NHS Grampian

Public Health Protocol For Arranging Measles Post-Exposure Immunoglobulin In Grampian

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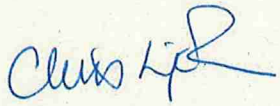
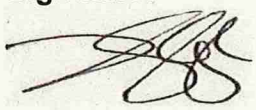
Signature: 	**Signature:** 	**Signature:** 
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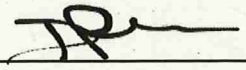
Policy Statement:

It is the responsibility of all staff to ensure that they are working to the most up to date and relevant guideline, policies, protocols and procedures.

Version 1

Executive Sign-Off

This document has been endorsed by the Director of Pharmacy and Medicines Management

Signature: 

Replaces: New Guidance

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Revision History:

Revision Date	Summary of Changes	Changes Made
	New guidance	

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1. Problem Statement

NHS Grampian Health Protection Team (HPT) undertake contact tracing in response to being notified of a case of measles. One reason for doing so is to find contacts who are susceptible to measles and at highest risk of severe disease. Timely administration of immunoglobulin can offer protection to such contacts. The window of opportunity to administer this can be small. Having a protocol agreeing who will prescribe and administer immunoglobulin in advance will help with timely arrangements on the rare occasion it is required.

2. Context

Measles is rare in Scotland due to generally high levels of vaccination.[1] However, high levels of vaccination are not universal across the population, and since 2024 there have been cases and outbreaks across the UK and Europe.

The experience of the West Midlands is instructive.[2] In a population of nearly 3 million, between October 2023 and February 2024 there were 381 cases of measles, with over 3000 contacts. Thirty-one contacts were eligible for immunoglobulin, nearly all infants. Grampian's population is around a sixth of the West Midlands, with a different population composition, but it serves to highlight that only a small number of contacts might be expected to require immunoglobulin even in a major outbreak.

3. Response to a Case

The clinical system provides care to the patient at home or in hospital, including assessment, investigation, diagnosis and treatment.

The public health system leads a wider preventive response. Measles is a clinically notifiable disease and measles virus is a notifiable organism. The HPT undertake additional case finding and contact tracing, apply the public health act as necessary to prevent onward transmission, provide public communications, and convene and chair an incident management team (IMT) to provide coordination as the situation requires.

Susceptible contacts at greatest risk of complications from infection, are recommended to receive immunoglobulin. The algorithms in Appendix 1 are based on the national measles guidance[3] and will be used by the HPT (working with the Infection Prevention and Control Team and NHS Grampian Occupational Health Service) to assess susceptibility of contacts who are immunosuppressed, pregnant or infants, and identify those who immunoglobulin is recommended for.

[1] https://publichealthscotland.scot/population-health/health-protection/infectious-diseases/measles/data-and-surveillance/disease-surveillance

[2] https://his.org.uk/resources-guidelines/webinars-ipc-challenges-and-solutions

[3] https://www.gov.uk/government/publications/national-measles-guidelines

4. Options for Arranging Immunoglobulin

Immunoglobulin is a prescription only medicine. There is no Patient Group Direction (PGD) that authorises the administration of human normal immunoglobulin for contacts of measles. A template Patient Specific Direction is provided in Appendix 2.

Note that post-exposure immunoglobulin is intended for **asymptomatic** contacts, prior to the onset of infectious symptoms. A contact with symptoms must be clinically assessed as a possible case of measles, with appropriate precautions in place.

4.1 An immunosuppressed contact

Intravenous immunoglobulin (IVIG) is recommended for certain immunosuppressed contacts of measles (see the algorithm in Appendix 1).

- For an immunosuppressed infant or child contact, the HPT will ask the Registrar in the Paediatric Assessment Unit to prescribe and arrange administration of IVIG.
- For an immunosuppressed adult contact, the HPT will discuss with the adult's specialist consultant (e.g. haematologist, oncologist) and then request the duty infectious diseases consultant to prescribe and arrange administration of IVIG in the infection unit at ARI.

4.2 A pregnant contact

Intramuscular human normal immunoglobulin (HNIG[4]) is recommended for susceptible pregnant contacts of measles (see the algorithm in Appendix 1).

- The HPT will contact the oncall Obstetrics team, via ASCOM 53945 or 53967, and request they prescribe and arrange administration of IVIG in a single room in triage at Aberdeen Maternity Hospital.

