



WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health, Nutrition & Indigenous Medicine

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Food poisoning and Its Investigation — Part 2

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

The duration of exposure to the suspected food/beverage to the onset of symptoms also helps to get an idea about the causative agent.

Investigation following a food poisoning outbreak

Food poisoning outbreak refers to any food poisoning incident **involving 2 or more individuals that are epidemiologically linked to a common food/beverage source.**

Household and small-scale food poisoning

events are not reported to the health authorities. However, if reported, it is the duty of the public health staff to investigate and take necessary preventive actions.

Objectives

1. To confirm the presence of food poisoning outbreak/s
2. To identify the source of the outbreak and eliminate it
3. To collect evidence for possible legal proceedings
4. To learn from the event to prevent similar events in future

Steps

1. Inform Regional Epidemiologist (RE) and

Duration	Agent	Typical food
1-6 hours	Staphylococcus aureus	Poorly refrigerated potato and egg salads, meat, cream pastries
1-6 hours	Bacillus cereus (pre-formed enterotoxin – vomiting syndrome)	Poorly refrigerated cooked rice and meats
10-16 hours	Bacillus cereus (diarrhoeal toxin)	Meat, stews, gravies, vanilla sauce
12-72 hours	Salmonella spp (non-typhi)	Contaminated poultry, eggs, meat, vegetables, unpasteurized milk and juices, cheese
8-16 hours	Clostridium perfringens (toxin)	Meat, poultry, gravy, dried or precooked food
12-72 hours	Clostridium botulinum (preformed toxin)	Canned foods with low acid content, improperly canned commercial foods

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the Epid Unit, promptly

2. Send the MOH / PHI team to the site immediately and confirm the outbreak

3. Inspect the following areas with photographic evidence at the site

- ◆ Raw materials and other ingredients (e.g. curry powders, essence, source...) (Get the purchasing bills of raw material and find from where they got them)
- ◆ Raw material storage areas (exposure to dampness,)
- ◆ Food storage method in Refrigerators / Deep-freezers (cooked and un-cooked food store together or not)
- ◆ Cooking utensils (cleanliness, the possibility of leaching of chemicals)
- ◆ Cutting and cleaning areas
- ◆ Cooking areas (open cooking or not)
- ◆ Serving areas and serving utensils
- ◆ If any packing is done before, type and cleanliness of the remaining packing material
- ◆ Water supply/sources
- ◆ Solid/liquid waste disposal areas
- ◆ Possibility of contamination by flies, cockroaches, rodents...
- ◆ General hygiene and habits (smoking, beetle chewing) of the cooks

4. Prepare a timeline of the events took place (e.g. time food preparation started / finished / packaging done / food distribution started and finished / possible time of consumption/time of symptoms occurring)

5. Take samples: Cooked food, raw food, refrigerated food, water sources (100g from solid samples, 100ml from liquid samples)

6. Inform close-by hospitals / Microbiologist/hospital lab and get the hospital admission data of the patients with date and time

7. Visit hospitals where the victims of the food poisoning have been admitted and fill up the line listing and collect samples (stools, vomitus) send for analysis

8. Prepare a line listing from the unaffected people who consumed the same food. Then prepare attack rates for each food in ill and healthy groups and finally calculate the odds ratios.

9. Organize clinical care with your regional health directorate

10. Request support from the adjacent health areas / central level **early** rather than late for any steps at management of the incident

11. Write the outbreak report

12. Leave the responsibility of releasing media statements to the authorized officers (usually Regional Direc-

tor)

Principles of sample collection during investigating food poisoning outbreak

- Should represent the food as sold or distributed to the consumer and each part of a divided sample should be truly representative of the original
- Where divided, all parts of the sample must individually be representative of the food and of each other
- The sampling process must not alter the sample in any way that might affect the analysis e.g. contamination, killing, multiplication
- Must collect as soon as the incident is reported
- Storage and transportation of the sample must not alter it in any significant way – whether through contamination, loss, deterioration or other means
- Ensure that the results can be used to enforce the law in a sound manner

Structure of the outbreak investigation report

- Title
- Executive Summary or Abstract
- Introduction and Background
- Outbreak Description
- Methods and Results
- Discussion
- Lessons Learned
- Recommendations
- Acknowledgements
- Supporting Documentation

The editor wishes to thank Dr N. Ariff, Regional Epidemiologist, Kalmunai for sharing his experience of handling massive food poisoning outbreak which occurred in April 2017.

