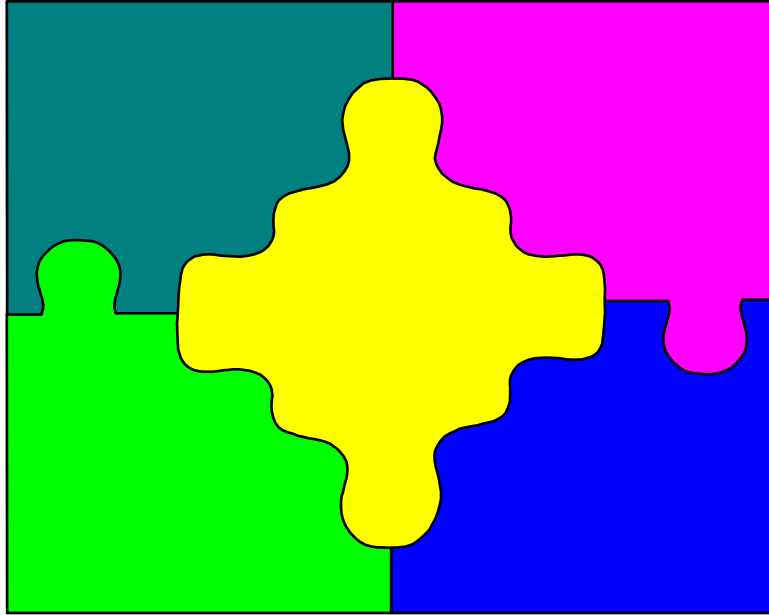
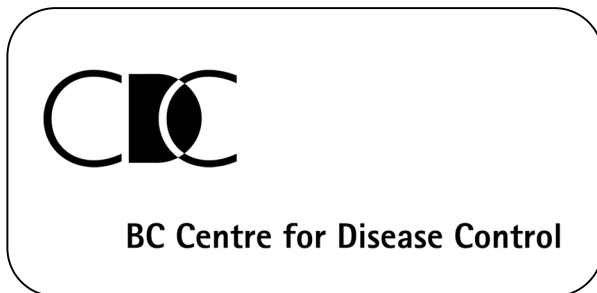


BCCDC Laboratory Services



A Guide to the Laboratory Investigation of Gastrointestinal Disease Outbreaks



2002

A Guide to the Laboratory Investigation of Gastrointestinal Disease Outbreaks

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1. General Information and Telephone Directory

Address: BCCDC Laboratory Services
655 W. 12th Ave
Vancouver, BC V5Z 4R4

Web site: www.bccdc.org
Email: labinfo@bccdc.ca
Hours: Mon to Fri 8:30 a.m.- 4:30 p.m.

Specimen Delivery:

- 1) Monday - Friday 8:30 a.m.- 4:30 p.m.
- 2) Saturday 8:30 a.m. - 11:00 am - specimens may be put in drop box. This must be arranged with the GI Outbreak Coordinator prior to 4:30 p.m. on Friday. Specimens placed in dropbox after 11:00 am will not be processed until Monday. In an emergency arrangements can be made through the Medical Microbiologist On-call.

Telephone Directory – *Outbreak Investigation Group*

Primary Contact Person:

Lorraine McIntyre, Environmental Services (604) 660-6079
Gastrointestinal Disease (GI) Outbreak Coordinator

Laboratory Sections:

	<u>Office/Lab</u>
Ana Paccagnella, Enteric Bacteriology	(604) 660-6058/660-6059
Joe Fung, Environmental Services	(604) 660-1753/660-6037
Gail McNabb, Virology	(604) 660-4672/660-9709
Quantine Wong, Parasitology	(604) 775-1142/660-6055

Infection Control Consultant:

Bruce Gamage, RN, Laboratory Services (604) 660-6076

Clinical Virologist/Bacteriologist:

Dr. Martin Petric (PhD Virologist) (604) 660-9697
Dr. M. Morshed (PhD Bacteriologist) (604) 660-6074

Medical Staff:

Dr. Judith Isaac-Renton, Director, Laboratory Services (604) 660-6032(Direct line)
Medical Head, Enteric Bacteriology, Environmental Microbiology (604) 660-6030 (Secretary)
and Parasitology Services.
Dr. Mel Kraijden, Medical Head, Virology Services (604) 660-6044
Dr. Murray Fyfe, Physician Epidemiologist, (604) 660-1823
Epidemiology Services

Medical Microbiologist On-call (24-hour answering service) (604) 661-7033

A Guide to the Laboratory Investigation of Gastrointestinal Disease Outbreaks

2. Introduction

The purpose of the guide is to ensure efficient coordination of outbreak laboratory investigation. It includes ready reference guidelines for public health officials in the event of gastrointestinal (GI) disease outbreaks. It defines roles of the BCCDC Laboratory Services and of the Health Units and Health Care Workers in the investigation an outbreak. **This document is a laboratory-oriented guide and is not intended in any way to override any internal health unit policies used by Medical Health Officers, Public Health Inspectors and Epidemiologists.** (*In this guide Public Health Inspectors is used as the title for both Public Health Inspectors and Environmental Health Officers*).

2.1 Role of BCCDC Laboratory Services

In enteric outbreak investigations, BCCDC Laboratory Services provides the laboratory diagnostics:

1. To detect and identify the causative agent(s) at an early stage of the outbreak.
2. To assist in identifying the vehicle/route of transmission and the source of infection.

The success of the laboratory in diagnosing the etiological agent of an outbreak depends largely on the timeliness of specimen collection. The laboratory communicates with the Medical Health Officer (MHO) and Public Health Inspectors (PHI); provides clear and precise instructions regarding collection, transportation and submission of appropriate specimens for laboratory examination; and provides prompt reporting of results.

