This patient group direction (PGD) must only be used by registered Paramedics and Nurse Practitioners who have been named and authorised by their organisation to practice under it. The most recent and up to date final signed version of the PGD should be used.

Patient group direction

for the administration of

Sodium Chloride 0.9% Solution

by registered Paramedics and Nurse Practitioners

in Re-Pat Ltd

Version number:1.1

Change history

Version number	Change details	Date
1.1	Alteration to job titles on PGD development and authorisation page.	6/8/25

Document details

Reference number	2301778
Valid from	01/01/2025
Renew date	31/12/2027
Expiry date	30/12/2027

PGD Development

People responsible for PGD development

Name	Job title and organisation	Signature	Date
Richard Drakeford	Director		16/12/24
Dr James Cronin	Consultant Intensivist		
Neil Hayward	Pharmaceutical Consultant		
Jordan Cronshaw	Specialist Paramedic		

PGD Authorisation

People responsible for PGD authorisation

Name	Job title and organisation	Signature	Date
Dr James Cronin	Consultant Intensivist		
Neil Hayward	Pharmaceutical Consultant		
Jordan Cronshaw	Specialist Paramedic		

Training and competency of registered Paramedics and Advanced Nurse Practitioners

Requirements of working under the PGD

Qualifications and professional registration	Current registration with the HCPC as a Paramedic. Current registration with the NMC as a Advanced Nurse Practitioner While working for Re-Pat Ltd Has successfully completed an approved university module in applied pharmacology, including individual applied pharmacology or other approved university modules that contain applied pharmacology as part of their content.
Initial training	Has undertaken appropriate training and successfully completed the competencies to undertake clinical assessment of a patient leading to diagnosis of the conditions listed.

Competency assessment	Clinicians should declare their own competence to use PGDs. Assure themselves that they have the necessary clinical skills and knowledge for the treatment of the conditions included and use of the drugs involved. Demonstrate that they understand the legislation surrounding use of PGDs, and understand their responsibilities as a PGD user
Ongoing training and competency	The clinician must meet the requirements of the prevailing level of education required for PGD use at this level of practice. attending regular medicines management update training. All ongoing regular training requirements (e.g. statutory and mandatory training) as required by Re-Pat Ltd for this role must be completed. The clinician is responsible for keeping themself aware of any changes to the recommendations for the medicine listed. It is the responsibility of the individual to keep up to date with continued professional development and to work within the limitations of their own individual scope of practice.

Clinical condition

Condition-specific information

Clinical condition or situation to which this PGD applies	100 ml, 250 ml, 500 ml and 1,000 ml packs of sodium chloride intravenous infusion 0.9%.5 ml and 10 ml ampoules for use as flushes.5 ml and 10 ml pre-loaded syringes for use as flushes

Inclusion criteria	**Adult fluid therapy** Medical conditions without haemorrhage. Medical conditions with haemorrhage. Trauma related haemorrhage. Burns. Limb crush injury. **Child fluid therapy (Over 3 years of age)** Medical conditions. Trauma related haemorrhage. Burns. **Flush** As a flush to confirm patency of an intravenous or intraosseous cannula. As a flush following drug administration.
Exclusion criteria	Sodium Chloride should **NOT** be administered solely for the purposes of keeping a vein open (TKO/TKVO) as this may lead to inadvertent excess fluid administration. Any patient under the age of 3 years
Cautions (including any relevant action to be taken)	Sodium Chloride should **NOT** be administered solely for the purposes of keeping a vein open (TKO/TKVO) as this may lead to inadvertent excess fluid administration.
Arrangements for referral for medical advice	Following discharge from Re-Pat Ltd , the patient will be offered a worsening care advise leaflet Arrangement for further assessment is the responsibility of the patient / guardian
Action to be taken if patient excluded	Alternative treatment plan will be explored.
Action to be taken if patient declines treatment	A verbal explanation should be given to the patient on: the need for the medication and any possible effects or potential risks which may occur as a result of refusing treatment This information must be documented in the patients' health records Any patient who declines care must have demonstrated capacity to do so Where appropriate care should be escalated

