WEEKLY EPIDEMIOLOGICAL REPORT

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SARS, MERS AND Covid 19

Coronaviruses have become ubiquitous in today's global health discourse, given the magnitude of the outbreak in China, primarily, and the rest of the world. SARS (Severe Acute Respiratory Disease), MERS (Middle east Respiratory Syndrome) and Covid 19 (Coronavirus Disease 19) are all caused by coronaviruses. Until the emergence of SARS-CoV and subsequently of MERS-CoV, these viruses were known to cause only mild respiratory illnesses like the common cold in immunocompetent people.

Source of the virus

Coronaviruses are a family of RNA viruses with differing genotypes and phenotypes. Of the four genera of coronaviruses: alpha, beta, delta, and gamma, alpha and beta coronaviruses are known to cause disease in humans. Sometimes coronaviruses that infect animals can evolve and spillover into humans via an intermediate host. Among the animals that act as hosts to these viruses are birds, rabbits, reptiles, cats, dogs, pigs, monkeys and bats. The coronaviruses that infect humans are known to have a zoonotic origin.

The first reported cases of the novel coronavirus were also linked to the Huanan Wholesale Seafood Market in Wuhan, China. Preliminary studies show that the new virus bears genetic resemblance to a beta coronavirus found in bats.

The intermediate host of SARS-CoV and MERS-CoV is thought to be civet cats and dromedary camels respectively. An intermediate host for the novel coronavirus is yet to be determined.

Routes of transmission

SARS-CoV is transmitted from person to person through respiratory droplets and close contact. Since 2004, cases of SARS infection have not been reported from anywhere in the world.

Sustained human to human transmission of MERS has not been documented. Until now most of the human to human transmission have occurred in health care settings particularly where sick patients are attended to without adhering to proper infection prevention and control practices. Thus far, nearly 80% of human cases have been reported from Saudi Arabia where people have contracted the virus through unprotected contact with infected dromedary camels or infected people. Cases reported in other

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countries are usually of persons with a travel history to the Middle East.

The novel coronavirus is transmitted through respiratory droplets and close contact with an infected person.

Epidemiological and related characteristics

Table 1 outlines some epidemiological characteristics of SARS, MERS and Covid 19.

Table 1: Epidemiological and related characteristics of SARS, MERS and Covid 19

Characteristic	SARS	MERS	Covid 19
Source	First reported in China in 2002.	First reported in Saudi Arabia in 2012.	First reported in China in 2019.
R_0*	2.0 – 3.5	<1	2.2
Cases	8437 (from November 2002 to July 2003)	2494 (end of November 2019)	50580 (laboratory confirmed as at 15.02.2020)
Deaths	813 (from November 2002 to July 2003)	858 (end of November 2019)	1524 (as at 15.02.2020)
Case fatality rate	~10%	~35%	~3 (based on currently available data)

- ♦ average number of secondary infectious cases produced by an infectious case

Clinical features

Common symptoms experienced by patients with SARS-CoV were fever, cough, dyspnea and occasionally watery diarrhoea. MERS has similar clinical features to SARS including severe atypical pneumonia. Yet, there are notable differences such as presence of gastrointestinal symptoms and acute kidney failure as described by Paules et al. The first published analysis of 41 inpatients with Covid 19 by Huang et al reports that common symptoms at onset of illness were fever, cough, myalgia and fatigue. Subsequently, 55% of patients had developed dyspnea and all had developed pneumonia. Chen et al further reports the development of acute respiratory distress syndrome in some of the patients.

Diagnosis of coronavirus infections

During the early stages of coronavirus infections, molecular tests (PCR) are performed to identify the virus. Serological assays can be done later on as the disease develops. It is also possible to isolate SARS-CoV, MERS-CoV from specimens such as respiratory secretions, blood, urine, and fecal samples. The main mode of diagnosis of Covid 19 is via PCR assays.

Preventive and therapeutic interventions

There is no specific vaccine or therapeutic agent recommended for prevention or treatment of coronavirus infections. Vaccines for coronaviruses are currently in development. At present, the treatment is mainly supportive.

