

**GUIDELINES FOR AN
ENVIRONMENTAL HEALTH
OFFICER (EHO) ENGAGED IN FOOD
POISONING INVESTIGATIONS**



**DEPARTMENT OF HEALTH
DIRECTORATE: FOOD CONTROL**

JUNE 2000

TABLE OF CONTENTS

1. BACKGROUND.....	1
2. INTRODUCTION.....	1
3. AIM.....	2
4. INVESTIGATIONAL PROCEDURES.....	3
4.1 Act on notification of illness.....	3
4.2 Receive alerts or complaints.....	3
4.3 Log alert and complaint data.....	3
5. TAKE STEPS TO VERIFY DIAGNOSIS.....	4
5.1 Get case histories.....	4
5.2 Obtain clinical specimens.....	5
5.3 Collect food samples.....	5
6. MAKE EPIDEMIOLOGIC ASSOCIATION.....	6
6.1 Determine whether an outbreak occurred.....	6
6.2 Formulate an hypothesis.....	7
7. INVESTIGATE THE PLACE WHERE FOODS WERE MISHANDLED.....	7
7.1 Meet the management.....	7
7.2 Collect samples of suspect foods.....	8
7.3 Interview workers.....	8
7.4 Trace sources of contamination.....	9
7.5 Examine food workers.....	9
7.6 Identify factors that allow survival of foodborne pathogens.....	10
8. ANALYZE DATA.....	10
9. INTERPRET RESULTS.....	11
10. SUBMIT REPORT.....	12
11. USE INVESTIGATIVE DATA FOR PREVENTION.....	12
12. CONCLUSION.....	13
REFERENCE.....	13
ANNEXURE A.....	14

1. BACKGROUND

This manual is designed to guide Environmental Health Officers (EHO's) who are called upon to investigate reports of illness alleged to be foodborne. It is based on epidemiological principles and investigative techniques that have been found effective in determining causal factors of disease outbreaks. It contains a concise but comprehensive description of the procedures to handle alerts and complaints, interview ill persons, collect samples and specimens and ship them to laboratory, detect cases of foodborne illness, trace sources of contamination, identify factors that have permitted survival or multiplication of pathogens, collate and interpret collected data, and report outbreaks.

2. INTRODUCTION

In 1989 food poisoning involving more than four persons was declared a notifiable disease under R. 2708 of the Health Act (Act 63 of 1977). Since then numerous episodes have been reported to the Department of Health. This highlighted a growing concern amongst the EHO's for the lack of environmental and personal hygiene applied in preparing and processing of foodstuffs for human consumption.

During production, processing transportation, preparation, storage or service, any food or beverage can be subject to contamination with toxic substances or with pathogenic bacteria, viruses, and parasites. If a contaminated product that has been eaten contains sufficient quantities of poisonous substances or pathogenic micro-organisms, foodborne illness will result. In addition to these hazards, a few plants which are sometimes eaten inherently contain toxicants; animals sometimes acquire toxins from their food sources or manufacture them, or they become infested with parasites.

Foodborne illness is any syndrome that results from ingestion of foods. These illnesses are classified as (1) intoxications caused by ingestion of foods containing either poisonous chemicals or toxins produced by micro-organisms; (2) infections caused by

bacteria that elaborate enterotoxins (toxins that affect tissues of the intestinal mucosa) during their colonisation and growth in the intestinal tract; and (3) infections caused when micro-organisms invade and multiply in the intestinal mucosa or other tissues. Manifestations range from slight discomfort to severe reactions that terminate in death. Even though a food initially contains only innocuous quantities of certain pathogenic bacteria, it can cause illness if its composition enables it to support bacterial growth and if it remains at temperatures that favour bacterial growth for an interval of time sufficient to produce a dangerous quantity of organisms or toxin. Within days after processing, current food distribution systems can circulate contaminated products throughout a country or even to other countries. Thus, local investigations of reported foodborne illness can have an impact on national or international foodborne disease surveillance and control.

The public depends on EHO's for protection from foodborne illness. Such protection depends on rapid detection of outbreaks and a thorough understanding of the agents and factors responsible for foodborne illness.

