



Veterinary Epidemiological Bulletin

Sri Lanka



Volume 2 No.1

ISSN:1800-4881

January – June 2009

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1. Novel Influenza A H1N1

Novel influenza A H1N1 virus is a triple reassortment of avian, swine and human influenza viruses. This new virus is the first of this type to infect human and has the sustainable capacity to spread from human to human. The first outbreak was reported from Mexico in April 2009, and spread rapidly in the North America and then to other parts of the world due to travelling of infected people around the world. Global pandemic of influenza A H1N1 has now been declared by World Health Organization (WHO) and it involves over 170 countries and territories worldwide. Since the index cluster in April 2009, nearly 250,000 people have been infected with more than 2,800 deaths and pandemic continues to spread extending over many more people and countries. As it is not necessary to test and report individual cases, the actual number may be much higher.

In Sri Lanka, 86 cases of Novel influenza A H1N1 patients have been detected until now. Most of them have contracted the disease offshore.

However, 8 cases have been the contacts of those who had arrived from other countries. All these patients have been immediately directed to the Infectious Disease Hospital, Mulleria and treated successfully with antiviral drugs under strict isolation. However the number of patients are increasing but in a slow phase comparing to other countries in the region.

The Department of Medical Services has taken several initiatives to prevent and control the disease while Department of Animal Production and Health has intensified its disease surveillance in pigs. They are working closely and monitoring the new trends in the disease situation.

Initially the disease was named or more appropriately misnamed as 'Swine Flu' but later on it was renamed as 'Novel Influenza A H1N1' by WHO considering the actual nature of the virus involved. Since the disease was called as 'Swine flu' at the beginning it has caused immense hardships to Swine farmers in the country as well as consumers. However now it has been clarified unambiguously to all that this disease has no relationship with pigs and or Swine influenza in pigs.

However Flu is a common disease in human and in pigs. But both diseases are distinct without any cross infection. However there are very rare occasions where diseased humans have infected pigs. Those infections have been controlled successfully without further spread.

Seasonal Influenza

Seasonal influenza is a disease in human caused by Influenza type A or type B virus and it occurs with seasonal pattern affecting particularly young children in school settings, with often moderate to severe illness. Though this virus mutate it takes place at a slow phase especially in case of type B virus and therefore many people have some level of immunity to the circulating virus which helps to limit infections. Some countries also use seasonal influenza vaccines to reduce the incidence rate and also mortalities.

Influenza A (H1N1) is a new virus against which

and therefore this virus could cause more cases than are seen with seasonal flu. WHO is working closely with vaccine manufacturers to expedite the development of a safe and effective vaccine.

The new influenza A H1N1 appears to be as contagious as seasonal influenza, and is spreading fast particularly among young people (from ages 10 to 45). The severity of the disease ranges from very mild symptoms to severe illnesses that can result in death. Majority of the people who contract the virus experience the milder disease and recover even

without antiviral treatment or medical care. Of the more serious cases, more than half of hospitalized people had underlying ill health conditions or weak immune systems.

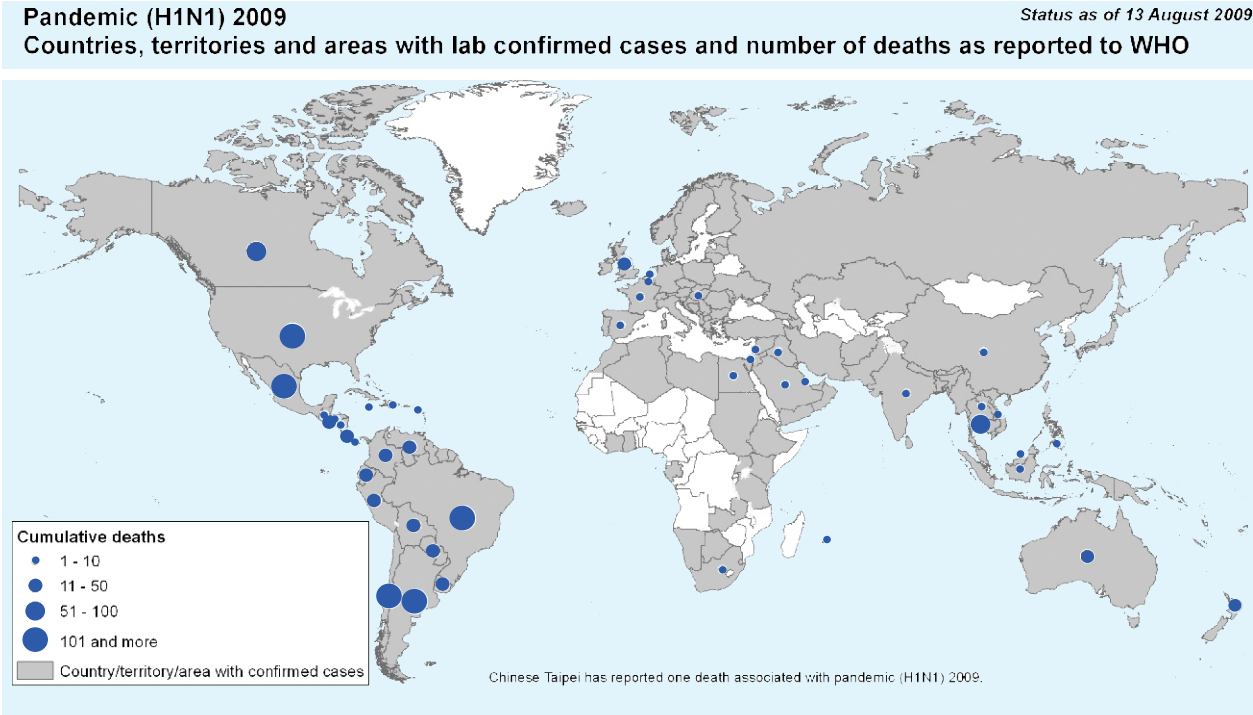
In the past there had been three major 'Flu Pandemics' in the world out of which the 'Spanish flu' in 1918 been the most severe. Following table compares different flu pandemics encountered in the past. Seasonal flu which occurs every year is also included in Table 1 to show the severity of the disease.

