Proposed text for the WHO Model Formulary for Children

Polyvalent Human Normal Immunoglobulin. *Immunoglobulinum humanum normale.*
For intravenous use: 5%, 10% or 12% solutions depending on the manufacturer [IVIg]
For subcutaneous use: 15% or 16% solutions depending on the manufacturer [SCIg]
For intramuscular use: 16% solutions depending on the manufacturer [IMIg]

Uses: Replacement therapies in primary immune deficiencies – SCIG and IVIg. Immuno-modulation in selected patients with specific autoimmune diseases – IVIg only. The appropriate use of immunoglobulin therapy is only for those patients for which no effective alternative treatment is available.

Contraindications: none

Precautions: Severe adverse reactions to blood or blood products in the past; vascular instability; hyperviscosity; pre-existing hypercoagulopathy; severe impairment of hepatic, pulmonary or renal function. Adverse reactions more likely in presence of pre-existing serious bacterial infection. Immunoglobulins may be contraindicated in patients with known, very high titre, class specific antibodies to Immunoglobulin IgA. Immunoglobulins may interfere with the immune response to live virus vaccines (with the exclusion of yellow fever vaccination); such vaccines should therefore only be given at least 3 weeks before, or 3 months after, an immunoglobulin infusion.

Interactions: none

Dosage:
For replacement therapy in primary immune deficiencies: Initial loading intravenously in divided doses until serum IgG level is > 6 g/l. Maintenance doses by intravenous, subcutaneous or intramuscular routes: normally 0.4 – 0.8 g/ Kg / month for children and adults. Dose to be titrated depending on inter-current infections or trough serum IgG level. Intravenous doses may be given at one, two, three or four week intervals. Subcutaneous doses may be given at one, two, three, four or seven day intervals.

For immuno-modulation in autoimmune conditions: Maximum recommended dose is 2g/Kg over at least 48 hours. Depending on specific autoimmune disease: 0.4 g/Kg/day for 5 days or 0.8- 1 g/Kg the first day and repeated once if indicated.

Administration: Infusion rates of < 8 g per hour are recommended. Immunoglobulin should be administered under the supervision of an immunologist or other experienced physician. In general, this should be in a hospital with adequate facilities for monitoring the infusion as well as the condition for which it is being administered, until the patient is stable, when treatment at home can be considered after formal training in an expert centre.

Adverse effects:
For IM, IV and SC administration, adverse effects are more common in relation to the first few infusions: nausea, vomiting, dizziness, dry mouth, headache, chills, sweating, hypothermia, fever, eczematous rash, urticaria, hypotension, wheeze. Rare cases of anaphylactoid reactions have been reported.
SC administration: local swelling, pruritus and redness are common for first few infusions but resolve in 6 –24 hours.
IV administration: delayed headache and nausea up to 24 hours after infusion. With immuno-modulatory doses: immune haemolysis, aseptic meningitis, increased plasma viscosity, hypercoaguability, renal acute tubular dysfunction.
Preventative measures against adverse reactions include premedication with mild anti-inflammatory agents (paracetamol, aspirin, non-steroidal anti-inflammatory agents, hydrocortisone)
All immunoglobulins comply with WHO requirements for blood and plasma products.