3. AIM

The aim of an investigation is to identify offending foods or beverages; to elucidate information about causative agents and their sources; and to determine the factors that contribute to growth and survival of etiologic agents. When the responsible food has been identified, additional illness can be prevented by stopping its distribution and sale and by recalling lots already distributed. Quick identification of the agent often provides a basis for initiating specific treatment of patients. Future outbreaks can be prevented by informing homemakers and appropriate food industry representatives of the circumstances that caused the outbreak and by suggesting ways in which they can avoid recurrences.

4. INVESTIGATIONAL PROCEDURES

4.1 Act on notification of illness

Prompt handling and referral of food-related complaints are the foundation for successful investigation of foodborne illness.

4.2 Receive alerts or complaints

An alert or a complaint can pertain to foodborne illness, food spoilage, adulteration of a product, mislabelling, or an unsanitary establishment. Alerts can also be initiated by reports from physicians, by records of isolations of foodborne pathogens by laboratories, by calls to poison control centres, and by reports of treatment given in hospital emergency rooms or by emergency squads.

During the initial conversation with a complainant or with a professional who gives information, emphasize that all suspect food and its original containers and packages be retained or recovered and that specimens of stools and vomitus be collected from ill persons. It is of paramount importance to secure food samples and clinical specimens as quickly as possible after the onset of illness. Tell the complainant to refrigerate, but not freeze samples and clinical specimens until the epidemiological evidence is evaluated.

4.3 Log alert and complaint data

Record time of onset of the first symptom of the illness, number of persons who became ill, name of the food alleged to have caused the illness, names of the places at which the stricken person ate (during the 72 hours before onset), type of agent isolated, and other pertinent information in a log. The log could be illustrated as follows:

Complaint number	Onset illness	of Number ill	Alleged food	Eating places last 72 hours	Remarks
101	8/20	1	Corn	Speedy foods	Swollen can

Review this log each time an entry is made, because it will disclose any clusters of cases or the involvement of a common food or place that might otherwise go undetected.

5. TAKE STEPS TO VERIFY DIAGNOSIS

A physician, hospital personnel, or an ill person may report suspected cases of foodborne illness. Regardless of the source of the report, the diagnosis must be verified by a thorough case history and, if possible, by examination of appropriate food samples and clinical specimens.

5.1 Get case histories

Upon contact with the affected person, identify yourself and your agency and explain the purpose of the visit or call. Neat attire, a pleasant manner of speech, a professional attitude, and confidence in discussing epidemiology and control of foodborne illnesses are important aids in developing rapport with an affected person or family and in projecting a good image of the investigating agency.

Exhibit a genuine concern for persons affected and be sincere when requesting personal and confidential information. Communicate a sense of urgency of the investigation and emphasize the positive contribution that has already been made by the complainant or that will be made by the respondent to the control and prevention of foodborne illness.

Set your level of communication on the basis of a general impression of the person being interviewed from information about occupation, education, or socio-economic status. Tact is essential. Word questions so that the person being interviewed will describe his illness and the foods and events that he feels were associated with it in his own way. Never suggest answers by the way you put your questions. Ask specific questions to clarify the patient's comments. Realize that people are sometimes sensitive to questions about age, sex, special dietary habits, ethnic group, excreta disposal and housing conditions. Word questions thoughtfully when discussing these characteristics and habits. Any or all information of this sort can be relevant. Such information can usually

be deduced from observations. If doubt remains, confirm your guesses by asking indirect questions. Information on recent travel, gatherings, or visitors may provide a clue to common sources or events that would otherwise be difficult to pinpoint.

5.2 Obtain clinical specimens

Because some foodborne pathogens remain in the intestinal tract for only a few days after onset of illness, obtain clinical specimens at the time of the initial interview or as soon as possible thereafter. In general, the kind of specimen to be taken depends on signs and symptoms; vomitus if the person is vomiting or has recently done so; stool specimen or rectal swab if the person has diarrhoea; blood if the person has a generalised infection and fever; and blood and either stool or rectal swabs if botulism is suspected.

Before collecting specimens, ask laboratory personnel about the proper method for collection, preservation, and shipment. The laboratory will provide appropriate specimen containers.

