WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health

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WEEKLY EPIDEMIOLOGICAL REPORT - SRI LANKA - 2014

Foot and Mouth Disease (FMD) or Hoof and Mouth Disease

Background

The foot-and-mouth disease (FMD) which is also called hoof-and-mouth disease, aphthous fever or contagious stomatitis is a severe, highly infectious viral disease which occurs in cattle, pigs, sheep, goats and other animals with divided hooves. It does not affect horses, dogs or cats. The disease was initially described in the 16th century and was the first animal pathogen to be identified as a virus.

Impact on humans

Human infections are extremely rare. In UK, the last confirmed human case occurred in 1966 and in late 1920s in the United States. Only a few other cases have been recorded in countries of continental Europe, Africa, and South America. There is a possibility for incorrect diagnosis in some reported cases, as well.

Among the reported cases, people have had close contact with infected animals and human to human transmission has not been reported.

People who have been around infected animals are capable of carrying the virus in their nasal passages for as long as 28 hours. While the disease is not considered to be a threat to humans, it is possible for a person to spread the virus to susceptible animals.

Safety of meat and milk

The meat and milk are considered to be safe for human consumption. Even though the virus can survive in smoked or cured meat and insufficiently pasteurized milk, it cannot withstand the pH of stomach acid.

Although there is no risk for humans to acquire the disease, moving or transporting meat and milk is restricted during an outbreak of FMD. This is because of the risk for the disease to spread to other animals through infected food.

Agent

The virus responsible for the disease is a picornavirus which is a prototypic member of the genus *Aphthovirus* belonging to the family *Picornaviridae*. It has a single-stranded RNA genome and four structural proteins. Seven serotypes responsible for causing FMD have been identified.

Transmission

The virus can spread through aerosols, saliva, urine and other excretions of infected animals and the susceptible animals acquire the virus by ingestion and inhalation. Since it is highly infectious, contact with contaminated inanimate objects as well as domestic and wild predators can bring the disease.

The virus can also survive in contaminated materials and in the environment for several months under the right conditions. Extreme temperatures, changes in pH and time will inactivate the virus.

Symptoms

The infected animal develops symptoms usually within 2 to 14 days. These signs may appear in affected animals,

- Increase in body temperature for 2 to 3 days
- Sticky, foamy, stringy saliva
- Vesicles that rupture and discharge clear or cloudy fluid, leaving raw, eroded areas surrounded by ragged fragments of loose tissue
- Eating less because of painful tongue and mouth blisters
- Lameness with reluctance to move
- Abortions
- Low milk production in dairy cows
- Heart disease and death, especially in newborn animals

Disease burden

Since the beginning of the 20th century, FMD has been of considerable concern to many countries because of its rapid spread and impact on animal productivity. Most affected animals become weakened and the production of meat and milk will be reduced.

Its containment demands considerable efforts in

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vaccination, strict monitoring, trade restrictions and quarantines and occasionally, the killing of animals.

Prevention and Control

FMD is one of the most difficult animal diseases to control. No effective treatment exists and Prevention is the only solution. Therefore, preventive measures such as,

- Protection of free zones by border animal movement control and surveillance.
- Quarantine measures
- Cleaning and disinfection of premises and all infected material, such as implements, vehicles and clothes
- Safe disposal of carcasses, bedding, and contaminated animal products in the infected area

should be practiced.

Slaughter of infected, recovered and FMD-susceptible contact animals is practised in developed countries such as UK, but infected animals are quarantined and other animals in the area are vaccinated in countries like Sri Lanka.

Development of the Vaccine

At the beginning of the 20th century, disease control consisted of inhibition of animal movement, slaughter of infected animals and disinfection.

In 1930s, an inactivated FMD vaccine was developed in Germany. Virus for this vaccine was obtained by infecting cattle at the slaughterhouse. A method to produce virus by infecting bovine tongue epithelium obtained at the time of slaughter of healthy animals was discovered later and commercialization of the FMD vaccine became a reality.

Systematic vaccination of cattle led to a dramatic reduction in the number of disease outbreaks in Europe. As a result of a successful vaccination programme in Western Europe, which resulted in a cessation of disease outbreaks after 1989; the European Union adopted a no-vaccination policy in 1992.

The vaccine helps to control outbreaks, but cannot eliminate the virus. The virus is genetically highly variable and it limits the effectiveness of vaccination. Although the vaccine only provides temporary immunity (that lasts from months to years), it is sufficient most of the time.

Commercially available Vaccines

Live attenuated vaccines are not acceptable due to several reasons. Current vaccines are produced in cell culture, inactivated by treatment with aziridines. These Inactivated vaccines are classified as either 'standard' or 'higher' potency vaccines.