Table 1. Pandemic Flu outbreaks occurred in the past, Current Pandemic and Seasonal flu.

Pandemic	Year	Influenza A virus subtype	People infected (approx)	Deaths (est.)	Case-fatality rate
Spanish flu	1918–19	H1N1	0.5 to 1 billion (near 50%)	20 to 100 million	>2.5%
Asian flu	1956–58	H2N2	...	2 million	<0.1% ?
Hong Kong flu	1968–69	H3N2	...	1 million	<0.1%
Novel Influenza A H1N1	2009-continuing	H1N1	.28 million-* continuing	>2800*	>0.9%*
Seasonal flu	Annually	mostly A/H3N2, A/H1N1, and B	5–15% (.34 million – 1 billion)	0.025 – 0.05 million per year	<0.05%

*:Until now

Figure 1. Geographic Spread of Novel Influenza A H1N1 as of August 2009.



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Map produced: 19 August 2009 13:38 GMT

Data Source: World Health Organization
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization



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Table 2. Influenza A H1N1: Reported cases and deaths as of August 2009

Region WHO Regional Office	Cumulative total (2009)							
	As of 6 Aug		As of 13 Aug		As of 23 Aug		As of 30 Aug	
	Cases*	Deaths	Cases*	Deaths	Cases*	Deaths	Cases*	Deaths
Africa	591	1	1 469	3	3 843	11	3 872	11
Americas	102 905	1 274	105 882	1 579	110 113	1 876	116 046	2 234
Eastern Mediterranean	2 346	7	2 532	8	3 128	10	5 031	21
Europe	>32 000	53	>32 000	53	>42,557	85	> 46 000	104
South-East Asia	1 1432	83	13 172	106	15 771	139	19 362	188
Western Pacific	28 120	43	29 111	50	34 026	64	63 895	279
Total	> 177 457	1 462	> 182 166	1 799	> 209 438	2 185	> 254 206	2 837

*As it is not necessary to test and report individual cases, the actual number may be much higher.

2.1.1 Reported Cases of Foot and Mouth Disease: January - June 2009

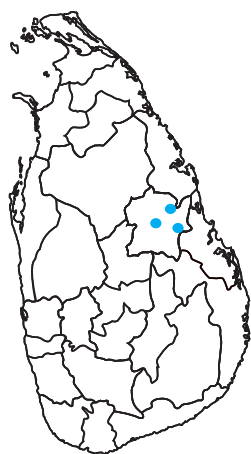


Fig. 2a. February

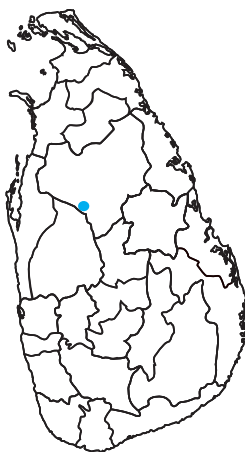


Fig. 2b. May

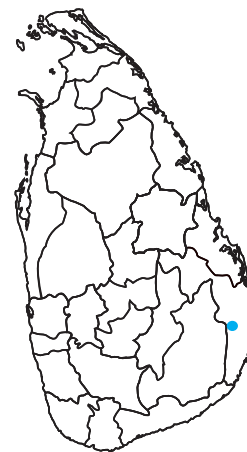


Fig. 2c. June

Table 3. Reported cases of FMD during the first half of year 2009

District	VS Range	Species	Cases	Deaths	Month
Polonnaruwa	Polonnaruwa	Bovine	40	—	February
	Lankapura	Bovine	15	--	
	Welikanda	Bovine	5	—	
		Buffalo	31	—	
Anuradhapura	Galnewa	Bovine	20	—	May
Ampara	Damana	Bovine	18	2	June
3 Districts	5 Veterinary Ranges	Bovine	129	2	

During the first half of the year 2009, foot and mouth disease broke out at five Veterinary ranges and 129 cases with 2 deaths were recorded during this period. All these outbreaks were observed in the endemic and neighboring zone of FMD in the country.

Last year, during the corresponding period 23 outbreaks involving 16 Veterinary ranges were

detected ; 1,883 cases and 87 deaths recorded. The significant decrease in the number of cases and deaths during this year is mainly contributed by the epidemiological behaviour of the disease.