5.3 Collect food samples

If the victim or other exposed persons have some leftovers of food or beverages that were eaten in the last 72 hours, or some ingredients that were used in such foods, take samples for laboratory examination. Caution these persons not to use stocks of suspect foods until the investigation is complete. The most highly suspect food or foods can be examined first. The others can, if necessary be refrigerated in the laboratory for testing later.

Collect samples aseptically with sterile implements (knives, spoons, tongs, spatulas) and put them into sterile jars or plastic bags. If foods are to be examined for organophosphate pesticides or heavy metals, do not use plastic containers, because substances from the plastic can leach into the food and thus interfere with analysis.

The size of samples should be adequate to provide with enough material for all necessary examination. A sample weighing approximately 200 to 450 grams or measuring 200 to 1000 ml will generally suffice. If less is available, collect all of it.

6. MAKE EPIDEMIOLOGIC ASSOCIATION

Make a preliminary evaluation of data as soon as possible. If you decide that an outbreak has occurred, develop a hypothesis about the causal factors from the information you have.

6.1 Determine whether an outbreak occurred

An outbreak is an incident in which two or more persons have the same disease, have similar symptoms, or excrete the same pathogens; and there is a time, place and/or person association between these persons. A foodborne disease outbreak is one in which a common food has been ingested by such persons. However, a single case of suspected botulism, mushroom poisoning, paralytic shellfish poisoning, or other rare disease, or a case of a disease that can be definitely related to ingestion of a food, can be considered as an incident of foodborne illness and warrants further investigation.

If complaints are received from different individuals having common time, place, or person associations, then the probability that an outbreak has occurred is increased. Time associations primarily refer to onset of similar illness within a few hours or days of each other. Place associations deal with buying foods from the same place, eating at the same establishment, residing at the same place, or attending the same event. Person associations have to do with common experiences, such as eating the same foods or being of the same age, sex, ethnic group, occupation, social club, or religion. Once some of these associations become obvious, verify the outbreak by identifying and questioning other persons who were at risk by virtue of their association with the ill person.

6.2 Formulate an hypothesis

From time, place and person associations that have been established or suggested by the investigation so far, formulate a hypothesis to explain the most likely type of illness, the most likely vehicles, where and how the vehicles could have become contaminated and other causal relationships. Test the hypothesis by obtaining additional information to prove or display its validity.

7. INVESTIGATE THE PLACE WHERE FOODS WERE MISHANDLED

Before visiting the location where the suspect food was produced, processed, prepared, stored or served, gather appropriate forms and sampling and specimen-collecting equipment. Inform laboratory personnel that a field investigation will be made and that samples and specimens will be collected. Confer with them about special media to take and special sampling procedures; make arrangements for transport of samples to the laboratory.

7.1 Meet the management

Upon arrival at the place where the suspect food was processed or prepared, or where the implicated meal was served, introduce yourself to the person in charge and state your purpose. Emphasize that the purpose of the investigation is to determine what contributed to the outbreak, so that preventive measures can be taken.

Attempt to create a spirit of co-operation, because a positive, communicative, working relationship exhibited by management with the investigator influence the worker's attitudes toward the investigative team. Information about the suspect outbreak can be disclosed at any time during the investigation. Consider the position, feelings, and concerns of the manager and his staff; defensive reactions are common.

Many factors could have contributed to contamination or bacterial multiplication before foods came under the control of the manager; so, assure him that these possibilities will

also be investigated. Inform the manager of the activities proposed and benefits that may be gained from the findings for educating his workers. Maintain an unbiased attitude and answer any relevant questions asked – other than those concerning the identities of the persons whose common experiences implicated the food establishment.

7.2 Collect samples of suspect foods

Collect samples of any of the suspect foods that are left, of any potentially hazardous foods left from the suspect meal, and of any foods available from an allegedly contaminated lot. Check storage areas for items that may have been overlooked. Also, check garbage for discarded foods or containers. This is necessary because suspect foods often will be discarded by an operator if he thinks that someone may have become ill as a result of eating food in his establishment. Because one of the primary tasks of the EHO is to prevent further illness, take appropriate action (such as embargo) to prevent distribution or serving of any suspect food until it has been proved safe. If there are no food left from the suspect meal or lot, try to get samples of items that have been prepared subsequent to the suspect lot but in a similar manner. Also, collect ingredients or raw items used in the suspect food. Determine supplier, distribution, and code information on packaged foods to aid any investigation that might be made of the same lot in distribution channels.

