Intravenous immunoglobulin (IVIg)

Blood Matters and the Australian Red Cross Lifeblood Victorian Transfusion Nurses

December 2025

OFFICIAL

VICTORIA State Government

Australian Red Cross Lifeblood®

Blood Matters

ACKNOWLEDGEMENT OF COUNTRY

Lifeblood acknowledges and pays respect to the past and present Traditional Custodians and Elders of this land, and we acknowledge the continuation of cultural, spiritual and educational practices of First Nations' peoples.

Disclaimer

This presentation is intended to provide education for staff providing treatment and care for patients receiving intravenous immunoglobulin therapy.

Information in this presentation was accurate at time of publication.

Background

Immunoglobulin (Ig) products provide critical therapy, and can be a life-saving treatment, as a replacement for people with immunodeficiencies and immunomodulation for some autoimmune disorders.

The National Blood Authority (NBA) manages the national supply and allocation of immunoglobulin in conjunction with the Australian Red Cross Lifeblood (Lifeblood).

In 2024-25 immunoglobulin represented 24% of the total blood and blood product budget in Australia. **National Blood Authority Australia, Annual Report 2024–25**

The Criteria for Immunoglobulin Use in Australia

“Criteria for the clinical use of immunoglobulin in Australia (the Criteria) have been developed by the National Blood Authority using expert Specialist Working Groups of clinicians to identify the medical conditions and circumstances for which immunoglobulin product is supplied and funded by governments under the national blood arrangements.” NBA 2025

For more information on the Criteria and the Immunoglobulin Governance program visit **Criteria for immunoglobulin products | National Blood Authority**

<https://www.blood.gov.au/supply-system/governance-immunoglobulin-products>

BloodSTAR

BloodSTAR is Australia's online system for accessing government-funded immunoglobulin (Ig) products. The system manages requests, reviews and authorisations for treating conditions with Ig products.

BloodSTAR helps:

- promote appropriate use of Ig products
- promote consistent access to Ig products based on the Criteria
- support patients across many sites, including mobile (e.g. travelling, holidays) and remote patients.

https://www.blood.gov.au/blood-products/access-and-ordering/bloodstar-ig-products

BloodSTAR – view authorisation

View authorisation provides a central point for checking a patient's authorised dose and status.

BloodSTAR:

- Prescribers and nurses can view authorisations for all patients at their facility.
- Medical Officers can record review outcomes for the patients from this screen.

BloodNet:

- Dispensers can view the same level of detail using the *Check Authorisation* function

BloodSTAR user tips and support materials

The prescriber should be contacted for queries about dose or product

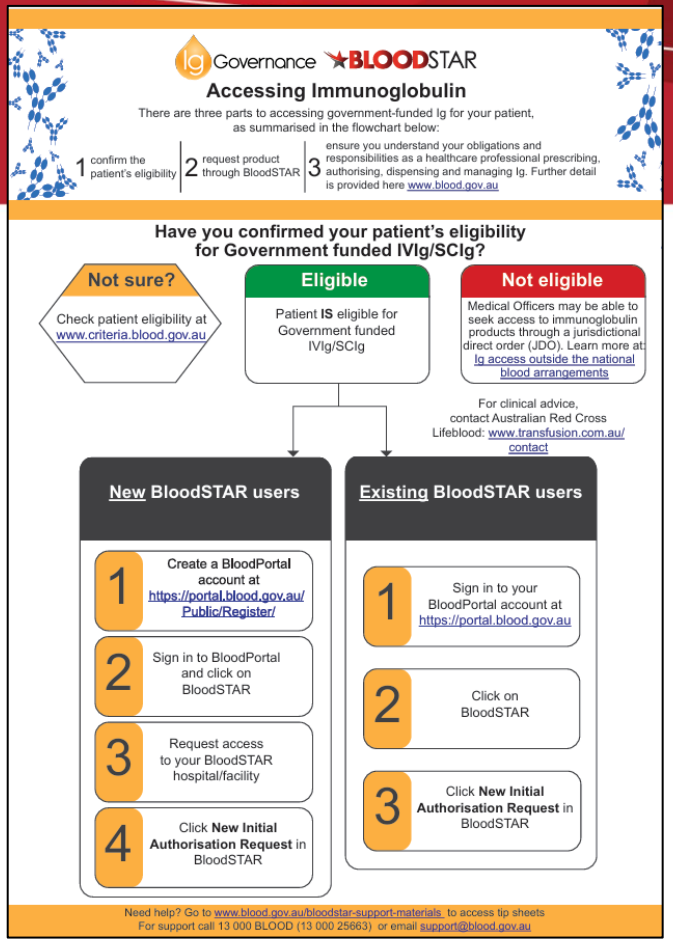
Jurisdictional direct order (JDO)

