

# IVIIG Infusion Guide for Ontario

## IVIIG (Intravenous Immune Globulin) Infusion Guide for Ontario

### Purpose

To provide health care practitioners involved in the infusion of IVIG with best practice information. This document can be incorporated into institution specific policies and procedures.

*This guide does not apply to Subcutaneous Infusion of Immune Globulin.*

### General Principles

- **Refer** to institution specific policies
- **Use** the Adjusted Body Weight Dosing Calculator where appropriate for calculating dosage for adult patients.  
<http://www.transfusionontario.org/dose>
  - At least every 6 months
  - If significant weight change reported by patient
- **Round** dose to the nearest vial size (e.g. 2.5 or 5g to ensure adequate therapy and efficient use of product).
- **Avoid** infusing different brands at a single visit/infusion course. Maintain chronically infused patients on the same IVIG brand when possible.
- **Use aseptic technique** when handling IVIG.
- **Pooling** of product is generally not recommended due to risk of contamination and potential wastage. If required, pooling of the product should be performed in a laminar flow hood in the Transfusion Medicine Laboratory (TML) or Pharmacy.
  - Pooling is not required to prevent bubbling. Bubbling can be eliminated by bringing product to room temperature prior to infusion

### Pre-Infusion

- **Verify** that there is an order and the clinical indication is documented.
- **Verify** that informed consent for transfusion has been obtained.
- **Identify** patients at increased risk for:
  - TACO (Transfusion Associated Circulatory Overload) – neonates, elderly, hypertension, cardiac or renal dysfunction
  - Hemolysis - blood group A, B or AB; more common with high dose treatment
  - Thromboembolic events – obesity, elderly, hypertension, history of vascular disease or thrombotic episodes or disorders, hyperviscosity syndrome, decreased mobility, severe dehydration, diabetes, presence of indwelling lines (central venous access devices)
  - Aseptic Meningitis - history of migraines
  - Anaphylaxis – patients known to have anti-IgA antibodies
- **Review** history of previous reactions to IVIG or other blood components.
- **Assess** patient's clinical status on day of infusion and document relevant changes since previous infusion.
- **Record** known allergies, medications, and weight if indicated.
- **Document** baseline vital signs.
- **Determine** whether any pre-infusion blood work is required
  - blood group before first infusion
  - CBC at prescribed intervals
  - liver and renal function tests if indicated
  - platelet count for ITP patients
  - plasma IgG levels for immunodeficient patients at prescribed intervals

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## Infusion

### Preparing Infusion

**Prime** line with normal saline or 5% dextrose (refer to package insert/monograph). Use standard vented IV tubing – no filter is required. Minimize bubbling by allowing product to come to room temperature and avoid shaking.

To ensure proper venting of IVIG bottle:

- Close roller clamp on IV set
- Place bottle on a flat surface and spike at a 90° angle through the center circle of the stopper
- Invert and hang bottle on IV pole
- Squeeze drip chamber to ½ full
- Open vent on drip chamber – this allows air to enter the bottle. IVIG will not flow if not properly vented
- **Important:** Close vent prior to spiking the next bottle, then hang bottle and open vent.

### Starting Infusion

- **Set** initial infusion rate. An infusion pump is recommended to set precise infusion rates and detect air in the line when the IVIG bottle is empty thereby providing added safety.

**Initial rate:** A slow infusion rate (e.g. 0.5 mL/kg/hr) is recommended for the first 30 minutes

↓  
**Check vital signs**

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**Rate increases:** as per institutional policy and patient tolerance

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**Repeat vital signs at required intervals.**  
(e.g. when increasing rate)

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**Maximum rate:** as per institutional policy (e.g. 4mL/kg/hr)

CAUTION: Manufacturer's monographs may allow for faster rates.

These high infusion rates only apply to patients who previously tolerated this IVIG brand and have no preexisting risk factors (see list in pre-infusion section) or history of adverse reactions.

- **Monitor** patient for signs of adverse reactions. If an adverse reaction is suspected STOP infusion, maintain IV access, record vital signs, notify patient's physician, and report to TML or Pharmacy (refer to Adverse Reaction Chart).

### Post Infusion

- **Complete** documentation including dose, lot numbers, and brand if known.
- **Report** and return to TML or Pharmacy any unused or defective vials including any vials associated with serious adverse reactions.
- **Educate** patients by providing them with a fact sheet including post- infusion adverse reactions instructions (refer to IVIG Facts for Outpatients).

## Adverse Reaction Chart for IVIG Infusion

**STOP** infusion and notify patient's physician if:

- Change in systolic or diastolic blood pressure of 20 percent or more.
- Temperature 38°C or more and increased by at least 1°C from baseline
- Appearance of flushing, rigors (shivering), urticaria, itching, wheezing, tightness in chest, abdominal cramps, headache, nausea/vomiting or red urine.