7.3 Interview workers

If a food is already suspect, separately interview all persons who were directly involved in processing, preparing, or storing of the food (e.g., manager, chef, processing line worker, cook, storekeeper) and others who could have observed preparation and storage (e.g., waitresses, kitchen assistants, and porters). Ask questions in a sequence that will disclose the flow of food from the time it was received until it was served or sent out. Especially ask about foods that were prepared several hours or a day or more before being served at the suspect meal. Ask similar questions, suitably modified, of the managers or workers who were involved in producing transporting processing,

preparing, or storing food at other levels of the food chain, as well as persons who prepared the food at home.

7.4 Trace sources of contamination

Animals may be infected with *Salmonella*, *Clostridium perfringens*, *Staphylococcus aureus*, and other pathogens. During slaughtering and processing meat carcasses can become contaminated with those pathogens. Raw poultry, pork and other meats are often contaminated when they come into kitchens. If any of these agents is suspected in an outbreak, samples of meat and poultry, meat scraps, drippings on refrigerator floors, and deposits on saws or other equipment can sometimes be helpful in tracing the primary source. Swabbing food contact surfaces of equipment (as tables, cutting boards, slicing machines) that had contact with the suspect food can often establish links in the transmission of contamination. This is especially helpful if the common utensil or piece of equipment is used for raw foods and then for cooked foods.

Evaluate the cleanliness and the manner and frequency of cleaning equipment. Seek opportunities and possible routes of cross-contamination between raw and cooked foods. Ingredients may be the initial source of pathogens, so find out which ingredients were added before and which were added after any thorough cooking or heat processing.

Workers can be a source of foodborne pathogens. Enterotoxigenic *Staphylococcus aureus* strains are carried in the nasal passages of a large percentage of healthy persons. They are often found on the skin and occasionally in faeces. *Clostridium perfringens* can be recovered from the faeces of most healthy persons. Workers are sometimes infected with other enteric pathogens.

7.5 Examine food workers

Collect pertinent information about each worker who handled the suspect food or foods. Look for pimples, minor skin inflammation, boils and infected cuts and bums on unclothed areas of the body; ask if there are any infections in other areas. If deemed

necessary, make arrangements for the worker to be examined by a physician. Inquire about recent illnesses, especially gastrointestinal symptoms, and check time and cards to disclose dates of absence from work.

7.6 Identify factors that allow survival of foodborne pathogens

In addition to the tracing of contamination, the circumstances that permit survival and growth of foodborne pathogens in the implicated foods must be identified. This information is vital to develop preventative measures. Identify these factors by careful, patient questioning of food workers, by checking temperatures of food (during processing) and equipment (in which the foods were held), and by conducting studies to determine time-temperature conditions of processing and storage. Consider times and temperatures which were involved in freezing, thawing, cooking or thermal processing, hot or cold holding, chilling, reheating, and any other steps of the processing operations.

8. ANALYZE DATA

Organise and group the data obtained from the interviews of both ill and well persons who partook of the suspect meal or food or who attended a common event. Summarise these data. From appropriate calculations and analyses, the illness can be classified, the hypothesis tested as to whether the outbreak was associated with a common source, a vehicle can be determined, and the necessity for further field or laboratory investigation can be decided.

In attack-rate tables, some persons who did not eat the suspect food nevertheless become ill. Some of these persons forgot which foods they ate. Other causes of illness may be responsible, or sympathetic vomiting or other symptoms may occur in a few very sensitive individuals. It is also possible that some persons who ate contaminated food did not become ill. Organisms or toxins are not always evenly distributed in the food, some persons are more resistant to illness than others, or for certain reasons some persons may not want to admit they are ill.

