Health and Wellness
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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.

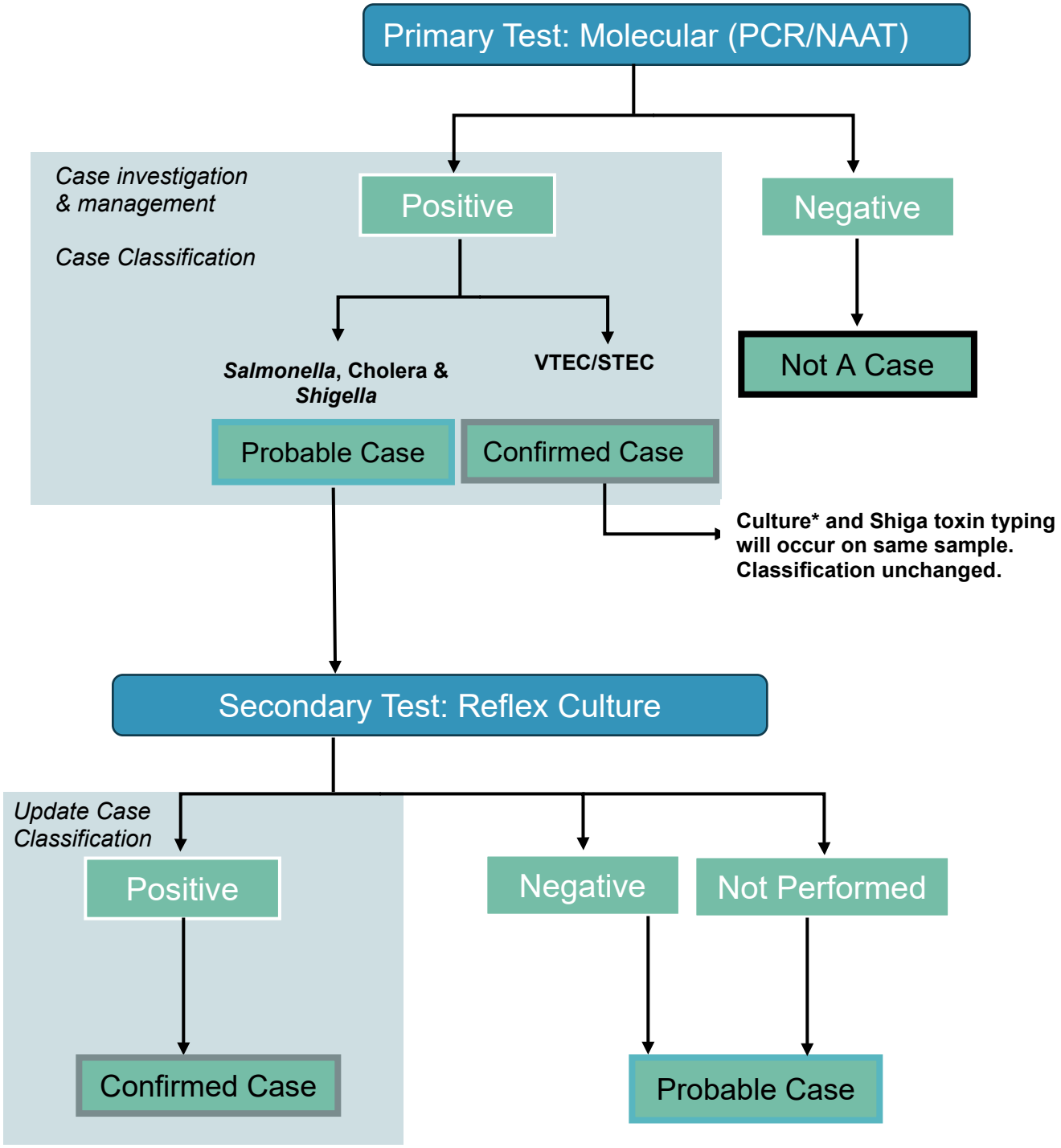
This change will impact specimens processed in Central zone and is expected to expand to other zones over time. The following table and algorithm provide guidance on actions required for these laboratory results.

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.	• Public Health management as per NSH resources and the Cholera chapter guidance.	N/A
Salmonellosis	Public Health investigation to begin when positive molecular result received. All *Salmonella* positive molecular (PCR) tests will be cultured. Public Health case managers should monitor closely for culture results as public health management will differ *Salmonella* Paratyphi* or Typhi†	• See the Salmonellosis chapter. • For Paratyphoid Fever or Typhoid Fever, see below and each CD Manual chapter guidance.	• 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 *Salmonella* Paratyphi* or *Salmonella* Typhi†) which are 2 species where Public Health management criteria differs slightly from the other species.
***Paratyphoid Fever** (*Salmonella* Paratyphi)	Public Health would have already initiated case investigation as a *Salmonella* species as PPHLN would not identify *Salmonella* Paratyphi on molecular testing (see *salmonellosis* above). The detection of *Salmonella* Paratyphi will be identified upon culture.	• If positive culture for *Salmonella* 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 (*Salmonella* Typhi)	Public Health would have already initiated case investigation as a *Salmonella* species as PPHLN would not identify *Salmonella* Typhi on molecular testing (see *salmonellosis* above). *Salmonella* Typhi will be identified upon culture.	• If positive culture for *Salmonella* 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.	• 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.	• 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.	• 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.	• 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.
Campylo-bacteriosis	Public Health investigation to begin when positive molecular result received.	• Public Health management as per NSH resources and the Campylobacteriosis chapter guidance.	N/A