In some cases, medical officers may want to prescribe immunoglobulin (Ig) for patients who don't meet the eligibility requirements in the Criteria.

In these cases, Ig products may be able to be accessed through:

- local Direct Orders
- purchasing from suppliers at private cost.

https://www.blood.gov.au/supply-system/governance-immunoglobulin-products#ig-access-outside-the-national-blood-arrangements



Description - Privigen® AU

Description	Privigen® AU
Presentation	5g (50mL); 10g (100mL); 20g (200mL)
Concentration	10%
Source plasma	Australia
Stabiliser	L-proline
Storage conditions	Store below 25°C (Do not freeze) Protect from light
Infusion rate	Start at 0.3mL/kg/hr If well tolerated, the rate can gradually be increased at 30-minute intervals to the maximum rate Max infusion rate of 4.8mL/kg/hr

Description - Privigen® (imported)

Description	Privigen®
Presentation	5g (50mL); 10g (100mL); 20g (200mL); 40g (400mL)
Concentration	10%
Source plasma	European and USA remunerated and non-remunerated donors
Stabiliser	L-proline
Storage conditions	Store below 25°C (Do not freeze) Protect from light
Infusion rate	Start at 0.3mL/kg/hr If well tolerated, the rate can gradually be increased at 30-minute intervals to the maximum rate Max infusion rate of 4.8mL/kg/hr

Privigen® AU (10%) and Privigen® (10%) infusion rate guide

Infusion rate mL/kg/hr	Pump rate	10 kg	15 kg	20 kg	25 kg	30 kg	35 kg	40 kg	45 kg	50 kg	55 kg	60 kg	65 kg	70 kg	75 kg	80 kg	85 kg	90 kg	95 kg	100 kg
0.3	mL/hr	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	19.5	21	22.5	24	25.5	27	28.5	30
0.6	mL/hr	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
1.2	mL/hr	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
2.4*	mL/hr	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240
3.6*	mL/hr	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288	306	324	342	360
4.8*	mL/hr	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384	408	432	456	480

*Step-up rate rises used between 2.4mL/kg/hr are at the discretion of the health care professional and as tolerated by the patient.
Faster rates may be appropriate in some patient groups. See the product information for more detail regarding infusion rate studies for specific patient groups.

Prescribing and ordering

Clinicians must take care to prescribe and order the correct product for their patients in BloodSTAR

Privigen ≠ Privigen AU

VS

Current supply arrangements (IVIg)

	Product	Company
Domestic IVIg product	Privigen® AU 10%	CSL Behring
Imported IVIg products	Flebogamma® 5% & 10%	Grifols Australia
	Gamunex® 10%	Grifols Australia
	Privigen® 10%	CSL Behring
	Octagam® 10%	Octapharma
	Kiovig 10%	Takeda

NBA national product price list July 2025

Current supply arrangements (SCIg)

	Product	Company
Domestic SCIg product	Hizentra® AU 20%	CSL Behring
Imported SCIg products	Hizentra® 20%	CSL Behring
	Cuvitru® 20%	Takeda Pharmaceuticals Australia
	Xembify® 20%	Grifols Australia

National Product Price List | National Blood Authority Price list July 2025

Immunoglobulin product information

Lifeblood's health professionals' immunoglobulin webpages are a great source of information and provide quick access links to the IVIg and SCIg product information.

