Immune Globulin

BIOLOGICAL PAGE

Alberta Health Services
Communicable Disease Control

Section 7	Biological Product Information	**Standard # 07.250**	
Created and approved by	Provincial Immunization Program Standards and Quality		
Approval date	March 1, 2013	**Revised**	May 30, 2025

	IMIG **GamaSTAN**	**IVIG** *Canada has a number of IVIG preparations available*
Manufacturer	Grifols Therapeutics LLC – distributed by Grifols Canada Ltd.	• Gammagard® S/D (Takeda Canada Inc.) • Gammagard Liquid® (Takeda Canada Inc.) • Gamunex® (Grifols Therapeutics LLC) • IGIVnex® (Grifols Therapeutics Inc. • Octagam® 5% (Octapharma)
Biological Classification	Passive: Immune Globulin	Passive: Immune Globulin
Indications for Use of Provincially Funded IG in Measles Post-Exposure	**Measles post-exposure:**	

- Measles PEP is recommended for individuals not expected to have immunity to measles following exposure to measles.
- Previous immunization status, history of measles infection, birth year, and in some cases, use of measles serological testing (IgG), can be considered to determine measles immunity and PEP eligibility.
- When indicated, PEP should be provided as soon as possible, preferably within 72 hours but up to six days after exposure.
- Susceptible contacts should receive either measles-containing vaccine or Immune Globulin (IG) depending upon the time from exposure, age and health status. See Table 1 below.
    - Immune globulin (IG) is offered to eligible contacts as outlined in the Alberta Public Health Disease Management Guidelines: Measles. Refer to provincial guidelines as well as zone processes for follow-up of notifiable diseases.

The following individuals are expected to have measles immunity:

Immunocompetent individuals 12 months of age and older, including pregnant individuals, with:

- Year of birth before 1970, or
- Receipt of two doses of measles-containing vaccine (given at least 4 weeks apart) administered after 12 months of age, or
- Laboratory evidence of immunity (positive measles IgG), or
- History of laboratory-confirmed measles infection.

Susceptible contacts: Individuals who do not meet these criteria should be considered susceptible.

Note:

- Immunocompromised individuals and HIV-infected individuals require further assessment based on their level of immune compromise, and consultation with a specialist may be required.

	IMIG GamaSTAN	IVIG *Canada has a number of IVIG preparations available*

- Routine testing for laboratory evidence of measles immunity is not recommended for the general population.

Table 1

The following recommendations are adapted from the National Advisory Committee on Immunization's 2025 Upd*ated recommendations on measles post-exposure prophylaxis*.

For disease investigation, contact assessment and reporting requirements refer to Public Health Notifiable Disease Management Guidelines – Measles.

Population	Time Since Exposure	
	≤ 72 hours	73 hours to 6 days
Infants less than 6 months of age	IMIG[1,2]	
Immunocompetent infants 6 to under 12 months of age[3]	MMR vaccine[4,5]	IMIG[1,2]
Susceptible immunocompetent individuals 12 months of age and older[6]	Measles-containing vaccine	Measles-containing vaccine[7]
Susceptible pregnant individuals	IVIG[8,9]	
Immunocompromised and HIV infected individuals	Refer to Appendix A for PEP strategies	

1. Unless contraindicated, individuals who receive IG should receive routine immunization with measles-containing vaccines after the specified interval. See Standard for Recommended Immunization Schedules 03.110 Section 7.
2. If IM injection volume is a major concern, or recipients weigh >30 kg, or if access to IVIG is more feasible than access to IMIG, IVIG can be administered.
3. For immunocompetent children 6 months to under 12 months of age who have previously received a dose of MMR, options include a dose of MMR within 72 hours of exposure or IMIG within 6 days of exposure if seronegative for measles; clinical judgement should be used. Two doses of a measles-containing vaccine (given at least 4 weeks apart) would still be required after 12 months of age for long term protection.
4. Two additional doses of measles-containing vaccine administered after 12 months of age (given at least 4 weeks apart) are required for long-term protection.
5. NACI has not reviewed the use of MMRV in infants less than 12 months of age. MMR is recommended for PEP for infants 6 months to less than 12 months of age.
6. Routine testing for laboratory evidence of measles immunity is not recommended for the general population.
7. A measles-containing vaccine is not known to provide protection after 72 hours of exposure. Starting or completing a two-dose series does not need to be delayed as it provides long-term protection. However, vaccine may also be offered after the incubation period has passed to avoid confusion about whether any symptoms that develop are from disease or vaccine.
8. For pregnant individuals with one previous dose of measles-containing vaccine or uncertain immunization status, serology may be considered if results are expected within 24 hours.
9. IMIG is no longer recommended for individuals weighing more than 30 kg due to the lack of evidence of the efficacy/effectiveness of IMIG administered at dosages below 0.5 mL/kg. In some circumstances, such as in remote communities, there may be a preference to give IMIG instead of IVIG. More than 15 mL of IMIG can be administered using clinical judgement.

