Taddle Creek
Family Health Team

MEDICAL DIRECTIVE

Title:	Administration of Vaccines/Injectable Substances, Laboratory Requisition for Immunity Testing and Prescribing of Hepatitis Vaccines	**Number:**	TCFHT-MD15
Activation Date:	09-Sep-2014	**Review Date:**	October 4, 2019
Next Review:	October 4, 2020		
Sponsoring/Contact Person(s) *(name, position, contact particulars):*	Victoria Charko, RN 790 Bay Street, Suite 522 Toronto, Ontario M5G 1N8 Tel: 416-591-1222 Dr. Sarah Shaw 790 Bay Street, Suite 522 Toronto, Ontario M5G 1N8 Tel: 416-591-1222		

Order and/or Delegated Procedure:	**Appendix Attached: _X_ No __ Yes** **Title:**

The implementers may, in accordance with the conditions identified in this directive:

- administer vaccinations and other injectable substances
- order bloodwork to test for immunity to vaccine-preventable diseases
- prescribe Hepatitis A and Hepatitis B vaccines

Recipient Patients:	**Appendix Attached: __ No _X_ Yes** **Title:** Appendix A – Authorizer Approval Form

Recipients must:

- Be active patients of a TCFHT primary care provider who has approved this directive by signing the Authorizer Approval Form
- Meet the conditions identified in this directive
- For immunizations and injectable substances, be 2 months of age or older and require the following vaccines/substances:
    - Diphtheria, Tetanus, Acellular Pertussis, Inactivated Poliovirus and *Haemophilus influenzae* type b **0.5ml IM**

- Pneumococcal Conjugate 13-valent **0.5ml IM**
- Rotavirus **2ml PO**
- Measles, Mumps and Rubella **0.5ml SC**
- Meningococcal Conjugate C **0.5ml IM**
- Meningococcal Conjugate ACYW-135 **0.5ml IM**
- Meningococcal B **0.5ml IM**
- Varicella **0.5ml SC**
- Diphtheria, Tetanus, Acellular Pertussis - Inactivated Poliovirus **0.5ml IM**
- Measles, Mumps, Rubella and Varicella **0.5ml SC**
- Diphtheria, Tetanus and Acellular Pertussis **0.5ml IM**
- Diphtheria and Tetanus **0.5ml IM**
- Pneumococcal Polysaccharide **0.5ml IM**
- Diphtheria, Tetanus and Inactivated Poliovirus **0.5ml IM**
- *Haemophilus influenzae* type b **0.5ml IM**
- Inactivated Poliomyelitis **0.5ml SC**
- Varicella-Zoster **0.65ml SC/0.5ml IM**
- Human Papillomavirus **0.5ml IM**
- Hepatitis A:
  - Vaqta
    - 6 months-17yrs **0.5ml IM**
    - 18yrs+ **1.0ml IM**
  - Havrix
    - 6 months-18yrs **0.5ml IM**
    - 19yrs+ **1.0ml IM**
- Hepatitis B
  - Engerix-B
    - Neonates-19yrs **0.5ml IM**
    - 20yrs+ **1.0ml IM**
  - Recombivax
    - Neonates-19yrs **0.5ml IM**
    - 20yrs + **1.0ml IM**
- Hepatitis A/Hepatitis B
  - Twinrix Jr.
    - 6 months-18yrs **0.5ml IM**
  - Twinrix
    - 6 months-15yrs **1.0ml**
    - 19yrs+ **1.0ml IM**
- Salmonella typhi **0.5ml IM**
- Allergy shots **dose varies by patient** – administered **SC**
- Vitamin B12 **dose varies by patient** – administered **IM**
- Denosumab **1ml (60mg) SC**

- For laboratory requisition and prescribing of Hepatitis A and Hepatitis B vaccines, be 16 years of age or older
- For laboratory requisition only, require serologic proof of immunity to any of the following: measles, mumps, rubella, varicella, hepatitis A and hepatitis B

Authorized Implementers:	**Appendix Attached: __ No _X_ Yes** **Title:** Appendix B – Implementer Approval Form Appendix C – Additional Voluntary Preparation

Implementers must be TCFHT-employed Regulated Health Care Providers or Physician Assistant (under the supervision of a physician).

Implementers must complete the following preparation and sign the Implementer Approval Form:

1. Complete certification in CPR (minimum level C plus AED training)
2. Demonstrate clinical competence and knowledge to supervising physician(s) and/or nurse practitioner and be observed on at least 3 occasions while implementing this medical directive
3. Review and be familiar with the *Publicly Funded Immunization Schedules for Ontario – December 2016,* accessible from: http://www.health.gov.on.ca/en/pro/programs/immunization/docs/immunization_schedule.pdf
4. Review and be familiar with the *Canadian Immunization Guide*, accessible from: https://www.canada.ca/en/public-health/services/canadian-immunization-guide.html
5. Review and be familiar with the most current clinical practice guidelines for reducing pain in immunization as per "Reducing pain during vaccine injections: clinical practice guideline" in the *Canadian Medical Association Journal*, accessible from: https://www.cmaj.ca/content/cmaj/187/13/975.full.pdf
6. Review most current guidelines for anaphylaxis management as per "Anaphylaxis" in the *Canadian Immunization Guide, Part 2 – Vaccine Safety: Early vaccine reactions including anaphylaxis*", accessible from: https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-2-vaccine-safety/page-4-early-vaccine-reactions-including-anaphylaxis.html#p2c3a4

In addition, Registered Pharmacist implementers must complete an Ontario College of Pharmacists (OCP)-approved injection training course and must register their training with the OCP.

