



## IVIG THERAPY ADMINISTRATION

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### I. PURPOSE

The purpose of this policy is to describe and define guidelines for the safe administration of intravenous immunoglobulin (IVIG) therapy in the home setting and monitor for anaphylaxis and other adverse reactions.

### II. POLICY

- A. A physician order is required for IVIG therapy.
- B. Allow refrigerated products to warm to room temperature before administration to prevent adverse reactions associated with the administration of cold products.
  - 1. Do not use any product that has been frozen.
- C. Use aseptic technique during reconstitution.
  - 1. Follow all manufacturer recommendations for reconstitution, as well as final color of product after reconstitution. Color can differ among manufacturers.
- D. Do not administer the drug if there are any doubts related to integrity (i.e. particulate matter, discoloration).
- E. Patients who receive IVIG on a routine basis should stay with a single product, but if a change is necessary, it should be done with significant oversight.
- F. A dedicated IV site is required for IVIG, do not infuse other medications with IVIG.
- G. Assess the patient for specific contraindications to receiving IVIG and advise the ordering physician accordingly.
- H. Assess the patient's weight.



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1. A 10% change in body weight requires a change in dose. Advise the ordering physician accordingly.
- I. Assess the patient for any new health problems. This includes any changes to the patient's medications. Alert the ordering physician accordingly.
- J. Collect vital signs before the infusion and notify the ordering physician of the presence of fever.
  1. The infusion may need to be postponed until the source of the fever can be further assessed and infection treated.
- K. Monitor urine output and use caution with a patient who has renal failure.
- L. Some IVIG products contain maltose, which may cause artificially high blood glucose readings.
- M. Assess the patient's response to any previous IVIG infusions.
  1. Some patients may require premedications such as corticosteroids, antihistamines, antiemetics and acetaminophen or nonsteroidal anti-inflammatory drugs (NSAIDS).
- N. Clinician must have a good understanding of drug reference information pertinent to the medication's actions, purpose, onset of action and peak action, normal dose, common side effects and nursing implications prior to medication administration.
- O. Always verify the six rights of medication safety: right medication, right dose, right time, right route, right patient and right documentation prior to medication administration.

### III. DEFINITIONS

A. **Intravenous immunoglobulin (IVIG):** A sterile solution of concentrated antibodies extracted from healthy people that is administered directly into a vein. IVIG is used to treat disorders of the immune system or to boost the immune response to serious illness. Also known as intravenous gamma globulin (IgG).

IVIG is used in adults and children for immune disorders (i.e. primary immunodeficiency diseases [PIDD], infections, and other medical diagnoses). The drug is derived from human blood and formulated from thousands of plasma donors. During the manufacturing process, steps are taken to ensure that bacteria and viruses are removed, but this cannot be completely guaranteed. IgG is available as intramuscular (IM), subcutaneous (SC) and intravenous (IV) medication. The IV route has several advantages over the IM route: it is better tolerated by patients; larger doses can be administered intravenously to mirror the body's own antibody production; and improved prophylaxis can be achieved. The patient should be monitored for adverse reactions during IVIG infusion. The SC route can be used by the patient at home with appropriate training, does not require venous access, and has better flexibility with dosing schedule. Dosing is based on the patient's weight, serum immunoglobulin and antibody levels, and the indication for medication. If the patient expresses concern regarding the accuracy of a



medication, the medication should not be given. The patient's concern should be explored, ordering physician notified, and the order verified.

#### IV. PERSONNEL

- A. Physician Assistant (PA)
- B. Nurse Practitioner (NP)
- C. Registered Nurse (RN)

#### V. SUPPLIES

- A. Supplies to establish IV access
- B. IV infusion tubing
- C. Phlebotomy supplies, if blood tests are ordered
- D. Prescribed IVIG medication
- E. Empty sterile IV container if pooling multiple vials
- F. Solution for dilution and flushing per manufacturer recommendations
- G. Emergency resuscitation supplies, including epinephrine for anaphylaxis
- H. Premedications as prescribed
- I. Gloves
- J. Monitoring equipment

#### VI. PROCEDURES

- A. Administration and Preparation
  1. Verify and document signed physician's order has been uploaded into the patient's EHR.
  2. Perform hand hygiene before patient contact.
  3. Introduce yourself to the patient.
  4. Verify the correct patient using two identifiers.
  5. Explain procedure to patient and position patient for comfort.
  6. Assess for the following and alert the ordering physician accordingly:
    - a) Contraindications for receiving IVIG.
    - b) Patient weight; a 10% change in body weight requires a change in dose by the ordering physician.
    - c) Any new health problems, including changes to the patient's medications.
    - d) Signs and symptoms of heart failure or fluid overload; diuretics may need to be administered prior to the infusion.



- e) Previous response to IVIG infusions; some patients require premedications, such as corticosteroids, antihistamines, antiemetics and acetaminophen or NSAIDS.
7. Collect patient vitals signs.
  - a) Notify ordering physician of the presence of fever.
8. Administer any premedication, as directed.
9. Establish a dedicated, peripheral IV site.
10. Verify whether baseline laboratory or trough levels of IVIG are needed before the start of the infusion.
  - a) If ordered, perform hand hygiene, don gloves and collect labs as ordered. Remove gloves and perform hand hygiene after lab collection.
  - b) If newly established peripheral IV allows for blood collection, may collect labs via peripheral line.
11. Prepare a clean medication preparation area, preferably with a sterile drape or towel.
  - a) Place any supplies needed on medication preparation area.
12. Obtain medication and verify expiration date.
  - a) Annotate any lot numbers in your documentation.
  - b) Allow IVIG to warm naturally to room temperature.
13. Perform hand hygiene before preparing the medication.
14. Follow manufacturer's recommendations for reconstitution and drug preparation.
  - a) **0.9% sodium chloride is not compatible with some brands of IVIG.**
  - b) If using multiple vials, ensure that they are all from the same lot number.
  - c) Inspect the medication for particulates, discoloration, or other loss of integrity. **Do not use any medication that is cloudy or precipitated** unless such is indicated by its manufacturer as being safe; otherwise, this may lead to harmful reactions.
15. Ensure that emergency equipment and emergency medications are available before starting the infusion, especially if the patient will be receiving the first dose of IVIG.
16. Ensure the six rights of medication safety prior to initiating the infusion:
  - a) Right medication
  - b) Right dose
  - c) Right time
  - d) Right route
  - e) Right patient
  - f) Right documentation
17. Flush the peripheral IV site per the IVIG drug manufacturer's recommendations.