Hepatitis A post-exposure:

<table>
<tr><th></th><th>IMIG
GamaSTAN</th><th>IVIG
Canada has a number of IVIG preparations available</th></tr>
<tr><td>Indications for Use of Provincially Funded IG in Hepatitis A Post-Exposure</td><td colspan="2">IMIG
Administer post-exposure prophylaxis for hepatitis A to susceptible contacts as soon as possible within 14 days of the last exposure to the case (when the exposure occurred while the case was in the infectious period) and may include hepatitis A vaccine, immune globulin or both. See specific recommendations below.
Contacts at risk of developing severe complications (those with chronic liver disease; hepatitis B carriers; hepatitis C infection (anti-HCV positive); candidates and recipients of liver transplant) and individuals who are immunocompromised (congenital and acquired immunodeficiency; immunosuppressive therapy and HIV infection) should receive both IMIG and hepatitis A vaccine (two-dose series). See Hepatitis A Biological Page.
Contacts younger than 6 months of age and individuals in whom hepatitis A vaccine is contraindicated should receive IMIG only.
All other contacts should receive hepatitis A vaccine only. See Hepatitis A Biological Page.
For disease investigation, contact assessment and reporting information refer to Public Health Notifiable Disease Management Guidelines – Hepatitis A.
IVIG
N/A - IVIG is not used for hepatitis A post exposure prophylaxis.</td></tr>
<tr><td>Preferred Use</td><td>N/A</td><td>N/A</td></tr>
<tr><td rowspan="5">Dose</td><td colspan="2">Measles post-exposure:</td></tr>
<tr><td>IMIG
0.5 mL/kg of body weight (maximum 15 mL)
Note:
See max volume exceptions in Table 1 and Appendix A
To facilitate administration of IMIG in children, injection volumes of up to 3 mL could be considered to reduce the number of injections, using clinical judgement.</td><td>IVIG
400 mg/kg</td></tr>
<tr><td colspan="2">Hepatitis A post-exposure:</td></tr>
<tr><td>IMIG
0.1 mL/kg of body weight
Note:
Doses administered IM may need to be divided and injected into several muscle sites to reduce local pain and discomfort.</td><td>IVIG
N/A for Hepatitis A post exposure</td></tr>
<tr><td>IMIG
Use a blunt fill or large bore needle to withdraw immune globulin. Withdrawal through a small-gauge needle can lead to aggregation
Inject slowly</td><td>IVIG
Administer IVIG in a setting where there is active patient monitoring during the infusion, performed by appropriately trained staff.</td></tr>
</table>

<table>
<tr><th></th><th>IMIG
GamaSTAN</th><th>IVIG
Canada has a number of IVIG preparations available</th></tr>
<tr><td></td><td>IMIG is supplied in 2 mL, 5 mL and 10 mL single use vials.</td><td></td></tr>
<tr><td>Route</td><td>IMIG - Intramuscular injection</td><td>IVIG - Intravenous infusion</td></tr>
<tr><td>Schedule</td><td colspan="2">Measles contacts:
• Administer IG as soon as possible but can be administered up to 6 days after exposure to prevent or modify measles.
• Individuals who receive IG should receive age-appropriate measles-containing vaccine at specified intervals after receipt of IG depending upon the dosage of IG administered unless the vaccine is contraindicated. Refer to the Standard for Recommended Immunization Schedules, Section 7 Guidelines for Intervals between Immune Globulin and other Blood Products and Live Vaccines.