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Table 1: Selected notifiable diseases reported by Medical Officers of Health 18th – 24th Jan 2020 (04th 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	439	1388	3	3	3	3	1	2	3	10	16	22	0	0	0	0	0	0	13	25	2	6	0	0	**43**	**100**
Gampaha	238	783	2	3	0	0	0	0	0	0	3	5	0	0	0	0	0	0	19	46	1	3	6	9	**41**	**90**
Kalutara	98	371	0	0	0	1	0	1	0	1	10	20	2	3	0	0	0	0	9	24	1	3	0	0	**63**	**85**
Kandy	154	552	0	1	0	0	1	5	0	0	2	6	2	10	1	1	0	0	4	16	1	5	4	4	**54**	**100**
Matale	64	234	0	1	1	1	0	0	1	1	1	6	0	0	0	1	1	1	2	4	0	0	6	28	**52**	**100**
NuwaraEliya	38	64	3	3	0	0	0	0	0	0	4	5	11	14	0	0	0	0	3	4	0	0	0	0	**27**	**100**
Galle	131	546	0	5	0	2	1	2	0	4	12	65	3	10	0	1	0	0	17	67	0	5	0	1	**50**	**98**
Hambantota	38	120	0	2	0	0	0	1	1	1	5	33	2	4	0	2	0	0	10	32	1	2	37	102	**58**	**100**
Matara	48	185	1	3	0	1	0	0	0	0	16	43	1	2	2	5	0	0	12	29	0	1	23	50	**46**	**100**
Jaffna	254	875	1	6	0	0	0	2	0	0	1	3	59	150	0	0	0	0	4	10	0	2	0	0	**32**	**93**
Kilinochchi	16	52	0	3	0	0	0	0	0	0	0	0	2	5	0	0	0	0	0	0	0	2	0	1	**50**	**100**
Mannar	18	77	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	**35**	**100**
Vavuniya	31	105	3	3	0	0	1	2	0	0	9	19	0	0	0	0	0	0	1	1	1	2	0	0	**6**	**100**
Mullaitivu	11	38	0	3	0	0	1	1	0	1	1	7	1	2	0	0	0	0	1	1	0	0	0	1	**45**	**83**
Batticaloa	228	879	3	10	0	0	0	0	0	1	1	6	0	0	0	0	0	0	3	14	1	6	0	1	**48**	**100**
Ampara	47	112	0	1	0	0	0	0	0	0	1	10	0	0	0	0	0	0	5	14	0	5	0	1	**43**	**100**
Trincomalee	399	1149	0	2	0	0	0	0	0	1	1	1	1	1	0	0	0	0	3	18	1	2	0	0	**43**	**92**
Kurunegala	170	326	1	3	0	0	1	2	0	0	3	15	3	4	1	1	0	0	17	53	1	2	12	31	**43**	**99**
Puttalam	53	202	1	1	0	0	0	0	0	0	2	9	2	5	0	0	0	0	4	10	3	8	1	1	**60**	**100**
Anuradhapur	45	132	0	2	0	0	0	0	0	1	23	67	0	2	0	0	0	0	6	19	2	5	8	30	**51**	**89**
Polonnaruwa	21	54	1	2	0	0	0	0	0	0	8	25	0	0	0	0	0	0	9	12	1	1	12	24	**50**	**100**
Badulla	54	188	0	1	0	0	0	0	0	3	2	29	0	2	3	4	0	0	8	26	4	7	0	2	**39**	**100**
Monaragala	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Ratnapura	88	251	3	9	1	5	0	0	1	6	35	105	1	3	2	2	0	0	13	34	5	12	7	18	**39**	**100**
Kegalle	47	152	0	0	0	2	0	1	0	0	9	27	1	1	0	0	0	0	11	22	2	6	0	1	**45**	**100**
Kalmune	159	443	5	11	0	1	0	0	0	0	0	1	0	1	0	0	0	0	15	31	1	5	0	0	**60**	**100**
SRILANKA	**2889**	**9278**	**27**	**78**	**5**	**16**	**6**	**19**	**6**	**30**	**16**	**532**	**91**	**219**	**9**	**17**	**1**	**1**	**189**	**512**	**28**	**91**	**11**	**305**	**46**	**94**

Source: Weekly Returns of Communicable Diseases (WRCD).

*T=Timeliness refers to returns received on or before 24th January , 2020 Total number of reporting units 356 Number of reporting units data provided for the current week: 332 **C****-Completeness

A = Cases reported during the current week. **B** = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

18th – 24th Jan 2020 (04thWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2020	Number of cases during same week in 2019	Total number of cases to date in 2020	Total number of cases to date in 2019	Difference between the number of cases to date in 2020 & 2019
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	01	00	00	00	00	00	00	00	01	02	03	08	- 62.5 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	01	00	00	00	00	01	00	00	01	02	10	05	28	- 82.1 %
Measles	00	00	00	00	00	00	01	00	00	01	07	02	17	- 88.2 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
CRS**	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	01	02	- 50 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Encephalitis	00	00	00	00	00	00	01	00	00	01	01	02	02	0 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	03	00	08	0 %
Tuberculosis	60	05	17	11	14	18	04	18	21	168	132	485	641	- 24.3 %

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

NA = Not Available

Number of Malaria Cases Up to End of January 2020,

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All are Imported!!!

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**

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