The World Animal Health Organization (OIE) has envisaged for a world free of foot and mouth disease in 2020, and prepared a road map to achieve this goal. Sri Lanka too has to prepare its

and global programmes. Thus the Department of Animal Production and Health has taken several new steps to control the disease in the next decade which include the revision of current FMD control strategy with the participation of all stake holders, characterization of field virus and vaccine matching in order to translate the field vaccination

programme into more meaningful and effective immunization mechanism. However intensified disease surveillance with adequate laboratory back-up and implementation of animal health related laws and regulations need to be strengthened to make this task achievable.

2.1.2 Reported Cases of Black Quarter: January - June 2009

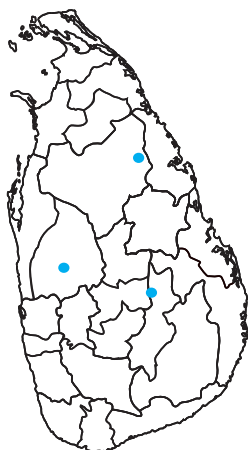


Fig. 3a. January

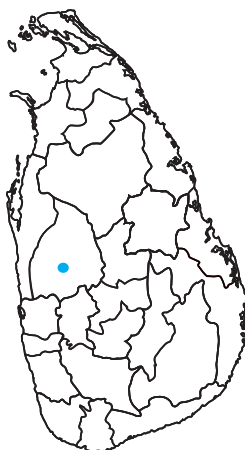


Fig. 3b. February

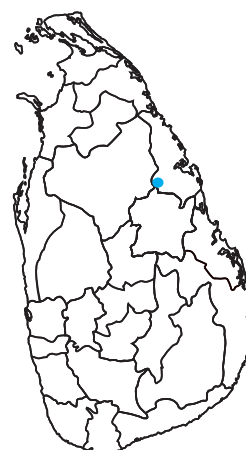


Fig. 3c. March

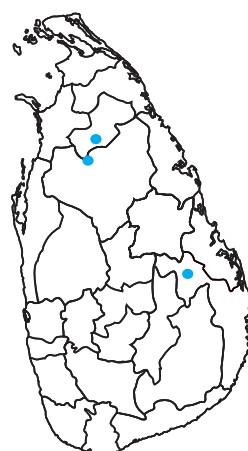


Fig. 3d. May

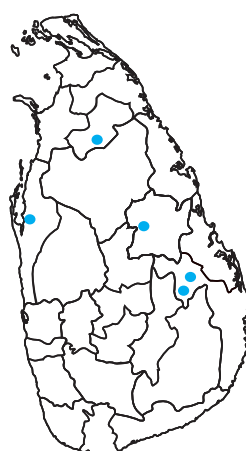


Fig. 3e. June

Black Quarter appears to be the most fatal notifiable disease of cattle and buffaloes reported during the first half of year 2009 in Sri Lanka. The overall case-fatality rate of the disease has been found to be 80% though it varies from 25% to 100% in individual outbreaks. The number of cases were restricted to less than five in these outbreaks except for the outbreaks at Mahiyangana (Badulla district) and Padiyatalawa (Ampara district). The major control measure against this disease in Sri Lanka is vaccination using a locally produced vaccine.

Number of BQ outbreaks occurred in this period is 13 which is higher than the last year. BQ has been the disease with highest case fatality rate amounting to 80% in cattle and buffalo.

Table 4. Reported cases of Black Quarter : Jan. – June 2009

District	VS Range	Species	Cases	Deaths	Month
Kurunegala	Wariyapola	Bovine	5	4	January
		Bovine	2	2	February
Vavuniya	Vavuniya	Buffalo	1	1	May
		Bovine	5	5	May
		Bovine	4	1	June
Ampara	Padiyatalawa Maha-Oya	Bovine	15	10	June
		Bovine	3	3	May
		Bovine	2	1	June
Anuradhapura	Horowupothana	Bovine	1	1	January
Polonnaruwa	Hingurakgoda	Bovine	2	2	June
Trincomalee	Kantale	Bovine	1	1	March
Badulla	Mahiyangana	Bovine	13	12	January
Puttalam	Vanathavillu	Bovine	1	1	June
8 Districts	9 VS Ranges		55	44	

