WEEKLY EPIDEMIOLOGICAL REPORT

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Food poisoning and Its Investigation — Part 1

This is the first of a series of two articles titled above discussing the theoretical and practical aspects of food poisoning and investigation following such incidents.

Food poisoning can be defined as an illness resulting from eating food or drinking beverages containing poisonous substances including bacteria, viruses, pesticides, or toxins. Consumption of contaminated food/ beverages could result in more than 200 diseases which range from diarrhoea to cancer.

Global situation

Food poisoning is an emerging public health problem worldwide. It is estimated that 600 million individuals in the world fall ill due to food poisoning and 420,000 die annually. Collectively it accounts for 33 million losses of healthy life years (DALYs). Children less than 5 years of age are reported to have a 40% burden of foodborne diseases and 125,000 ended up in deaths globally per year. In addition, food poisoning causes malnutrition especially in young children and elderly. Further, it affects the socio-cultural environment in the country, trade and tourism.

Local situation

A rising trend can be seen in the number of victims of food poisoning in Sri Lanka in the recent past. Surveillance data reveals that more cases reported in quarter 2 and 4 in any given year, where a lot of religious, socio-cultural festivals are taking place. Further, the most cases were reported from Northern, Eastern, Western and Central provinces. Large-scale food poisoning incidents were associated with religious festivals, among construction and factory workers.

The following could be the reasons for the rising trend of food poisoning in the country,

- Ever increasing the number of food outlets
  - Large-scale food chains
  - Small-scale food outlets
- Increasing trend of eating outside home
  - In most of the family and social events (weddings, funerals, Dana, pooja) food supply is generally outsourced. This could be due to many reasons.
  - This trend is equally seen in urban and rural areas with different scales
- Increased number of festivals
  - Seen in all ethnic / religion / social groups
  - their scale also increased
- Increased local travel

Contents **Page**

- Educational
- Official
- Recreational
- Pilgrims (Religious)

♦ Less attention from the public health staff
- H800 hardly filled in many districts
- Formal food sampling is reduced
- Food raids & court cases are comparatively less
- Insufficient/infrequent knowledge updates on handling court cases for the public health staff.

Symptoms and identification of the possible aetiological agent

The gap between consumption of the suspected food or beverage and the onset of symptoms depends on the agent factors (incubation period, toxicity….), type of food, consumed amount, recipients factors (age, co-morbidities….). Generally, symptoms begin within 2 to 6 hours and it varies from abdominal cramping, diarrhoea, fever, headache, nausea, vomiting, and weakness. It is important to have a general understanding of the association between the primary symptom and the most likely agent. (Table 1).

The Golden Time in Food Poisoning Outbreak Investigation is the Time Interval from the First Case Detection and Visit of Public Health Team to the Site.
Lesser the Golden Time Higher the Success!!

Water Quality Surveillance
Number of microbiological water samples November 2017

District	MOH areas	No: Expected *	No: Received
Colombo	15	90	**71**
Gampaha	15	90	**NR**
Kalutara	12	72	**NR**
Kalutara NIHS	2	12	**21**
Kandy	23	138	**NR**
Matale	13	78	**NR**
Nuwara Eliya	13	78	**23**
Galle	20	120	**NR**
Matara	17	102	**60**
Hambantota	12	72	**NR**
Jaffna	12	72	**48**
Kilinochchi	4	24	**20**
Manner	5	30	**30**
Vavuniya	4	24	**30**
Mullatvu	5	30	**NR**
Batticaloa	14	84	**66**
Ampara	7	42	**37**
Trincomalee	11	66	**12**
Kurunegala	29	174	**58**
Puttalam	13	78	**3**
Anuradhapura	19	114	**51**
Polonnaruwa	7	42	**25**
Badulla	16	96	**92**
Moneragala	11	66	**87**
Rathnapura	18	108	**54**
Kegalle	11	66	**19**
Kalmunai	13	78	**68**

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

Table 1

Primary Symptom	Most likely agent/s
Vomiting (with or without fever, diarrhoea)	Rotavirus, Caliciviruses, S. aureus, Bacillus cereus, Heavy metals
Acute watery diarrhoea (with or without fever, dysentery)	Enterotoxigenic E.coli, Giardia, V. cholera, Cryptosporidium, Cyclospora, Enteric viruses, Clostridium perfringens toxins
Blood stool and fever	Shigella sp., Campylobacter sp., Salmonella sp., enterohaemorrhagic E.coli, Yersinia enterocolitica, Entamoeba histolytica, Vibrio parahaemolyticus
Prolonged diarrhea (> 14 days)	Giardia, Cyclospora, Cryptosporidium, Entamoeba histolytica
Neurological symptoms	Clostridium botulinum, Mushroom poisoning, Fish toxins, Organophosphates, Thallium poisoning
Systemic illness (e.g. Jaundice)	Hepatitis A and E, Salmonella Typhi, Listeria monocytogenes, Brucella spp.

to be continued ...

