Public Health Ontario
PARTNERS FOR HEALTH

Santé publique Ontario
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Intussusception Investigation Form

Guidance for completion of Intussusception Investigation Form

Background

Intussusception (IS) is the invagination or "telescoping" of one segment of intestine into a segment of the distal intestine. IS is the most common cause of acute intestinal obstruction in infants and young children.[1] Most cases occur in infants who are less than 12 months of age. (Tate et al, 2007) If untreated, intestinal infarction or perforation may occur therefore IS is a potentially life threatening condition and early diagnosis and treatment are essential.

Earlier versions of the rotavirus vaccine were associated with intussusception. Data currently available from post-marketing studies of Rotarix™ and RotaTeq® signal the possibility of an increased risk of intussusception shortly after the fi rst dose of rotavirus vaccine in some populations.[1] However, considering that the benefits of rotavirus vaccination are great, the vaccine continues to be recommended to prevent severe rotavirus disease in infants.[2]

IS CASE INVESTIGATION FORM AND USER GUIDE

- The purpose of this newly created IS investigation form is to assist Health Units in the investigation of a reported case of intussusception (IS) potentially associated with receipt of rotavirus vaccine and contribute to the ongoing monitoring of IS in Ontario.
- The User Guide has been created to ensure that the required data elements are captured consistently and accurately for this specific adverse event following immunization (AEFI). The Brighton Collaboration Intussusception Working Group recommendations[2] and the Intussusception User Guidelines[3] developed by the Canadian Immunization Monitoring Program Active (IMPACT) are the basis of this document.

REPORTING PROCESS

All suspected cases of intussusception following receipt of an immunizing agent should be investigated and reported. Information should be entered into iPHIS as per the usual process for AEFI reporting.

When the form is complete, please send as an **iPHIS referral attachment** to a Nurse Consultant in the Immunization and Vaccine Preventable Diseases team at Public Health Ontario (PHO). The IS form is in PDF format and can be completed electronically and saved to your local drive. From there it can up uploaded and saved as an attachment to the iPHIS referral. Instructions on how to add an attachment to an iPHIS referral are available in the "Weekly iPHIS Notice #309"[4].

If you have any questions about investigation of a case of IS or completion of the form please contact the Immunization & VPD team at IVPD@oahpp.ca.

CASE DETAILS:
This section contains the following information fields. Some of this information is required in the demographic module of iPHIS.

AEFI iPHIS case #	Address
Case closed in iPHIS	City
Client Name	Postal Code
Ontario Health Card Number	Telephone Number
Date of Birth	Primary care provider and telephone number
Gender	Specialist and telephone number
Parent / guardian name	Hospitalization details

- **AEFI iPHIS case #**
  This number should be recorded in order to link the IS case details with the AEFI report in iPHIS. All reported cases of intussusception should be entered into iPHIS.
- **Case closed in iPHIS**
  Once the IS investigation is complete, this box should be checked off to document that the case investigation is completed.
- **Parent/guardian name**
  Due to the age of the child that the report is being completed on, the assumption is that this demographic information is the same as the parent/guardian.
- **Primary care provider / Specialist and telephone number**
  It is anticipated that the investigator may need to contact both the primary care provider and the specialist to capture previous immunization history and past health history as well as information related to the IS event and subsequent management.
- **Hospitalization**
  It is expected that a child experiencing IS will require at least an ER visit. The hospital name, type of stay, admission / discharge date and number of hospital days attributable to the IS event should be documented.
  If the child was readmitted for the same episode of IS (more than once within 1 week); all information related to this should be captured on this form. If IS should occur again (greater than 1 week from previous event) than a second form should be used to capture the details around the second event.
    - **Number of hospital days**
      Only hospital days associated to the IS episode should be captured. If the IS episode resolved but the child still requires hospitalization for other health reasons, these days should not be included in this total.
    - **Type of stay**
      Use the drop-down list to indicate if the hospital visit was ER only, short stay unit or an in- patient stay.