9. INTERPRET RESULTS

Compare epidemiologically analysed data with laboratory results. The agent responsible for an illness can be confirmed by finding known pathogens, toxins, or evidence of increases in antibody titre in specimens from patients, provided that the signs and symptoms experienced by the patients are consistent with those produced by the agent. To confirm involvement of a suspect food, the same organism (stereotype, phage type, or other definitive type) or toxin must be found in epidemiologically implicated food as was found in specimens from patients. Even when clinical specimens are not available, a vehicle can be identified, at least circumstantially, by detecting toxic substances (such as zinc or botulinum toxin), by isolating a significant number of specific pathogens (such as 100 000 or more *Staphylococcus aureus* or *Clostridium perfringens* per gram of food), or by recovering enteric pathogens (such as *Salmonella*) by enrichment techniques from a food. The food from which these findings are made should also be epidemiologically suspect as a result of analysis of the food-specific attack rate table, and the symptoms reported by the ill should be consistent with those produced by the agent that has been isolated from the implicated food.

The history of how the food was processed or prepared must reveal appropriate opportunities for contamination and, where applicable, for survival and growth of pathogens. Otherwise, the history of food processing or preparation is incomplete or in error. If necessary, question food workers again and seek additional information, or look for inconsistencies in their stories, which may indicate where contamination or other mishandling of the food occurred. The source of causative agent can often be traced by recovering the agent from raw foods, food ingredients, equipment, food workers, or live animals or their environment.

Definitive typing of isolates is required for confirmation. Such findings must also be supported by a history, which would preclude the possibility of contamination having come from another source.

10. SUBMIT REPORT

After data have been analysed or interpreted, complete the summary report. As complete a report as possible should be submitted so that full interpretations of the report can be made and a meaningful foodborne disease data bank can be developed. The EHO's should make every possible effort to ensure complete investigation and reporting of foodborne disease. Without reliable, complete information, trends of foodborne disease incidence and the causal factors of the disease are difficult to detect.

11. USE INVESTIGATIVE DATA FOR PREVENTION

The primary purpose of foodborne disease investigation is to prevent further illness. This can be accomplished either at the time of the investigation or immediately afterwards by identifying a contaminated or otherwise hazardous product and removing it from the market. Most often however, prevention results from the judicious use of data gathered about sources of toxigenic foods, chemical or microbial contamination, parasites infestation, and conditions that affect production, processing, preparation, storage, and service and which permit the survival of foodborne pathogens and their multiplication to hazardous levels.

To decrease incidence of foodborne illness, identify causal factors, develop practicable preventative procedures, and communicate them to those who can put them into practice.

Inform managers, employees, and homemakers of the circumstances that contribute to outbreaks, and instruct them in proper food processing preparation, and storage procedures.

Survey establishments that process or prepare similar foods to see whether conditions that contribute to outbreaks of illness are widespread. If so, initiate an industry-wide training program. If education fails to achieve the desired results, take other action (such as hearings, seizures, and prosecution) to correct hazardous operational procedures. After such actions are taken, periodically inspect these establishments to determine if

faulty procedures are reintroduced into the operation. If so, take appropriate educational or corrective action.

Alert the public to hazardous conditions that can affect them and motivate them to become concerned about their food supply. Only then will they insist on wholesome, safe foods processed and prepared in sanitary establishments.

Most foodborne illnesses are preventable, but prevention requires constant vigilance on the part of those in the food industry and in health and regulatory agencies to see that the hazards are understood and questionable operating procedures are avoided.

12. CONCLUSION

There is no doubt that a food poisoning outbreak investigation is a fascinating study only if such investigation is carried out, conducted or pursued in a systematic manner and that all parameters and variables discussed above are taken into consideration. The Environmental Health Officer's role is of vital importance in the whole process. To this end EHO's must learn to understand and control the environment by systematically and logically applying the principles of epidemiology.

REFERENCE

1. A M Karodia: Epidemiological principles of investigation of disease outbreak.
2. Guidelines for Organization and Management of Surveillance of Food Borne Diseases, WHO, VPH/82/39 Geneva.

