

To: Nova Scotia Health, Public Health Practitioners

From: Jayne Boutilier, Director, Health Protection, Public Health Branch, DHW

Date: February 28, 2024

Re: *Changes for select bacterial enteric diseases*

The purpose of this memo is to advise Public Health about the addition of molecular testing in Central Zone for Salmonellosis (including Typhoid fever and Paratyphoid fever), Shigellosis, Campylobacteriosis, Cholera and Verotoxigenic E. coli (VTEC), also reported as Shiga toxin-producing E. coli (STEC). This laboratory change is anticipated to be implemented in Summer 2024.

Once the Provincial Public Health Laboratory Network (PHLLN) implements these changes, Public Health practitioners will begin to see molecular test results for the above diseases.

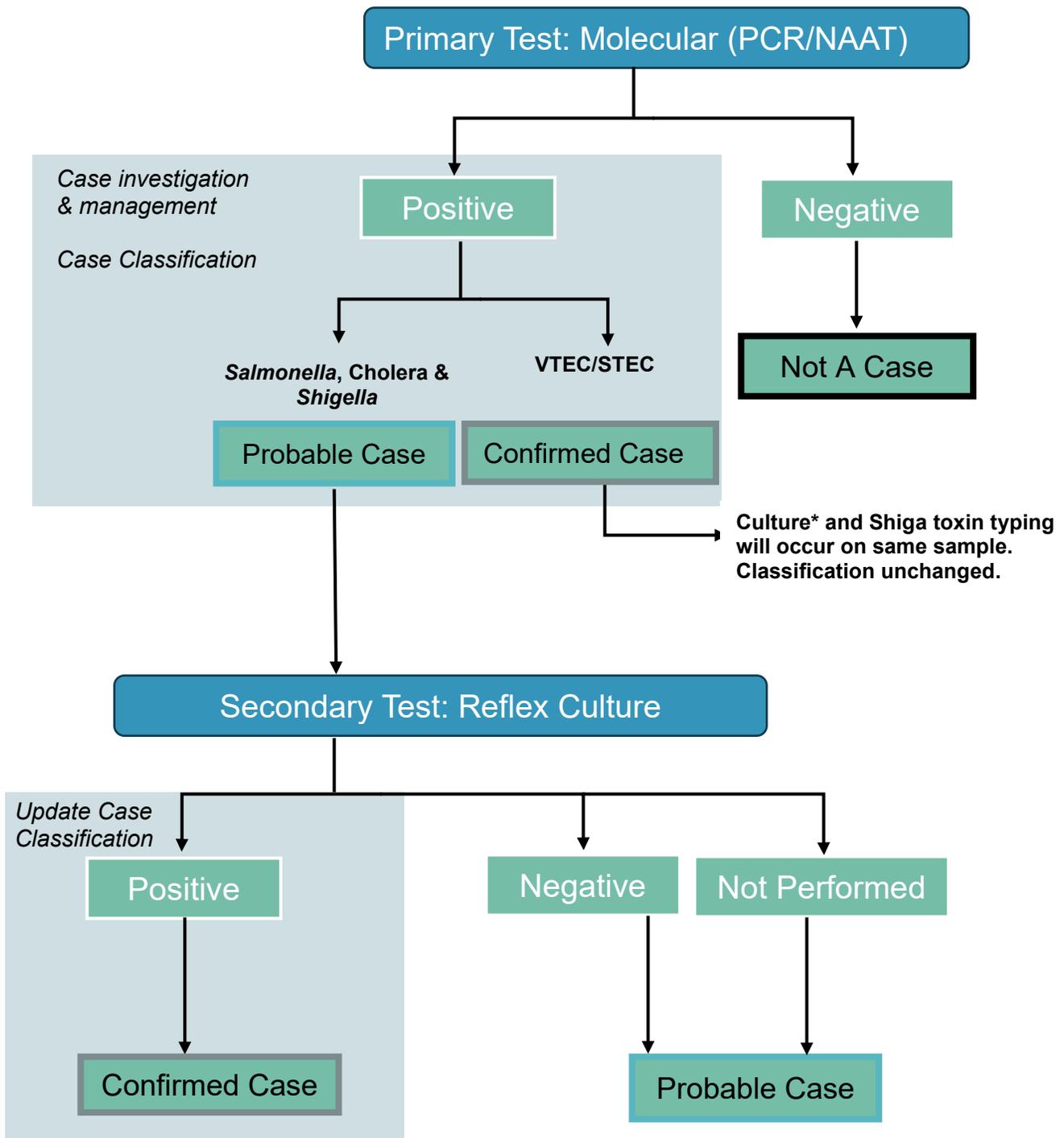
This change will impact specimens processed in Central zone and is expected to expand to other zones over time. The following table and algorithm provide guidance on actions required for these laboratory results.