For immunosuppressed pregnant contacts, the oncall obstetrics team should discuss the patient with the relevant clinical specialist and or infectious diseases as required, and keep HPT informed of plan to administer IVIG.

4.3 An immunocompetent infant contact under the age of nine months

Intramuscular HNIG is recommended for **all** infant contacts under six months of age.

Intramuscular HNIG is recommended for infant contacts six to eight months of age **who live in the same household** as the case (see the algorithm in Appendix 1).

- The HPT will ask the Registrar in the Paediatric Assessment Unit to prescribe and arrange administration of HNIG.

4.4 Multiple susceptible contacts

Large incidents may have the potential to overwhelm clinical services. In such circumstances, it is anticipated that the IMT will seek to make special arrangements for post-exposure interventions including immunoglobulin.

[4] https://bnf.nice.org.uk/treatment-summaries/immunoglobulins

4.5 Arranging immunoglobulin

- In-hours, HPT will contact the Vaccine Services Technician to confirm availability of supply on internal extension: 53223.
- Out of hours the HPT will contact the on call pharmacist on ARI switchboard (0345 456 6000).

The HPT will ask the clinician they have asked to prescribe to complete the order form (Appendix 3), selecting the grey indication on page three, "Post-exposure prophylaxis for viral… infection" and email it to gram.vaccineservicesandplasmaproducts@nhs.scot.

The Vaccine Services Technician will arrange delivery to the administering service, ideally the same day.

5. Further Information

5.1 Rationale for administration

Measles can cause serious sequelae in those who are immunosuppressed, during pregnancy, and in infants; immunoglobulin can prevent (when given intravenously) or attenuate (when given intramuscularly) infection in susceptible persons who have been exposed.

5.2 The product

Immunoglobulin is a blood product made from plasma donations. National measles guidance advises IVIG for immunosuppressed susceptible contacts, and intramuscular HNIG for immunocompetent susceptible infants and pregnant women. National measles guidance highlights that intramuscular administration of subcutaneous products is off-label.

National measles guidance provides recommended dosages:

- immunosuppressed: 0.15g/kg of IVIG
- pregnant women: 3,000mg HNIG intramuscular
- infants up to and including eight months of age: 0.6ml/kg up to a maximum of 1,000mg HNIG intramuscular.

5.3 Administration and storage

- Administration advice (including licensed route of administration, recommended rate of infusion and reconstitution requirements) varies widely between normal immunoglobulin preparations from different manufacturers - formulations are not interchangeable; consult product literature and contact pharmacy for support if required.
- Adrenaline should be available at all times during administration to deal with anaphylaxis, with staff trained at identifying and managing anaphylaxis.
- The brand name and batch number of immunoglobulin must be recorded in appropriate patient records.

- Storage must be in line with recommended product literature to ensure effectiveness is maintained. It is usually necessary to store immunoglobulin refrigerated, at 2 to 8°C, protected from light and not allowed to freeze.
- See individual product literature for each product to ensure correct storage and administration guidance.

5.4 Risks and side effects

- Most people will not have a reaction to immunoglobulin, it is overall considered safe for most people.
- There is a small risk of anaphylaxis.
- Adverse reactions are more likely to occur in patients receiving normal immunoglobulin for the first time, or following a prolonged period between treatments, or when a different brand of normal immunoglobulin is administered.
- Immunoglobulin is a blood product so there is a low potential risk of contracting blood borne viruses.
- A single dose of prophylactic immunoglobulin does not exclude patients from being eligible to donate blood (as per Joint United Kingdom Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee Guideline on Immunoglobulin Therapy).
- Ensure adequate hydration and monitor renal function when administered intravenously.

Side effects	**IVIG**	**HNIG**
Common/very common side effects (Route specific)	Arthralgia; chills; embolism and thrombosis; feeling hot; fever; haemolysis; headache; hyperaemia; hypersensitivity; hypertension; infusion related reaction; palpitations; sensory disorder; taste altered; vomiting	Drowsiness; headaches; hypotension; local reaction
Common/very common side effects (any route)	Diarrhoea; dizziness; fatigue; gastrointestinal discomfort; myalgia; nausea; pain; skin reactions	
Uncommon (any route)	Hypothermia Paraesthesia	
Frequency not known (any route)	Acute kidney injury; angina pectoris; cutaneous lupus erythematosus; dyspnoea; leucopenia; aseptic meningitis; neutropenia; anaphylactic shock; transfusion-related acute lung injury	

