
Quick reference guide: Submission of specimens for suspected food/waterborne disease outbreaks to NHLS/NICD laboratories

It is important that all foodborne illness outbreaks be investigated so as to identify the cause and determine future preventive actions. Depending on the clinical presentation of cases, laboratory investigations should include three aspects: (1) bacterial and bacterial toxin identification, (2) virus identification, and (3) environmental sampling (food, water, and milk testing where applicable). It is recommended that samples of the implicated food/beverage AND clinical samples be collected for all outbreaks when possible.

Bacterial identification:

- All samples collected for bacterial pathogens **should be referred to the designated NHLS Public Health Laboratory** (see table under “contact details”). However, **if botulism is suspected samples should be referred to the NICD, Centre for Emerging and Zoonotic Diseases (Bacteriology) Tel: 011-555-0306/31**
- Public health laboratories have the capacities to perform specialised testing for foodborne pathogens and toxins, which may not be routinely detected by standard microscopy and culture techniques.
- The specimen request form should clearly indicate the name of the public health laboratory to which the specimens are referred
- A specific test request must be indicated, or alternatively request “Foodborne investigation”.
- It is essential to label specimens as “**Outbreak specimen**” as usually the Metros or District will be responsible for the bill for these specimens.

Viral identification:

- Tests for viral pathogens that may be the cause of foodborne illness incidents are not routinely performed
- If there is a need to request viral pathogens – these need to be requested specifically through liaison and discussion with the Centre for Enteric Diseases, Virology Division (nicolap@nicd.ac.za or Tel: 011-555 0370 / 011-386-6549) and the Outbreak Response Unit (outbreak@nicd.ac.za or Tel: 011 555 0542), NHLS-NICD

Environmental sampling: Food, Milk and Water Testing

- Contact the Public Health Laboratory for instructions on specimen collection & submission (Table 1)
- Sampling should be systematic and should cover as wide a range as possible
- Different types of foods must be placed in separate containers
- The quantity of food taken must be sufficient (Table 2)
- Environmental health practitioner must notify the owner/manager at the food production/catering facility that samples need to be taken (provide a reason)
- Samples for microbiological analysis must be collected with decontaminated equipment (immerse equipment in 70% alcohol and flame using a portable spirit burner until alcohol evaporates, allow cooling before using).
- It is essential for public health officials/healthcare workers investigating foodborne illness outbreaks to notify the NHLS staff when specimens are collected as part of an outbreak. ALL specimens collected should be referred to one of the designated public health laboratories

Table 1: Designated NHLS Public Health Laboratories contact details and tests offered

	*Provinces referring to designated public health laboratory	Laboratory	Address	Contact Person	Tests offered
1	Gauteng Limpopo Mpumalanga North West Northern Cape Free State Western Cape	NHLS Infection Control Service Laboratory (ICSL), Johannesburg	Wits Medical School, Room 3T09, 7 York Rd. Parktown, Johannesburg, 2193.	Mr. Rob Stewart Tel. 011-489-8578/9 or 011-717-2496 Dr Teena Thomas Tel. 011 489 9181	Foodborne pathogen tests offered as follows: <ul style="list-style-type: none"> • <i>Salmonella</i> spp. • <i>Shigella</i> spp. • <i>E. coli</i> O157 • <i>Bacillus cereus</i> • <i>Clostridium perfringens</i> • <i>Campylobacter</i> spp. • <i>Listeria monocytogenes</i> • <i>Staphylococcus aureus</i> • <i>Vibrio</i> spp. • **Bacterial toxins KZN: Confirmation of <i>Campylobacter</i> spp. referred to NHLS Addington Microbiology Laboratory ***Testing for bacterial toxins not offered – referred to NHLS-ICSL. PE: *** Testing for <i>E. coli</i> O157, <i>Campylobacter</i> spp., <i>Listeria monocytogenes</i> , & bacterial toxins is referred to NHLS-ICSL.
2	KwaZulu-Natal (KZN)	NHLS Public Health Laboratory KZN	3rd Floor, 149 Prince Street, Durban, 4001.	Ms. Esther Pillay Tel: 031-327-6743	
3	Eastern Cape	NHLS Public Health Laboratory, Port Elizabeth (PE)	Corner of Buckingham and Eastborne Road, Mount Croix, Port Elizabeth, 6000.	Ms. Vanessa Pearce Tel: 041-395-6174	

* Samples / specimens may also be transported directly to the NHLS-ICSL for testing

**Bacterial toxins: *Bacillus cereus*; *Staphylococcus aureus*; *Clostridium perfringens*

*** Public Health Laboratories to refer to NHLS-ICSL, Johannesburg

Table 2: Instructions for Environmental Health Practitioners (and other health authorities)

Pathogen, clinical symptoms &	Sample collection	Tests to request	Send to	Forms to complete
Food- and water-borne pathogens	Food: Vol: 50-100g (container full); Container: sterile; Transport temp: 2 - 8 deg C Rejection criteria: >48 hours at room temperature it should be refrigerated, container not sterile, unwholesome	Liaise with testing laboratory	Designated NHLS public health laboratory	Designated public health laboratory submission form
	Milk: Vol: 100ml; Container: original/ sterile; Transport temp: 2 - 8 deg C Rejection criteria: >48 hours old, sour, frozen, container not sterile, at room temperature			NHLS Infection Control Laboratory Service form
	Water (potability): Vol: 100-200ml; Container: sterile; Transport temp: 2 - 8 deg C Rejection criteria: >24 hours at room temperature			NHLS Public Health Laboratory KZN form
	Water (<i>Salmonella spp., V. cholerae, etc.</i>): Vol: moore pad in sterile container, 1000ml for each test; Container: clean /new / sterile; Transport temp: room temperature (if delivered the same day) Rejection criteria: >24 hours, unsterile container, 48 hours at room temperature			NHLS Public Health Laboratory Port Elizabeth form