Intravenous immunoglobulin (IVIg) | Australian Red Cross Lifeblood

Subcutaneous immunoglobulin (SCIg) | Australian Red Cross Lifeblood

Flebogamma® 5% DIF

Description	Flebogamma® 5% DIF
Presentation	5g (100mL), 10g (200mL), 20g (400mL) vials
Concentration	5% **Pay careful attention that you have the correct product strength**
Source plasma	USA and European remunerated and non-remunerated donors
Stabiliser	Sorbitol
Storage conditions	• Store below 30°C for up to 2 years • Protect from light. • Do not freeze
Infusion rate	• First 30 minutes: 0.01 – 0.02 mL/kg/minute • If well tolerated gradually increase rate to a maximum of 0.1 mL/kg/minute • Maximum rate 0.1 mL/kg/min (6mL/kg/hour)

N.B. Flebogamma 5% and 10% are contraindicated in babies and young children as hereditary fructose intolerance may not yet be diagnosed and may lead to a fatal reaction associated with the sorbitol stabiliser.

Flebogamma® 5% DIF infusion rate guide

Infusion rate mL/kg/min	Infusion rate mL/kg/hr	Pump rate	10 kg	20 kg	30 kg	40 kg	50 kg	60 kg	70 kg	80 kg	90 kg	100 kg	110 kg	120 kg
0.01	0.6	mL/hr	6	12	18	24	30	36	42	48	54	60	66	72
0.02	1.2	mL/hr	12	24	36	48	60	72	84	96	108	120	132	144
0.03	1.8	mL/hr	18	36	54	72	90	108	126	144	162	180	198	216
0.04	2.4	mL/hr	24	48	72	96	120	144	168	192	216	240	264	288
0.05	3.0	mL/hr	30	60	90	120	150	180	210	240	270	300	330	360
0.06	3.6	mL/hr	36	72	108	144	180	216	252	288	324	360	396	432
0.07	4.2	mL/hr	42	84	126	168	210	252	294	336	378	420	462	504
0.08	4.8	mL/hr	48	96	144	192	240	288	336	384	432	480	528	576
0.09	5.4	mL/hr	54	108	162	216	270	324	378	432	486	540	594	648
0.10	6.0	mL/hr	60	120	180	240	300	360	420	480	540	600	660	720

Increase the rate by 0.01 mL/kg/min (0.6 mL/kg/hr) 30 minutely to the maximum rate or as tolerated by the patient.
This table is based on the FLEBOGAMMA® 5% DIF product information, always refer to the product information and your local Clinical Practice Guidelines for more information.

Flebogamma® 10% DIF

Description	Flebogamma® 10% DIF
Presentation	5g (50mL), 10g (100mL), 20g (200mL) vials
Concentration	10% **Pay careful attention that you have the correct product strength**
Source plasma	USA and European remunerated and non-remunerated donors
Stabiliser	Sorbitol
Storage conditions	• Store below 30°C for up to 2 years • Protect from light. • Do not freeze
Infusion rate	• First 30 minutes: 0.01 mL/kg/minute • Second 30 minutes: 0.02 mL/kg/minute • If tolerated increase by a further 0.02 mL/kg/minute each 30 minutes to maximum 0.08 mL/kg/minute • Maximum rate 0.08mL/kg/minute (4.8mL/kg/hour)

N.B. Flebogamma 5% and 10% are contraindicated in babies and young children as hereditary fructose intolerance may not yet be diagnosed and may lead to a fatal reaction associated with the sorbitol stabiliser.

Flebogamma® 10% DIF infusion rate guide

Infusion rate mL/kg/min	Infusion rate mL/kg/hr	Pump rate	10 kg	20 kg	30 kg	40 kg	50 kg	60 kg	70 kg	80 kg	90 kg	100 kg	110 kg	120 kg
0.01	0.6	mL/hr	6	12	18	24	30	36	42	48	54	60	66	72
0.02	1.2	mL/hr	12	24	36	48	60	72	84	96	108	120	132	144
0.03	1.8	mL/hr	18	36	54	72	90	108	126	144	162	180	198	216
0.04	2.4	mL/hr	24	48	72	96	120	144	168	192	216	240	264	288
0.05	3.0	mL/hr	30	60	90	120	150	180	210	240	270	300	330	360
0.06	3.6	mL/hr	36	72	108	144	180	216	252	288	324	360	396	432
0.07	4.2	mL/hr	42	84	126	168	210	252	294	336	378	420	462	504
0.08	4.8	mL/hr	48	96	144	192	240	288	336	384	432	480	528	576

Increase rate by 0.01 mL/kg/min (0.6 mL/kg/hr) 30 minutely to the maximum rate or as tolerated by the patient.
This table is based on the FLEBOGAMMA® 10% DIF product information, always refer to the product information and your local Clinical Practice Guidelines for more information.