BASELINE HEALTH INFORMATION:

This section is designed to capture the following information.

Prematurity	Other underlying health conditions
Gestational Age at birth (if premature birth)	Infectious disease history
Birth weight (if premature birth)	Nutrition
Weight/length at time of diagnosis	Predisposing conditions
Medications (Prescription and Non-prescription)	

- **Prematurity**
  Defined as <37 weeks' gestation. If premature, indicate gestational age in weeks and weight in kilograms at birth.
- **Weight/Length at time of diagnosis**
  This reflects the weight and length of the infant at the time of diagnosis, if determined.
- **Predisposing Conditions**
  Select "no" if the child has been generally healthy, with minor ailments only. (E.g. The usual coughs and colds, middle ear infections, sore throat illnesses, minor skin problems, mild developmental delay, appendix removal, broken bone, etc.)
  Select "yes" if there is a condition which may predispose the child to IS. These predisposing conditions are included in the drop-down list. Select any condition that is applicable from this list or if "other gastrointestinal malformation or dysfunction" is selected provide additional detail in the space provided.
    - **New Predisposing Condition**
      If the predisposing condition is newly diagnosed during this event, note this by checking off "yes" and entering the diagnosis date.
- **Other underlying health conditions**
  Select "yes" if there are any other underlying health conditions present. Select the condition from the drop-down list and provide additional detail according to the following guidelines.
    - **Developmental delay**
      Describe the level of delay (e.g. speech delay, gross motor delay, global developmental delay, etc.). If the term is used without more information, indicate "no details". If developmental delay is being investigated indicate "under investigation".
    - **Complex multi-system diagnosis (E.g. Down's syndrome)**
      Provide up to four major clinical manifestations, for example "complex congenital heart disease" or "ventricular septal defect" or "g-tube" or "athymic".
    - **Cancer**
      Specify type of cancer and cancer treatment. Treatment can apply to any form (chemotherapy or radiation) or stage (induction, maintenance) of chemotherapy, ongoing or completed within the previous 3 months. Where applicable, please include a comment indicating if treatment was completed more than three months prior.
- **Nutrition**
  Indicate whether the case is breastfed, formula fed, both or unknown from the drop-down list. Indicate if the child has started solid food and list these food items in the space provided.

- **Medications**
  Indicate "yes" if applicable and record all prescription and non-prescription medication (E.g. herbal or homeopathic medication). It is particularly important to capture any medications administered on the day of immunization until the day / time diagnosis of intussusception, as well as medications that have a long half-life (e.g., immunoglobulin and blood transfusion)[2].

IMMUNIZATION HISTORY:

This section collects the following information, for all vaccines received.

Agent	Date / time
Lot #	Age (weeks)
Site	Immunization-IS time interval
Route	History of AEFI

- **Complete immunization record**
  A complete immunization record should be obtained including all of the variables listed above. This record should include the dose of vaccine for which the AEFI is being reported as well as any other vaccines received since birth including previous dose(s) of rotavirus vaccine.
- **Immunization – IS time interval**
  Indicate in days, the time lapse between the date of rotavirus immunization and the date of onset of IS. If date of onset is not available, then the date of diagnosis should be used.
- **History of AEFI**
  Indicate if there is a previous history of any adverse events following immunization prior to this current IS event.

INTUSSUSCEPTION HISTORY:

This section collects the following information.

Previous history of intussusception	Diagnosis date
Current onset date	Case classification

- **Previous history of intussusception**
  Select "Yes" if there is a history of IS prior to this episode. If "Yes" is selected provide additional detail in the space provided.
- **Current onset Date**
  This should be documented when possible in addition to the date of diagnosis of IS. This date should reflect the date when the first sign or symptom for IS occurred and is used to calculate the "Immunization – IS time interval" (see above).
- **Diagnosis Date**
  This is the date that the diagnosis of IS was made at the hospital, not the date of arrival in the hospital (e.g. ER).
- **Case classification**
  Ensure one of the four options in the drop-down list is selected to indicate the outcome of the investigation. The intent of this field is to classify the event with respect to confirming whether it is a case of intussusception, **NOT** whether there is any association with the vaccine administration that occurred prior to the event.