Note: Implementers may opt to complete further preparation with the readings found in Appendix C.

Indications:	**Appendix Attached: __ No _X_ Yes** **Title:** Appendix D – Contraindications and Precautions; Appendix E – Guidelines for the Interval Between Administration of Blood Products and Live Vaccines

1. The implementers are authorized to administer vaccines and injectable substances to any patients, aged 2 months and older, as recommended in the National Advisory Committee on Immunization (NACI) guidelines and with reference to the *Publicly Funded Immunization Schedules for Ontario – December 2016.* If receiving more than one vaccine/injectable substance at one time, the implementer will ensure there is no interaction between the vaccines and/or injectable substances. The implementer will consult with a physician or nurse practitioner if any contraindication to receiving the vaccine/injectable substance is identified in the initial screening. After consultation, if the vaccine or injectable substance is to be given, the physician or nurse practitioner will review the implementer's documentation in the EMR and will document his/her own assessment as well.

Contraindications to vaccines and injectable substances:

- Severe acute illness with or without a fever

- Allergy to a component of a vaccine/substance (e.g. latex) or a history of a severe, previous reaction to the vaccine/substance to be given
- Pregnancy or immunosuppression (live vaccines only)
- Patient has a contraindication specific to a particular vaccine/injectable substance as per product monograph and/or appendices

Precautions for vaccines and injectable substances:

- Moderate acute illness with or without a fever
- Febrile or has been febrile in the past 24-48 hours
- Rash
- Pregnancy
- Immunosuppression
- History of progressive or unstable neurologic disorder
- History of thrombocytopenia or history of thrombocytopenic purpura
- Egg allergy other than hives
- Patient has received blood products or immune globulin (Ig) preparations in the last 12 months (refer to Appendix E for timing intervals)

When to defer live-virus vaccines:

- If the patient requires a TB skin test (TST) within 4 weeks, defer live-virus vaccine until after TB skin testing is complete as the vaccine may temporarily depress the reactivity to TST. If patient unable to defer, administer live-virus vaccine on the same day as the TB skin test but at a different site.
- If the patient will be receiving blood products or immune globulin (Ig) preparations in the next 14 days, as per Appendix E

2. The implementers are authorized to complete a laboratory requisition for measles, mumps, rubella, varicella, hepatitis A and/or hepatitis B titers when a patient requires evidence of immunity.

Contraindications to laboratory requisition for immunity testing:

- Patient is currently symptomatic for the disease for which immunity is being tested
- Post-exposure testing
- Patient received a vaccine < 4 weeks ago for the disease for which immunity is being tested

3. The implementers are authorized to prepare a prescription for Hepatitis B or Hepatitis A/B vaccine if the patient has demonstrated non-immunity to the disease(s) or lacks previous immunization.

Consent:	**Appendix Attached: __X__ No ___ Yes** **Title:**

- The implementer will obtain verbal consent from the patient or legal substitute decision maker for the administration of a vaccine or injectable substance, and will explain any potential risks and benefits prior to administering the injection.
- Patient's consent for the order of titers is implied, as the patient has presented seeking proof of immunity to specific diseases and is a Family Health Team patient where interprofessional practice is expected. Patient is informed of the purpose of testing for immunity, including when results will be available, and contact information is obtained for the review of the results (if not contacted by the primary care provider).

Guidelines for Implementing the Order/Procedure:	**Appendix Attached: ___ No _X_ Yes** **Title:** Appendix F – Laboratory Requisitions

For administration of vaccines/injectable substances:

Prior to the administration of vaccines or injectable substances, the implementer will review with the patient or patient's guardian, the purpose of and any adverse effects related to the vaccines or injectable substances.

Authorized implementer may administer the vaccine or injectable substance upon receiving consent and after confirming appropriateness (according to NACI guidelines, if a vaccine).

Authorized implementer will remind the patient and the primary care provider to ensure annual bloodwork is done for patients receiving denosumab (Prolia) injections.

Injections will be administered according to the administration instructions printed in the designated vaccine's product monograph. Universal precautions will be taken to minimize transmission of bloodborne pathogens and ensure patient and clinician safety. The implementer will use evidence-based strategies and techniques to minimize the pain of injection, as per the Clinical Practice Guidelines outlined by the Canadian Medical Association (see References).

A physician or nurse practitioner must be present in the clinic for assessment and decision-making for patients who have contraindications to receiving the vaccine/injectable substance, and to provide emergency treatment should a patient experience an acute, adverse reaction to the vaccine/injectable substance.

For laboratory requisition for immunity testing, implementer performs the following:

1) Identifies need for laboratory investigation (bloodwork)
2) Ensures that no recent bloodwork has been undertaken that would result in duplication of testing
3) Explains the purpose of the test to the patient
4) Generates a laboratory requisition(s) using the supervising primary care provider's/authorizer's initials
5) Laboratory requisition(s) is signed as per Appendix F
6) Sends a message in Practice Solutions to the primary care provider indicating that a laboratory requisition has been provided
7) Documents that a laboratory requisition has been provided
8) Follows up with the results promptly when available and reviews these findings with the patient's primary care provider in a timely manner so that appropriate treatment or follow-up care is implemented*. Implementer will ensure that results are communicated to the patient and that treatment and/or follow up testing is completed as per guidelines.