Gamunex® 10%

Description	Gamunex® 10%
Presentation	5g (50mL), 10g (100mL), 20g (200mL), 40g (400mL) vials
Concentration	10%
Source plasma	USA and European remunerated and non-remunerated donors
Stabiliser	Glycine
Storage Condition	• Store at 2˚C - 8˚C for up to 36 months, may be stored at temperatures not exceeding 25˚C for up to 6 months anytime during the 36- month shelf life, after which the product must be used immediately or discarded. • Do not freeze.
Infusion rate	• First 30 minutes: 0.01 mL/kg/minute • If well tolerated gradually increase rate to a maximum of 0.08 mL/kg/minute • Maximum rate: 0.08 mL/kg/minute (4.8mL/kg/hour)

Picture published by Grifols Australia

Gamunex® 10% infusion rate guide

Infusion rate mL/kg/min	Infusion rate mL/kg/hr	Pump rate	10 kg	20 kg	30 kg	40 kg	50 kg	60 kg	70 kg	80 kg	90 kg	100 kg	110 kg	120 kg
0.01	0.6	mL/hr	6	12	18	24	30	36	42	48	54	60	66	72
0.02	1.2	mL/hr	12	24	36	48	60	72	84	96	108	120	132	144
0.03	1.8	mL/hr	18	36	54	72	90	108	126	144	162	180	198	216
0.04	2.4	mL/hr	24	48	72	96	120	144	168	192	216	240	264	288
0.05	3.0	mL/hr	30	60	90	120	150	180	210	240	270	300	330	360
0.06	3.6	mL/hr	36	72	108	144	180	216	252	288	324	360	396	432
0.07	4.2	mL/hr	42	84	126	168	210	252	294	336	378	420	462	504
0.08	4.8	mL/hr	48	96	144	192	240	288	336	384	432	480	528	576

Increase rate by 0.01 mL/kg/min (0.6 mL/kg/hr) 30 minutely to the maximum rate or as tolerated by the patient. This table is based on the Gamunex® 10% product information, always refer to the product information and your local Clinical Practice Guidelines for more information.

Octagam® 10%

Description	Octagam® 10%
Presentation	5g in 50mL, 10g in 100mL, 20g in 200mL
Concentration	10%
Source plasma	European and USA remunerated and non-remunerated donors
Stabiliser	Maltose
Storage conditions	Store at 2-8˚C for up to 2 years. Once removed from refrigeration, store below 25°C and use within 9 months. Do not freeze Protect from light
Infusion rate	• Initial infusion rate: 0.6-1.2mL/kg/hour for 30 minutes • If well tolerated, the rate of administration may gradually be increased • Suggested rate of increase is 0.6mL/kg/hour each 30 minutes • Maximum infusion rate is 7.2mL/kg/hour

Octagam® 10% infusion rate

Infusion rate mL/kg/hr	Pump rate	10 kg	20 kg	30 kg	40 kg	50 kg	60 kg	70 kg	80 kg	90 kg	100 kg	110 kg	120 kg
0.6	mL/hr	6	12	18	24	30	36	42	48	54	60	66	72
1.2	mL/hr	12	24	36	48	60	72	84	96	108	120	132	144
1.8	mL/hr	18	36	54	72	90	108	126	144	162	180	198	216
2.4	mL/hr	24	48	72	96	120	144	168	192	216	240	264	288
3.0	mL/hr	30	60	90	120	150	180	210	240	270	300	330	360
3.6	mL/hr	36	72	108	144	180	216	252	288	324	360	396	432
4.2	mL/hr	42	84	126	168	210	252	294	336	378	420	462	504
4.8	mL/hr	48	96	144	192	240	288	336	384	432	480	528	576
5.4	mL/hr	54	108	162	216	270	324	378	432	486	540	594	648
6.0	mL/hr	60	120	180	240	300	360	420	480	540	600	660	720
6.6	mL/hr	66	132	198	264	330	396	462	528	594	660	726	792
7.2	mL/hr	72	144	216	288	360	432	504	576	648	720	792	864

Increase rate by 0.6 mL/kg/hr 30 minutely to the maximum rate or as tolerated by the patient.