Note:
• The recommended interval between IMIG and subsequent immunization with MMR, MMR-Var or Varicella vaccines is 6 months.
• The recommended interval between IVIG and subsequent immunization with MMR, MMR-Var or Varicella vaccine is 8 months.
• When it is necessary for IG to be administered less than 14 days after receiving MMR, MMR-Var or Varicella vaccine, the immunization should be repeated as per the intervals outlined in the Standard for Recommended Immunization Schedules, Section 7 Guidelines for Intervals between Immune Globulin and other Blood Products and Live Vaccines.
• If IG is administered more than 14 days post MMR containing or varicella containing immunization, the dose of vaccine does not need to be repeated.
• IG should not be used to control outbreaks. If repeat measles exposures occur in healthy individuals who are eligible for measles-containing vaccine but have refused to receive it, repeat doses of IG should not be offered. However, when repeat measles exposures occur in high-risk populations such as susceptible individuals who are immunocompromised, pregnant, or less than 12 months of age, repeat doses of IG may be considered in consultation with MOH.

Hepatitis A contacts:
• IG should be administered as soon as possible after a known exposure for individuals who are eligible. It should be administered within 14 days of the last exposure. Efficacy of IG is unknown if more than 14 days after exposure.

Note:
• The recommended interval between IMIG and subsequent immunization with MMR, MMR-Var or Varicella vaccines is 3 months.
• When it is necessary for IG to be administered less than 14 days after receiving MMR, MMR-Var or Varicella vaccine, the immunization should be repeated 3 months after the administration of IG.
• If IG is administered more than 14 days post MMR containing or varicella containing immunization, the dose of vaccine does not need to be repeated.</td></tr>
<tr><td>Contraindications/ Precautions</td><td>Contraindications:
IMIG
• Known severe hypersensitivity to any component of GamaSTAN or its container</td><td>Contraindications:
IVIG
• Individuals with known anaphylactic or severe response to IG</td></tr>
</table>

<table>
<tr><th></th><th>IMIG
GamaSTAN</th><th>IVIG
Canada has a number of IVIG preparations available</th></tr>
<tr><td></td><td>• Do not give to individuals with isolated IgA deficiency. They have the potential to develop antibodies to IgA and could develop anaphylactic reactions to subsequent administration of blood products that contain IgA.</td><td>• Refer to specific product monograph for contraindications.</td></tr>
<tr><td></td><td colspan="2">Precautions:
• Use with caution in individuals with a history of prior systemic allergic reactions following administration of human immunoglobulin preparations.
• GamaSTAN should not be administered to individuals who have severe thrombocytopenia or any coagulation disorder that would contraindicate intramuscular injections.
  ○ IG is made from human plasma. Products made from human plasma may contain infectious agents, such as viruses, and theoretically, the Creutzfeldt-Jakob (CJD) agent that can cause disease. The risk that such products will transmit an infectious agent has been reduced by screening plasma donors for prior exposure to certain viruses, testing for the presence of certain current viral infections and inactivating and/or removing certain viruses. Despite these measures, such products can still potentially transmit disease.
A signed Consent to Treatment or Procedure form is required before administering immune globulin products.</td></tr>
<tr><td>Possible Reactions</td><td>IMIG
Common:
• Local pain, tenderness, and erythema at the injection site
• Stiffness of local muscles
• Mild fever and malaise.
Uncommon:
• Flushing, headache, chills or nausea.
Rare:
• Anaphylactic reactions
• Urticaria and angioedema
• There is clinical evidence of an association between the administration of all immunoglobulins and thromboembolic events such as myocardial infarction, stroke, pulmonary embolism and deep vein thrombosis
• As with any immunization, unexpected or unusual side effects can occur. Refer to the product monograph for more detailed information.</td><td>IVIG
Refer to specific product monographs prior to administering IVIG products for information on possible reactions.</td></tr>
<tr><td>Pregnancy</td><td colspan="2">Should be administered if indicated.</td></tr>
</table>

	IMIG GamaSTAN	IVIG *Canada has a number of IVIG preparations available*
	• Intact IgG crosses the placenta from the pregnant individual's circulation increasingly after 30 weeks gestation.	
Lactation	Should be administered if indicated. • It is not known if IG antibodies are excreted in human milk.	

Composition	**IMIG**
	• GamaSTAN
	  ○ 15%-18% immune globulin at pH of 4.1 to 4.8
	  ○ pH is adjusted with sodium carbonate
	  ○ 0.16 to 0.26 M glycine, USP
	  ○ Contains no preservative
		IVIG
		• Gammagard Liquid
		• Gammagard S/D
		• Gamunex
		• IGIVnex
		• Octagam 5%
		Refer to specific IVIG product monographs for details.