*Bloodwork results will be interpreted with caution in cases of immunodeficiency.

For prescription of Hepatitis B vaccine:

Prior to preparing a prescription for Hepatitis B vaccine, the implementer will assess for immunity against Hepatitis A. If the patient has no history of Hepatitis A vaccination or is found to be non-immune to Hepatitis A, the implementer will discuss with the patient vaccination for Hepatitis B alone vs. vaccination

for Hepatitis A and B, including the schedule, cost and benefits/risks of each vaccine. The implementer will prepare a prescription for the chosen vaccine.

Documentation and Communication:	**Appendix Attached: __ No _X_ Yes** **Title:** Appendix G – TCFHT-MD15 Stamp

The implementer will document administration of a vaccine in the "Immunizations" section of the patient's file in the EMR and administration of a vaccine/injectable substance in a chart note in the patient's file in the EMR using the stamp TCFHT-MD15_Vaccines_and_Injectable_Substances (see Appendix G). Information to be documented will include: brand and dose of vaccine/substance used, lot number, expiry date, area of body that is injected and details of any adverse reaction that occurs. A physician or nurse practitioner will be alerted immediately if an adverse reaction occurs.

The implementer will advise the patient of the schedule for further doses of the vaccine or injectable substance, if applicable.

The implementer will document in the EMR that the patient was provided with a laboratory requisition for immunity testing and the disease(s) for which immunity is being tested. Documentation will include name and number of the directive.

Review and Quality Monitoring Guidelines:	**Appendix Attached: _X_ No __ Yes** **Title:**

- Review will occur annually on the anniversary of the activation date. Review will involve a collaboration between the authorizing primary care providers and the approved implementers.
- If new information becomes available between routine reviews, such as the publishing of updated Publicly Funded Immunization Schedules for Ontario or new clinical practice guidelines, and particularly if this new information has implications for unexpected outcomes, the directive will be reviewed by an authorizing primary care provider and a mimimum of one implementer.
- At any such time that issues related to the use of this directive are identified, TCFHT must act upon the concerns and immediately undertake a review of the directive by the authorizing primary care providers and the authorized implementers.
- This medical directive can be placed on hold if routine review processes are not completed, or if indicated for an ad hoc review. During the hold, implementers cannot perform the procedures under authority of the directive and must obtain direct, patient-specific orders for the procedure until it is renewed.

References:

Canadian Immunization Guide, accessible from: https://www.canada.ca/en/public-health/services/canadian-immunization-guide.html

Canadian Immunization Guide: Part 1 – Key Immunization Information: Blood Products, Human Immunoglobulin and Timing of Immunization, accessible from: https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-1-key-immunization-information/page-11-blood-products-human-immune-globulin-timing-immunization.html#p1c10t1

Canadian Immunization Guide: Part 2 – Vaccine Safety: Early vaccine reactions including anaphylaxis, accessible from: https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-2-vaccine-safety/page-4-early-vaccine-reactions-including-anaphylaxis.html#p2c3a4

Vaccine Recommendations and Guidelines of the ACIP - Contraindications and Precautions, *Centers for Disease Control and Prevention*, accessible from: https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.pdf

Individual product monographs for vaccines listed

Publicly Funded Immunization Schedules for Ontario – December 2016 accessible from: http://www.health.gov.on.ca/en/pro/programs/immunization/docs/immunization_schedule.pdf

Reducing pain during vaccine injections: clinical practice guideline, *Canadian Medical Association Journal*, accessible from: https://www.cmaj.ca/content/cmaj/187/13/975.full.pdf

Appendix A:

Authorizer Approval Form

Name	Signature	Date
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Appendix B:

Implementer Approval Form

To be signed when the implementer has completed the required preparation, and feel they have the knowledge, skill, and judgement to competently carry out the actions outlined in this directive.

Name	**Signature**	**Date**
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Appendix C:

Additional Voluntary Preparation

Hepatitis A – Serology, accessible from: https://www.publichealthontario.ca/en/laboratory-services/test-information-index/hepatitis-a-serology

Hepatitis B – Serology, accessible from: https://www.publichealthontario.ca/en/laboratory-services/test-information-index/hepatitis-b-serology

Interpretation of Hepatitis B Serologic Test Results, accessible from: https://www.cdc.gov/hepatitis/hbv/pdfs/serologicchartv8.pdf

Measles – Immunity Serology, accessible from: https://www.publichealthontario.ca/en/laboratory-services/test-information-index/measles-diagnostic-serology

Mumps – Immunity Serology, accessible from: https://www.publichealthontario.ca/en/laboratory-services/test-information-index/mumps-immunity-serology

Rubella – Immunity Serology, accessible from: https://www.publichealthontario.ca/en/laboratory-services/test-information-index/rubella-immunity-serology

Varicella – Immunity Serology, accessible from: https://www.publichealthontario.ca/en/laboratory-services/test-information-index/varicella-serology

Appendix D:

Vaccine Contraindications and Precautions

TABLE 4-1. Contraindications and precautions[a] to commonly used vaccines			
Vaccine	**Citation**	**Contraindications**	**Precautions**
DT, Td	(4)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	GBS <6 weeks after previous dose of tetanus-toxoid–containing vaccine History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid–containing or tetanus-toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid-containing vaccine Moderate or severe acute illness with or without fever
DTaP	(38)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures), not attributable to another identifiable cause, within 7 days of administration of previous dose of DTP or DTaP	Progressive neurologic disorder, including infantile spasms, uncontrolled epilepsy, progressive encephalopathy; defer DTaP until neurologic status clarified and stabilized GBS <6 weeks after previous dose of tetanus-toxoid–containing vaccine History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid–containing or tetanus-toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid–containing vaccine Moderate or severe acute illness with or without fever
Hepatitis A	(39)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	Moderate or severe acute illness with or without fever
Hepatitis B	(40)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component Hypersensitivity to yeast	Moderate or severe acute illness with or without fever
Hib	(41)	Severe allergic reaction (e.g., anaphylaxis) after	Moderate or severe acute illness with or without fever

		a previous dose or to a vaccine component Age <6 weeks	
HPV	(42)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component, including yeast	Moderate or severe acute illness with or without fever
IIV	(43)	Severe allergic reaction (e.g., anaphylaxis) after previous dose of influenza vaccine or to vaccine component.	GBS <6 weeks after a previous dose of influenza vaccine Moderate or severe acute illness with or without fever Egg allergy other than hives, e.g., angioedema, respiratory distress, lightheadedness, recurrent emesis; or required epinephrine or another emergency medical intervention (IIV may be administered in an inpatient or outpatient medical setting and under the supervision of a health care provider who is able to recognize and manage severe allergic conditions).
IPV	(44)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	Pregnancy Moderate or severe acute illness with or without fever
LAIV[b]	(43)	Severe allergic reaction (e.g., anaphylaxis) after a vaccine component Concomitant use of aspirin or aspirin-containing medication in children and adolescents LAIV4 should not be administered to persons who have taken influenza antiviral medications within the previous 48 hours. Pregnancy	GBS <6 weeks after a previous dose of influenza vaccine Asthma in persons aged 5 years old or older Medical conditions which might predispose to higher risk of complications attributable to influenza[c] Moderate of severe acute illness with or without fever

MenACWY	(*45*)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	Moderate or severe acute illness with or without fever
MenB	(46,47)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	Moderate or severe acute illness with or without fever
MMR[d],[e]	(*1*)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component Pregnancy Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy[f] or patients with HIV infection who are severely immunocompromised) Family history of altered immunocompetence[g]	Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product) History of thrombocytopenia or thrombocytopenic purpura Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing[h] Moderate or severe acute illness with or without fever
MPSV4	(*48*)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	Moderate or severe acute illness with or without fever
PCV13	(*49*)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose of PCV13 or any diphtheria-toxoid–containing vaccine or to a component of a vaccine (PCV13 or any diphtheria-toxoid–containing vaccine), including yeast	Moderate or severe acute illness with or without fever

PPSV23	(*50*)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	Moderate or severe acute illness with or without fever
RIV	(*43*)	Severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine	GBS <6 weeks after a previous dose of influenza vaccine Moderate or severe acute illness with or without fever
Rotavirus	(*6*)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component SCID History of intussusception	Altered immunocompetence other than SCID Chronic gastrointestinal disease[i] Spina bifida or bladder exstrophy[i] Moderate or severe acute illness with or without fever
Tdap	(*51*)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures), not attributable to another identifiable cause, within 7 days of administration of previous dose of DTP, DTaP, or Tdap	GBS <6 weeks after a previous dose of tetanus-toxoid–containing vaccine Progressive or unstable neurological disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid–containing or tetanus-toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid–containing vaccine Moderate or severe acute illness with or without fever

Varicella[d],[e]	(52)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy[f] or patients with HIV infection who are severely immunocompromised)[e] Pregnancy Family history of altered immunocompetence[g]	Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product) Moderate or severe acute illness with or without fever Receipt of specific antiviral drugs (acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination) Use of aspirin or aspirin-containing products[j]
Zoster	(53)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy[f] or patients with HIV infection who are severely immunocompromised)[e] Pregnancy	Moderate or severe acute illness with or without fever Receipt of specific antiviral drugs (acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination, for zoster vaccine live only)

Abbreviations: DT = diphtheria and tetanus toxoids; DTaP = diphtheria and tetanus toxoids and acellular pertussis; DTP = diphtheria toxoid, tetanus toxoid, and pertussis; GBS = Guillain-Barré syndrome; Hib = *Haemophilus influenzae* type b; HIV = human immunodeficiency virus; HPV = human papillomavirus; IIV = inactivated influenza vaccine; IPV = inactivated poliovirus; LAIV = live, attenuated influenza vaccine; MenACWY = quadrivalent meningococcal conjugate vaccine; MMR = measles, mumps, and rubella; MPSV4 = quadrivalent meningococcal polysaccharide vaccine; PCV13 = pneumococcal conjugate vaccine; PPSV23= pneumococcal polysaccharide vaccine; SCID = severe combined immunodeficiency; RIV=recombinant influenza vaccine; Td = tetanus and diphtheria toxoids; Tdap = tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis.

(a) Events or conditions listed as precautions should be reviewed carefully. Benefits of and risks for administering a specific vaccine to a person under these circumstances should be considered. If the risk from the vaccine is believed to outweigh the benefit, the vaccine should not be administered. If the benefit of vaccination is believed to outweigh the risk, the vaccine should be administered. Whether and when to administer DTaP to children with proven or suspected underlying neurologic disorders should be decided on a case-by-case basis.