Table developed using the Octagam® 10% product information, always refer to the product information and your local Clinical Practice Guideline.

Kiovig® 10%

Description	Kiovig 10%
Presentation	5g in 50 mL, 10g in 100 mL, 20g in 200 mL, 30g in 300mL
Concentration	10%
Source plasma	European and USA remunerated and non-remunerated donors
Stabiliser	Glycine
Storage conditions	Store at 2°C to 8°C for up to 36 months from date of manufacture. Refrigerate. Do not freeze.
Infusion rate	• Initial infusion rate: 0.5 mL/kg/hour • If well tolerated gradually increased, by 0.5mL/kg/hour, every 30 minutes to a rate of 5.0 mL/kg/hour • For subsequent infusions follow the same rate increase to the maximum rate tolerated in the initial treatment

Reference: Kiovig product information

Kiovig® 10% infusion rate

Infusion rate mL/kg/hr	Pump rate	10 kg	20 kg	30 kg	40 kg	50 kg	60 kg	70 kg	80 kg	90 kg	100 kg	110 kg	120 kg
0.5	mL/hr	5	10	15	20	25	30	35	40	45	50	55	60
1.0	mL/hr	10	20	30	40	50	60	70	80	90	100	110	120
1.5	mL/hr	15	30	45	60	75	90	105	120	135	150	165	180
2.0	mL/hr	20	40	60	80	100	120	140	160	180	200	220	240
2.5	mL/hr	25	50	75	100	125	150	175	200	225	250	275	300
3.0	mL/hr	30	60	90	120	150	180	210	240	270	300	330	360
3.5	mL/hr	35	70	105	140	175	210	245	280	315	350	385	420
4.0	mL/hr	40	80	120	160	200	240	280	320	360	400	440	480
4.5	mL/hr	45	90	135	180	225	270	315	360	405	450	495	540
5.0	mL/hr	50	100	150	200	250	300	350	400	450	500	550	600

Increase rate by 0.5 mL/kg/hr 30 minutely to the maximum rate or as tolerated by the patient.
This table was developed using the Kiovig® 10% product information, always refer to the product information and your local Clinical Practice Guideline.

Pre-administration

- Document baseline vital signs and report abnormalities
- Assess the patient for signs or symptoms that may be confused with a reaction
- Hydration – ensure patient is well hydrated as this will help to reduce the risk of some reactions
- Perform pre-administration patient and product identification checks (check local policy)
- Check the integrity of the product
    - All products should be clear or slightly opalescent liquids ranging from colourless to pale yellow
    - Do not use solutions that are cloudy, have deposits or unsealed

Administration

1. Allow IVIg to come to room temperature before use
2. Remove the plastic cover from the seal
3. Clean the exposed part of the rubber stopper with an antiseptic wipe or alcohol swab and allow to dry (as per local policy)

NOTE: Administration from glass bottles requires a vented system. A vented system can be in the form of a vented spike adaptor, a side vent in an IV line or an airway needle.

The product does not contain any preservative or antimicrobial protection; each vial should be completed within **4 hours** of piercing the rubber stopper.

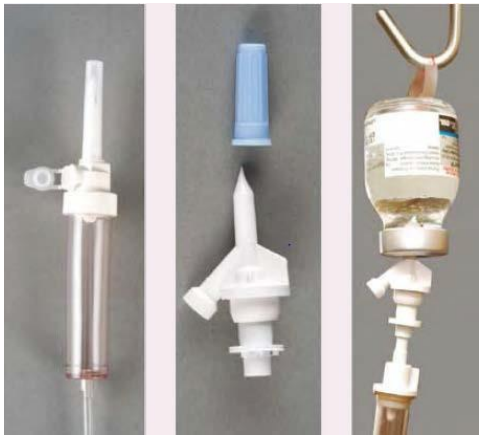


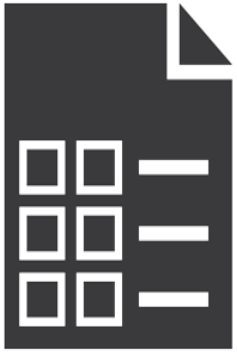
Image: Flippin Blood 2nd edition, 2012 – No longer available