2.2 Services Provided by BCCDC Laboratory Services

Many microbial agents cause gastroenteritis. Laboratory tests to identify the causative agent are performed by different laboratory disciplines (Enteric Bacteriology, Parasitology, Environmental Services and Virology) at Laboratory Services. Refer to the Laboratory Services Manual for details. The members of the *Outbreak Investigation Group* are available for consultation on outbreak laboratory investigation and subsequent intervention and prevention. The following section includes a list of the bacterial, parasitic and viral agents known to cause human gastroenteritis.

A Guide to the Laboratory Investigation of Gastrointestinal Disease Outbreaks

2.2.1 Bacterial Agents Associated with Outbreaks of Gastrointestinal Disease

Arcobacter species
Aeromonas species
Bacillus cereus
Campylobacter species
Clostridium perfringens (enterotoxigenic)
Escherichia coli (pathogenic)
 Enterohaemorrhagic *E. coli* (O157: H7 & other verotoxigenic serotypes)
 Enteroinvasive *E. coli*
 Enteropathogenic *E. coli*
 Enterotoxigenic *E. coli*
 Enteroadherent *E. coli*
Listeria monocytogenes
Plesiomonas shigelloides
Salmonella serotypes
Shigella species
Staphylococcus aureus (enterotoxigenic)
Vibrio (*V. cholerae*, *V. parahaemolyticus*, *V. fluvialis* and others)
Yersinia enterocolitica
Yersinia pseudotuberculosis

2.2.2 Parasitic Agents Associated with Outbreaks of Gastrointestinal Disease

Cryptosporidium species
Cyclospora cayetanensis
Entamoeba histolytica / *dispar*
Giardia lamblia

2.2.3 Viral Agents Associated with Outbreaks of Gastrointestinal Disease

Adenovirus
Astrovirus
Calicivirus (Norwalk-like viruses)
Coronavirus
Rotavirus
Torovirus

2.2.4 Gastrointestinal Disease of Unknown Etiology

This is an area of interest to BCCDC Laboratory Services. At the present time, the etiology of as many as 40% of outbreaks of gastrointestinal disease remains unknown.

A Guide to the Laboratory Investigation of Gastrointestinal Disease Outbreaks

2.3 Role of the Health Unit

The health unit must make every effort to obtain a representative number of specimens to send to the laboratory. Specimens collected during the acute illness from symptomatic cases provide a better chance of yielding the causative agent. Therefore, the laboratory relies on the health unit for the prompt collection, transportation and submission of appropriate specimens for laboratory examination. Such cooperative efforts between the laboratory and the respective health unit will significantly improve the chance of an early laboratory confirmation.

The comprehensive clinical and epidemiological information on the outbreak, collected by the health unit is essential in determining appropriate laboratory tests and ascertaining probable source(s) of infection.

3. Communications

If a laboratory other than BCCDC Laboratory Services has processed specimens or has cultures related to a potential outbreak, the health unit will advise that laboratory to contact the appropriate supervisor at BCCDC Laboratory Services in order to process specimens for epidemiological investigation and typing (see contact list below).

It is essential to maintain simple but effective communication. Information exchange must be documented and takes place only through designated contact persons to eliminate potential for confusion.

3.1 Designated Contact Persons

3.1.1 Laboratory

- **Primary contact person: GI Outbreak Coordinator**

Lorraine McIntyre
Tel. (604) 660-6079
Fax (604) 660-6073
Email: lorraine.mcintyre@bccdc.ca

- **Alternate contact persons:**

Joe Fung, Supervisor Environmental Services	(604) 660-1753
Ana Paccagnella, Supervisor Enteric Bacteriology	(604) 660-6058
Quantine Wong, Supervisor Parasitology	(604) 775-1142

- **Infection Control and Prevention:**

Bruce Gamage, Provincial Infection Control Consultant
Tel. (604) 660-6076 Email: bruce.gamage@bccdc.ca

A Guide to the Laboratory Investigation of Gastrointestinal Disease Outbreaks

3.1.2 Health Unit/Institution

Health Unit:

- In a community or non-institutional outbreak, the health unit will designate a PHI as the main contact person, including a back-up contact person.
- If an outbreak occurs in a remote area, the health unit will name an on-site contact person to assist in the field investigation.
- Names and telephone/fax numbers of the contact persons will be given to the Laboratory Services GI Outbreak Coordinator when first notified.

Institution:

- The PHI provides names and telephone/fax numbers of contact persons at the institution to the Laboratory Services GI Outbreak Coordinator.

3.2 Outbreak Reporting

Early recognition of outbreaks depends largely on prompt reporting of gastrointestinal illnesses by physicians, emergency personnel, other health workers and patients. The health unit will notify BCCDC Laboratory Services immediately after initiating the investigation of an outbreak.

3.2.1 Notification of BCCDC Laboratory Services

When a GI outbreak is recognized, the health unit immediately notifies the BCCDC Laboratory Services about the nature and extent of the outbreak. The health unit's designated contact person consults with the laboratory GI Outbreak Coordinator regarding prompt and proper specimen collection, transportation and submission (see Appendices V & VI). At this time, all relevant information about the outbreak is obtained from the PHI, and recorded. A geographical or institutional reference name mutually agreed upon by the health unit and laboratory contact persons is used as the *Outbreak Identifier* during the investigation.

When further consultation is necessary, the PHI is referred to the supervisor of the appropriate laboratory section and/or to the appropriate Medical Microbiologist. For information related to outbreak prevention and control consult the Provincial Infection Control Consultant (see contact list above).

In emergencies occurring after working hours, weekends and statutory holidays, notify the Medical Microbiologist On-call at (604) 661-7033.