Details of the medicine

Medicines information

Name, form and strength of medicine	**Sodium chloride 0.9% w/v solution**
Legal category	Prescription only Medication (POM)
Indicate any off-label use (if relevant)	N/A
Route/method of administration	**IV / IO only**

Dose and frequency

Anaphylaxis

AGE	Adult
INITIAL DOSE	500-1000 ml
REPEAT DOSE	500-1000 ml
DOSE INTERVAL	PRN
CONCENTRATION	0.90%
VOLUME	500-1000 ml
MAX DOSE	2 litres (if further fluids required, seek senior clinical advice)

Flush

AGE	Adult	Adult	5 – 11 years	5 – 11 years	Birth – <5 years
INITIAL DOSE	2 ml – 5 ml	10 ml – 20 ml (if infusing glucose)	2 ml – 5 ml	5 ml – 10 ml (if infusing glucose)	2 ml
REPEAT DOSE	2 ml – 5 ml	10 ml – 20 ml (if infusing glucose)	2 ml – 5 ml	5 ml – 10 ml (if infusing glucose)	2 ml
DOSE INTERVAL	PRN	PRN	PRN	PRN	PRN
CONCENTRATION	0.90%	0.90%	0.90%	0.90%	0.90%
VOLUME	2 – 5 ml	10 – 20 ml	2 – 5 ml	5 – 10 ml	2 ml
MAX DOSE	N/A	N/A	N/A	N/A	N/A

ADULT MEDICAL EMERGENCIES

General medical conditions without haemorrhage

Adult Medical Emergencies – General

AGE	Adult
INITIAL DOSE	250 ml
REPEAT DOSE	250 ml
DOSE INTERVAL	PRN
CONCENTRATION	0.90%
VOLUME	250 ml
MAX DOSE	2 litres

Sepsis: Clinical signs of infection **AND** systolic BP< 90 mmHg

Adult Medical Emergencies – Sepsis

AGE	Adult
INITIAL DOSE	500 ml
REPEAT DOSE	Repeat if hypotensive
DOSE INTERVAL	15 minutes
CONCENTRATION	0.90%
VOLUME	500 ml
MAX DOSE	2 litres

Diabetic Ketoacidosis (DKA)

Adult Medical Emergencies – Diabetic Ketoacidosis (DKA)

AGE	Adult 18 years and over
INITIAL DOSE	500 ml
REPEAT DOSE	500 ml
DOSE INTERVAL	PRN
CONCENTRATION	0.90%
VOLUME	500 ml
MAX DOSE	1 litre

Medical conditions with haemorrhage: Systolic BP< 90 mmHg and signs of poor perfusion

Adult Medical Emergencies – Haemorrhage

AGE	Adult
INITIAL DOSE	250 ml
REPEAT DOSE	250 ml
DOSE INTERVAL	PRN
CONCENTRATION	0.90%
VOLUME	250 ml
MAX DOSE	2 litres

ADULT TRAUMA EMERGENCIES

Blunt trauma, head trauma or penetrating limb trauma: The general aim of fluid therapy is to maintain a palpable peripheral pulse (radial) **OR** systolic BP of 90mmHg.
For isolated severe head injury aim to maintain a systolic BP of 110mmHg.

Adult Trauma Emergencies – Blunt trauma, head trauma, or penetrating limb trauma

AGE	Adult
INITIAL DOSE	250 ml
REPEAT DOSE	250 ml
DOSE INTERVAL	PRN
CONCENTRATION	0.90%
VOLUME	250 ml
MAX DOSE	2 litres

Penetrating torso trauma: The general aim of fluid therapy is to maintain a palpable central pulse (carotid) **OR** a systolic BP of 60 mmHg

Adult Trauma Emergencies – Penetrating torso trauma

AGE	Adult
INITIAL DOSE	250 ml
REPEAT DOSE	250 ml
DOSE INTERVAL	PRN
CONCENTRATION	0.90%
VOLUME	250 ml
MAX DOSE	2 litres

Burns

Total body surface area (TBSA): Between 15% and 25% and time to hospital is greater than 30 minutes