5.5 References

- National Measles Guidance (UKHSA, 2024)
- Health Protection Guidance – Measles (PHS, 2025)

6. Abbreviations

ARI	Aberdeen Royal Infirmary
HNIG	Human Normal Immunoglobulin
HPT	NHS Grampian Health Protection Team
IMT	Incident Management Team
IPCT	NHS Grampian Infection Prevention and Control Team
IVIG	Intravenous Immunoglobulin
MMR	Measles Mumps Rubella Vaccine
OHS	NHS Grampian Occupational Health Service
PAU	Paediatric Assessment Unit
RACH	Royal Aberdeen Children's Hospital
UKHSA	United Kingdom Health Security Agency

Appendix 1 - Post Exposure Algorithms

Immunosuppressed contacts

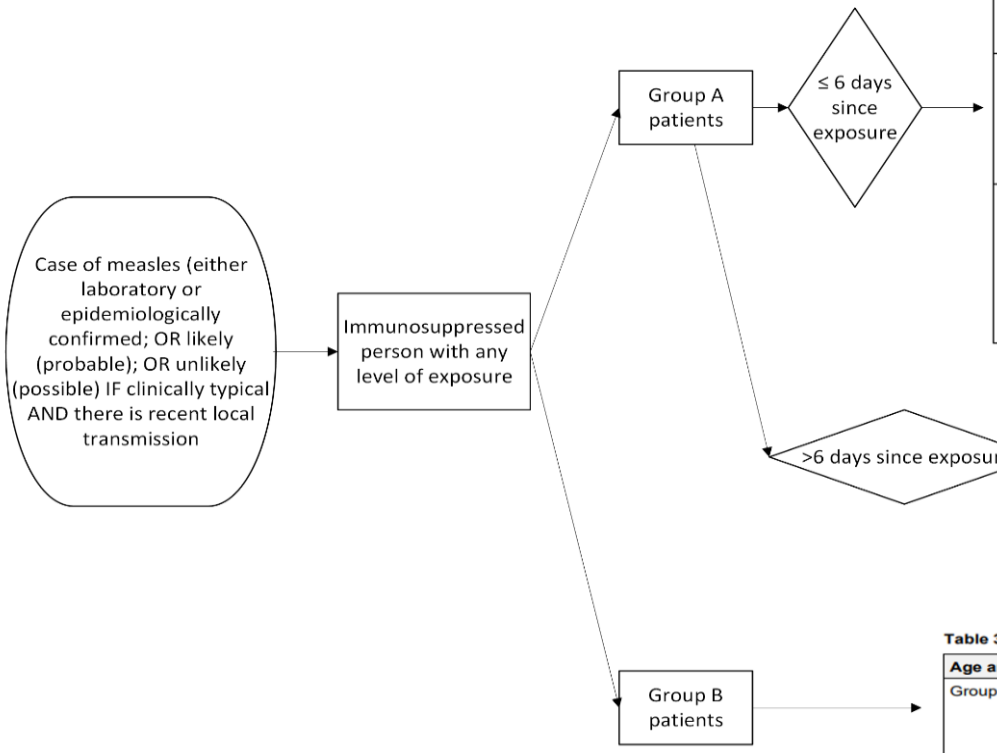


Table 3a. Group A: individuals who should develop and maintain adequate antibody from past exposure or vaccination

Age and history of measles exposure or vaccination		Recommendation
All ages	Previous measles IgG positive	Assume immune – do not give IVIG
Born before 1970	Positive history of measles infection	Assume immune – do not give IVIG
	No history of measles infection	Rapid IgG test and issue if negative or equivocal If not possible to test within 6 days of exposure, assume immune – do not give IVIG
Born between 1970 and 1990	Positive history of measles infection or vaccination	Rapid IgG test and give IVIG if negative or equivocal If not possible to test within 6 days of exposure, assume immune – do not give IVIG
	No history of measles infection or vaccination	Rapid IgG test and give if negative or equivocal If not possible to test within 6 days of exposure, give IVIG
Born after 1990	History of 2 measles containing vaccines	Rapid IgG test and give if negative or equivocal If not possible to test within 6 days of exposure, assume immune – do not give IVIG
	History of one measles containing vaccine	Rapid IgG test and give if negative or equivocal If not possible to test within 6 days of exposure, give IVIG
	Unvaccinated	Give IVIG

Table 3b. Group B: individuals who lose or may not maintain adequate antibody levels from past exposure or vaccination