A Guide to the Laboratory Investigation of Gastrointestinal Disease Outbreaks

3.2.2 Information Essential for Efficient Laboratory Investigation

The laboratory requires the following information for determining appropriate investigative procedures and testing priorities. This table may faxed to the laboratory *GI Outbreak Coordinator* for your convenience (604) 660-6073:

Location of the outbreak:	Name:	Address		
Description of facility:	<input type="checkbox"/> Assisted living <input type="checkbox"/> Long Term Care <input type="checkbox"/> Hospital <input type="checkbox"/> Camp <input type="checkbox"/> School <input type="checkbox"/> Other _____			
Description of event associated with the outbreak:				
Date of onset (Index case)	Day:	Month:	Year:	
Number of persons:	Ill: Residents: Staff: Others:	Hospitalized: Residents: Staff: Others:	Fatalities: Residents: Staff: Others:	At risk: Residents: Staff: Others:
Most common symptoms:	<input type="checkbox"/> Diarrhea <input type="checkbox"/> Fever <input type="checkbox"/> Abdominal Pain <input type="checkbox"/> Vomiting <input type="checkbox"/> Bloating <input type="checkbox"/> Other _____			
Incubation period: (Period between event and symptoms).	No. of hours: _____ No. of Days: _____			
Duration of illness:	No. of hours: _____ No. of Days: _____			
Reports of etiologic agent(s) by other laboratories, if any.	1.		2.	
Suspected mode of transmission:	<input type="checkbox"/> Person-to-person <input type="checkbox"/> Foodborne <input type="checkbox"/> Waterborne			
Food history:				
Travel or other history:				

A Guide to the Laboratory Investigation of Gastrointestinal Disease Outbreaks

3.3 Internal Communication within BCCDC Laboratory Services

3.3.1 Initial Notification

Upon notification, the laboratory *GI Outbreak Coordinator* will inform the Medical Microbiologists, Medical Health Officer(s), Epidemiologists and Supervisors of appropriate laboratory sections about the outbreak. This *Outbreak Investigation Group* will then consult as appropriate to discuss further appropriate courses of action.

3.3.2 Sorting and Distribution of Specimens

Upon receipt, the laboratory *GI Outbreak Coordinator* will sort and distribute the specimens to the appropriate laboratory sections. The PHI is informed if any inappropriate specimens have been submitted.

3.3.3 Collation of Results

The laboratory *GI Outbreak Coordinator* will collate findings from all laboratory sections and update the *Outbreak Investigation Group* as new information becomes available. Copies of the summary of final laboratory reports will be sent to the *Outbreak Investigation Group*.

3.4 Reporting of Results

Respective laboratory sections report preliminary positive and negative results by telephone or by fax to the health unit's contact person. The PHI forwards available information to the MHO, physician and the contact persons at the institution. Written reports should be addressed to the Medical Health Officer. Copies of written reports are also sent to the attending physician(s) as indicated on the requisition.

4. Collection and Transportation of Specimens

4.1 Specimen Collection

4.1.1 Outbreak Kit

The Outbreak Kit consists of:

- One plastic vial containing SAF preservative (red-capped vial) for parasitology.
- One dry sterile plastic vial (green-topped vial) for bacteriology and virology.
- A Gastrointestinal Outbreak Investigation Requisition Form (HLTH 1861 rev98/03).
- A clear plastic bag.
- Additional dry sterile plastic vials are also provided for vomitus (See appendix X).

The kit is designed to simplify stool specimen collection and at the same time allow simultaneous examination for bacteria, bacterial toxins, viruses and parasites. The kits are available from Environmental Microbiology. Telephone the Laboratory Services **GI Outbreak Coordinator** to request kits at (604) 660-6079.

4.1.2 Submission of specimens from Patients/Contacts by PHI

- Begin collection of specimens immediately after notification of an outbreak. Delays considerably reduce the possibility of finding the etiologic agent(s).
- Instruct patients to collect sample according to instructions given on the reverse side of the requisition.
- Ensure that the specimen vials are fully labeled and all requisition forms are completed.
- Submit specimens by batch in a separate package labeled with the outbreak identifier. Send package to the laboratory as soon as possible with a completed Multiple Specimen Submission Form, HLTH 1862. (See appendix X).

4.1.3 Use of Outbreak Kits for Patient Specimens

1. Remove vial from plastic bag.
2. Collect specimen.

Feces:

- a) Lift toilet seat.
- b) Place sheets of plastic wrap (*Saran Wrap™*) over the toilet bowl and push them down in the centre to form a depression.
- c) Place toilet seat down to secure plastic wrap.

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- d) Pass stool into plastic wrap. Avoid contamination with urine or water from toilet.
- e) Using the spoon from each vial, transfer feces into the vials. If feces contains blood, mucus or pus select this portion as specimen:

Green-capped vial - Fill up to the line indicated. (Important: **sufficient quantity** is required for samples to be processed by all laboratory sections.)

Red-capped vial - Add 2-3 spoonfuls of feces to the liquid in the bottle (1 part stool, 3 parts liquid). Mix well.

- f) Replace and tighten cap. Wipe outside of vial to remove any gross contamination.
- g) Keep specimens at 10 to 20 °C (50-68 °F) for same-day delivery; otherwise refrigerate (see appendix VI).

Vomitus:

- a) Vomit into a clean container if possible (jar, bowl, etc.).
- b) Transfer vomitus into the dry sterile vial provided using a spoon. Fill up to the line indicated.
- c) Replace and tighten cap.
- d) Keep specimens refrigerated at 10-20 °C (50-68 °F). Do **NOT** freeze specimen.

3. Label vials and fill in requisition form completely. Print clearly.

4. Place vials into the plastic bag.

5. Return to the health unit or BCCDC Laboratory Services.

6. Transport specimens to BCCDC as soon as possible.

4.1.4 Submission of Food and Drinking Water Samples

1. Consult with BCCDC Environmental Services personnel before submission of samples.

2. Submit remnants of the suspect foods in sterile glass containers or whirlpak plastic bags.

3. Submit only food and environmental samples that are clearly implicated based on epidemiological data or based on the Food-Specific-Attack-Rates (use Food Poisoning Investigation Requisition Form B – appendix XI).