Infusion rates – paediatric/neonatal

- Consideration should be given to running IVIg at slower rates for paediatric/neonatal patients.
- Suggest discussing rate of infusion with a consultant paediatrician to determine the best rate for each child/infant/neonate.
- Consult The Royal Children's Hospital Melbourne website for the latest paediatric and neonatal IVIg infusion guideline [Blood Transfusion : Intravenous Immunoglobulin Guideline]

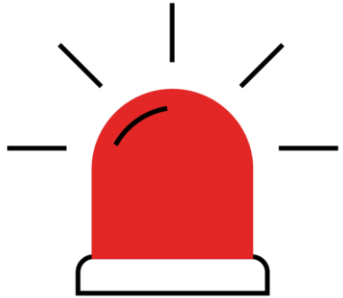
Infusion rates

- Each product has its own individual infusion protocol; **make sure you are using the correct one**
- Infusion via pump is recommended for accuracy
- Start with the smallest vials first, when the infusion rate is slowest as this helps to prevent waste if a reaction occurs



Precautions for all IVIg products

- Consider using a slower maximum rate of infusion for:
  - the elderly
  - those at risk of thrombosis
  - those with renal insufficiency
  - paediatric and neonatal patient (*check product information)
- Patients should be well hydrated and observed closely during infusion to reduce the risk of adverse events



Patient observation

- Document observations as per hospital policy
- Patients with signs of reaction, or who have reacted previously, should be observed closely and more frequently and a slower infusion rate used
- Outpatients should remain in the infusion centre for 20-minutes (minimum) following infusion
- If the patient is naïve to IVIg, has changed product or had an absence of IVIg for 6+ weeks, the patient should remain in the department for 1-hour following the infusion

Adverse events

Some common signs and symptoms of IVIg reactions

chills headache fever arthralgia	nausea/vomiting rash/allergy	low blood pressure moderate low back pain

Adverse event response

Severe reactions
- Stop infusion
- MET call if needed
- Notify medical staff

Mild reactions
- Stop infusion – until clinical improvement
- Notify medical staff
- Treat symptoms

If the patient improves
- On advice of medical staff cautiously restart infusion at a slower rate

Report and respond to reactions as per local policy
- Report serious adverse reactions to the manufacturer

Traceability

To maintain a link between the product and the recipient always record the product name and batch number in the medical record

Product not used for the intended patient must be returned to the blood bank, pathology provider, pharmacy. It should never be kept in the clinical area for infusion to another patient.

Image courtesy Royal Melbourne Hospital 2023

Subcutaneous immunoglobulin (SCIg)

For patients with suitable conditions, consider transitioning the patient to SCIg

Further information is available on the Blood Matters webpage

Why use SCIg?

SCIg can be administered in the home, either self-administered or by a carer

SCIg provides stable immunoglobulin levels, leading to:

- Fewer or less frequent infections
- Reduced hospital admissions
- Improved compliance with treatment as the patient has greater control of their own care
- Do not need IV access
- Systemic side effects are rare

References, resources and links

National Blood Authority resources for patients and health care professionals:

- Immunoglobulin products in clinical practice | National Blood Authority
- Subcutaneous immunoglobulin (SCIg) | National Blood Authority
- Travelling with blood products in or outside Australia | National Blood Authority

Lifeblood: Immunoglobulins | Australian Red Cross Lifeblood

CSL Resources: https://hcp.cslbehring.com.au/

BloodSafe eLearning Australia immunoglobulin courses: BloodSafe eLearning Australia (bloodsafelearning.org.au)

Useful links & contacts

- Victorian Australian Red Cross Lifeblood Transfusion Nurses contact: tatrobinson@redcrossblood.org.au or ttait@redcrossblood.org.au
- CSL Behring: http://www.csl.com.au/products/product-finder.htm
- Grifols: http://www.grifols.com
- Octaphama: https://www.octapharma.com/australia/
- Takeda Pharmaceuticals Australia Pty Ltd. https://www.takeda.com/en-au/what-we-do/our-products/
- Blood Matters Immunoglobulin therapy Immunoglobulin (Ig) replacement therapy | health.vic.gov.au

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Accessibility statement and publisher information

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Available at Blood Matters program: https://www.health.vic.gov.au/patient-care/blood-matters-program