2.1.3 Reported Cases of Brucellosis : January – June 2009

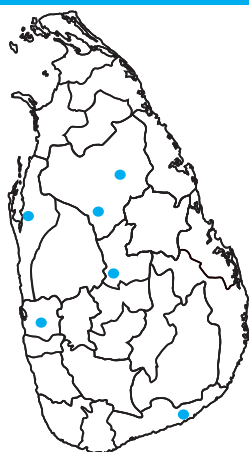


Fig. 4a. Bovine

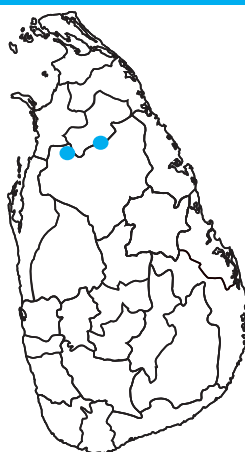


Fig. 4b. Buffalo

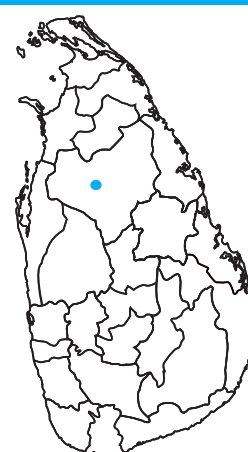


Fig. 4c. Caprine

Table 5. Reported cases of Brucellosis : January – June 2009

District	VS Range	Species	Cases	Deaths	Month
Anuradhapura	Ipalogama	Bovine	2	--	January
			4	--	March
	Mihintale	Buffalo	10	--	March
		Caprine	10	--	March
	Kahatagasdigiliya	Buffalo	70	--	May
		Bovine	3	--	June
		Buffalo	4	--	June
Hambanthota	Tissamaharama	Bovine	20	--	March
			2	--	January
			50	--	February
Puttalam	Mahakumbukkadawala	Bovine	2	--	January
Gampaha	Gampaha	Bovine	2	--	March
Matale	Matale	Bovine	2	--	May
5 Districts	7 VS Ranges		181		

The reported cases of brucellosis have increased significantly during first half of the year. This may be due to the increase in reporting and it is expected to continue in the future too. Brucellosis is a major problem in many parts of the country dry zone

being severely hit. Current control strategy emphasize heavily on vaccination since culling of infected animals is not practically effective in the country.

2.1.4 Reported Cases of Bovine Leptospirosis: Jan – June 2009

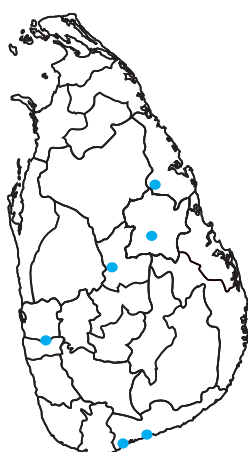


Fig. 5
January - June

Table 6. Reported cases of Leptospirosis : Jan – June 2009

District	VS Range	Cases	Deaths	Month
Hambanthota	Hambanthota	1	1	January
	Tangalla	1	-	May
Matale	Pallepola	2	1	April
Gampaha	Dompe	1	-	
Polonnaruwa	Polonnaruwa	1	1	May
Trincomalee	Kantale	1	-	
Total		7	3	

2.1.5 Reported cases of Bovine Babesiosis : January – June 2009

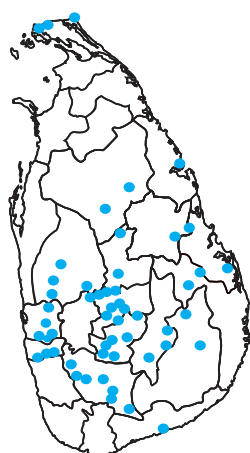


Fig. 6
January - June

Table 7. Monthly Occurrence of Bovine Babesiosis.

Month	Cases	Deaths
January	156	7
February	137	3
March	128	2
April	137	3
May	102	1
June	129	5
Total	789	21

There is no significant difference in the total number of cases reported during this year and the corresponding period in the last year. However there is spatial extension in the distribution of the disease as many Veterinary ranges have reported the disease.

2.2.1 Reported cases of Contagious Pustular Dermatitis (CPD): January - June 2009

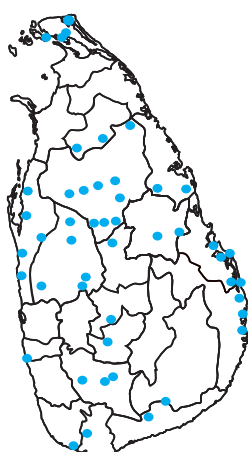


Fig. 7

Table 8. Distribution of CPD cases at district level

District	Species	Cases	Deaths
Anuradhapura	Caprine	85	4
Polonnaruwa	Caprine	83	-
Ampara	Caprine	72	-
Batticaloa	Caprine	36	-
Trincomalee	Ovine	2	-
	Caprine	35	-
Kurunegala	Ovine	2	-
	Caprine	67	-
Puttalam	Caprine	27	-
Jaffna	Caprine	48	-
Vavuniya	Ovine	3	-
	Caprine	24	-
Kandy	Caprine	43	-
Matale	Caprine	3	2
Nuwara-eliya	Caprine	2	-
Kalutara	Caprine	5	-
Hambanthota	Caprine	1	-
	Ovine	4	1
Matara	Caprine	3	-
Galle	Caprine	1	-
Moneragala	Caprine	4	-
Ratnapura	Caprine	4	-
Total		554	7

Though there is an increase of CPD cases in the North Central Province when compared with the previous year's records, the overall number of cases reported in the country is slightly lower than the last year's numbers (651) during the same period. Majority of the cases have been detected at North Central Province where the goat population is high.