4. All food is submitted under refrigeration in their original containers, sterile glass containers or whirlpak bags.

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5. Submit food samples with completed Food Poisoning Investigation Requisition Form A (1882A) and Form B (1882B). (See appendix XI).
6. Submit drinking water samples for coliform testing in BCCDC Laboratory Services sterile treated bottles with a Water Microbiology requisition for each sample.
7. For *Giardia* and *Cryptosporidium* testing in water, consult with the Enhanced Water Laboratory (604) 660-6734.

4.2 Handling and Delivery of Specimens

The Health Unit and Institution must ensure that:

- Specimens are collected in proper containers and fully labeled.
- All requisition forms have been completed.
- Specimens are promptly delivered to the laboratory in a separate package, properly identified.
- Delivery of specimens is by courier or messenger. Do not send by mail.
- The laboratory is notified that specimens have been sent.

A Guide to the Laboratory Investigation of Gastrointestinal Disease Outbreaks

Appendix I

Laboratory Test Priorities During GI Disease Outbreaks

TESTING PRIORITY	SPECIMENS/SAMPLES
1	A. Initial specimens from symptomatic cases. B. Initial specimens from symptomatic food handlers. C. Remnants of suspect meal.
2	A. Initial specimens from later cases. B. Water known to have been consumed by symptomatic cases. C. Specimens from asymptomatic food handlers
3	A. Specimens from contacts. B. Follow-up specimens from all cases. C. Foods implicated based on epidemiological data or by food-specific-attack-rate (FSAR).
4	A. Other environmental samples.

*GI Outbreak Coordinator
Revised September 2002*

Appendix II

Outbreak Investigation Checklist for the Health Unit/Institution

1. Maintain an adequate supply of Outbreak Kits. Call **GI Outbreak Coordinator** for additional kits.
2. Notify the BCCDC Laboratory Services immediately when an outbreak investigation is initiated.

Primary Contact Person:

Lorraine McIntyre, **GI Outbreak Coordinator**

Tel. (604) 660-6079

Fax (604) 660-6073

Email: lorraine.mcintyre@bccdc.ca

Alternate Contact Persons:

- A. Joe Fung, Supervisor Environmental Services (604) 660-1753
- B. Ana Paccagnella, Supervisor Enteric Bacteriology (604) 660-6058
- C. Quantine Wong, Supervisor Parasitology (604) 775-1142

Off-hours/weekends: Notify Medical Microbiologist On-call (604) 661-7033

3. Provide pertinent clinical and epidemiological data.
4. Propose a reference name (e.g. event, institution, agency, geography etc.) to be used as **Outbreak Identifier** during the investigation.
5. Consult with the laboratory about test priorities and instructions for proper collection, transportation, submission and delivery of specimens (see appendices).
6. Designate contact persons at the health unit; name outbreak coordinators in remote areas and at institutions. Give names and telephone/fax numbers to the laboratory. If infection control consultation is desired request that contact names and numbers be given to the Infection Control Consultant or contact Bruce Gamage directly at 604-660-6076.
7. Arrange for coordination of the collection and handling procedures of specimens prior to submission to the laboratory.
8. The PHI/outbreak coordinator checks whether the protocol for specimen submission is being followed. Each specimen and requisition must be checked for:
 - a) Subject identification: name, date of birth, status (e.g. patient, food handler or contact), etc.

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- b) Name of health unit/institution.
 - c) Date of specimen collection.
 - d) Outbreak identification/location.
 - e) Completed Gastrointestinal Disease Outbreak Investigation Requisition Form (HLTH 1861).
(See Appendix X).
 - f) Adequate amount of specimen obtained.
9. Ensure that all appropriate requisition forms (e.g. Food Poisoning Investigation Form A and Form B, MSSF, etc.) are completed. (See Appendix X & XI)
 10. Promptly submit specimens according to protocol and advise the laboratory that specimens have been sent.
 11. The PHI forwards telephoned/faxed results to the MHO and attending physicians.
 12. Direct inquiries from news media and the public to the Medical Health Officer or designate.

***GI Outbreak Coordinator
Revised September 2002***

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Appendix III

Outbreak Investigation Checklist for BCCDC Laboratory Services

Primary Contact Person:

Lorraine McIntyre, *GI Outbreak Coordinator* and Environmental Services (Food Poisoning)
Tel. 660-6079 Fax 660-6073

Alternate Contacts:

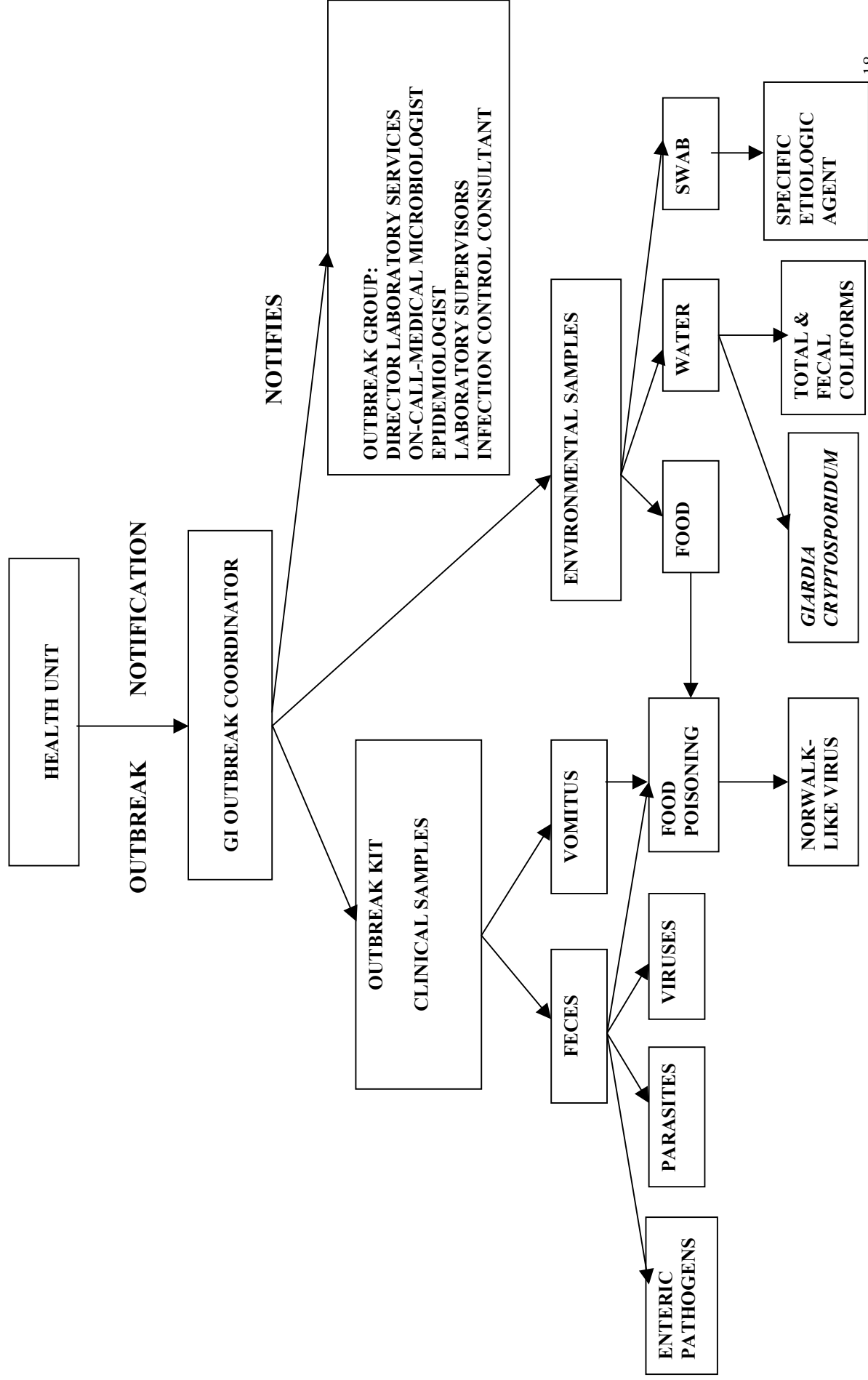
A. Joe Fung, Supervisor Environmental Services	(604) 660-1753
B. Ana Paccagnella, Supervisor Enteric Bacteriology	(604) 660-6058
C. Quantine Wong, Supervisor Parasitology	(604) 775-1142

Off-hours/weekends: Notify Medical Microbiologist On-call (604) 661-7033

1. Maintain a ready supply of Outbreak Kits.
2. Upon notification:
 - a) Propose a reference name (e.g. event, institution, agency, etc.) to be used as Outbreak ID during the investigation.
 - b) Obtain names and telephone/fax numbers of designated contact persons at the health unit/institution.
 - c) Send an email notification to the Outbreak email group *outbreak@bccdc.ca*.
3. Give names and telephone/fax numbers of designated laboratory contact persons to the health unit/institution. If infection control consultation is desired give contact names and numbers to the Infection Control Consultant or contact Bruce Gamage directly at 604-660-6076.
4. Provide advice if requested on laboratory testing priorities and collection procedures, transportation, and submission of specimens.
5. Inform the outbreak investigation group about the outbreak and arrange for the group to convene if required.
6. Coordinate transfer of specimens to appropriate laboratories.
7. Respective laboratory sections report positive and negative results by telephone or fax.
8. Send initial and updated information to the "outbreak investigation group".
9. Send written reports to MHO or designate and to the attending physicians.
10. Direct inquiries from news media and the public to the Director of BCCDC Laboratory Services or designate.

Appendix IV

Flowchart for GI Disease Outbreak Investigation



A Guide to the Laboratory Investigation of Gastrointestinal Disease Outbreaks

Appendix V

Guidelines for Specimen Collection For Food Poisoning Incidents and Gastrointestinal Disease Outbreaks

In the case of a Gastrointestinal Outbreak

- Each “Outbreak Kit” has 2 containers and one outbreak requisition. Using separate kits collect up to six patient samples, and no more than 10. This number of samples should be enough to allow for the detection of the etiologic agent.
- 1st container (green capped): the best sample to collect is fresh stool. This will permit the splitting of the sample for Enteric Bacteriology (bacterial testing), Electron Microscopy (viral testing) and Environmental Services (for Norwalk-like Virus detection).
- 2nd container (red capped): collect stool and put into an SAF vial (for Parasite detection).
- Additional sterile plastic vials are provided for vomitus. Vomitus can only be tested by Environmental Services (molecular testing).

In the case of a suspect Food Poisoning (FP) Incident

- Collect the leftover food as received from the patient or contact in the original container; place container inside sterile bag if possible (in case of leaks).
- Request stool or vomitus sample from patient as soon as possible after onset of symptoms. Prompt collection of patient sample (stool or vomitus) greatly increases the chances of linking food to cause of illness. Any clean sterile container can be used to collect these clinical samples. DO NOT use any containers with preservative.
- Submit samples with a FP Form A.
- Ensure samples are packed securely into a cooler or box with ice packs.