(b) In addition, ACIP recommends LAIV not be used for pregnant women, immunosuppressed persons, and children aged 2-4 years who have asthma or who have had a wheezing episode noted in the medical record within the past 12 months, or for whom parents report that a health-care provider stated that they had wheezing or asthma within the last 12 months. LAIV should not be administered to persons who have taken influenza antiviral medications within the previous 48 hours. Persons who care for severely immunosuppressed persons who require a protective environment should not receive LAIV, or should avoid contact with such persons for 7 days after receipt.

(c) **Source:** (*52*).

(d) HIV-infected children may receive varicella vaccine if CD4+ T-lymphocyte count is ≥15% and should receive MMR vaccine if they are aged ≥12 months and do not have evidence of current severe immunosuppression (i.e., individuals aged ≤5 years must have CD4+T lymphocyte [CD4] percentages ≥15% for ≥6 months; and individuals aged >5 years must have CD4+percentages ≥15% and CD4+≥200 lymphocytes/mm^3 for ≥6 months) or other current evidence of measles, rubella, and mumps immunity. In cases when only CD4+cell counts or only CD4+percentages are available for those older than age 5 years, the assessment of severe immunosuppression can be based on the CD4+values (count or percentage) that are available. In cases when CD4+percentages are not available for those aged ≤5 years, the assessment of severe immunosuppression can be based on age-specific CD4+counts at the time CD4+counts were measured; i.e., absence of severe immunosuppression is defined as ≥6 months above age-specific CD4+count criteria: CD4+count >750 lymphocytes/mm^3 while aged ≤12 months and CD4+count ≥500 lymphocytes/mm^3 while aged 1 through 5 years. **Sources:** (*1,50*).

(e) MMR and varicella-containing vaccines can be administered on the same day. If not administered on the same day, these vaccines should be separated by at least 28 days.

(f) A substantially immunosuppressive steroid dose is considered to be ≥2 weeks of daily receipt of 20 mg or 2 mg/kg body weight of prednisone or equivalent.

(g) family history of congenital or hereditary immunodeficiency in first-degree relatives (e.g., parents and siblings), unless the immune competence of the potential vaccine recipient has been substantiated clinically or verified by a laboratory

(h) If active tuberculosis is suspected, MMR should be delayed. Measles vaccination might suppress tuberculin reactivity temporarily. Measles-containing vaccine can be administered on the same day as tuberculin skin or IGRA testing. If testing cannot be performed until after the day of MMR vaccination, the test should be postponed for ≥4 weeks after the vaccination. If an urgent need exists to skin test or IGRA, do so with the understanding that reactivity might be reduced by the vaccine.

(i) For details, see (*55*).

(j) No adverse events associated with the use of aspirin or aspirin-containing products after varicella vaccination have been reported; however, the vaccine manufacturer recommends that vaccine recipients avoid using aspirin or aspirin-containing products for 6 weeks after receiving varicella vaccines because of the association between aspirin use and Reye syndrome after varicella. Vaccination with subsequent close monitoring should be considered for children who have rheumatoid arthritis or other conditions requiring therapeutic aspirin. The risk for serious complications associated with aspirin is likely to be greater in children in whom natural varicella develops than it is in children who receive the vaccine containing attenuated VZV. No association has been documented between Reye syndrome and analgesics or antipyretics that do not contain aspirin."

TABLE 4-2. Conditions incorrectly perceived as contraindications or precautions to vaccination (i.e., vaccines may be given under these conditions)	
Vaccine	**Conditions commonly misperceived as contraindications or precautions**
General for all vaccines, including DTaP, pediatric DT, adult Td, adolescent-adult Tdap, IPV, MMR, Hib, hepatitis A, hepatitis B, varicella, rotavirus, PCV13, IIV, LAIV, PPSV23, MenACWY, MPSV4, HPV, and herpes zoster	Mild acute illness with or without fever Lack of previous physical examination in well-appearing person Current antimicrobial therapy[a] Convalescent phase of illness Preterm birth (hepatitis B vaccine is an exception in certain circumstances)[b] Recent exposure to an infectious disease History of penicillin allergy, other nonvaccine allergies, relatives with allergies, or receiving allergen extract immunotherapy History of GBS[c]
DTaP	Fever within 48 hours after vaccination with a previous dose of DTP or DTaP Collapse or shock-like state (i.e., hypotonic hyporesponsive episode) within 48 hours after receiving a previous dose of DTP/DTaP Seizure ≤3 days after receiving a previous dose of DTP/DTaP Persistent, inconsolable crying lasting ≥3 hours within 48 hours after receiving a previous dose of DTP/DTaP Family history of seizures Family history of sudden infant death syndrome Family history of an adverse event after DTP or DTaP administration Stable neurologic conditions (e.g., cerebral palsy, well-controlled seizures, or developmental delay)
Hepatitis B	Pregnancy Autoimmune disease (e.g., systemic lupus erythematosus or rheumatoid arthritis)
HPV	Immunosuppression Previous equivocal or abnormal Papanicolaou test Known HPV infection Breastfeeding History of genital warts
IIV	Nonsevere (e.g., contact) allergy to latex, thimerosal, or egg Concurrent administration of Coumadin (generic: warfarin) or aminophylline
IPV	Previous receipt of ≥1 dose of oral polio vaccine