1. Standard Potency Vaccines (commercial vaccines): formulated with sufficient antigen to have a minimum potency level and provides 6 months of immunity after two initial doses given 1-month apart. Vaccine strains are selected based on antigenic relationship with circulating strains and many are multivalent.
2. Higher Potency Vaccines (emergency vaccines): formulated with an increased quantity of antigen to provide more rapid onset of immunity and a wider spectrum of immunity against relevant field viruses. Therefore, these vaccines are well suited for emergency use.

Quality of meat

Currently, the World Organization for Animal Health recognizes countries to be in one of three disease states with regards to FMD.

- FMD present with or without vaccination
- FMD-free with vaccination
- FMD-free without vaccination.

Countries designated FMD-free without vaccination have the greatest access to export markets. Therefore, many developed countries work hard to maintain their current status.

- *This is different from the hand, foot and mouth disease (HFMD) which is a common childhood illness caused by viruses that belong to the enterovirus group. Symptoms of HFMD include fever, blister-like sores in the mouth and maculopapular rash involving hands and feet. This is a self limiting illness*.

Sources

- Foot-and-mouth disease available from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC387408/

Compiled by Dr. H. A. Shanika Rasanjalee of the Epidemiology Unit

Table 3 : **Water Quality Surveillance**
Number of microbiological water samples - January / 2014

District	MOH areas	No: Expected *	No: Received
Colombo	12	72	67
Gampaha	15	90	36
Kalutara	12	72	NR
Kalutara NIHS	2	12	21
Kandy	23	138	17
Matale	12	72	NR
Nuwara Eliya	13	78	31
Galle	19	114	NR
Matara	17	102	39
Hambantota	12	72	NR
Jaffna	11	66	77
Kilinochchi	4	24	20
Manner	5	30	25
Vavuniya	4	24	20
Mullatvu	4	24	24
Batticaloa	14	84	NR
Ampara	7	42	19
Trincomalee	11	66	NR
Kurunegala	23	138	79
Puttalam	9	54	NR
Anuradhapura	19	114	12
Polonnaruwa	7	42	NR
Badulla	15	90	72
Moneragala	11	66	67
Rathnapura	18	108	NR
Kegalle	11	66	79
Kalmunai	13	78	0

* No of samples expected (6 / MOH area / Month)
NR = Return not received

Table 4: Selected notifiable diseases reported by Medical Officers of Health 08th – 14th Feb 2014(07th Week)

RDHS Division	Dengue Fever		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Chickenpox		Meningitis		Leishmaniasis		WRCD	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**
Colombo	143	1591	3	20	0	2	3	16	1	125	4	19	0	0	1	4	0	0	8	44	0	9	0	3	**75**	**25**
Gampaha	52	729	1	24	0	1	0	8	1	4	2	29	0	2	1	15	0	2	35	73	1	17	0	1	**60**	**40**
Kalutara	31	346	1	21	0	1	1	8	37	41	10	50	0	0	0	2	0	0	7	42	1	11	0	0	**77**	**23**
Kandy	13	109	1	19	0	1	1	4	0	0	0	7	3	13	1	14	0	0	4	32	0	5	0	1	**87**	**13**
Matale	5	40	2	13	0	0	1	3	0	0	2	11	0	2	1	13	0	0	2	6	0	3	0	1	**69**	**31**
NuwaraEliya	2	29	5	33	0	1	1	6	0	6	0	0	5	11	1	5	0	0	3	16	0	3	0	0	**92**	**8**
Galle	1	143	1	18	0	2	0	0	0	2	1	28	0	12	0	0	0	0	3	43	0	8	1	1	**45**	**55**
Hambantota	5	56	0	11	0	3	0	6	0	0	0	21	2	18	0	3	0	0	4	31	0	11	1	35	**75**	**25**
Matara	12	70	3	14	0	1	0	15	1	5	0	10	1	14	0	6	0	0	7	35	1	16	2	13	**100**	**0**
Jaffna	27	190	15	76	0	1	1	45	0	18	1	4	12	155	2	4	0	0	1	27	1	8	0	0	**100**	**0**
Kilinochchi	0	14	10	45	0	0	0	5	0	0	0	0	0	9	0	0	0	0	0	1	0	3	0	4	**50**	**50**
Mannar	0	2	0	5	1	6	0	15	0	0	1	3	0	12	0	1	0	0	0	1	0	0	0	1	**60**	**40**
Vavuniya	1	10	0	12	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0	4	0	2	0	0	**50**	**50**
Mullaitivu	3	31	2	9	0	0	0	5	5	5	4	5	0	3	0	0	0	0	0	2	0	2	0	4	**80**	**20**
Batticaloa	11	69	5	52	0	0	0	6	0	11	0	3	1	1	0	2	0	0	0	6	0	1	0	0	**93**	**7**
Ampara	1	28	0	11	0	0	0	0	0	4	1	5	0	2	0	1	0	1	1	15	0	0	0	1	**71**	**29**
Trincomalee	4	67	0	6	0	1	0	0	0	0	0	4	0	1	0	0	0	0	2	9	0	1	0	0	**50**	**50**
Kurunegala	28	213	1	17	1	5	1	5	0	1	2	22	0	13	1	6	0	0	13	69	3	14	3	28	**85**	**15**
Puttalam	4	114	0	8	0	0	0	1	0	5	2	17	1	11	0	1	0	0	0	15	0	0	0	1	**54**	**46**
Anuradhapu	6	88	1	22	0	0	0	0	0	1	2	19	0	12	0	0	0	0	2	40	1	11	4	54	**79**	**21**
Polonnaruw	0	60	0	10	0	1	0	0	0	0	0	8	0	0	0	1	0	0	0	17	0	1	0	15	**0**	**100**
Badulla	9	80	2	12	0	1	0	1	0	0	1	8	1	10	3	8	0	0	1	17	0	11	0	0	**88**	**12**
Monaragala	2	33	2	17	0	0	0	0	0	27	2	17	5	15	0	11	0	0	2	13	0	5	1	2	**82**	**18**
Ratnapura	11	116	1	26	1	2	0	3	2	4	2	50	0	19	10	58	0	0	7	30	1	4	0	8	**83**	**17**
Kegalle	14	109	4	19	0	2	2	8	0	1	1	21	0	10	1	15	0	0	6	51	2	10	0	1	**91**	**9**
Kalmune	3	18	0	24	0	0	0	2	0	6	0	1	0	0	0	0	0	0	1	21	0	1	0	0	**62**	**38**
SRILANKA	**388**	**4355**	**60**	**544**	**3**	**31**	**11**	**162**	**47**	**267**	**40**	**365**	**31**	**345**	**22**	**170**	**0**	**3**	**109**	**660**	**11**	**157**	**12**	**174**	**75**	**25**