In the case of a routine screen / may not be Food Poisoning

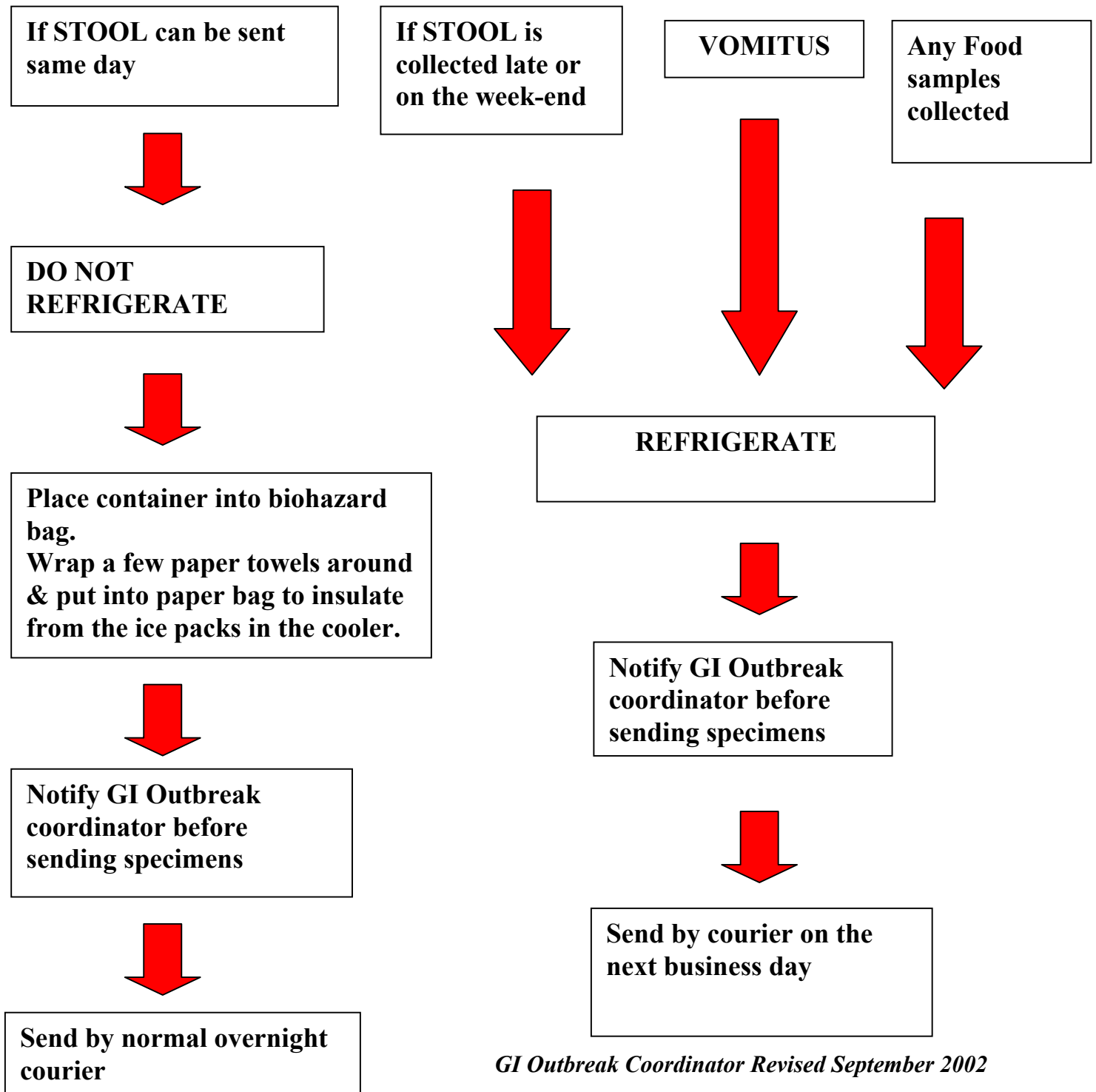
- Sometimes the patient’s illness does not appear to have a true link to food. If this link is in doubt, a stool sample will be requested before food is tested. If any enteric pathogen is found in the stool sample, then the food will be tested for that specific pathogen.
- Submit stool samples directly to Enteric Bacteriology (on an Enteric Bacteriology requisition). You will receive the results directly from Enteric Bacteriology. If the result is positive contact the Food Poisoning Section to test the implicated food.
- If you would like to screen stool for toxin or other organisms (gram positive) consult the Food Poisoning Section, and submit stool to the Food Poisoning Section with a FP Form A.

***Remember to call the GI Outbreak Coordinator before sending any samples!
(604-660-6079)***

***GI Outbreak Coordinator
Revised September 2002***

Appendix VI

Specimen Transport Instructions



GI Outbreak Coordinator Revised September 2002

Appendix VII

Managing Outbreaks of Gastrointestinal Disease in Care Facilities

1. Notification of Public Health

When 3 or more cases of suspect gastroenteritis occur within a 4-day period, contact:

- ✓ The local office of Environmental Health/Medical Health Officer
- ✓ The facility Medical Director
- ✓ The Infection Control Practitioner (if applicable)
- ✓ Start collecting samples (see section 4).

2. Establish Outbreak Control Measures

If an outbreak of gastroenteritis is suspected, establish the following control measures:

- ✓ Confine ill residents to their rooms until 48 hours post symptoms.
- ✓ Exclude any ill employees from work until 48 hours post symptoms.
- ✓ Advise staff not work at another facility unless they are well for a minimum of 72 hours after their last shift at an affected facility.
- ✓ In addition to routine precautions use transmission based precautions when caring for ill residents:
 - Gloves - for providing any direct care
 - Gowns – when contamination of care giver’s clothing is possible
 - Masks – when there is a risk of droplet spread of infectious material (i.e. cleaning up areas grossly contaminated with feces or vomit).
- ✓ Avoid transfer of well residents to a room containing an ill resident.
- ✓ Review hand hygiene procedures with staff.
- ✓ Ensure surfaces contaminated by feces or vomitus are immediately cleaned and disinfected.
- ✓ Implement a program of increased cleaning and sanitizing of common touch surfaces such as door handles, handrails, sink/toilet handles, ice machines and water fountains.
- ✓ Prior to washing and drying, ensure soiled laundry is handled as little as possible, with minimum agitation and transported in closed bags.
- ✓ Advise all visitors of outbreak and appropriate personal precautions.

Consider:

- Postponing transfers to other facilities and admissions/re-admissions unless medically warranted
- Limiting the usage of casual or part-time staff that work at other facilities
- Cohort nursing and other staff to limit potential spread from ill to well residents
- Decreasing or discontinuing group activities and outings until the outbreak is resolved.

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3. Maintain Detailed Surveillance

- ✓ Maintain GI illness surveillance for both residents and staff.
- ✓ Forward by fax an updated surveillance form to Environmental Health daily during the outbreak.

