

## Infection indications for IV Immunoglobulin (IVIG)

<b>BRANDS :</b>	Kiovig, Privigen, Gamunex, Octagam
<b>PRESENTATION :</b>	All brands - 10% intravenous infusion of normal human immunoglobulin  Solution in a vial with a stopper - available as 5g/50ml, 10g/100ml, 20g/200ml
<b>BRAND CHOICE :</b>	Choice determined by brand availability, supply shortages and restrictions on use. Please discuss brand choice with pharmacist.
<b>INDICATION :</b>	<ul style="list-style-type: none"> <li>• Staphylococcal and Streptococcal toxic shock syndrome</li> <li>• Necrotising (Panton-Valentine Leukocidin associated) staphylococcal sepsis</li> <li>• Severe or recurrent clostridium difficile colitis</li> </ul> <p>Suspect toxic shock syndrome in multi-organ failure with shock, fever, rash, and GI or CNS disturbances (not all are necessary) especially where Staphylococcal or Streptococcal infection is likely. IVIG should be considered for these patients if no clinical response (such as reduction in vasopressor dose) has been observed within the first 6 hours of aggressive therapy.</p> <p>Use of IVIG must be agreed by both a microbiology consultant and a critical care consultant.</p>
<b>DOSE :</b>	<p>Use dose calculator for all patients. Dose calculator can be found at <a href="https://ivig.transfusionontario.org/dose/">https://ivig.transfusionontario.org/dose/</a></p> <p><b><u>Dose for Staphylococcal and Streptococcal toxic shock syndrome and Necrotising (Panton-Valentine Leukocidin associated) staphylococcal sepsis:</u></b></p> <p>2g/kg as a single dose. No repeat doses should be given.</p> <p><b><u>Dose for severe of recurrent CDI colitis:</u></b></p> <p>0.4g/kg as a single dose which can be repeated.</p> <p>Total dose should be round down to the nearest dose that can be summated from available vial sizes (5g, 10g, 20g available).</p>
<b>PRESCRIPTION FORM, ORDERING AND PRESCRIBING :</b>	<p>Request form available at <a href="https://www.nppeag.scot.nhs.uk/guidelines/">https://www.nppeag.scot.nhs.uk/guidelines/</a></p> <p>Select 'Immunoglobulin Request Form'.</p> <p>This request form should be completed and signed by a consultant or senior registrar. All doses should be prescribed on ICCA as 'stat' doses. Any grade of doctor and ACCP can prescribe the IVIG on ICCA.</p> <p>Please contact clinical pharmacist to confirm dose, review request form and arrange supply. If out of hours, please contact on call pharmacist via switchboard.</p>