2.3 Reported cases of Rabies: January - June 2009

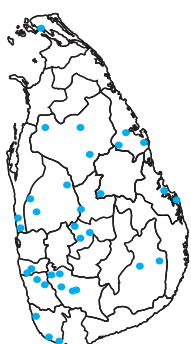


Fig. 8a. Canine

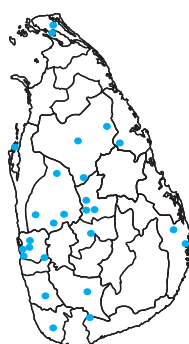


Fig. 8b. Bovine

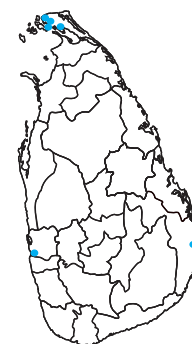


Fig. 8c. Caprine

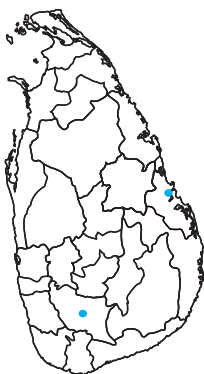


Fig. 8d. Ovine

Table 9. Reported cases of Rabies in different species

Cases	Deaths
Canine	80
Bovine	59
Caprine	29
Ovine	5
Feline	2
Total	175

As human Rabies is in the verge of increase in Sri Lanka Veterinarians and Veterinary Investigation Officers (VIO) are encouraged to send heads or brain tissues of suspected animals to Medical Research Institute (MRI) for laboratory diagnosis. Furthermore veterinarians are reminded to strictly follow the Pre-exposure vaccination regime in order to ensure adequate protection against this fatal disease of zoonotic nature.

2.4.1 Reported cases of Newcastle Disease: January – June 2009

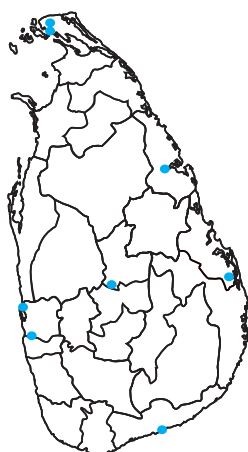


Fig. 9a. January

Cases : 50
Deaths : 26

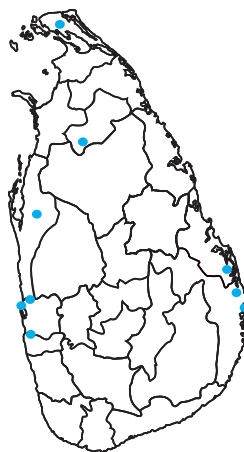


Fig. 9b. February

Cases : 270
Deaths : 66

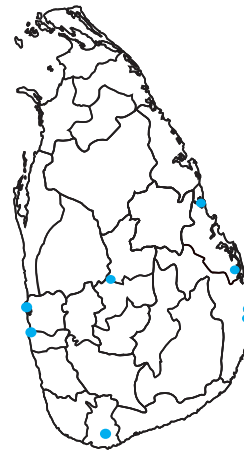


Fig. 9c. March

Cases : 72
Deaths : 28

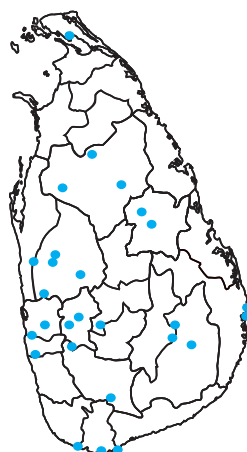


Fig. 9d. April

Cases : 524
Deaths : 44

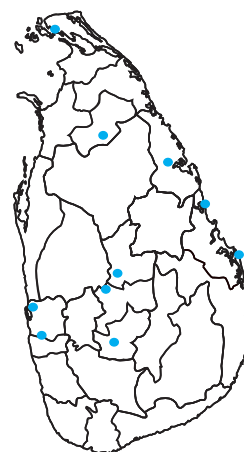


Fig. 9e. May

Cases : 240
Deaths : 83

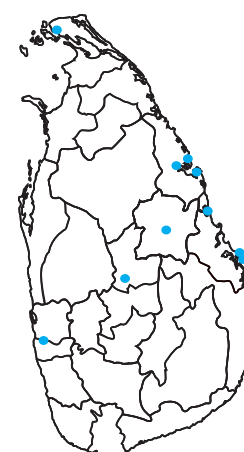


Fig. 9f. June

Cases : 449
Deaths : 63

Newcastle disease has been identified as the most important disease in differential diagnosis against Highly Pathogenic Avian Influenza due to the similarities in clinical and epidemiological characteristics and laboratory diagnostic procedures to some extent. Reporting of Newcastle disease has been increased through

increased awareness and surveillance on avian influenza in the country. Furthermore the severity of this infection especially among backyard poultry has been found to be relatively very low exhibiting only 8% case-fatality rate in certain outbreaks.