4. Specimen Collection

- ✓ Use the outbreak kits provided by Environmental Health during the course of the outbreak.
- ✓ Phone Environmental Health when you have lab specimens (for BCCDC Lab Services) ready for pick-up. **Do NOT send stool specimens through your normal private or hospital lab services.**
- ✓ Stool sample is required in both GREEN top and RED top containers for each patient.
- ✓ Ensure each container is labeled with patient name and lab requisition is complete.
- ✓ Directions for stool and/or vomitus collection are on **BACK** of lab requisition.
- ✓ Avoid contaminating stool specimens with either urine or toilet water.
- ✓ Identifying a causative viral agent of the outbreak is more likely if:
 - Sample is taken early in symptom onset, AND
 - Sample is delivered to lab as soon as possible after collection.
- ✓ Ensure outside of the specimen container is not grossly contaminated.

**Infection Control Consultant
September 2002**

Appendix VIII

Gastrointestinal Outbreak Decontamination Protocol with Additional Information about 0.5% Accelerated Hydrogen Peroxide (AHP) Solution

In the event of an outbreak of gastroenteritis, special consideration must be given to the cleaning of areas contaminated from either a vomiting or fecal accident. The area should be cordoned off and cleaned urgently. Failing to properly clean contaminated areas will contribute to rapid spread and continuation of outbreaks.

Cleaning Vomit and Feces

Individuals, who clean up vomit or feces, should minimize the risk of infection to themselves and others by:

- Wearing disposable gloves, a mask and a plastic disposable apron or water-resistant gown.
- Using paper towels or equivalent to soak up excess liquid. Transfer these and any solid matter directly into a plastic garbage bag.
- Cleaning the soiled area with detergent and water, using a “single-use” cloth.
- Disinfecting the contaminated area with freshly made 1:50 bleach solution or 0.5% accelerated hydrogen peroxide solution. A minimum 5-minute contact time is required for the 0.5% accelerated hydrogen peroxide solution to be effective.
- Depositing disposable gloves, masks and aprons into a garbage bag and re-usable aprons/gowns into laundry bag.
- Washing hands thoroughly using soap and warm running water for at least 30 seconds.

If cleaning up vomit in food preparation areas:

- Disinfect the area (including vertical surfaces) by wiping down with freshly prepared 1:50 bleach solution or 0.5% accelerated hydrogen peroxide solution. A minimum 5-minute contact time is required for the 0.5% accelerated hydrogen peroxide solution to be effective.
- Dispose of any exposed food (food that has been handled by an infected person or food that may have been exposed to the aerosolized virus by someone vomiting in close proximity).
- Wash all dishes, utensils and trays in a commercial dishwasher – with hot water rinse of at least 60°C (140°F). Be careful not to cross-contaminate dirty and clean dishes.

Hypochlorite (Bleach) Solution

The recommended level of 1:50 bleach solution is made by:

- Adding 1 part of household bleach (5.25% hypochlorite) to 50 parts water will give an approximate 1,000 parts per million (ppm) hypochlorite solution.
- Note that hypochlorite is corrosive and may bleach fabrics.

0.5% Accelerated Hydrogen Peroxide Solution

There is now documented evidence that a 0.5% accelerated hydrogen peroxide solution (e.g. Virox™) is effective against the feline calicivirus. This virus is used as a surrogate for Norwalk-like viruses as these viruses cannot currently be cultured in the laboratory.

The 0.5% accelerated hydrogen peroxide solution should be used as recommended in the product use and safety information. A minimum contact time of 5 minutes is necessary for effectiveness against gastrointestinal viruses.

Treatment of Specific Materials

- Contaminated linen should be washed in a hot water, 60°C (140°F), and detergent.
- Vinyl covered furniture or mattresses should be thoroughly cleaned with detergent and hot water then wiped down with a 1:50 bleach solution or 0.5% accelerated hydrogen peroxide.
- Soft furnishings or cloth-covered mattresses should be thoroughly cleaned with detergent and hot water. For disinfection they can be placed outdoors in the sun for a few hours if conditions permit or if this is not feasible, they should be steam cleaned (which is strongly recommended) or disinfected with bleach (if bleach-resistant) or 0.5% accelerated hydrogen peroxide (in accordance with product information).
- Contaminated carpets should be cleaned with detergent and hot water then disinfected with bleach (if bleach-resistant), 0.5% accelerated hydrogen peroxide (in accordance with product information), or steam cleaned using water at a minimum of 60°C.
- Contaminated hard surfaces should be washed with detergent and water, using a single-use cloth, then disinfected with 1:50 bleach solution or 0.5% accelerated hydrogen peroxide.
- Non-disposable mop heads should be laundered at a minimum of 60°C in water and detergent.
- Fixtures in bathrooms should be cleaned with detergent and hot water using a single-use cloth, and then disinfected with 1:50 bleach solution or 0.5% accelerated hydrogen peroxide.

**Infection Control Consultant
January 2003**

Appendix IX



Hand washing is the single most important practice to prevent the spread of outbreaks!

HANDS MUST BE WASHED:

- Whenever they are visibly soiled or there has been contact with stool or vomit.
- Between contact with different residents.
- After removing gloves.
- After using the toilet.
- Before eating or smoking.
- Before handling or preparing food.

A PROPER HAND WASH INCLUDES:

- Use warm running water and soap with plenty of friction for 30 seconds.
- Use a clean paper towel to dry your hands and to turn off the tap.

Use of a waterless hand sanitizer may be substituted for handwashing if adequate sink facilities are not immediately accessible and hands are not visibly soiled.

**Infection Control Consultant
September 2002**


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Appendix X.