The [Nova Scotia Surveillance Guidelines for Notifiable Diseases and Conditions](#) have been updated to reflect this change. While the Communicable Disease Manual chapters are being updated, please refer to the surveillance guidelines for the current symptom lists for the above noted diseases.

This memo will be added to the beginning of all affected [Nova Scotia Communicable Disease Manual Chapters](#). As a reminder, all chapters in the Nova Scotia Communicable Disease Manual are evergreen and online versions are dated as the most current version.

Disease	Public Health initiation of case based on laboratory result	Public Health Management considerations for high-risk exclusions and return-to-work	Other Considerations
Cholera	Public Health investigation to begin when positive molecular result received.	<ul style="list-style-type: none"> Public Health management as per NSH resources and the Cholera chapter guidance. 	N/A
Salmonellosis	<p>Public Health investigation to begin when positive molecular result received.</p> <p>All <i>Salmonella</i> positive molecular (PCR) tests will be cultured.</p> <p>Public Health case managers should monitor closely for culture results as public health management will differ <i>Salmonella</i> Paratyphi* or Typhi†</p>	<ul style="list-style-type: none"> See the Salmonellosis chapter. For Paratyphoid Fever or Typhoid Fever, see below and each CD Manual chapter guidance. 	<ul style="list-style-type: none"> Let client know their lab has been submitted for further testing and they may receive an additional call with more information based on culture results. (e.g., culture may detect <i>Salmonella</i> Paratyphi* or <i>Salmonella</i> Typhi†) which are 2 species where Public Health management criteria differs slightly from the other species.
*Paratyphoid Fever (<i>Salmonella</i> Paratyphi)	Public Health would have already initiated case investigation as a <i>Salmonella</i> species as PPHLN would not identify <i>Salmonella</i> Paratyphi on molecular testing (see <i>salmonellosis</i> above). The detection of <i>Salmonella</i> Paratyphi will be identified upon culture.	<ul style="list-style-type: none"> If positive culture for <i>Salmonella</i> Paratyphi, Public Health management will follow the Paratyphoid Fever chapter. When follow up samples are required, these should be clearly marked as “Follow-up for Public Health” with a RMOH name indicated so that the lab will know to skip the molecular testing stage and only complete culture. Follow-up culture testing should be used to determine if carriage has cleared, as molecular testing may detect nonviable organisms. 	N/A
†Typhoid Fever (<i>Salmonella</i> Typhi)	Public Health would have already initiated case investigation as a <i>Salmonella</i> species as PPHLN would not identify <i>Salmonella</i> Typhi on molecular testing (see <i>salmonellosis</i> above). <i>Salmonella</i> Typhi will be identified upon culture.	<ul style="list-style-type: none"> If positive culture for <i>Salmonella</i> Typhi, Public Health follow-up will occur as per the Typhoid Fever chapter. When follow-up samples are required, these should be clearly marked as “Follow up for Public Health” with an RMOH name indicated so that the lab will skip the molecular testing stage, only completing culture. Follow-up culture testing should be used to determine if carriage has cleared, as molecular testing may detect nonviable organisms. 	N/A