2.4.2 Reported cases of Fowl Pox: January – June 2009

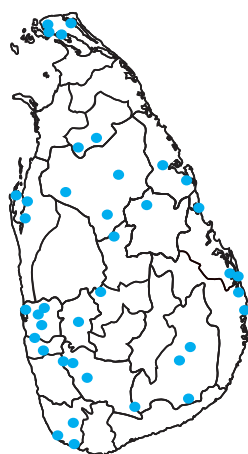


Fig. 10a. January

Cases : 672
Deaths : 91

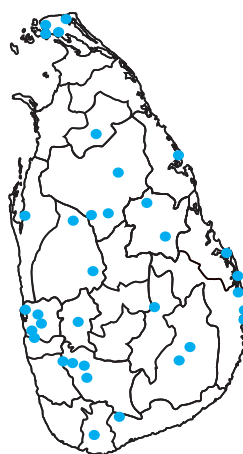


Fig. 10b. February

Cases : 620
Deaths : 108

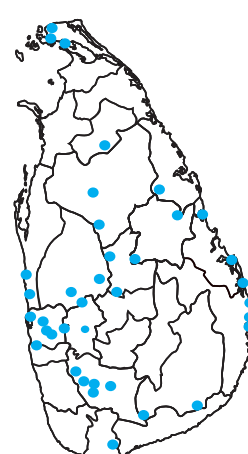


Fig. 10c. March

Cases : 366
Deaths : 62

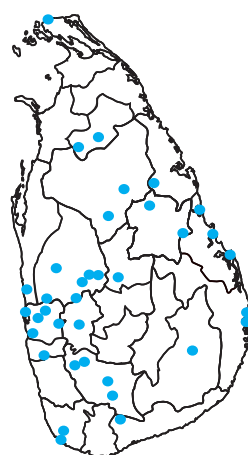


Fig. 10d. April

Cases : 482
Deaths : 25

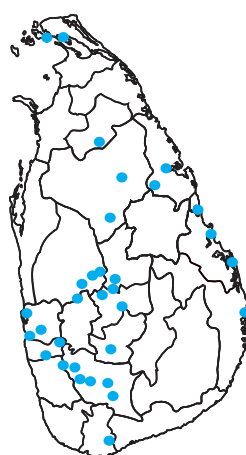


Fig. 10e. May

Cases : 729
Deaths : 67

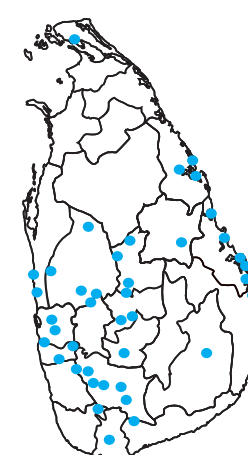


Fig. 10f. June

Cases : 475
Deaths : 92

The number of fowl pox has increased all most thrice the number recorded in the first half of the previous year. Further the spatial distribution pastern of these cases indicate the spread of disease to many more new areas.

In addition the overall case fatality rate of 13% reveals that the field virus has more virulency than in the past. Preventive vaccination against fowl pox

has been carried out in the country since the introduction of vaccination in poultry in the island. However, the increased number of fowl pox cases and occurrence of disease in new areas suggest that the vaccination against this disease requires more attention and better mechanism.

2.4.3 Reported Cases of Infectious Bursal Disease : January – June 2009

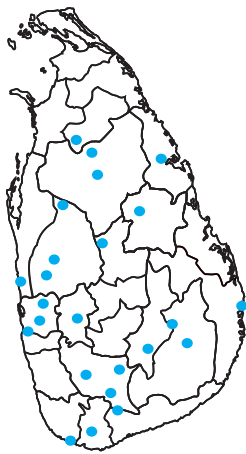


Fig. 11a. January

Cases : 888
Deaths : 536

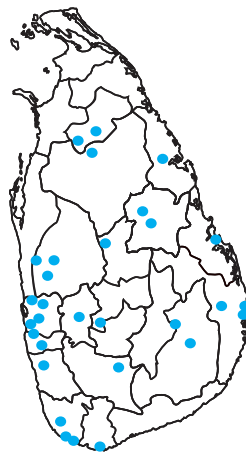


Fig. 11b. February

Cases : 3055
Deaths : 462

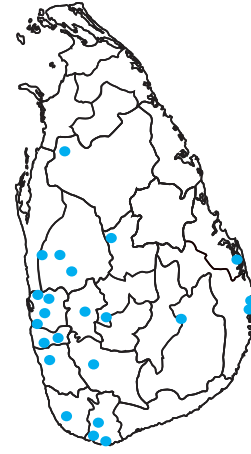


Fig. 11c. March

Cases : 2344
Deaths : 683

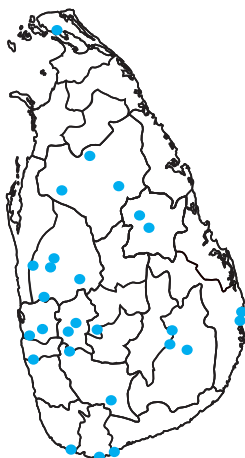


Fig. 11d. April

Cases : 1248
Deaths : 322

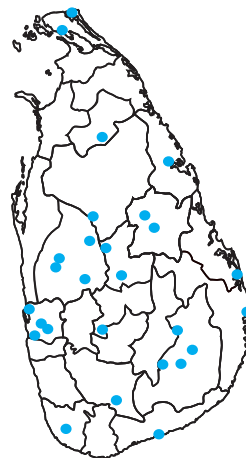


Fig. 11e. May

Cases : 3311
Deaths : 1255

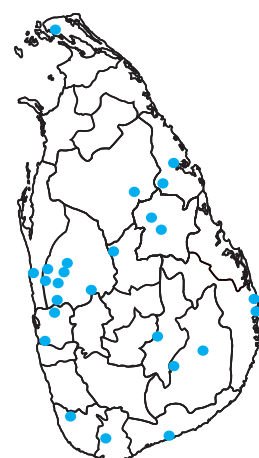


Fig. 11f. June

Cases : 1714
Deaths : 1049

Infectious Bursal Disease (Gumboro disease) is endemic in Sri Lanka. The increasing trend in the incidence rate in spite of several vaccination regimes demands vaccination monitoring and

introduction of appropriate regulatory mechanism in the usage of vaccine together with bio security improvement in poultry farms.