Outbreak Kit



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 BC Centre for Disease Control Laboratory Services		GASTROINTESTINAL DISEASE OUTBREAK INVESTIGATION		LABORATORY USE ONLY	
PATIENT'S SURNAME (PRINT):			GIVEN NAMES:		
ADDRESS: <small>(Patient Address important for Epidemiological follow-up)</small>			LOCATION OF OUTBREAK		
DATE OF BIRTH	YR MO DAY	SEX M F	OUTBREAK ID. No.	DATE SPECIMEN COLLECTED	YR MO DAY
HEALTH UNIT		TEL No.			
EHO/CONTACT		FAX No.			
PHYSICIAN OR CLIENT		DOCTOR'S MSC No. _____			
STAMP PRINT OR TYPE FULL POSTAL ADDRESS IN BOX FOR CONFIDENTIAL REPORT COPY OF REPORT TO DOCTOR'S MSC No. 1. _____ 2. _____ 3. _____					
LABORATORY USE ONLY			DATE REPORTED		
HLTH 1861 REV 98/03					
PLEASE SEE REVERSE FOR INSTRUCTIONS					

Instructions for Specimen Collection

Feces

1. Lift toilet seat.
2. Place sheets of plastic wrap over the bowl and push them down in the centre to form a depression.
3. Replace toilet seat down to secure plastic wrap.
4. Pass stool into plastic wrap. Avoid contamination with urine or water from toilet.
5. Using the spoon from each vial, select portions containing blood, mucous or pus and if present transfer into the vial as follows:
 - a. **Green-capped vial** – Fill up to the line indicated.
 - b. **Red-capped vial** – Add 2-3 spoonfuls of feces to the liquid in the bottle. Mix well.
6. Replace and tighten cap. Place vials into plastic bag.
7. Label vials and fill in requisition completely. Print clearly.
8. Return outfit to Health Unit or the Provincial Laboratory as soon as possible.

Note: You can use aluminum foil for a substitute for plastic wrap

Vomit

1. Vomit into a clean container if possible (jar, glass, etc.).
2. Transfer vomitus into the dry sterile vial. Fill-up to the line indicated.
3. Replace and tighten cap. Place vial into the plastic bag.
4. Label vial and fill in requisition completely. Print clearly.
5. Return outfit to the Health Unit or the Provincial Laboratory as soon as possible.

Do Not Freeze Specimen

A Guide to the Laboratory Investigation of Gastrointestinal Disease Outbreaks

Appendix XI.

FOOD POISONING INVESTIGATION

PART A

PART A TO ACCOMPANY SPECIMENS (VOMITUS, FECES, SWABS, FOOD)

PART B TO BE SENT WHEN INFORMATION AVAILABLE

LOCATION OF OUTBREAK (NAME & ADDRESS) _____ _____		SUSPECT MEAL EATEN DATE _____ TIME _____	
NUMBER OF PERSONS ATE MEAL _____ ILL _____	INCUBATION PERIOD IN HOURS SHORTEST _____ LONGEST _____ MEDIAN _____	DURATION OF ILLNESS IN HOURS SHORTEST _____ LONGEST _____ MEDIAN _____	

PERSONS WHO ATE SUSPECT MEAL	AGE	CHECK IF APPLICABLE										CHECK FOOD ITEMS EATEN						
		SEEN BY PHYSICIAN	INCUBATION PERIOD IN HRS.	NAUSEA	VOMITING	DIARRHEA	CRAMPS	FEVER	PROSTRATION	PARALYSIS	OTHER							

SPECIMENS SUBMITTED: _____

PLACE OF COLLECTION: _____

TIME AND DATE OF COLLECTION: _____

EHO: _____

PHONE NO.: _____ EMAIL: _____

HEALTH AUTHORITY & UNIT: _____

ADDRESS: _____

FOR COMMERCIAL PRODUCTS ONLY

SUSPECT FOOD: _____

BRAND NAME: _____ LOT NUMBER: _____

MANUFACTURE: _____

PLACE WHERE FOOD PURCHASED: _____

DATE AND TIME FOOD PURCHASED: _____

Do Not Mail Specimens. Ship in Refrigerated Cooler

A Guide to the Laboratory Investigation of Gastrointestinal Disease Outbreaks

FOOD POISONING INVESTIGATION

PART B

PART A TO ACCOMPANY SPECIMENS (VOMITUS, FECES, SWABS, FOOD)

PART B TO BE SENT WHEN INFORMATION AVAILABLE

LOCATION OF OUTBREAK (NAME & ADDRESS) _____	SUSPECT MEAL EATEN DATE _____ TIME _____
--	---

ATTACK RATE TABLE

FOODS SERVED	NO. PERSONS WHO ATE FOOD				NO. PERSONS WHO DID NOT EAT FOOD ITEM				A MINUS B
	ILL	NOT ILL	TOTAL	% ILL (A)	ILL	NOT ILL	TOTAL	% ILL (B)	

PREPARATION OF SUSPECTED VEHICLE

PREPARED BY _____ PLACE _____ DATE _____ TIME _____ HEATED? ____ (TEMP. _____ C) IF SO, HOW LONG? _____ HR. IF NOT SERVED IMMEDIATELY, WAS FOOD REFRIGERATED? _____ (TEMP. _____ °C), OR KEPT WARM? _____ (TEMP. _____ °C), IF SO, HOW LONG? _____ HR.

SUMMARY OF HISTORY OF FOOD HANDLERS

NAME	DUTIES	HISTORY OF RECENT ILLNESS

FACTORS CONTRIBUTING TO OUTBREAK (CHECK IF APPLICABLE)

- IMPROPER STORAGE OF HOLDING TEMPERATURE
- INADEQUATE COOKING
- CONTAMINATED EQUIPMENT OR WORKING SURFACE

- POOR PERSONAL HYGIENE OF FOOD HANDLER.
- OTHER _____

SUSPECT VEHICLE OF THIS INCIDENT: _____

COMPLETED BY (EHO): _____ PHONE #: _____

HEALTH AUTHORITY & UNIT: _____ EMAIL: _____

ADDRESS: _____

(USE BACK OF FORM FOR REMARKS.)

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A Guide to the Laboratory Investigation of Gastrointestinal Disease Outbreaks

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