Primary Test: Molecular (PCR/NAAT)
Case investigation & management
Case Classification
Positive
Negative
Not A Case
Salmonella, Cholera & Shigella
VTEC/STEC
Probable Case
Confirmed Case
Culture* and Shiga toxin typing will occur on same sample. Classification unchanged.
Secondary Test: Reflex Culture
Update Case Classification
Positive
Negative
Not Performed
Confirmed Case
Probable Case

SHIGELLOSIS

Case definition

The Shigellosis 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

The bacteria *Shigella* have 4 subgroups: *dysenteriae, flexneri, boydii,* and *sonnei. S. dysenteriae* is often associated with severe illness.

Source

Humans, feces of infected person

Incubation

1-3 days ranging from 12 hours to 1 week

Transmission

- Fecal-oral, from person to person primarily due to inadequate hand washing after using the toilet or changing diapers, but can also include sexual contact.
- Ingestion of food or water contaminated by feces of an infected person. Contamination can occur through direct contamination with sewage or sewage-contaminated water or cross contamination by a food handler. Commonly implicated foods include raw fruits and vegetables, milk/milk products (usually raw products) and shellfish harvested from sewage-contaminated waters. Flies may also be a vehicle for the contamination of food.

Communicability

Shedding usually ends within 4 weeks, carriage for longer periods is possible but rare. Infectious dose is low. Antibiotic treatment reduces communicability to less than a week.

Symptoms

Diarrhea (can contain blood and mucus), fever, nausea, and occasionally toxemia, vomiting, cramps and tenesmus; illness ranges from mild to severe. Asymptomatic infections may occur.

Diagnostic testing

Stool for culture

Treatment

Fluid replacement to prevent dehydration. Antibiotic treatment is useful for severe infections and to shorten duration of shedding. Multi-drug resistance is common, so antimicrobial treatment depends on the isolated strain.

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, travel 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 shigellosis and prevention measures, providing access to website, general information, etc.
4. Implement the necessary exclusions as per the "***Exclusion of cases***" section for those cases identifying as belonging to one or more risk group(s). For cases that are not listed in either of the risk groups, recommend that the case remain at home until 48 hours after stools have returned to normal and 48 hours after stopping the use of anti-diarrheal medication.
5. If the case identifies consuming shellfish, especially shellfish harvested from an area possibly contaminated with sewage, or raw fruits and vegetables purchased at a food establishment, contact a Food Safety Specialist with the Department of Environment.
6. Document the information on the Enteric Case Report Form and Shigellosis Case Report Form.

Exclusion of cases

Exclude cases in the risk groups below according to the general guideline as well as any additional noted requirements:

Risk Group	Criteria for Exclusion
Food handlers	Until 2 negative stool samples have been obtained at least 24 hours apart AND at least 48 hours after discontinuance of antibiotics.
Health care, child care or other staff who have contact with susceptible persons	Until 2 negative stool samples have been obtained at least 24 hours apart and at least 48 hours after discontinuance of antibiotics.
Children attending child care setting, etc.	Until 2 negative stool samples have been obtained at least 24 hours apart and at least 48 hours after discontinuance of antibiotics.

Note: Ensure that all samples submitted to the laboratory for testing are labelled "Public Health management requirement to inform exclusion".

Education of case

Offer the following information:

- Ensure cases belonging to a high-risk group are aware of exclusion criteria.
- Provide information regarding the collection and submission of stool samples as required.
- Remind cases about the importance of hand hygiene in stopping the spread of *shigella* 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 *shigella* bacteria or any other gastrointestinal illness should not prepare or serve food to other people (for food handlers see "***Exclusion of cases***" section).

See the ***General Information Sheet*** for further information on preventing the transmission of *shigella*.

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 is 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 who 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: • food handling • child care* • health care and/or other staff who have contact with susceptible persons * Inclusive of those attending child care.	*Symptomatic:* Until 2 negative stool samples have been obtained at least 24 hours apart AND at least 48 hours after discontinuance of antibiotics. *Asymptomatic:* Collect one screening stool sample. Exclusion not necessary while awaiting culture results. Note: If any of the culture specimens are positive for shigella bacteria then treat as a case.

Note: Ensure that all samples submitted to the laboratory for testing are labelled "Public Health management requirement to inform exclusion".

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
- Requirement for testing for symptomatic and asymptomatic contacts identified as belonging to any of the risk groups in the "***Exclusion of contacts***" section.
- Report to Public Health if they become symptomatic.

See the ***General Information Sheet*** for further information on preventing the transmission of *shigella*.

Outbreak control

Consult the ***Outbreak Response Plan*** for further guidance if an outbreak is suspected.

For outbreaks in child care 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

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

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