Age and history of measles exposure or vaccination		Recommendation
Group B (i)	Measles IgG positive since diagnosis or treatment completed	Assume immune – do not issue
	No documentation or negative IgG since treatment or diagnosis	Rapid IgG test and give IVIG if negative or equivocal If not possible to test within 3 days of exposure, give IVIG
Group B (ii)	Offer IVIG regardless of status	

https://www.gov.uk/government/publications/national-measles-guidelines

Group A

- Patients receiving or within 6 months of completing immunosuppressive chemotherapy or radiotherapy for malignant disease
- Patients with human immunodeficiency virus (HIV) infection
- Patients with chronic immune mediated inflammatory disease who are receiving or have received immunosuppressive therapy (corticosteroids; non-biological oral immune modulating drugs)

Group B(i)

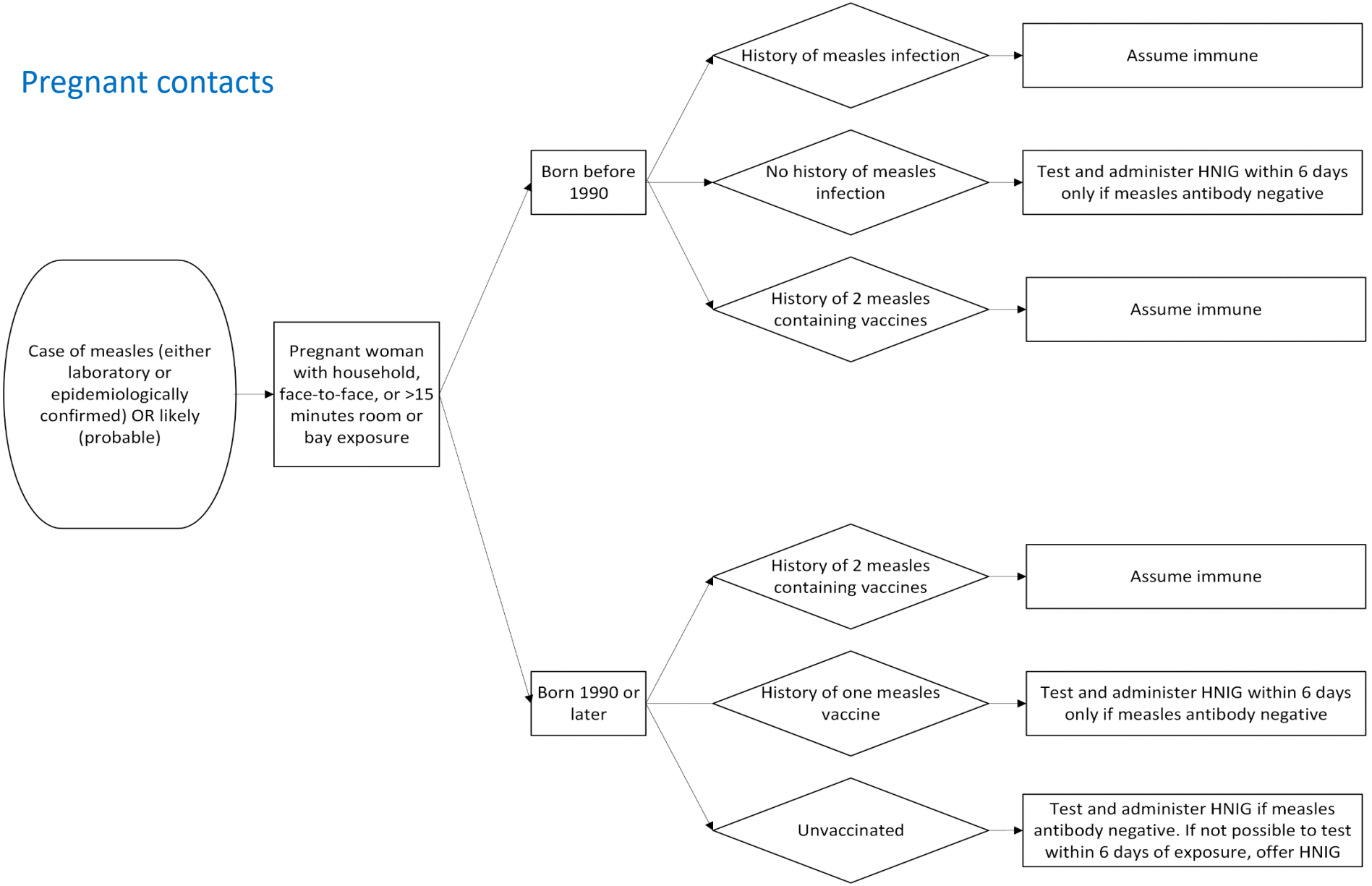
- Patients on or after completion of immunosuppressive chemotherapy for acute lymphoblastic leukaemia
- Patients with lymphoproliferative disorders
- Patients who have received a solid organ transplant
- Patients more than 12 months after receiving a haematopoietic stem cell transplant (HSCT)
- patients receiving or within 6 months of completing biological therapies
- Patients with a diagnosis of AIDS