ANNEXURE A

FOOD RELATED ALERT/COMPLAINT

Form A

Complaint Received From		Address	Complaint Number
Person to Contact for More Information		Address	Phone
Complaint			Home
			Work

Illness Yes No	Number I11	Time Illness Began	Predominant Symptoms		
Suspect Foods		Source	Brand Identification	Lot Number	
Suspect Meals		Place	Address		
Persons Attending Suspect Meal		Address		Phone	
Places Foods Eaten (last 72 hours) Today Yesterday Day before yesterday		Date	Time	Address	
			Date	Time	
Action Taken			Nature of Complaint Illness Contaminated Adulterated Spoiled Food		

1. If yes, professional staff member should obtain information about patient and record on form B
2. Ask person to collect vomitus or stool in a clean jar; wrap, identify and refrigerate, hold until health official makes further arrangements
3. Ask person to refrigerate all food eaten during the 72 hours before onset of illness; save or retrieve original containers or packages, sample should be properly identified, hold until health official makes further arrangements.

CASE HISTORY: CLINICAL DATA

Form B – Part 1 of 2 Parts		Place of Outbreak, if known	Complaint Number	Identification Number
Name		Address		Phone: Home: Work
Age	Sex	Special dietary habits. Ethnic group, or other personal data	Occupation	Place of work

Signs and Symptoms: (check appropriate sign and symptoms and circle those that occurred first)

- | | | | |
|--|---|---|---|
| <p>INTOXICATION</p> <ul style="list-style-type: none"> * Nausea * Vomiting Bloating Burning sensation (mouth) Ovarosis Excessive salivation Flushing Itching Metallic taste Prostration Thirst Others (specify) _____ | <p>ENTERIC INFECTIONS</p> <ul style="list-style-type: none"> * Abdominal cramps * Diarrhea Blood Mucoid Watery No. day * Fever Degrees.....E.....C Chills Constipation | <p>GENERALIZED INFECTIONS</p> <ul style="list-style-type: none"> Cough Dehydration Edema Headache Jaundice Lack of appetite Myalgia Perspiration Rash Weakness | <p>NEUROLOGICAL ILLNESSES</p> <ul style="list-style-type: none"> Blurred vision Coma Delirium Difficulty in speaking Difficulty in swallowing Dizziness Double vision Numbness Paralysis Pupils dilated fixed or Tingling |
|--|---|---|---|

Time of Onset	Time of eating suspect	Place of eating suspect food or meal	Fatal:	Incubation period	Duration of Illness
Date Hour	Food or meal Date		Yes		
15	Hour		No		

Medications taken for Illness

Known Allergies

Medications Inoculations taken before illness

Physician Consulted	Address	Phone	Hospital attended	Address
Contacts with known cases before illness (names)		Address		Phone
Cases in household occurring subsequently (names)				Date of Onset
Type of specimens obtained	Date Collected	Identification Number	Laboratory Results	

Signs and symptoms are listed in columns to suggest classification of the disease: their occurrence is not necessarily limited to the category in which they appear on this form.

- Ask if these symptoms occurred, even if they were not mentioned in the interview.

CASEHISTOTRY: FOOD HISTORY AND COMMON SOURCES

Form B – Part 2 of 2 Parts

Ill
Well

Day of Illness Outbreak Date _____ Breakfast	Day before illness/outbreak Date _____ Breakfast	Two days before illness Date _____ Breakfast
Place _____ Hour _____	Place _____ Hour _____	Place _____ Hour _____
Items: _____		
Lunch	Lunch	Lunch
Place _____ Hour _____	Place _____ Hour _____	Place _____ Hour _____
Snacks	Snacks	Snacks
Source _____ Hour _____	Source _____ Hour _____	Source _____ Hour _____

History of eating suspicious food earlier than 2 days Before illness Item		Date of eating	Source	Address	
General information: Common events or gatherings	Date	Persons attending		Ill	Address Phone
Non-routine travel (locations)		Water supply	Sewage disposal	Pet/Animals (kind and No. of each)	
Remarks					
Investigator		Title	Agency		Date

- include all foods, ice and beverages.
- Record names of persons eating some meal and whether ill or well.