Reference

1. Foodborne Disease Outbreaks; Guidelines for Investigation and Control, World Health Organization, 2008 (http://www.who.int/foodsafety/publications/foodborne_disease/outbreak_guidelines.pdf)
2. Quick Reference Guide for the Investigation of Foodborne Disease Outbreaks, National Institute of Communicable Diseases, South Africa, 2012 ([http://www.nicd.ac.za/assets/files/NICD_Quick_guide_to_foodborne_outbreak_investigation_v2\(1\).pdf](http://www.nicd.ac.za/assets/files/NICD_Quick_guide_to_foodborne_outbreak_investigation_v2(1).pdf))
3. Investigating Foodborne Outbreaks, Center for Disease Control, Atlanta 2017 (<https://www.cdc.gov/foodsafety/outbreaks/investigating-outbreaks/index.html>)

Editor

Table 1: Selected notifiable diseases reported by Medical Officers of Health 16th - 22nd December 2017 (51st 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	324	33984	3	70	0	3	1	33	2	45	9	186	0	3	0	21	0	0	7	379	2	31	0	1	22	84
Gampaha	176	31463	1	43	1	16	0	23	0	19	0	118	0	15	1	19	0	1	31	381	2	32	0	7	6	94
Kalutara	105	10304	1	61	0	4	0	21	4	52	12	422	1	10	1	23	0	1	7	461	1	143	0	1	2	93
Kandy	180	14281	0	72	0	6	0	8	0	21	1	63	2	132	0	16	0	2	4	261	0	39	0	16	17	100
Matale	30	3135	12	62	0	4	0	1	0	12	2	37	1	3	0	11	0	1	0	56	2	63	0	9	12	100
NuwaraEliya	9	887	2	35	0	9	0	37	0	54	0	55	1	182	0	22	0	0	4	322	3	49	0	0	63	100
Galle	63	6188	0	50	0	14	3	28	0	16	16	507	0	74	0	6	0	1	8	379	2	73	1	2	18	100
Hambantota	34	3543	0	28	0	7	0	9	0	31	2	66	0	72	0	10	0	1	3	226	0	19	12	502	12	10
Matara	32	6298	1	48	0	8	0	6	0	18	9	278	2	37	0	19	0	1	4	239	0	16	10	198	11	100
Jaffna	229	5917	4	426	0	25	0	48	0	59	2	38	20	530	0	4	0	0	8	222	0	39	0	0	44	87
Kilinochchi	8	510	1	44	0	1	0	12	0	1	0	6	0	18	0	2	0	0	0	3	0	12	0	3	24	100
Mannar	3	539	3	24	0	0	0	3	0	3	0	3	0	4	0	1	0	0	0	15	0	0	0	0	15	100
Vavuniya	28	1048	0	25	0	0	1	94	0	8	2	32	0	11	0	8	0	0	0	38	0	4	0	11	13	100
Mullaithivu	11	387	0	25	0	4	0	11	0	5	0	27	0	4	0	2	0	1	0	17	0	5	0	5	9	100
Batticaloa	117	5484	9	199	0	11	0	16	0	93	1	34	0	1	0	6	0	1	3	178	0	35	0	1	24	100
Ampara	8	922	0	51	0	3	0	2	0	4	3	28	0	2	0	6	0	0	1	222	0	49	0	7	30	100
Trincomalee	17	4983	0	52	0	2	0	14	0	21	1	41	1	15	0	19	0	0	1	165	0	24	1	14	20	100
Kurunegala	87	11182	2	111	1	11	0	8	0	61	5	116	0	31	0	20	0	5	5	505	2	82	7	172	13	100
Puttalam	230	7641	2	65	0	2	0	2	0	18	0	29	0	11	0	1	0	0	3	162	4	50	0	3	13	100
Anuradhapur	40	2889	2	50	1	6	0	2	0	18	15	118	2	23	0	18	0	2	3	391	1	74	8	277	7	9
Polonnaruwa	9	1401	0	34	0	7	0	9	0	8	5	80	0	7	0	9	0	1	0	230	1	28	8	161	5	100
Badulla	30	3719	4	129	0	13	1	16	1	6	2	152	2	129	2	59	0	1	3	372	4	235	0	14	7	100
Monaragala	68	3197	4	99	0	3	0	2	0	19	23	197	0	124	0	21	0	1	0	109	1	72	1	33	31	100
Ratnapura	60	11247	5	182	0	86	0	13	0	10	8	611	2	37	2	80	0	0	7	294	1	150	0	22	11	100
Kegalle	49	9511	2	41	1	16	0	8	2	65	3	237	0	83	0	15	0	0	7	340	0	73	0	11	11	100
Kalmune	124	2993	1	108	0	7	0	4	1	292	0	10	0	0	0	3	0	0	2	155	1	37	0	0	14	100
SRI LANKA	2071	183653	59	2134	4	268	6	430	10	959	12	3491	34	1558	6	421	0	20	111	6122	27	1434	48	1470	17	97

Source: esurveillance.epid.gov.lk

*T=Timeliness refers to returns received on or before 22nd December, 2017. Total number of reporting units 349. Number of reporting units data provided for the current week: 340. C**=Completeness
A = Cases reported during the current week. B = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

16th– 22nd December 2017 (51st Week)

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	01	00	00	01	00	00	00	02	02	70	65	7.6%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Mumps	03	01	01	01	00	00	00	01	02	09	04	298	388	- 23.2%
Measles	00	00	01	00	00	00	01	01	00	03	01	201	377	- 46.6%
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	00	01	00	00	01	00	29	21	38.1%
Whooping Cough	00	00	00	01	00	00	00	00	00	01	00	23	69	- 66.7%
Tuberculosis	75	10	05	07	22	16	07	04	09	155	107	8119	8981	- 9.6%

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

Number of Malaria Cases Up to End of December 2017,

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All are Imported!!!

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ON STATE SERVICE

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