Group B(ii)

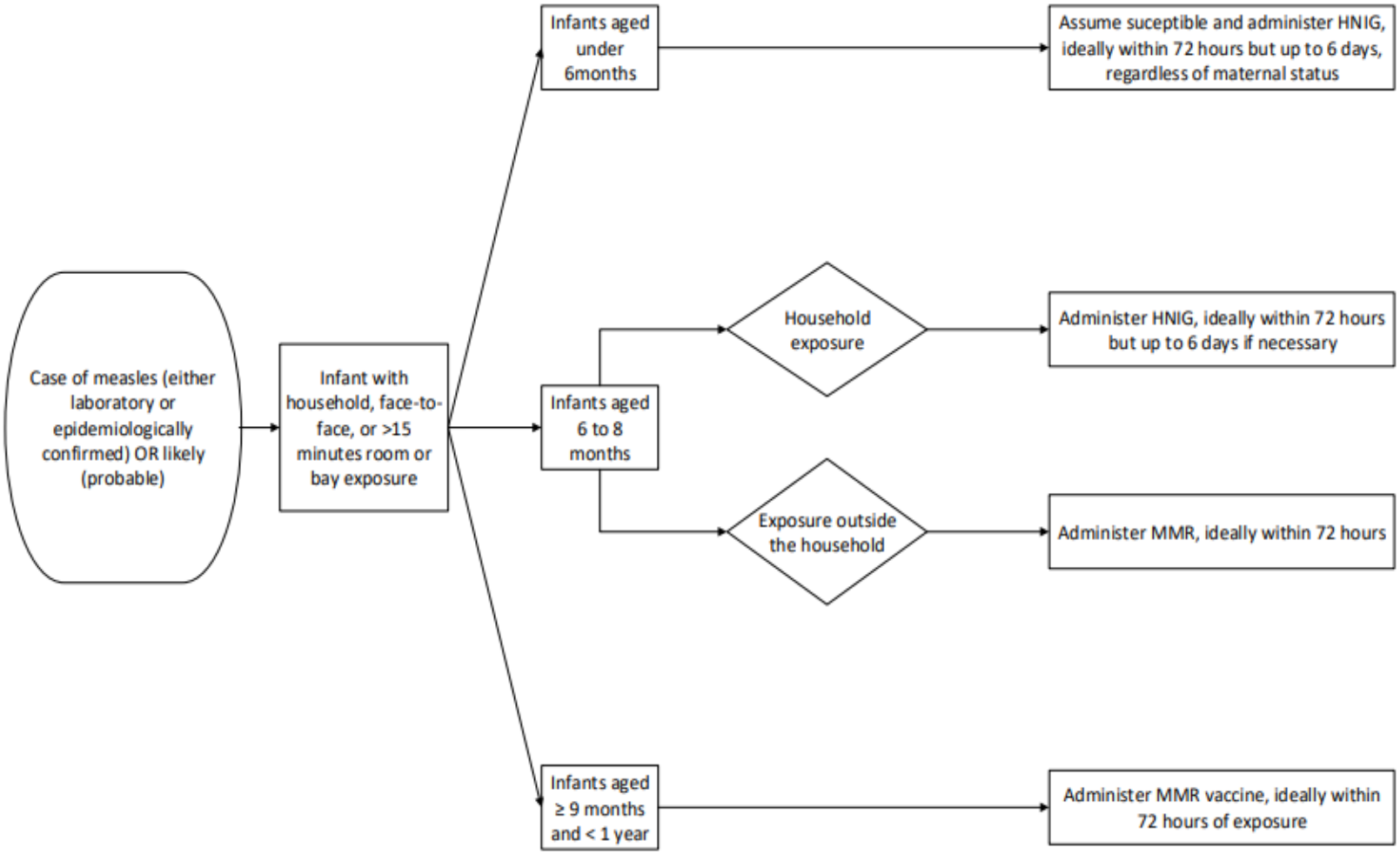
- Patients who have received a haematopoietic stem cell transplant (HSCT) within the past 12 months
- Patients with persistent agammaglobulinaemia (IgG less than 3g/L)

https://www.gov.uk/government/publications/national-measles-guidelines (pp.49-50)