SUMMARY OF CASE HISTORIES

NOTE: Line-up with appropriate identification number of Part 1-Form C

Form C – Part 2 of 2 Parts

Foods Eaten										Laboratory Tests			Specific comments or additional information About any ill or ill persons (Record all information where space does not permit in Other sections, such as additional symptoms, Physician, and hospital names)	ID No.
										Specimen	Date	Organism		

SUMMARY OF CASE HISTORIES

Form C - Par 1 of 2 Parts

										Place of outbreak	Dates of outbreak	Complaint Number					
Name of ill person or Well Person (List all Exposed persons Whether or not ill)	Address	Phone	S e x	A g e	I l l	Time of Eating		Time of initial Symptom		Incubation period (Difference between Eating And onset)	Signs and Symptom s				Severity		
						Day	Hour	Day	Hour								
Investigator		Title				Median				Suspected Euology							

CLINICAL SPECIMENT COLLECTION REPORT

			Complaint number	Sample number	
Form D					
Place of outbreak		Address		ID Number	Type of Specimen
Person from whom specimen obtained		Address			Phone
Reason for collecting specimen: Victim of outbreak. Person at risk but not ill. Handler of suspect food. Suspected carrier. Animal. Other (Specify) _____					
Physician		Address		Phone	
Symptoms: Nausea. Vomiting. Abdominal Cramps. Diarrhoea. Fever. Others (specify) _____					
Time of eating	Time of onset		Incubation period	Duration of illness	
Day Hour	Day Hour				
Method of collecting specimens		Method of Preservation		Method of Shipment	
Other information					
Investigator collecting specimen		Title	Agency	Date/Hour: Collected Submitted	

Test requested	Presence/ Absence	Count	Definitive Type
Saphylococci			
Beta haemolytic streptococci			
<i>C perfringens</i>			
<i>Salmonella</i>			
<i>E coli</i>			
<i>V parahaemolyticus</i>			
botulinum toxin			
Other (specify)			
Comments and Interpretations			

Laboratory Analyst	Agency	Date Hour Received	Started	Completed	Etiologic Agent

FOOD/ENVIRONMENTAL SAMPLE COLLECTION REPORT

Form F

Complaint Number	Sample Number 1
------------------	-----------------

Place collected	Address		Phone
Person in charge	Sample		Date/Hour Collected
Reason for collecting specimen: <input type="checkbox"/> Food from alleged outbreak <input type="checkbox"/> Food ingredient. <input type="checkbox"/> Similar food prepared in similar manner to that involved in outbreak <input type="checkbox"/> Special Survey. <input type="checkbox"/> Routine. <input type="checkbox"/> Environmental. Other (specify) _____			
Method of collecting and shipping sample: Method of sterilizing: Container 2		Collection Utensil 2	
Location food stored when sampled	Temperature:		Time between serving and sampling
	Food	Storage	
Shipped: <input type="checkbox"/> Refrigerated <input type="checkbox"/> Frozen <input type="checkbox"/> Ambient		Identification Marks	Cost of sample
Product Identification: Name		Brand	Lot Number
Manufacturer's Name	Address		Container size or weight

FOOD PREPARATION REVIEW

Form F - Part 1 of 2 Parts

						Complaint Number
Establishment: (Name)			Address			Phone
Person in charge			Type of establishment	Date of Outbreak	Date and time of Suspected Meal	
Suspect Food			Source	Address		Date Received
Brand	Container size or weight		Manufacturer's Name		Address	Lot Number
Ingredients			Sources			
Operational Step	Method	Type of Equipment	Temperature	Time	Names of workers involved	Remarks (history of Illness or Infection of workers. Sanitation Unusual events. (Other Information)
Interpretation						Height _____ Length _____ And Width _____ or Diameter _____ or Storage Pot, Pan or Container

Condition of food		pH	a_w	Temperature: When received	
Comments and interpretations					
Laboratory Analyst	Agency	Date/Hour:			Agent Identified
		Received	Started	Completed	

- 1 Attach a list of number, sample, and tests desired for other samples collected at the same establishment during the same investigation.
- 2 Specify only if unusual (such as field) method of sterilizing or sanitizing collection container or utensil or collecting sample is used.