Table 1: Selected notifiable diseases reported by Medical Officers of Health 09th – 15th December 2017 (50thWeek)

RDHS Division	Dengue Fever		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Chickenpox		Meningitis		Leishmania-sis		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	346	33660	0	67	0	3	0	32	0	43	2	177	0	3	1	21	0	0	10	372	0	29	0	1	**22**	**84**
Gampaha	247	31287	0	42	0	15	0	23	3	19	2	118	0	15	0	18	0	1	12	350	0	30	1	7	**6**	**94**
Kalutara	125	10745	1	63	0	4	1	22	1	56	9	429	0	10	0	23	0	1	6	502	2	147	0	1	**1**	**91**
Kandy	224	14101	0	72	0	6	0	8	0	21	1	62	2	130	0	16	0	2	3	257	0	39	0	16	**17**	**100**
Matale	41	3105	17	50	0	4	0	1	0	12	0	35	0	2	0	11	0	1	1	56	0	61	0	9	**12**	**100**
NuwaraEliya	6	878	2	33	0	9	1	37	0	54	0	55	1	181	0	22	0	0	1	318	0	46	0	0	**64**	**100**
Galle	49	6125	1	50	1	14	2	25	0	16	13	491	2	74	1	6	0	1	5	371	2	71	0	1	**18**	**100**
Hambantota	36	3509	0	28	0	7	0	9	0	31	4	64	1	72	0	10	0	1	3	223	0	19	36	490	**12**	**100**
Matara	38	6266	3	47	0	8	0	6	1	18	12	269	2	35	0	19	0	1	10	235	0	16	9	188	**11**	**100**
Jaffna	191	5688	5	422	1	25	1	48	1	59	0	36	10	510	1	4	0	0	10	214	0	39	0	0	**44**	**87**
Kilinochchi	7	502	1	43	0	1	0	12	0	1	0	6	0	18	0	2	0	0	0	3	0	12	0	3	**23**	**100**
Mannar	7	536	1	21	0	0	0	3	1	3	0	3	0	4	0	1	0	0	0	15	0	0	0	0	**15**	**100**
Vavuniya	34	1020	0	25	0	0	1	93	1	8	1	30	0	11	0	8	0	0	0	38	0	4	0	11	**13**	**100**
Mullaitivu	11	376	3	25	0	4	0	11	0	5	2	27	0	4	0	2	0	1	0	17	0	5	0	5	**9**	**100**
Batticaloa	117	5367	8	190	1	11	0	16	0	93	5	33	0	1	0	6	0	1	1	175	1	35	0	1	**24**	**100**
Ampara	24	914	0	51	0	3	0	2	0	4	3	25	0	2	1	6	0	0	6	221	1	49	0	7	**30**	**100**
Trincomalee	32	4966	1	52	0	2	0	14	0	21	3	40	0	14	0	19	0	0	4	164	0	24	0	13	**20**	**100**
Kurunegala	88	11095	5	109	0	10	1	8	0	61	8	111	2	31	0	20	1	5	8	500	3	80	5	165	**12**	**100**
Puttalam	212	7411	1	63	0	2	0	2	0	18	0	29	0	11	0	1	0	0	2	159	0	46	0	3	**13**	**100**
Anuradhapur	36	2849	2	48	0	5	0	2	0	18	9	103	0	21	0	18	0	2	8	388	1	73	4	269	**7**	**95**
Polonnaruwa	16	1392	1	34	0	7	0	9	0	8	4	75	0	7	0	9	0	1	4	230	0	27	1	153	**5**	**100**
Badulla	40	3689	3	125	1	13	0	15	0	5	3	150	0	127	0	57	0	1	6	369	4	231	0	14	**7**	**100**
Monaragala	54	3129	9	95	0	3	1	2	0	19	20	174	0	124	1	21	0	1	5	109	0	71	0	32	**31**	**100**
Ratnapura	89	11187	3	177	0	86	0	13	1	10	10	603	2	35	0	78	0	0	4	287	2	149	0	22	**11**	**100**
Kegalle	74	9462	0	39	0	15	0	8	2	63	8	234	1	83	0	15	0	0	5	333	1	73	0	11	**11**	**100**
Kalmune	126	2869	1	107	0	7	0	4	0	291	0	10	0	0	0	3	0	0	3	153	0	36	0	0	**14**	**100**
SRILANKA	**2270**	**182128**	**68**	**2078**	**4**	**264**	**8**	**425**	**11**	**957**	**11**	**3389**	**23**	**1525**	**5**	**416**	**1**	**20**	**117**	**6059**	**17**	**1412**	**56**	**1422**	**17**	**97**

Source: esurveillance.epid.gov.lk

*T=Timeliness refers to returns received on or before 15th December, 2017 Total number of reporting units 349 Number of reporting units data provided for the current week: 341 C**-Completeness

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

Table 2: Vaccine-Preventable Diseases & AFP

09th– 15th December 2017 (50thWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2017	Number of cases during same week in 2016	Total number of cases to date in 2017	Total number of cases to date in 2016	Difference between the number of cases to date in 2017 & 2016
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	01	00	00	01	00	02	01	68	63	7.9%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Mumps	00	01	00	01	02	00	00	00	00	04	01	289	383	- 24.5%
Measles	00	00	00	00	06	00	02	00	00	08	04	198	376	- 47.3%
Rubella	00	00	00	00	00	00	00	00	00	00	00	10	11	- 9.0 %
CRS**	00	00	00	00	00	00	00	00	00	00	00	01	00	0%
Tetanus	00	00	00	00	00	00	00	00	00	00	00	16	10	60 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Japanese Encephalitis	00	00	00	00	00	01	00	00	00	01	00	28	21	33.4%
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	22	68	- 67.6%
Tuberculosis	191	15	11	02	11	03	07	07	26	223	206	8064	8874	- 9.1%

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 Total	No Positive	Infl A	Infl B	Pooled samples	Serum Samples	Positives
December	517	143	63	80	2048	659	0

Source: Medical Research Institute & Veterinary Research Institute

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