Blood/Blood Products	Made from human plasma. • Prepared by cold ethanol fractionation from human plasma.	Refer to specific IVIG product monographs for details. See reference section for links.
Bovine/Porcine Products	Contact manufacturer for specific product information.	Contact manufacturer for specific product information.
Latex	Does not contain latex.	Contact manufacturer for specific product information.
Interchangeability	N/A	Based on supply and product availability.
Administration with Other Products	See Standard for Recommended Immunization Schedules for details.	
Appearance	Clear to slightly opalescent liquid ranging from colorless to pale yellow or light brown..	Refer to specific IVIG product monographs for details.
Storage	• Store between +2°C and +8°C • Do not freeze • Do not use beyond the labeled expiry date • Store in original packaging when possible to protect from light.	Refer to specific IVIG product monographs for details.
Vaccine Code	IG	IG
Antigen Code	IG	IG
Licensed for	**IMIG** Licensed for all ages.	**IVIG** The human IG dosages recommended by NACI for measles post-exposure prophylaxis (PEP) may differ from what is contained in product monographs as measles PEP is an off-label use for most of these products.
Program Notes	• 1987 February 18: Implemented in Alberta • 2019 August 1: Updated NACI recommendations for measles post-exposure prophylaxis for susceptible contacts who are pregnant or immunocompromised weighing 30 kg or more. Susceptible contacts who are pregnant or immunocompromised and 30 kg or more	

	IMIG GamaSTAN	IVIG *Canada has a number of IVIG preparations available*
	will not receive measles antibody concentrations that are considered to be fully protective from IMIG (maximum dose 15 mL). Susceptible individuals excluding infants, pregnant or immunocompromised are no longer routinely recommended to receive IG following measles exposure • 2025 May 30: Measles post-exposure recommendations updated as per the February 2025 NACI guidance. IVIG products updated. New Appendix A for immunocompromised and HIV infected individuals added.	
Related Resources	Immune Globulin Information Sheet	

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Appendix A

Recommended Measles PEP Strategy for Immunocompromised and HIV-infected Individuals

Recommended measles PEP strategies are stratified by extent of immunocompromise, the likelihood of maintaining measles-antibody mediated protection from past immunization or infection, and the ability to safely receive a measles-containing vaccine. The three tables of immunocompromised groups below do not provide a comprehensive list of immunocompromising medical conditions, and therapies that result in immunosuppression. Assessment of severity of immunocompromising condition is best determined by consulting with the treating physician, or infectious disease expert/immunologist.

Group 1: Individuals with an **absent/near absent immune system** and therefore are **not expected to have sufficient natural/acquired measles antibody-mediated protection** and are known to have a high risk of severe disease	**Recommended Measles PEP strategy**
1. Transplant • Within 12 months of receiving autologous hematopoietic stem cell transplant (HSCT) or 24 months of receiving allogeneic HSCT, and HSCT recipients with chronic graft-versus-host disease (GVHD) • Within 12 months of a solid organ transplant 2. Chimeric antigen receptor T-cell (CAR T) therapy • Within 12 months of receiving CAR T therapy for malignancy 3. Acute lymphoblastic leukemia (ALL) • ALL within and up to 3 months after completion of chemotherapy or 6 months after completion of B cell-depleting therapy 4. Human immunodeficiency virus (HIV) infection • HIV infection with a current CD4 T cell count <200 cells/mm^3 (age ≥14 years) or <15% for children aged 1 to 13 years 5. Primary immunodeficiency • Significant primary immunodeficiency or inborn error of immunity (for example, X-linked agammaglobulinemia, severe combined immunodeficiency) for which live vaccines are contraindicated[a,c] 6. Therapies/medications[b] • Receiving cyclophosphamide or anti-thymocyte globulin[d] • Receiving or completed alemtuzumab or B cell-depleting (for example, anti-CD20) treatment within the past 12 months.	Offer PEP as soon as possible and within 6 days of exposure; previous immunization status/serological testing is not relevant. • If > 30 kg, IVIG[c,i] • If ≤ 30 kg, IMIG[c,j]

a. There may be other forms of combined immunodeficiencies with a severe phenotype that may impact the ability to maintain measles antibody-mediated protection from past infection or immunization. Healthcare providers should use clinical judgement when assessing whether IG PEP should be administered as soon as possible or if serology should be considered.

b. As new immunomodulatory drugs become authorized or if various combinations of immunomodulatory drugs are used, advice from clinical experts should be sought as to the degree of immunosuppression likely to be induced and the effect on immunity from past measles infection and/or immunization.