<b>ADMINISTRATION AND MONITORING :</b>	<p><u>Before the infusion of all brands</u>          Ensure resuscitation equipment is available          Ensure patient is adequately hydrated          Consider CAUTIONS associated with patient's medical conditions and medicines (see section below)</p> <p><u>Administration recommendations for all brands</u>          Administer via IV route only          Administer at room temperature          Protect IVIG from direct sunlight          Do not shake the product          Use the product immediately once prepared.</p> <p><u>Brand specific standard daily infusion rate regimen</u></p> <p><u>Kiovig 100mg/ml</u></p> <table> <tr><td>30 mins</td><td>0.5ml/kg/hr</td></tr> <tr><td>30 mins</td><td>1ml/kg/hr</td></tr> <tr><td>30 mins</td><td>2 ml/kg/hr</td></tr> <tr><td>30 mins</td><td>4 ml/kg/hr</td></tr> <tr><td>The remainder at</td><td>6 ml/kg/hr</td></tr> </table> <p><u>Privigen 100mg/ml</u></p> <table> <tr><td>30 mins</td><td>0.3 ml/kg/hr</td></tr> <tr><td>30 mins</td><td>0.6 ml/kg/hr</td></tr> <tr><td>30 mins</td><td>1.2 ml/kg/hr</td></tr> <tr><td>30 mins</td><td>2.4 ml/kg/hr</td></tr> <tr><td>The remainder at</td><td>4.8 ml/kg/hr</td></tr> </table> <p><u>Gamunex 100mg/ml</u></p> <table> <tr><td>30 mins</td><td>0.6 ml/kg/hr</td></tr> <tr><td>30 mins</td><td>1.2 ml/kg/hr</td></tr> <tr><td>30 mins</td><td>2.4 ml/kg/hr</td></tr> <tr><td>30 mins</td><td>4.8 ml/kg/hr</td></tr> <tr><td>The remainder at</td><td>7.2 to 8.4 ml/kg/hr</td></tr> </table> <p>Note the maximum infusion rate for Gamunex for patients at risk of renal failure is 4.8ml/kg/hr.</p> <p><u>Octagam 100mg/ml</u></p> <table> <tr><td>30 mins</td><td>0.6ml/kg/hr</td></tr> <tr><td>30 mins</td><td>1.2ml/kg/hr</td></tr> <tr><td>30 mins</td><td>2.4 ml/kg/hr</td></tr> <tr><td>30 mins</td><td>4.8 ml/kg/hr</td></tr> <tr><td>The remainder at</td><td>7.2 ml/kg/hr</td></tr> </table> <p><b>Rates may be reduced at the prescriber's discretion, depending on the patient's condition, tolerance to IVIG and side effects.</b></p> <p>Do not exceed the above rates.</p>	30 mins	0.5ml/kg/hr	30 mins	1ml/kg/hr	30 mins	2 ml/kg/hr	30 mins	4 ml/kg/hr	The remainder at	6 ml/kg/hr	30 mins	0.3 ml/kg/hr	30 mins	0.6 ml/kg/hr	30 mins	1.2 ml/kg/hr	30 mins	2.4 ml/kg/hr	The remainder at	4.8 ml/kg/hr	30 mins	0.6 ml/kg/hr	30 mins	1.2 ml/kg/hr	30 mins	2.4 ml/kg/hr	30 mins	4.8 ml/kg/hr	The remainder at	7.2 to 8.4 ml/kg/hr	30 mins	0.6ml/kg/hr	30 mins	1.2ml/kg/hr	30 mins	2.4 ml/kg/hr	30 mins	4.8 ml/kg/hr	The remainder at	7.2 ml/kg/hr
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	<p><u>Observations during infusion for all brands</u></p> <p><b>Days 1 and 2</b> Hour 1 T(Temperature), P(Pulse), R (Respiratory rate) &amp; BP (Blood pressure) every 15 mins Hour 2 T, P, R &amp; BP every 30 mins Then T, P, R &amp; BP every hour</p> <p><b>All subsequent days</b> T, P, R &amp; BP every hour Observations may be required more frequently depending on patient's condition, tolerance to IVIG and side effects. If the batch number changes, observations should be restarted as per Days 1 and 2.</p> <p><b>All treatment days</b> Monitor urine output and serum creatinine.</p>
<b>CAUTIONS WITH MEDICAL CONDITIONS AND MEDICINES</b>	<p>Concomitant loop diuretics should be avoided.</p> <p>Caution in patients over 65 years old, obese, or with a medical history of thromboembolic events (eg. MI, stroke, PE, DVT), hypertension, diabetes mellitus, vascular disease and in patients who are immobile, who take concomitant nephrotoxic medication or have renal impairment.</p> <p><b>For full list of cautions and contraindications, see individual Summary of Product Characteristics. <a href="http://www.medicines.org.uk">www.medicines.org.uk</a></b></p>
<b>CONCENTRATION :</b>	100mg/ml
<b>STABILITY :</b>	Use immediately once vial opened.
<b>ADDITIONAL INFORMATION :</b>	<p>Octagam contains maltose as a stabilising agent, which may cause falsely high readings of "glucose" in some blood glucose monitoring devices and consequently, in the inappropriate administration of insulin. This may result in life threatening hypoglycaemia and death. Also, cases of true hypoglycaemia may go untreated if the hypoglycaemic state is masked by falsely elevated glucose readings.</p>
<b>REFERENCES :</b>	<p>Department of Clinical Neurosciences, Western General Hospital, 2020. Kiovig infusion protocol for nursing staff – IVIg.</p> <p>Department of Clinical Neurosciences, Western General Hospital, 2020. Privigen infusion protocol for nursing staff – IVIg.</p> <p>Department of Clinical Neurosciences, Western General Hospital, 2020. Gamunex infusion protocol for nursing staff – IVIg.</p> <p>Department of Clinical Neurosciences, Western General Hospital, 2020. Octagam infusion protocol for nursing staff – IVIg.</p> <p>Clinical Guidelines for Immunoglobulin Use. NHS Scotland. 2<sup>nd</sup> edition. March 2012.</p> <p>Martindale, 2021. Toxic shock syndrome. <a href="https://www.medicinescomplete.com/#/content/martindale/1-a5-340-n?hspl=toxic&amp;hspl=shock">https://www.medicinescomplete.com/#/content/martindale/1-a5-340-n?hspl=toxic&amp;hspl=shock</a> Accessed 19/08/24</p> <p>NHS Scotland, 2021. NHS Scotland Immunoglobulin request form. Version 10. <a href="https://www.nppeg.scot.nhs.uk/wp-content/uploads/2021/04/IVIG-request-form-V10-April-2021.pdf">https://www.nppeg.scot.nhs.uk/wp-content/uploads/2021/04/IVIG-request-form-V10-April-2021.pdf</a> Accessed 19/08/24.</p>

**Critical Care Guidelines  
FOR CRITICAL CARE USE ONLY**

	<p>Summary of Product Characteristics, 2021. Kiovig 100mg/ml solution for infusion. <a href="https://www.medicines.org.uk/emc/medicine/30185">https://www.medicines.org.uk/emc/medicine/30185</a>. Accessed 30/07/24.</p> <p>Summary of Product Characteristics, 2020. Privigen 100mg/ml solution for infusion. <a href="https://www.medicines.org.uk/emc/product/6428/smpc">https://www.medicines.org.uk/emc/product/6428/smpc</a>. Accessed 30/07/24.</p> <p>Summary of Product Characteristics, 2020. Gamunex 10%, 100mg/ml, solution for infusion. <a href="https://www.medicines.org.uk/emc/product/4854/smpc">https://www.medicines.org.uk/emc/product/4854/smpc</a>. Accessed 30/07/24.</p> <p>Summary of Product Characteristics, 2020. Octagam 10%, solution for infusion. <a href="https://www.medicines.org.uk/emc/product/4701/smpc">https://www.medicines.org.uk/emc/product/4701/smpc</a>. Accessed 30/07/24.</p>
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