Disease	Public Health initiation of case based on laboratory result	Public Health Management considerations for high-risk exclusions and return-to-work	Other Considerations
Shigellosis	Public Health investigation to begin when positive molecular result received.	<ul style="list-style-type: none"> • See the Shigellosis chapter. • When follow up samples are required, these should be clearly marked as "Follow up for Public Health" with a RMOH name indicated so that the lab will know to skip the molecular testing stage. • Follow-up culture testing should be used to determine if carriage has cleared, as molecular testing may detect nonviable organisms. 	<ul style="list-style-type: none"> • Let client know their lab has been submitted for further testing and they may receive an additional call with more information based on culture results.
Verotoxigenic E. coli (VTEC)/Shiga toxin-producing E. coli (STEC)	Public Health investigation to begin when positive molecular result received.	<ul style="list-style-type: none"> • See the VTEC chapter. • Molecular negative tests can be used to inform exclusion criteria. • When follow up samples are required, these should be clearly marked as "Follow up for Public Health" with a RMOH name so that the lab will know to skip the molecular testing stage. • Follow-up culture testing should be used to determine if carriage has cleared, as molecular testing may detect nonviable organisms. 	<ul style="list-style-type: none"> • VTEC may also be reported as STEC. • Let client know their lab has been submitted for further testing and they may receive an additional call with more information based on culture results.
Campylobacteriosis	Public Health investigation to begin when positive molecular result received.	<ul style="list-style-type: none"> • Public Health management as per NSH resources and the Campylobacteriosis chapter guidance. 	N/A



SALMONELLOSIS

Case definition

The Salmonellosis case definition can be found in the NS Surveillance Guidelines found here: <https://novascotia.ca/dhw/populationhealth/diseases-and-conditions-A-Z.asp>

Causative agent

Salmonella enterica, a gram negative enteric bacillus. There are over 2000 serotypes.

Source

Stool of an infected person or animal, including poultry (especially chicks), swine, cattle, rodents, dogs, cats, reptiles and turtles.

Incubation

Usually 12 to 36 hours, may be from 6 to 72 hours. Longer incubation periods (up to 16 days) have been documented following low dose ingestion.

Transmission

- Fecal-oral from person-to-person or animal-to-person.
- Ingestion of food or water contaminated by feces of an infected person or animal.
- Ingestion of food derived from an infected animal and/or food contaminated by contact with a contaminated food product (cross contamination).

Communicability

Shedding of the bacteria in the stool occurs throughout entire infection, usually several days to several weeks. About 1% of adults and 5% of children go on to carry and excrete the bacteria for up to one year.

Symptoms

Headache (onset may be sudden), fever, abdominal pain and/or cramps, diarrhea (may be bloody), dehydration (may be severe), nausea and sometimes vomiting. May be asymptomatic.

Diagnostic testing

Stool for culture.

Treatment

None, antibiotic treatment may lengthen the period of communicability.

Note: Under special circumstances an antibiotic may be given (i.e., case is infant under 2 months, elderly, persons with sickle cell disease or HIV infection, or persons with continued or high fever).

PUBLIC HEALTH MANAGEMENT & RESPONSE

Case management

Follow up the case using the following steps:

1. Contact the primary care provider to obtain clinical information on the case.
2. Interview the case, review clinical information, determine food history and activities, employment, potential source of exposure and determine any contacts that may require investigation (see "[Contact tracing](#)" section).
3. Educate the case and/or family about salmonellosis and prevention measures, providing access to website, general information, etc.
4. Implement the necessary exclusions as per the "[Exclusion of cases and carriers](#)" section for those cases identifying as belonging to one or more risk group(s). Exclusion of carriers should be done in consultation with the MOH.
5. If the case has reported a food establishment (including institutional settings) as a potential source of exposure then contact a Food Safety Specialist with the Department of Environment.
6. Document the information on the Enteric Case Report Form and the Salmonellosis Case Report Form.