Source: Weekly Returns of Communicable Diseases (WRCD).

*T=Timeliness refers to returns received on or before 14th February , 2014 Total number of reporting units 337. Number of reporting units data provided for the current week:256 C** Completeness

A = Cases reported during the current week. B = Cumulative cases for the year.H Rabies*= Human Rabies, E Fever*=Enteric Fever, F Poison* =Food Poisoning, T Fever*=Typhus Fever, V Hepatitis*=Viral Hepatitis

Table 1: Vaccine-Preventable Diseases & AFP

08th – 14th Feb 2014 (07thWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2014	Number of cases during same week in 2013	Total number of cases to date in 2014	Total number of cases to date in 2013	Difference between the number of cases to date in 2014 & 2013
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	01	00	00	00	00	00	00	01	01	09	10	-10.0%
Diphtheria	00	00	00	00	00	00	00	00	00	00	-	00	-	%
Mumps	03	00	00	01	02	01	02	01	00	10	12	128	179	-28.5%
Measles	16	02	01	08	03	04	02	03	03	40	06	365	33	+1006.1%
Rubella	00	00	00	00	00	00	00	00	00	00	-	01	-	%
CRS**	00	00	00	00	00	00	00	00	00	00		00		%
Tetanus	00	00	00	00	00	00	00	00	00	00	00	02	02	0%
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	-	00	-	%
Japanese Encephalitis	00	01	00	00	00	00	00	00	01	02	-	13	-	%
Whooping Cough	00	00	00	00	00	00	00	00	01	01	01	08	07	+14.3%
Tuberculosis	54	12	14	09	18	16	12	02	13	148	348	1528	1253	+22.0%

Key to Table 1 & 2

Provinces: W: Western, C: Central, S: Southern, N: North, E: East, NC: North Central, NW: North Western, U: Uva, Sab: Sabaragamuwa.

RDHS Divisions: CB: Colombo, GM: Gampaha, KL: Kalutara, KD: Kandy, ML: Matale, NE: Nuwara Eliya, GL: Galle, HB: Hambantota, MT: Matara, JF: Jaffna, KN: Killinochchi, MN: Mannar, VA: Vavuniya, MU: Mullaitivu, BT: Batticaloa, AM: Ampara, TR: Trincomalee, KM: Kalmunai, KR: Kurunegala, PU: Puttalam, AP: Anuradhapura, PO: Polonnaruwa, BD: Badulla, MO: Moneragala, RP: Ratnapura, KG: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,

Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis

CRS** =Congenital Rubella Syndrome

AFP and all clinically confirmed Vaccine Preventable Diseases except Tuberculosis and Mumps should be investigated by the MOH

Influenza Surveillance in Sentinel Hospitals - ILI & SARI								
Month	**Human**					**Animal**		
	No Received	ILI	SARI	Infl A	Infl B	Pooled samples	Serum Samples	Positives
December	6925	221	53	12	2	131	170	0

Source: Medical Research Institute & Veterinary Research Institute

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Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to chepid@sltnet.lk. **Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

ON STATE SERVICE

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