Report all suspected reactions to TML or Pharmacy.

Signs and Symptoms	Severity	Frequency	Reaction Type	Actions
Headache (during or 1-3 days post- infusion)	Mild	Common	IVIG headache	<b>Stop IVIG. Consult Physician.</b> The infusion may be restarted at a reduced rate. Recurrent reactions may require appropriate premedication and/or a change in IVIG product. <b>Report to TML/Pharmacy.</b>
Low grade fever, flushing, rigors, chills	Mild	Occasional	Febrile Non Hemolytic Reaction	<b>Stop IVIG. Consult Physician.</b> Give medications as ordered. If symptoms are mild, infusion may be restarted at a reduced rate as per physician's order. Recurrent reactions require appropriate premedication and/ or a change in IVIG product. <b>Report to TML/Pharmacy.</b>
Urticaria, rash, itchiness, flushing, abdominal pain, nausea, and vomiting	Mild	Occasional	Minor Allergic	<b>Stop IVIG. Consult Physician.</b> Give medications as ordered. If symptoms are mild, infusion may be restarted as per physician's order. Recurrent reactions require appropriate premedication and/ or a change in IVIG product. <b>Report to TML/Pharmacy.</b>
Dyspnea, itchiness, urticaria, facial and/or tongue swelling, chest tightness, airway edema, hypotension, tachycardia, nausea/ vomiting, and anxiety	Moderate to Severe	Rare	Anaphylaxis/ Anaphylactoid	<b>Stop IVIG. Consult Physician.</b> May require epinephrine promptly. Reaction can be caused by an allergen to which the patient has a significant allergy. Testing for anti-IgA antibodies should be done following an anaphylactic reaction. <b>Report to TML/Pharmacy.</b>
Dyspnea, hypertension, orthopnea, cyanosis, cough tachycardia, increased jugular venous pressure	Mild to Severe	Occasional	Transfusion Associated Circulatory Overload (TACO)	<b>Stop IVIG. Consult Physician.</b> Give medications as ordered (e.g. diuretic). Slow infusion rate for subsequent infusions. <b>Report to TML/Pharmacy.</b>
Fever, back pain, dyspnea changes in urine colour (red/brown urine ), jaundice, extreme fatigue, feeling faint	Mild to Severe	Occasional	Acute (less than 24hr) or Delayed (greater than 24hr) Hemolysis*	<b>Stop IVIG. Consult Physician.</b> Do not restart. Usually due to anti-A or anti- B antibodies in IVIG directed against a patient whose blood group is A, B, or AB. <b>Report to TML/Pharmacy.</b>

\*Hemolysis is defined as:

A drop in hemoglobin of at least 10g/L  
a positive direct antiglobulin test (DAT)  
*AND*

at least two of the following:

- increased reticulocyte count
- increased lactate dehydrogenase
- low haptoglobin
- hyperbilirubinemia
- hemoglobinemia
- hemoglobinuria

## Adverse Reaction Chart for IVIG Infusion

Severe and incapacitating headache with nuchal rigidity, drowsiness, fever, lethargy, photophobia, painful eye movements, nausea, vomiting, diarrhea, pharyngitis, deterioration of mental status	Severe	Rare	Aseptic Meningitis	<b>Stop IVIG. Consult Physician.</b> Do not restart. Usually resolves spontaneously in 1-2 days. <b>Report to TML/Pharmacy.</b>
Peripheral edema, periorbital edema, urination changes, increased serum creatinine, hypertension, back pain, flank pain, blood in urine	Severe	Rare Usually seen with products containing sucrose (none currently licensed)	Acute Renal Failure	<b>Stop IVIG. Consult Physician.</b> Predisposing factors: age>65, diabetes mellitus, preexisting renal insufficiency. <b>Report to TML/Pharmacy.</b>
Symptoms related to myocardial infarction, transient ischemic attack, stroke, deep vein thrombosis	Severe	Rare	Thromboembolic events	<b>Stop IVIG. Consult Physician.</b> Possibly related to increased viscosity and patient comorbidities. <b>Report to TML/Pharmacy.</b>
Symptoms of new viral or prion infection (variable) and presenting weeks following infusion	Severe	No reported cases of HIV or HBV. No reported HCV since 1995 Prion (vCJD) transmission theoretical risk	Transfusion Transmitted Infections	<b>Report any new infections suspected to be due to the blood product to TML/Pharmacy.</b>

### References-Sources of Information for the IVIG (Intravenous Immune Globulin) Infusion Guide for Ontario

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# Acknowledgements

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