Exclusion of cases and carriers

Exclude cases and carriers in the risk groups below:

Risk Group	Criteria for Exclusion
Food handlers	Until 48 hours after symptoms have subsided AND case has had 2 normal stools AND 48 hours after stopping the use of anti-diarrheal medication.
Health care, child care or other staff who have contact with susceptible persons	Until 48 hours after symptoms have subsided AND case has had 2 normal stools AND 48 hours after stopping the use of anti-diarrheal medication.
Children attending child care	Until 48 hours after symptoms have subsided AND case has had 2 normal stools AND 48 hours after stopping the use of anti-diarrheal medication.
Carriers employed in: <ul style="list-style-type: none">• food handling• child care*• health care and/or other staff who have contact with susceptible persons * Inclusive of those attending child care.	Case management should be done in consultation with the Medical Officer of Health. Carriers should be discouraged from preparing food for others as long as they shed organisms.

Education of case

Offer the following information:

- Ensure cases belonging to a high risk group are aware of exclusion criteria.
- Remind cases about the importance of hand hygiene in stopping the spread of salmonella and to wash hands before preparing food and after using the bathroom and changing diapers.
- Inform the case about the potential to infect contacts and provide information on how to minimize transmission to others; including household and close contacts, including sexual contacts.

- Recommend that cases infected with salmonella or any other gastrointestinal illness should not prepare or serve food to other people (for food handlers see “[Exclusion of contacts](#)” section).

See the [General Information Sheet](#) for further information on preventing the transmission of salmonella.

Contact tracing

Contact tracing should be initiated as part of case management if symptomatic contacts or contacts that belong to any of the Risk Groups identified in the “[Exclusion of contacts](#)” section are identified by the case.

Definition of a contact

A contact is a person who has had exposure to a case during the period of communicability and at risk of infection by the fecal-oral route by either person-to-person contact or the ingestion of contaminated food or water.

Contacts include:

- Household contacts (those living in the same residence)
- Close contacts including sexual contacts and persons that may have had hand-to-mouth contact with the case such as sharing meals the case has prepared.

Exclusion of contacts

Exclude contacts in the risk groups below:

Risk Group	Criteria for Exclusion
Contacts who are employed in: <ul style="list-style-type: none"> • food handling • child care* • health care and/or other staff who have contact with susceptible persons * Inclusive of those attending child care.	<i>Symptomatic:</i> Until 48 hours after symptoms have subsided AND case has had 2 normal stools AND 48 hours after stopping the use of anti-diarrheal medication. <i>Asymptomatic:</i> No exclusion required.

Education of contacts

If Public Health is notifying contacts, inform the contacts of the following:

- Their potential exposure
- An explanation of the illness (description of the disease, symptoms, etc.)

- The range of clinical presentation
- Incubation period
- Report to Public Health if they become symptomatic

See [General Information Sheet](#) for further information on preventing the transmission of salmonella.

Outbreak

Consult the [Outbreak Response Plan](#) for further guidance if an outbreak is suspected.

For outbreaks in childcare settings also refer to the [Guidelines for Communicable Disease Prevention and Control for Child Care Settings](#).

For Outbreaks in Long-Term Care Facilities also refer to Infection Prevention and Control Nova Scotia's (IPCNS) [Infection Prevention and Control: Guidelines for Long-Term Care Facilities](#).

General Information Sheet

References

Control of Communicable Diseases Manual, 20th edition. 2015. David Heymann, MD, editor.

Provincial Microbiology User's Manual. cdha.nshealth.ca/pathology-laboratory-medicine

Public Health Agency of Canada. (2009). Case Definitions for Communicable Diseases under National Surveillance. CDR 2009; 35S2, 1-123. Retrieved from phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/index-eng.php

Red Book. 2012 Report of the Committee on Infectious Diseases, 29th edition. American Academy of Pediatrics.

Report of the Committee on Infectious Diseases, 2000. American Academy of Pediatrics

Salmonellosis cdc.gov/salmonella/