Pregnant contacts



Infant contacts



Appendix 2 - Template Patient Specific Direction

Patient Specific Direction	
Patient Name:	
Patient Address:	
Patient Contact Telephone Number:	
Patient Email:	
Patient CHI:	
Date of Birth:	
Immunoglobulin Prescribed:	
Route of Administration:	
Dose and Frequency:	
Reason for administration of Medicine:	
Please confirm if patient has any allergies or a history of anaphylaxis	
I confirm I am a registered prescriber. By signing this form I confirm I take responsibility for the immunoglobulin prescribed for the above named patient.	Name: Signature: Date: Job Title: Contact Phone Number: Contact Email Address:

Appendix 3 - NHS Scotland Immunoglobulin – Request Form

NHS SCOTLAND IMMUNOGLOBULIN – REQUEST FORM

This form must be completed by a prescriber and sent to pharmacy/screened by a pharmacist before supply is made

PATIENT DETAILS					
Print name:				CHI number:	
Patient postcode					
Height:	cm	Weight:	kg	Dose adjusted weight (if overweight)	kg

Hospital / department for treatment			
Consultant		Speciality	

TREATMENT DETAILS					
First Treatment	☐		Ongoing treatment	☐	
Expected treatment duration		Short term (< 3months) ☐		Long term	☐
Intravenous	☐		Subcutaneous	☐	

Specific brand required (e.g. immunology patient or allergic reaction to specific product)	Yes / No/Details

Replacement therapy (repeat prescription)							
Dose		Frequency		Weeks supply		Prescription valid for:	

Immunomodulatory therapy (e.g. neurology, rheumatology, dermatology			
Dosage regimen	grams / kg over days	Total dose required	grams

Prescribed by:					
Print name:		Grade:		Phone No/ Bleep:	
Signature				Date	

Pharmacist screen:					
Print name:		Grade:		Phone No/ Bleep:	
Signature				Date	

Please select patient diagnosis on the following pages, and any reason for an alternative dose regimen.

Then send completed form to pharmacy

Refer to NHS Scotland Clinical Guidelines for Immunoglobulin Use for full dosing information and further information
www.nppeag.scot.nhs.uk