CLINICAL PICTURE:

This section collects clinical information about the case. Check all that apply.

Lethargy	Vomiting (With or without bile stains)
Abdominal pain	Abdominal mass
Acute abdominal distension	Rectal mass
Abnormal / absent bowel sounds	Intestinal mass
Blood detected on rectal exam	Pallor
Passage of blood per rectum	Hypovolemic shock
Passage of stool containing “red currant jelly” material	

DIAGNOSTIC TESTS:

This section collects the following information pertaining to any diagnostic tests that were done in relation to the IS episode.

Abdominal x-ray
CT
Ultrasound

Indicate using the tick boxes if X-ray, CT and ultrasound were done. Select the findings from the drop-down lists and tick box provided.

MICROBIOLOGY:

This section collects the following information.

Specimen date	Pathogen
Type of test	Result

The laboratory results reported here should include any organism isolated / identified by microbiologic testing of stool specimens during the current IS episode.

- **Pathogen**
  Select the identified pathogen from the drop-down list provided. The drop-down list includes the infectious organisms most commonly associated with intussusception.

TREATMENT / OUTCOME:

This section collects the following information.

Non-surgical treatment received	Outcome
Surgery	Complications
Bowel loss (site and amount)	

- **Non-surgical treatment received**
  Indicate if a non-surgical treatment was received and indicate what type of treatment by selecting from the drop-down list provided. (E.g. Liquid contrast, hydrostatic water or air enema).
- **Surgery**
  Indicate if surgery was done. Select the applicable surgical procedure from the drop-down list. Be sure to also document the site and amount of bowel loss in cm if applicable.
- **Outcome**
  Monitoring of IS should be extended to recovery or until a final outcome is reached. Select "Resolved due to treatment", "Resolved due to surgery" or "Spontaneously resolved" from the drop-down list. Provide additional detail in the space provided or if there is an alternative outcome.
- **Outcome Date**
  This is the date on which the outcome was reached (end of last visit, or discharge from hospital, or death). If the child remains in hospital for another reason, use the IS resolution date as the outcome date. If a child has more than one IS-related admission (or visit) in the time frame of less than 1 week, record both outcome dates using a 1 or 2 to reference this. Do not include any return visits to the hospital that were strictly a follow-up to see that the child was doing fine.
- **Complications**
  This includes complications arising as a result of the IS, the treatment or surgical intervention and may include intestinal perforation, sepsis, hypovolemic shock due to intussusception etc. If the child dies, the outcome needs to reflect whether they died from a complication associated with IS or another cause such as cancer. For deaths, the outcome date is the date of death.

The last area is for the case investigator to include their signature, title and date form is completed.

References

1. World Health Organization. GACVS: Meeting of the Global Advisory Committee on Vaccine Safety, January 2011 WER. 2011; 5 (86):38–43.
2. National Advisory Committee on Immunization (NACI). Literature Review on Rotavirus: Disease and Vaccine Characteristics. *Can Commun Dis Rep.* 2010; 36(ACS14):1-31.
3. Bines JE, Kohl KS, Forster J et al., Acute intussusception in infants and children as an adverse event following immunization: case definition and guidelines of data collection, analysis, and presentation. Vaccine 22 (2004) 569 -574.
4. Immunization Monitoring Program, Active (IMPACT). Intussusception User's Manual - IMPACT Intussusception Surveillance. (Internal document). January 2011.
5. Weekly iPHIS Notice #309. Weekly tip #309 - When sending a referral, Part 2. Pg.10-11.