c. For individuals who are already receiving IG replacement therapy (as IVIG or SCIG), IG for measles PEP is not required if the last dose of IVIG (at least 400 mg/kg) was received within three weeks prior to measles exposure, or if SCIG (at least 200 mg/kg) was received for 2 consecutive weeks prior to measles exposure. If outside of these parameters, administer the patient's usual dose as soon as possible.

d. The period for which an individual remains immunocompromised and at high risk of severe disease after cessation of these medications can vary. Consultation with the specialist responsible for the clinical care of the individual is recommended.

i. IMIG is no longer recommended for individuals weighing more than 30 kg due to the lack of evidence of the efficacy/effectiveness of IMIG administered at dosages below 0.5 mL/kg. In some circumstances, such as in remote communities, there may be a preference to give IMIG instead of IVIG. More than 15 mL of IMIG can be administered using clinical judgement.

j. IMIG should be administered at a concentration of 0.5 mL/kg, to a maximum of 15mL administered over multiple injection sites. If IM injection volume is a major concern, or recipients weigh >30 kg, or if access to IVIG is more feasible than access to IMIG, IVIG can be administered at a concentration of 400 mg/kg.

Group 2: Individuals who are immunocompromised who m**ay have measles antibody-mediated protection** from known previous immunization or infection	**Recommended Measles PEP Strategy**
1. Transplant • More than 12 months but less than 24 months post autologous HSCT without evidence of GVHD requiring immunosuppression and received measles vaccine after transplant • >12 months post solid organ transplant without evidence of rejection requiring augmented immunosuppression 2. CAR T-cell therapy • >12 months after CAR T-cell therapy[e] 3. Malignancy • Lymphoproliferative diseases including hematologic cancers (for example, indolent lymphoma, lymphocytic leukemia or plasma cell lymphoma not included above) not receiving B cell-targeting therapy • Immunotherapy/chemotherapy/ radiotherapy for malignancy other than ALL (solid tumour or hematologic) that is ongoing or completed within the last 3 months 4. Secondary immunodeficiency • Secondary hypogammaglobulinemia due to disease or therapy[c] 5. Therapies/medications[b] • Targeted immunosuppressive biologic and small molecule therapies not mentioned above (for example, tumour necrosis factor inhibitors, costimulation modulators, cytokine inhibitors, tyrosine kinase inhibitors) that are ongoing or received <6 months prior to exposure, alone or in combination with: 1) steroids or 2) disease-modifying antirheumatic drugs (DMARDs)[f]	• Measles immunity and need for measles PEP should be examined regardless of year of birth, or measles immunization status • Ideally, consult the specialist responsible for the clinical care of the individual or an infectious disease expert / immunologist • Consider rapid measles serological testing • If serology is negative or measles serology testing is not available within 24 hours of sampling, administer PEP as soon as possible and within 6 days of exposure • If >30 kg, administer IVIG[c,i] • If ≤ 30 kg, administer IMIG[c,j]

• Ongoing or <4 weeks since completion of daily corticosteroid therapy at a prednisone or equivalent dose of ≥20 mg/day for adults or ≥1 mg/kg/day for children for ≥14 days, or undergoing dose tapering following treatment with a prednisone or equivalent dose of ≥20 mg/day for adults or ≥1 mg/kg/day for children for ≥14 days[g] • Ongoing or within 3 months of completing treatment with immunosuppressive drugs for immune-mediated diseases (for example, methotrexate >0.4 mg/kg/week [children: >10 mg/m^2/week; adults: >15 mg/m^2/week], azathioprine >3 mg/kg/day, 6-mercaptopurine >1.5 mg/kg/day, cyclosporine, tacrolimus, sirolimus, mycophenolate mofetil, and small molecule inhibitors)[f]	

b. As new immunomodulatory drugs become authorized or if various combinations of immunomodulatory drugs are used, advice from clinical experts should be sought as to the degree of immunosuppression likely to be induced and the effect on immunity from past measles infection and/or immunization.

c. For individuals who are already receiving IG replacement therapy (as IVIG or SCIG), IG for measles PEP is not required if the last dose of IVIG (at least 400 mg/kg) was received within three weeks prior to measles exposure, or if SCIG (at least 200 mg/kg) was received for 2 consecutive weeks prior to measles exposure. If outside of these parameters, administer the patient's usual dose as soon as possible.

