - Ag Vesicular fluid	Blood - Ag Vesicular fluid Epithelium	Blood - Ag Epithelium	Epithelium Blood - Ag Blood - Ab	Proflang - Ag Blood - Ab			Take 3-5 samples for Ag Take 1-10 samples for Ab from young livestock (< 12 months of age)

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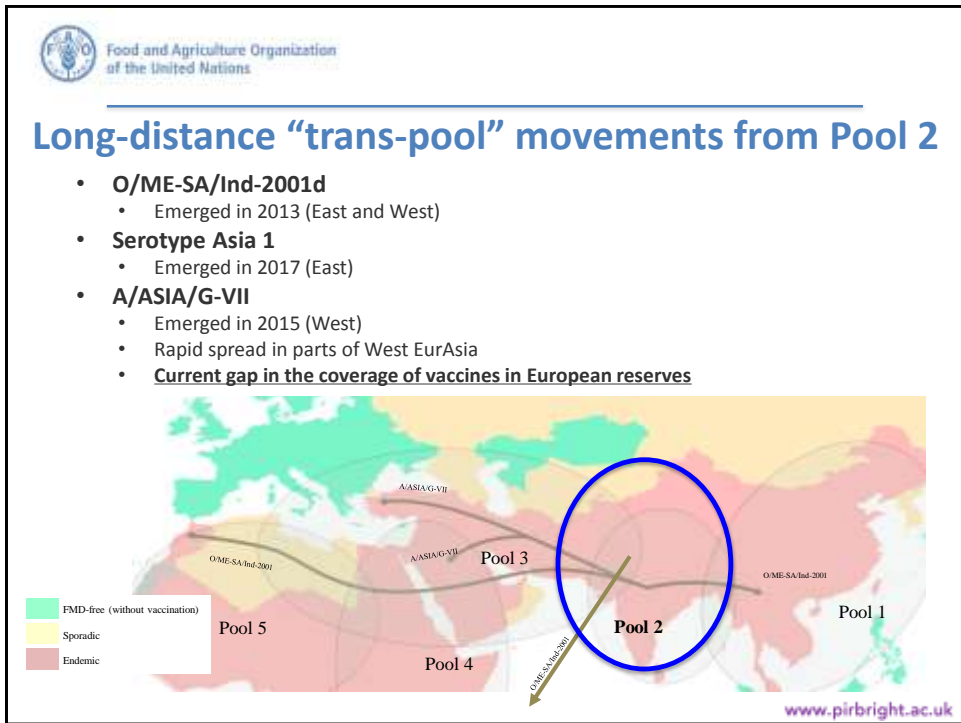
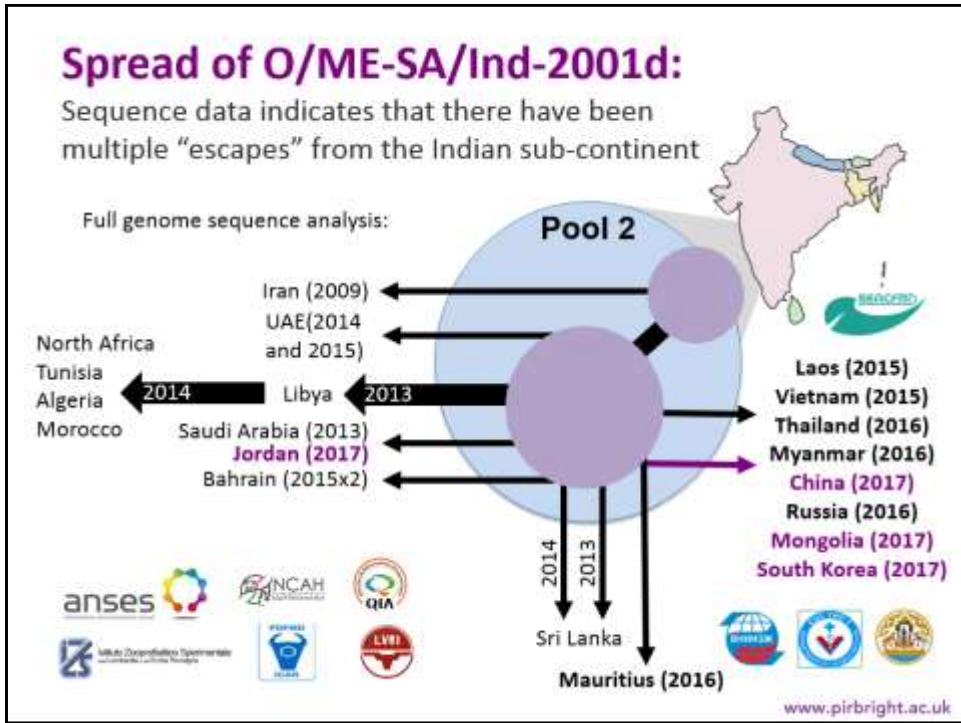
Food and Agriculture Organization of the United Nations

The Pools

Pools represent independently circulating and evolving foot-and-mouth disease virus (FMDV) genotypes; within the pools, cycles of emergence and spread occur that usually affect multiple countries in the region.

POOL	REGION/COUNTRIES – colour pools as in Map	SEROTYPES
1	SOUTHEAST ASIA/CENTRAL ASIA/EAST ASIA Cambodia, China, China (Hong Kong, SAR), Taiwan Province of China, Democratic People's Republic of Korea, Republic of Korea, Laos People's Democratic Republic, Malaysia, Mongolia, Myanmar, Russian Federation, Thailand, Viet Nam	O and A
2	SOUTH ASIA Bangladesh, Bhutan, India, Mauritius, Nepal, Sri Lanka	O, A and Asia 1
3	WEST EURASIA & MIDDLE EAST Afghanistan, Algeria, Armenia, Azerbaijan, Bahrain, Bulgaria, Egypt, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Libya, Morocco, Oman, Pakistan, Palestine, Qatar, Saudi Arabia, Syrian Arab Republic, Tajikistan, Tunisia, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan	O, A and Asia 1
4	EASTERN AFRICA Burundi, Comoros, Democratic Republic of Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya, Rwanda, Somalia, Sudan, South Sudan, United Republic of Tanzania, Uganda, Yemen	O, A, SAT 1, SAT 2 and SAT 3
5	WEST/CENTRAL AFRICA Benin, Burkina Faso, Cameroon, Cabo Verde, Central Afr. Rep., Chad, Democratic Republic of Congo, Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea-Bissau, Guinea, Liberia, Mali, Mauritania, Niger, Nigeria, Sao Tome Principe, Senegal, Sierra Leone, Togo	O, A, SAT 1 and SAT 2
6	SOUTHERN AFRICA Angola, Botswana, Congo D. R., Malawi, Mozambique, Namibia, South Africa, Zambia, Zimbabwe	(O, A)*, SAT 1, SAT 2 and SAT 3
7	SOUTH AMERICA Paraguay, Venezuela (Bolivarian Republic of)	O and A

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Global Monthly Report

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Acknowledgement

The Pirbright Institute

The European Commission for the control of Foot-and-Mouth disease (EuFMD)





Thank you for your attention!