LAIV	Health-care providers that see patients with chronic diseases or altered immunocompetence (an exception is providers for severely immunocompromised patients requiring care in a protected environment) Breastfeeding Contacts of persons with chronic disease or altered immunocompetence (an exception is contacts of severely immunocompromised patients requiring care in a protected environment)
MMR[d],[e]	Positive tuberculin skin test Simultaneous tuberculin skin or interferon-gamma release assay (IGRA) testing[f] Breastfeeding Pregnancy of recipient's mother or other close or household contact Recipient is female of child-bearing age Immunodeficient family member or household contact Asymptomatic or mildly symptomatic HIV infection Allergy to eggs
PPSV23	History of invasive pneumococcal disease or pneumonia
Rotavirus	Prematurity Immunosuppressed household contacts Pregnant household contacts
Tdap	History of fever of ≥40.5°C (≥105°F) for <48 hours after vaccination with a previous dose of DTP or DTaP History of collapse or shock-like state (i.e., hypotonic hyporesponsive episode) within 48 hours after receiving a previous dose of DTP/DTaP History of seizure <3 days after receiving a previous dose of DTP/DTaP History of persistent, inconsolable crying lasting >3 hours within 48 hours after receiving a previous dose of DTP/DTaP History of extensive limb swelling after DTP/DTaP/Td that is not an Arthus-type reaction History of stable neurologic disorder History of brachial neuritis Latex allergy that is not anaphylactic Breastfeeding Immunosuppression
Varicella	Pregnancy of recipient's mother or other close or household contact Immunodeficient family member or household contact[g] Asymptomatic or mildly symptomatic HIV infection Humoral immunodeficiency (e.g., agammaglobulinemia)

Zoster	Therapy with low-dose methotrexate (≤0.4 mg/kg/week), azathioprine (≤3.0 mg/kg/day), or 6-mercaptopurine (≤1.5 mg/kg/day) for treatment of rheumatoid arthritis, psoriasis, polymyositis, sarcoidosis, inflammatory bowel disease, or other conditions Health-care providers of patients with chronic diseases or altered immunocompetence Contacts of patients with chronic diseases or altered immunocompetence Unknown or uncertain history of varicella in a U.S.-born person

Abbreviations: DT = diphtheria and tetanus toxoids; DTP = diphtheria toxoid, tetanus toxoid, and pertussis; DTaP = diphtheria and tetanus toxoids and acellular pertussis; GBS = Guillain-Barré syndrome; HBsAg = hepatitis B surface antigen; Hib = *Haemophilus influenzae* type b; HIV = human immunodeficiency virus; HPV = human papillomavirus; IIV = inactivated influenza vaccine; IPV = inactivated poliovirus; LAIV = live, attenuated influenza vaccine; MenACWY = quadrivalent meningococcal conjugate vaccine; MMR = measles, mumps, and rubella; MPSV4 = quadrivalent meningococcal polysaccharide vaccine; PCV = pneumococcal conjugate vaccine; PPSV23= pneumococcal polysaccharide vaccine; Td = tetanus and diphtheria toxoids; Tdap = tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis.

(a) Antibacterial drugs might interfere with Ty21a oral typhoid vaccine, and certain antiviral drugs might interfere with varicella-containing vaccines and LAIV4.

(b) Hepatitis B vaccination should be deferred for infants weighing <2,000 g if the mother is documented to be HBsAg negative. Vaccination should commence at chronological age 1 month or at hospital discharge. For infants born to HBsAg-positive women, hepatitis B immune globulin and hepatitis B vaccine should be administered within 12 hours after birth, regardless of weight.

(c) An exception is Guillain-Barré syndrome within 6 weeks of a dose of influenza vaccine or tetanus-toxoid–containing vaccine, which are precautions for influenza vaccines and tetanus-toxoid containing vaccines, respectively.

(d) MMR and varicella vaccines can be administered on the same day. If not administered on the same day, these vaccines should be separated by at least 28 days.

(e) HIV-infected children should receive immune globulin after exposure to measles. HIV-infected children can receive varicella and measles vaccine if CD4+ T-lymphocyte count is >15%. (*54*).

(f) Measles vaccination might suppress tuberculin reactivity temporarily. Measles-containing vaccine can be administered on the same day as tuberculin skin or IGRA testing. If testing cannot be performed until after the day of MMR vaccination, the test should be postponed for at least 4 weeks after the vaccination. If an urgent need exists to skin test or IGRA, do so with the understanding that reactivity might be reduced by the vaccine.

(g) If a vaccinee experiences a presumed vaccine-related rash 7-25 days after vaccination, the person should avoid direct contact with immunocompromised persons for the duration of the rash.

(Centers for Disease Control and Prevention, August 2019)

Appendix E:

Guidelines for the Interval Between Administration of Blood Products and Live Vaccines

Table 1: Guidelines for the interval between administration of immunoglobulin (Ig) preparations or blood products and measles-mumps-rubella (MMR), measles-mumps-rubella-varicella (MMRV) or monovalent varicella vaccine to maximize immunization effectiveness

Immunoglobulin or blood product	Dose, route	Interval between receipt of Ig or blood product and subsequent administration of MMR, MMRV or monovalent varicella vaccine (months)
Standard immunoglobulin (human) [1]		
Immunoglobulin (Ig)	0.02 - 0.06 mL/kg, IM	3
	0.25 mL/kg, IM	5
	0.50 mL/kg, IM	6
Intravenous immunoglobulin (IVIg)	300 - 400 mg/kg, IV	8
	1,000 mg/kg, IV	10
	2,000 mg/kg, IV	11
Blood transfusion products		
Plasma and platelet products	10 mL/kg, IV	7
Whole blood	10 mL/kg, IV	6
Packed red blood cells	10 mL/kg, IV	5
Reconstituted red blood cells	10 mL/kg, IV	3
Washed red blood cells [2]	10 mL/kg, IV	0
Specific immunoglobulin (human)		
Cytomegalovirus immunoglobulin (CMVIg)	150 mg/kg, IV	6
Hepatitis B immunoglobulin (HBIg)	0.06 mL/kg, IM	3
Rabies immunoglobulin (RabIg)	20 IU/kg, IM	4
Rh immunoglobulin (RhIg)	300 mcg, IM	3 [3]
Tetanus immunoglobulin (TIg)	250 units, IM	3
Varicella immunoglobulin (VarIg)	125 IU/10 kg, IM	5