2.4.4 Reported cases of Avian Salmonellosis : January – June - 2009

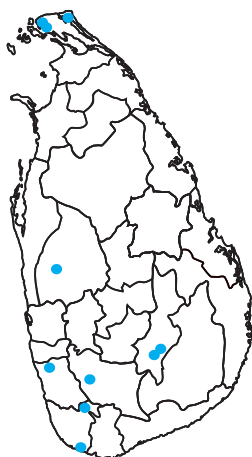


Fig.12

Avian salmonellosis appears to be in significantly increasing trend in the country. The infection and the disease have been observed not only in commercial stocks but also in breeder farms. The salmonella control programme implemented at Breeder farms as a compulsory requirement for Breeder farm operation has not been strictly adhered very often.

Vaccination against salmonellosis is not allowed in Breeder Farms, whereas vaccination of commercial stock is allowed under certain restrictions. As such the salmonella vaccine is allowed to be imported only under 'User Permit' where the need of such vaccine has to be identified and justified by the Veterinary Drug Control Authority.

Table 10. Monthly reported cases of Salmonellosis in poultry

Month	District	VS Range	Cases	Deaths
January	Badulla	Bandarawela	21	18
	Jaffna	Uduvil	1	
	Kurunegala	Panduwasnuwara	177	154
February	Badulla	Bandarawela	9	8
	Galle	Habaraduwa	36	35
	Jaffna	Sandilipay	1	
	Kurunegala	Panduwasnuwara	186	170
March	Badulla	Ella	1	
	Kurunegala	Panduwasnuwara	70	68
April	Jaffna	Karaveddi	14	8
	Kalutara	Horana	5	
	Kurunegala	Panduwasnuwara	184	171
May	Jaffna	Uduvil	10	
		Karaveddi	28	20
		Sandilipay	1	1
	Kurunegala	Panduwasnuwara	191	167
June	Galle	Hiniduma	2	2
	Jaffna	Karaveddi	12	5
		Uduvil	7	
		Nallur	5	
	Kurunegala	Panduwasnuwara	230	213
	Ratnapura	Nivithigala	1	
		Total	1192	1040

3. Salmonella Control Programme

There are 38 Poultry Breeder Farms in Sri Lanka of which two are Grand Parent farms which produce broiler and layer parents.

Salmonellosis which is transmitted by vertically as well as horizontally is a major health problem in the poultry industry at present. It has been established that major source of infection derives from infected day old chicks produced by hatcheries which subsequently infect the other flocks.

Therefore the DAPH has taken measures to control Salmonellosis by implementing a special programme of screening Breeder farms by regular testing at required time interval.

In addition DAPH has set out Good Management Practices (GMP) to strengthen biosecurity and health management which will contribute to the overall health improvement of Breeder Farms.

Salmonella status at Breeder farms

The following farms have been found to be free of reactor birds against Salmonellosis on verification carried out by Veterinary Investigation Officer (VIOO) in 2009.

Table 11. Poultry Breeder farms which are provisionally free from salmonella infection during last six months, based on findings at verification by VIOO in 2009.

Name of the Farm
1. Asha Farm
2. Nova Breeder Farm
3. Dalugama Hatcheries
4. Green Valley Farm
5. Pussella Farm Kosgama
6. Nisadini Farm
7. St Chistoper Farms
8. Prima farms a. Aswatta Farm b. Wewalpanawa Farm d. Meegoda Farm e. Makuluwaththa Farm f. Halwathura Farm
9. Marawila Farm
10. Our Lady of Lourdes Farm
11. Sandalankawa Farm
12. Babywatte Farm
13. CIC Farm
14. Red Farm
15. Miriswatte Farm
16. Nelna Breedres Farm
17. Regional Hatchery, Trincomalee
18. Bairaha Farm - Hiripitiya - Kottaramulla
19. Nel Farm
20. Marist Brother's Farm
21. Ravi Farm
22. MLE Farm
23. Pioneer GP Farm
24. Fortune GP Farms

4.1 HPAI Surveillance in Sri Lanka

Sero surveillance plays a key role in proving the absence of disease in a country. It also contributes in establishing early warning system against exotic diseases. Sri Lanka is following a nationwide HPAI sero surveillance programme and it aims to detect antibodies that would have resulted from infection by field strains of circulating avian influenza viruses. Sero-surveillance is designed to examine the situation in commercial poultry operations (broiler/layer) in the country including the buy-back broiler operations during the period and up to end of July 2009, 4708 serum samples have been collected and tested at Animal Virus Laboratory at Polgolla. Serum samples are tested by ELISA and positive samples are tested using H5, H7 and H9 specific antigens to further rule out the possibility of these three types. Sero surveillance will be repeated annually, with any necessary modification, based on experience gathered in previous years and the scientific information emerged.