Symptoms of victims:			
<input type="checkbox"/> Nausea <input type="checkbox"/> Vomiting <input type="checkbox"/> Abdominal Cramps <input type="checkbox"/> Fever <input type="checkbox"/> Diarrhoea <input type="checkbox"/> Other (specify) _____			
Time of eating suspect food/meal		Time of Onset:	
Date	Hour	Date	Hour
Investigator		Title	
		Agency	
		Date	
Tests Requested	Presence/ Absence	Count/Concentration	Definitive Type
<input type="checkbox"/> Staphylococci			
<input type="checkbox"/> Staphylococcal enterotoxin			
<input type="checkbox"/> <i>C. perfringens</i>			
<input type="checkbox"/> <i>B. cereus</i>			
<input type="checkbox"/> <i>Salmonella</i>			
<input type="checkbox"/> <i>Shigella</i>			
<input type="checkbox"/> <i>E. coli</i>			
<input type="checkbox"/> <i>V. parahaemolyticus</i>			
<input type="checkbox"/> <i>C. botulinum</i>			
<input type="checkbox"/> Botulinum toxin			
<input type="checkbox"/> Chemical			
<input type="checkbox"/> Aerobic colony count			
<input type="checkbox"/> Coliform			
<input type="checkbox"/> Enterococci			
<input type="checkbox"/> Other (Specify)			

FOOD PREPARATION REVIEW FORM

Form F – Part 2 of 2 Parts

	Method of processing or preparing food used (e.g. frozen, canned, baked)
--	--

Operational procedures contributing to outbreak (one or more should be checked)

Inadequate refrigeration	Inadequate hot holding	Preparing foods several hours before serving	Anaerobic packaging	Inadequate cooking
Inadequate reheating	Obtaining foods from unsafe sources	Using contaminated raw ingredients in uncooked product		
Food contaminated by infected person	Cross-contamination	Inadequate cleaning of equipment	Poor dry storage practices	Toxic container
Addition of poisonous chemical	Natural toxicant in plant or animal by raw food	Other (specify) _____		

Description of operations and Deficiencies:	Control action taken:
---	-----------------------

Investigator	Title	Agency	Date of investigation
--------------	-------	--------	-----------------------

Laboratory Results				Workers		
Food and Environment						
Sample or Swab	Sample No.	Organism Toxin	Count	Specimen	Specimen No.	Organism and Definitive Type

Interpretation and remarks

Laboratory Analyst	Agency	Date:			Etiologic Agent	Source of Contamination
		Received	Started	Completed		

FOOD-SPECIFIC ATTACK RATE TABLE

Form G

Place of Outbreak										Complaint Number
Food	Number of persons who ate Specific food				Number of persons who did Not eat specific food				Difference In percent	Significance
	Ill	Well	Total	Percent Ill	Ill	Well	Total	Percent Ill		
Remarks and Interpretation										Suspect Food

FOODBORNE ILLNESS SUMMARY REPORT

Form H

Location: City _____		Counts _____		State Province _____	
Date of Onset of First Case _____	Number Ill _____	Number at risk _____	Number Hospitalised _____	Fatalities _____	
Symptom (percentage): Nausea _____ Vomiting _____ Abdominal cramps _____ Diarrhea _____ Fever _____ Other (specify) _____ Duration of Illness (Hours): Shortest _____ Longest _____ Medium _____				Incubation period Shortest _____ Longest _____ Medium _____	
Responsible vehicle (Food) _____		Method of processing or preparing food _____			
Place foodseaten (Check one) Food Service Establishment _____ School _____ Medical care facility _____ Other institutions (Type _____) Home _____ Camp _____ Picnic _____ In-transit Carriers (Type _____) Other (specify) _____ _____		Factors (contributing to outbreak (Check all appropriate): Inadequate refrigeration _____ Inadequate hot holding _____ Preparing foods several hours before serving _____ Anaerobic packaging _____ Inadequate cooking or thermal processing _____ Inadequate reheating _____ Obtaining foods from unsafe source _____ Using contaminated raw ingredients in uncooked product _____ Food contaminated by infected person _____ () Cross contaminated by raw foods _____			

<input type="checkbox"/> Smorgasbord <input type="checkbox"/> Catering <input type="checkbox"/> Mobile/itinerant <input type="checkbox"/> Delicatessen <input type="checkbox"/> Tavern or bar <input type="checkbox"/> Other _____ <input type="checkbox"/> Other (specify) _____	Food specific attack rate table Food preparation review Narrative (may be put on reverse side) Recommendations for prevention Other (specify) _____	
Investigator	Reporting Agency	Date

1. If more than one checked, signify c for contamination, m for mishandling before box.
2. These should always be attached.