Specific immunoglobulin (humanized monoclonal antibody)		
Respiratory syncytial virus monoclonal antibody (palivizumab) (RSVAb)	15 mg/kg/4 weeks, IM	0

1 Ig can also be administered subcutaneously (SCIg). SCIg is primarily indicated as life-long replacement therapy in patients with primary antibody deficiencies for whom immunization with live vaccines is contraindicated. However, potential alternative indications for SCIg therapy may result in temporary use and discontinuation of therapy. Because pharmacokinetic properties of Ig G following SCIg administration have been shown to resemble those following IVIg administration, the recommended interval between the administration of SCIg and MMR, MMRV or monovalent varicella vaccines should be considered equivalent to the recommended interval after the corresponding IVIg monthly dosing.

2 washed red blood cells are infrequently used

3 refer to *Rh immunoglobulin* for additional information

(Government of Canada, September 2016)

Last Updated 04/10/2019 by Victoria Charko, RN

Appendix F:

Laboratory Requisitions

Ontario Ministry of Health and Long-Term Care
Laboratory Requisition
Requisitioning Clinician / Practitioner

Name
Sarah Naomi Shaw
Address
790 Bay Street
Suite 522, Box 58/59
Toronto, ON M5G 1N8

Clinician/Practitioner Number: 022777
CPSO / Registration No.:

Check (✓) one: [X] OHIP/Insured [ ] Third Party / Uninsured [ ] WSIB

Additional Clinical Information *(e.g. diagnosis)*

[ ] Copy to: Clinician/Practitioner
Last Name: First Name
Address

Laboratory Use Only

Clinician/Practitioner's Contact Number for Urgent Results: (416) 591-1222 Ext.
Service Date: yyyy mm dd
Health Number: Version: Sex: [X] M [ ] F
Date of Birth: yyyy 2015 mm 01 dd 01
Province: Other Provincial Registration Number:
Patient's Telephone Contact Number: (416) 466-8214

Patient's Last Name *(as per OHIP Card)*: Mouse
Patient's First & Middle Names *(as per OHIP Card)*: Mickey
Patient's Address *(including Postal Code)*:
31 Inwood Ave
Toronto, ON M4J 3Y2

Note: Separate requisitions are required for cytology, histology / pathology and tests performed by Public Health Laboratory

Biochemistry
- [ ] Glucose [ ] Random [ ] Fasting
- [ ] HbA1C
- [ ] Creatinine (eGFR)
- [ ] Uric Acid
- [ ] Sodium
- [ ] Potassium
- [ ] ALT
- [ ] Alk. Phosphatase
- [ ] Bilirubin
- [ ] Albumin
- [ ] Lipid Assessment (includes Cholesterol, HDL-C, Triglycerides, calculated LDL-C & Chol/HDL-C ratio; individual lipid tests may be ordered in the "Other Tests" section of this form)
- [ ] Albumin / Creatinine Ratio, Urine
- [ ] Urinalysis (Chemical)
- [ ] Neonatal Bilirubin:
- [ ] Child's Age: days hours
- [ ] Clinician/Practitioner's tel. no.
- [ ] Patient's 24 hr telephone no. (
- [ ] Therapeutic Drug Monitoring:
- [ ] Name of Drug #1
- [ ] Name of Drug #2

Time Collected #1	hr.	#2	hr.
Time of Last Dose #1	hr.	#2	hr.
Time of Next Dose #1	hr.	#2	hr.

I hereby certify the tests ordered are not for registered in or out patients of a hospital.

Victoria Charko RN
As per medical directive TCFHT-MD 15

x _____ 01/03/2017
Clinician/Practitioner Signature Date

Hematology
- [ ] CBC
- [ ] Prothrombin Time (INR)

Immunology
- [ ] Pregnancy Test (Urine)
- [ ] Mononucleosis Screen
- [X] Rubella
- [ ] Prenatal: ABO, RhD, Antibody Screen (titre and ident. if positive)
- [ ] Repeat Prenatal Antibodies

Microbiology ID & Sensitivities (if warranted)
- [ ] Cervical
- [ ] Vaginal
- [ ] Vaginal / Rectal – Group B Strep
- [ ] Chlamydia *(specify source)*:
- [ ] GC *(specify source)*:
- [ ] Sputum
- [ ] Throat
- [ ] Wound *(specify source)*:
- [ ] Urine
- [ ] Stool Culture
- [ ] Stool Ova & Parasites
- [ ] Other Swabs / Pus *(specify source)*:

Specimen Collection
Time Date

Fecal Occult Blood Test (FOBT) *(check one)*
[ ] FOBT (non CCC) [ ] ColonCancerCheck FOBT (CCC) no other test can be ordered on this form