A large number of migratory birds annually visit Sri Lanka during the period of September to November through the Central Asian Flyway. Fresh fecal samples are collected from migratory birds at 43 identified hot spots and tested for the presence of avian influenza virus. Active surveillance among duck population is carried out to detect the evidence of infection early. In the event of high mortality at any farm where the disease is suspected the rapid antigen test kits are used

Table 12. HPAI Sero surveillance. January - July 2009

District	Serum Samples			
	No: of samples collected	No: of samples already tested	No: Of (+) ve Reactors	Results for H5,H7,H9
Colombo	180	90	18	Pending
Gampaha	145	NA	NA	NA
Kalutara	180	25	0	NA
Kandy	270	90	4	Pending
Matale	118	60	17	Pending
Nuwara Eliya	120	NA	NA	NA
Galle	180	NA	NA	NA
Matara	180	30	4	Pending
Hambantota	147	NA	NA	NA
Batticaloa	120	29	0	NA
Ampara	90	NA	NA	NA
Trincomalee	120	NA	NA	NA
Kurunegala	1096	30	8	Pending
Puttalam	790	130	5	Pending
Anuradhapura	171	60	12	Pending
Polonnaruwa	240	165	6	Pending
Badulla	89	48	3	Pending
Monaragala	76	30	14	Pending
Ratnapura	186	NA	NA	NA
Kegalle	210	45	3	Pending
Total	4708	832	94	

4.2 HPAI Situation in the World January - July 2009

HPAI Outbreak status in 2009

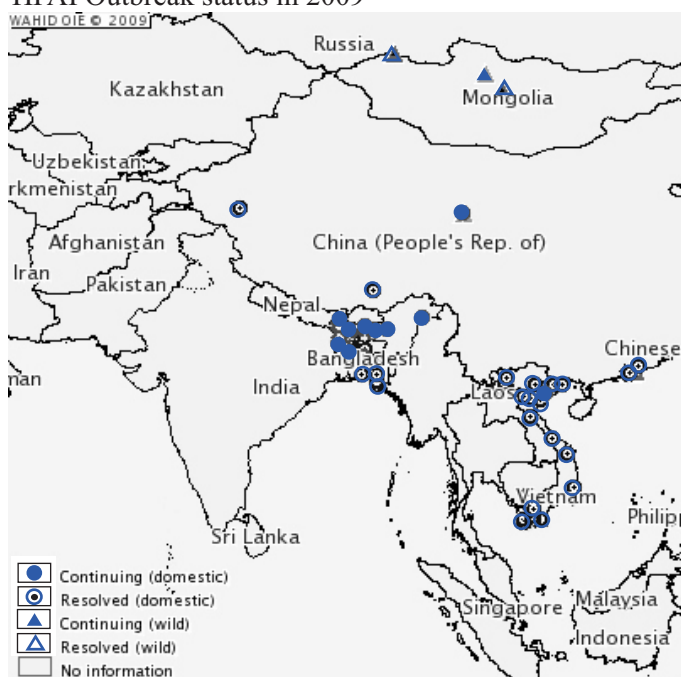


Fig. 13

Country	Disease Status
Egypt	Endemic
Indonesia	Endemic
Bangladesh	Continuing
Cambodia	Continuing
China (People's Rep. of)	Continuing
India	Continuing
Vietnam	Continuing
Germany	Resolved
Hong Kong (P.R. China)	Resolved
Laos	Resolved
Mongolia	Resolved
Nepal	Resolved
Russia	Resolved

HPAI has become endemic in Egypt and Indonesia. Outbreaks in five Asian countries are continuing while outbreaks in five other countries in Asia have resolved by now. The disease now occurs mainly in the Asian region. There have been no HPAI outbreaks reported in the Pacific Community, Oceania, Papua New Guinea (outbreaks have occurred in the Indonesian province of West Papua) or the Philippines during the first seven months of the year 2009. To date, no outbreaks have been

reported in Timor-Leste. In South Asia, Sri Lanka, Maldives, and Bhutan have not experienced the disease. Since 2003, 62 countries have encountered outbreaks of H5N1 HPAI. During the year 2009, 43 confirmed human cases and 12 deaths have been reported to WHO increasing the total human cases to 438 and deaths to 262 respectively. HPAI pandemic which was predicted earlier has now been undermined due to the emergence of Novel Influenza pandemic.

Diseases reported by the field Veterinary Surgeons ranked upon the prevalence rate is listed below.

Bovine Diseases

Helminthiasis
Paramphistomiasis
Mastitis
Ephemeral fever
Milk fever
Brucellosis
FMD
Black Quarter

Goat Diseases

Helminthiasis
CSN
CPD
Paramphistomiasis
Mastitis

Poultry Diseases

Coccidiosis
IBD
Fowl Pox
NCD
Salmonellosis
Fowl Cholera
Marex



The One Health concept is a worldwide strategy for expanding interdisciplinary collaborations and communications in all aspects of health care for humans and animals.

Veterinary Epidemiological Bulletin Sri Lanka is available at www.onehealthinitiative.com

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