e. The timeframe for immune reconstitution following CAR T-cell therapy is variable. Consultation with the specialist responsible for the clinical care of the individual is recommended.

f. Interval may vary with the type and intensity of treatment. Period may be shortened for biologics/treatments with a shorter duration of effect.

g. For children, a dose of 20 mg/day is often equivalent to doses below 2 mg/kg/day. There is no consensus regarding the lowest prednisone dose that would be considered immunosuppressive in children; thresholds vary across various guidelines from ≥0.5 mg/kg/day to ≥2 mg/kg/day.

i. IMIG is no longer recommended for individuals weighing more than 30 kg due to the lack of evidence of the efficacy/effectiveness of IMIG administered at dosages below 0.5 mL/kg. In some circumstances, such as in remote communities, there may be a preference to give IMIG instead of IVIG. More than 15 mL of IMIG can be administered using clinical judgement.

j. IMIG should be administered at a concentration of 0.5 mL/kg, to a maximum of 15 mL administered over multiple injection sites. If IM injection volume is a major concern, or recipients weigh >30 kg, or if access to IVIG is more feasible than access to IMIG, IVIG can be administered at a concentration of 400 mg/kg.

Group 3: Individuals who have low-level immunocompromise who are expected to have measles antibody-mediated protection from known previous infection or immunization, for whom measles-containing vaccine is not contraindicated	**Recommended Measles PEP Strategy**
1. Transplant • >24 months following HSCT with no chronic GVHD and received measles-containing vaccine after transplant	If no documented evidence of positive measles IgG post-transplant, provide measles-containing vaccine as soon as possible[k]
2. HIV infection • Asymptomatic HIV-infected patients with CD4 T cell counts of >200 cells/mm^3 (age ≥14 years) or >15% for children aged 1 to 13 years 3. Primary immunodeficiencies	Consider criteria for expected measles immunity: • Year of birth before 1970 • History of laboratory-confirmed measles infection

• Minor B cell deficiency with intact T cell function not requiring Ig therapy, partial T cell defects, and other primary immune deficiencies or inborn error of immunity 4. Therapies/medications[b] • Prednisone or equivalent doses <20 mg/day for adults or <1 mg/kg/day for children taken for ≥14 days or receiving alternate day corticosteroid therapy[f] • ≥4 weeks after discontinuation of long-term (≥14 days) high-dose systemic steroids, or immediately after discontinuation of high-dose steroids taken for <14 days[g] • Therapies that target immune system components, but are unlikely to have significant effects on humoral immunity pathways (for example, IgE blockers, IL-5 inhibitors, IL-5 receptor blockers, IL-4 inhibitors, IL-13 inhibitors and other cytokine inhibitors) • Methotrexate ≤0.4 mg/kg/week (children: ≤10 mg/m^2 /week; adults: ≤15 mg/m^2/week) • Azathioprine ≤3 mg/kg/day[h] • 6-mercaptopurine ≤1.5 mg/kg/day • Hydroxychloroquine (any dose)	• Receipt of two doses of a measles-containing vaccine (given at least 4 weeks apart) administered after 12 months of age • Documented evidence of positive measles serology If none of the listed criteria for expected measles immunity is met or patient history is unknown, provide measles-containing vaccine as soon as possible.[k] If any of the listed criteria for expected measles immunity is met, measles PEP is not recommended.

b. As new immunomodulatory drugs become authorized or if various combinations of immunomodulatory drugs are used, advice from clinical experts should be sought as to the degree of immunosuppression likely to be induced and the effect on immunity from past measles infection and/or immunization.

f. Interval may vary with the type and intensity of treatment. Period may be shortened for biologics/treatments with a shorter duration of effect.

g. For children, a dose of 20 mg/day is often equivalent to doses below 2 mg/kg/day. There is no consensus regarding the lowest prednisone dose that would be considered immunosuppressive in children; thresholds vary across various guidelines from ≥0.5 mg/kg/day to ≥2 mg/kg/day.

h. Individuals on azathioprine exhibiting signs of myelosuppression/myelotoxicity should be assessed for susceptibility and need for IG PEP. Please refer to Group 2: Individuals who are immunocompromised who may have measles antibody-mediated protection from known previous immunization or infection.

k. A measles-containing vaccine is not known to provide protection after 72 hours of exposure. Starting or completing a two-dose series does not need to be delayed as it provides long-term protection. However, vaccine may also be offered after the incubation period has passed to avoid confusion about whether any symptoms that develop are from disease or vaccine.