18. Prime the IV tubing.
    - a) If using one vial, attach a sterile IV tubing set directly to it.
    - b) If using multiple vials of the same lot number, pool them together in a single, sterile, empty IV container, if provided.
  19. Attach the IV tubing to the peripheral IV using aseptic technique.
  20. Begin the infusion rate as directed by the supplying pharmacy.
    - a) If supplying pharmacy does not provide infusion rate instructions, follow the manufacturer's recommendations for the infusion rate.
  21. Reassess and document vital signs at every rate adjustment.
    - a) Once the desired max rate is achieved, record vital signs every hour until the infusion is complete.
  22. Assess for any adverse reactions with every rate adjustment.
    - a) Document any interventions performed in response to adverse reactions.
  23. **Stop the infusion and notify the ordering physician immediately of any severe adverse reactions or anaphylaxis.**
    - a) Reactions usually occur within 30 to 60 minutes of the start of the infusion.
    - b) Recognize and immediately treat dyspnea, wheezing and circulatory collapse, which are signs of a severe anaphylactic reaction.
    - c) **Call 911 for any life threatening anaphylactic symptoms such as chest pain, wheezing or shortness of breath.**
  24. Report any anaphylaxis or allergic reaction and the drug lot number to the FDA and to the manufacturer.
  25. At the conclusion of the infusion, disconnect the IV tubing and flush the IV site per the manufacturer's recommendations.
  26. Discard supplies, remove gloves and perform hand hygiene.
  27. Document the procedure in the patient's chart and complete any corresponding paperwork.
- B. Patient and Family Education
1. Instruct the patient regarding the potential side effects of the medication.
    - a) Report decreased urine output. Renal insufficiency is a side effect of IVIG.
    - b) Report any signs or symptoms of thromboembolic events, another side effect of IVIG.
  2. Emphasize the importance of adhering to the schedule for infusions because the timing is crucial.



3. Explain to the patient that he or she will need to plan accordingly for the length of time required to receive the infusion. The infusion rate is determined by the manufacturer’s recommendation and the patient’s response.
4. Instruct the patient to report any changes in medications to the ordering physician.
5. Encourage questions and answer them as they arise.

C. Documentation

1. Unexpected outcomes and related nursing interventions.
2. Patient and family education.
3. Changes in the patient’s health status since the last IVIG infusion.
4. Premedications administered before the infusion.
5. Lot number of the medication.
6. Drug name and dose.
7. Time required to complete the infusion.
8. Titration of the infusion.
9. Patient’s response to medication, including any adverse reactions.

VII. ATTACHMENTS

A. Troubleshooting IVIG Infusion Problems

<b>Table 1 Troubleshooting IVIG Infusion Problems</b>		
<b><i>Infusion problem</i></b>	<b><i>Assessment or cause</i></b>	<b><i>Nursing response</i></b>
Fever, chills, rigors	Solution is not at room temperature; infusion rate may be too fast	<ul style="list-style-type: none"> <li>• Stop infusion</li> <li>• Administer prescribed medications</li> <li>• When symptoms resolve, restart the infusion at the previously tolerated rate</li> </ul>
Intrafusion headache	Solution is not at room temperature; infusion rate may be too fast; patient may not be adequately hydrated	<ul style="list-style-type: none"> <li>• Administer analgesia as prescribed</li> <li>• Slow the infusion rate</li> <li>• Provide nonpharmacologic comfort measures</li> <li>• Instruct the patient about the importance of adequate hydration before the next infusion</li> </ul>



Postinfusion headache, malaise, arthralgias, myalgias	May be an inflammatory response indicating intolerance to specific product or IVIG in general	<ul style="list-style-type: none"><li>• Initiate symptomatic pharmacologic (analgesia) and nonpharmacologic measures (i.e. rest, reposition, heating pad)</li><li>• Consult the ordering physician; a short course of steroids may be necessary; premedication before the next infusion is indicated</li><li>• If problems persist, consider change in product or route of administration</li></ul>
Urticaria	May indicate intolerance to product or a specific lot number of a product	<ul style="list-style-type: none"><li>• Stop the infusion and contact the ordering physician</li><li>• Administer prescribed antihistamines or steroids, or both</li><li>• Observe for signs of true anaphylaxis and, if they occur, initiate emergency interventions (administer epinephrine and activate emergency response system)</li></ul>
Vasomotor symptoms (blood pressure changes, flushing, increased heart rate)	Solution is not at room temperature; infusion rate may be too fast; may indicate intolerance to product	<ul style="list-style-type: none"><li>• Stop infusion</li><li>• Consult the ordering physician and follow orders for fluid bolus and diuretics as prescribed</li></ul>
Nausea, vomiting	Infusion rate may be too fast; solution is not at room temperature; may indicate intolerance to product	<ul style="list-style-type: none"><li>• Stop infusion and consult the ordering physician</li><li>• Administer prescribed antiemetics</li><li>• Provide symptomatic comfort measures</li></ul>