Laboratory Use Only

Viral Hepatitis *(check one only)*
- [ ] Acute Hepatitis
- [ ] Chronic Hepatitis
- [X] Immune Status / Previous Exposure
  Specify: [X] Hepatitis A [X] Hepatitis B [ ] Hepatitis C
  or order individual hepatitis tests in the "Other Tests" section below

Prostate Specific Antigen (PSA)
[ ] Total PSA [ ] Free PSA
Specify one below:
[ ] Insured – Meets OHIP eligibility criteria
[ ] Uninsured – Screening: Patient responsible for payment

Vitamin D (25-Hydroxy)
[ ] Insured - Meets OHIP eligibility criteria: osteopenia; osteoporosis; rickets; renal disease; malabsorption syndromes; medications affecting vitamin D metabolism
[ ] Uninsured - Patient responsible for payment

Other Tests - one test per line
Measles titer
Mumps titer
Varicella titer

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Public Health Ontario | Santé publique Ontario

Date received PHOL No.

General Test Requisition

ALL Sections of this Form MUST be Completed

1 - Submitter

Courier Code

790 Bay Street
Suite 522, Box 58/59
Toronto, ON M5G 1N8

Clinician Initial / Surname and OHIP / CPSO Number
SNS/Shaw/022777
?
Tel: 416-591-1222 Fax: 416-591-1227

2 - Patient Information

Health No. | Sex: M | Date of Birth: 2015/01/01
Medical Record No.
Patient's Last Name (per OHIP card): Mouse
First Name (per OHIP card): Mickey
Patient Address: 31 Inwood Ave, Toronto, ON M4J 3Y2
Postal Code: M4J 3Y2
Patient Phone No.: 416-466-8214
Submitter Lab No.
Public Health Unit Outbreak No.

cc Doctor Information

Name: Tel:
Lab/Clinic Name: Fax:
CPSO #:
Address: Postal Code:

Public Health Investigator Information

Name:
Health Unit:
Tel: Fax:

3 - Test(s) Requested *(Please see descriptions on reverse)*

Test: Enter test descriptions below

Measles IgG Immune Status
Mumps IgG Immune Status
Rubella IgG Immune Status
Varicella - Zoster IgG Immune Status
Hepatitis A Virus Immune Status
Hepatitis B Virus Immune Status

Hepatitis Serology

Reason for test (Check (✓) only one box):
- [x] Immune status
- [ ] Acute infection
- [ ] Chronic infection

Indicate specific viruses (Check (✓) all that apply):
- [x] Hepatitis A
- [x] Hepatitis B
- [ ] Hepatitis C *(testing only available for acute or chronic infection, no test for determining immunity to HCV is currently available)*

4 - Specimen Type and Site

- [x] blood / serum
- [ ] faeces
- [ ] nasopharyngeal
- [ ] sputum
- [ ] urine
- [ ] vaginal smear
- [ ] urethral
- [ ] cervix
- [ ] BAL
- [ ] other -

Patient Setting

- [x] physician office/clinic
- [ ] ER (not admitted)
- [ ] inpatient (ward)
- [ ] inpatient (ICU)
- [ ] institution

5 - Reason for Test

- [ ] diagnostic
- [x] immune status
- [ ] needle stick
- [ ] follow-up
- [ ] prenatal
- [ ] chronic condition
- [ ] immunocompromised
- [ ] post-mortem
- [ ] other -

Date Collected:
Onset Date:

Clinical Information

- [ ] fever
- [ ] gastroenteritis
- [ ] respiratory symptoms
- [ ] STI
- [ ] headache / stiff neck
- [ ] vesicular rash
- [ ] pregnant
- [ ] encephalitis / meningitis
- [ ] maculopapular rash
- [ ] jaundice
- [x] other - Clinically well
- [ ] influenza high risk -
- [ ] recent travel -

For HIV, please use the HIV serology form. - For referred cultures, please use the reference bacteriology form.To re-order this test requisition contact your local Public Health Laboratory and ask for form number F-SD-SCG-1000. Current version of Public Health Laboratory requisitions are available at www.publichealthontario.ca/requisitions

The personal health information is collected under the authority of the Personal Health Information Protection Act, s. 36 (1)(c)(i) for the purpose of clinical laboratory testing. If you have questions about the collection of this personal health information please contact the PHOL Manager of Customer Service at 416-235-6556 or toll free 1-877-604-4567. F-SD-SCG-1000 (03/2013)

Ontario

Appendix G:

TCFHT-MD15 Stamp

S: Requires • «vaccine»«injection»«, last dose given • ago»
- No adverse reaction to past immunizations/injections
- «NKDA»«Allergies to • noted»
«- Not immunocompromised»«, not pregnant»
«- «Not» on antiviral therapy (acyclovir, famciclovir or valacyclovir) for past 24 hours; •»

O/E:
- Well«; afebrile, no rashes, no severe/acute illness»

A:
- Reviewed possible side effects
- «Immunization»«Injection» administered «tandem»«3:1» as per details below, pt tolerated well
«- Sucrose solution given prior to injection»
«- Distraction methods used»
«- Topical anaesthetic applied to skin 20 mins prior to injection»

P:
- Advised pt to wait X 15mins post-injection for observation; no adverse reaction reported
«- Pt aware to RTC in • for next injection»
«- Instructed to restart antiviral therapy 14 days after immunization»
«- Pt and provider reminded re: need for annual bloodwork due to ongoing Prolia injections»

*actions and interventions in accordance with Medical Directive TCFHT-MD15