Dose calculator can be found at https://ivig.transfusionontario.org/dose/

PATIENT DETAILS			
Print name:		CHI number:	
Hospital /Ward			

Red Indications	Short term <3 month	Long term	Usual starting dose*	Alternative regimen + reason
Acquired red cell aplasia	☐	■	1-1.2g/kg in divided doses	
Alloimmune thrombocytopenia (foetal-maternal/neonatal) including GALD	☐	■	Maternal: 0.5-1g/kg weekly Neonatal: 0.4g-1g/kg single dose, can be repeated daily for up to 3 doses	
Autoimmune haemolytic anaemia (including Evan's syndrome)	☐	■	1-2g/kg in 2-5 divided doses. May be repeated	
Chronic inflammatory demyelinating Polyradiculoneuropathy	☐	☐	2g/kg over 2-5 days, often repeated after 4-8 weeks then 1g/kg	
Coagulation factor inhibitors (alloantibodies and autoantibodies)	☐	■	0.4g/kg for 5 days or 1g/kg for 2 days	
Guillain-Barré syndrome (includes Bickerstaff's brain stem encephalitis and other GBS variants)	☐	☐	2g/kg over 5 days, may be repeated after 14 days	
Haemolytic disease of the newborn	☐	■	0.5g/kg over 4 hours	
Haemophagocytic syndrome	☐	■	2g/kg in 2-5 divided doses. May be repeated on relapse	
HSCT in primary immunodeficiencies	■	☐	0.4-0.6g/kg/month	
Immune thrombocytopenic purpura (acute and persistent, excluding chronic)	☐	■	1g/kg as single dose, may be repeated after 24-48 hours	
Kawasaki disease	☐	■	2g/kg single dose over 10-12 hours, may be repeated	
Myasthenia gravis (including Lambert-Eaton myasthenic syndrome)	☐	☐	1g/kg unless life threatening with respiratory/bulbar involvement	
PIMS-TS	☐	■	2g/kg single dose over 10-12 hours, may be repeated	
Post-transfusion purpura	☐	■	2g/kg over 2 days	
Prevention of delayed haemolytic transfusion reaction		■	1-2g/kg over 2 – 5 days	
Primary immunodeficiency involving antibody deficiency	■	☐	0.4-0.6g/kg/month	
Specific antibody deficiency	■	☐	0.4-0.6g/kg/month for 6-12 months	
Syndrome of thrombosis and thrombocytopenia, possibly occurring after coronavirus vaccination	☐	■	1g/kg (divided over two days if necessary)	
Thymoma with immunodeficiency	■	☐	0.4-0.6g/kg/month	
Toxic epidermal necrolysis, Stevens Johnson syndrome	☐	■	2g/kg as a single dose or divided over 3 consecutive days	
Blue Indication	**Short term <3 month**	**Long term**	**Usual starting dose***	**Alternative regimen + reason**
Acquired von Willebrand disease	☐	■	0.4g/kg for five days / 1g/kg for two days Delete as applicable	
Autoimmune congenital heart block	☐	■	0.4g/kg every 3 weeks for 5 treatments from weeks 12-24 gestation	
Autoimmune uveitis	☐	■	1.5g/kg/month for 3 months	
B Cell aplasia	■	☐	0.4 – 0.6 g/kg/month	
Fetal hydrops	☐	■	1 – 1.2g/kg in divided doses	
Immunobullous diseases	■	☐	2g/kg over 2-5 days	
Necrotising (PVL-associated) staphylococcal sepsis	☐	■	2g/kg as a single dose	
Secondary antibody deficiency (any cause)	■	☐	0.4-0.6g/kg/month	
Severe or recurrent Clostridium difficile colitis	☐	■	0.4g/kg as single dose which can be repeated	
Staphylococcal or streptococcal toxic shock syndrome	☐	■	2g/kg as a single dose	
Transplantation (solid organ)	☐	■		

PATIENT DETAILS			
Print name:		**CHI number:**	
Hospital /Ward			

Grey Indications (additional documentation required) Confirm approved ☐		IPTR or alternate Health Board process in place locally	
Immune-mediated disorders with limited evidence of no immunoglobulin efficacy		**Presumed immune-mediated disorders with little or evidence of efficacy**	
Acute disseminated encephalomyelitis (if high dose steroids have failed)	☐	Acquired red cell aplasia NOT due to parovirus B19	☐
Autoimmune encephalitis (including NMDA and VGKC antibodies, among others)	☐	Acute idiopathic dysautonomia	☐
Cerebral infarction with antiphospholipid antibodies	☐	Aplastic anaemia/pancytopenia	☐
Chronic ITP	☐	Atopic dermatitis/eczema	☐
CNS Vasculitis	☐	Autoimmune neutropenia	☐
Complex regional pain syndrome	☐	Chronic facial pain	☐
Inflammatory myopathies (including dermatomyositis)	☐	Diabetic proximal neuropathy	☐
Intractable childhood epilepsy	☐	Haemolytic uraemic syndrome	☐
Multifocal motor neuropathy	☐	PANDAS	☐
Neuromyotonia	☐	Paraneoplastic disorders that are not known to be B- or T-cell mediated	☐
Opsiclonus myoclonus	☐	POEMS	☐
Paraprotein-associated demyelinating neuropathy (IgM, IgG or IgA)	☐	SLE without secondary immunocytopenia (including juvenile)	☐
Post-exposure prophylaxis for vial or pathogenic infection if intramuscular injection is contraindicated or treatment when hyper-immune immunoglobulins are unavailable	☐		
Pyoderma gangrenosum	☐		
Rasmussen syndrome	☐		
Stiff person syndrome	☐		
Systemic juvenile idiopathic arthritis	☐		
Systemic vasculitides and ANCA disorders	☐		
Urticaria (severe, intractable)	☐		
Other (free text)		**Other (free text)**	

PATIENT DETAILS			
Print name:		CHI number:	
Hospital /Ward			

Date of treatment	Dose (grams)	Ordered by, title & date	Product supplied (brand name)	Strength and quantity supplied	Batch number & expiry date	Date of supply	Dispensed by Checked by