TBSA: More than 25%

Adult Trauma Emergencies – Burns

AGE	Adult
INITIAL DOSE	1 litre
REPEAT DOSE	NONE
DOSE INTERVAL	N/A
CONCENTRATION	0.90%
VOLUME	1 litre
MAX DOSE	1 litre

Crush syndrome

NB Manage crush injury of the torso as per blunt trauma

Adult Trauma Emergencies – Crush syndrome

AGE	Adult
INITIAL DOSE	2 litres
REPEAT DOSE	NONE
DOSE INTERVAL	N/A
CONCENTRATION	0.90%
VOLUME	2 litres
MAX DOSE	2 litres

MEDICAL EMERGENCIES IN CHILDREN (10 ml/kg)
NB Exceptions: Cardiac failure, renal failure, diabetic ketoacidosis (see Child Medical Emergencies – Diabetic ketoacidosis dosage table)

Child Medical Emergencies – 10 ml/kg

AGE	12-Adult	11 years	10 years	9 years	8 years	7 years	6 years	5 years	4 years	3 years
INITIAL DOSE	250 ml	350 ml	320 ml	290 ml	260 ml	230 ml	210 ml	190 ml	160 ml	140 ml
REPEAT DOSE	250 ml	350 ml	320 ml	290 ml	260 ml	230 ml	210 ml	190 ml	160 ml	140 ml
DOSE INTERVAL	PRN	PRN	PRN	PRN	PRN	PRN	PRN	PRN	PRN	PRN
CONCENTRATION	0.9%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%
VOLUME	250 ml	350 ml	320 ml	290 ml	260 ml	230 ml	210 ml	190 ml	160 ml	140 ml
MAX DOSE	2 litres	700 ml	640 ml	580 ml	520 ml	460 ml	420 ml	380 ml	320 ml	280 ml

Diabetic ketoacidosis (10 ml/kg) administer **ONCE** only over 30 minutes if not shocked or over 15 minutes if shocked

Child Medical Emergencies – Diabetic ketoacidosis

AGE	12-Adult	11 years	10 years	9 years	8 years	7 years	6 years	5 years	4 years	3 years
INITIAL DOSE	500 ml	350 ml	320 ml	290 ml	250 ml	230 ml	210 ml	190 ml	160 ml	140 ml
REPEAT DOSE	500 ml	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
DOSE INTERVAL	PRN	NA	NA	NA	NA	NA	NA	NA	NA	NA
CONCENTRATION	0.9%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%
VOLUME	500 ml	350 ml	320 ml	290 ml	250 ml	230 ml	210 ml	190 ml	160 ml	140 ml
MAX DOSE	1 litre	350 ml	320 ml	290 ml	250 ml	230 ml	210 ml	190 ml	160 ml	140 ml

MEDICAL EMERGENCIES IN CHILDREN
Heart failure or renal failure (5 ml/kg)

Child Medical Emergencies – Heart failure or renal failure

AGE	12-Adult	11 years	10 years	9 years	8 years	7 years	6 years	5 years	4 years	3 years
INITIAL DOSE	250 ml	175 ml	160 ml	145 ml	130 ml	115 ml	105 ml	95 ml	80 ml	70 ml
REPEAT DOSE	250 ml	175 ml	160 ml	145 ml	130 ml	115 ml	105 ml	95 ml	80 ml	70 ml
DOSE INTERVAL	PRN	PRN	PRN	PRN	PRN	PRN	PRN	PRN	PRN	PRN
CONCENTRATION	0.9%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%
VOLUME	250 ml	175 ml	160 ml	145 ml	130 ml	115 ml	105 ml	95 ml	80 ml	70 ml
MAX DOSE	1 litre	350 ml	320 ml	290 ml	260 ml	230 ml	210 ml	190 ml	160 ml	140 ml

TRAUMA EMERGENCIES IN CHILDREN (5 ml/kg)[1] *Seek advice to exceed maximum dose in trauma*

NB Exceptions: Burns

Child Trauma Emergencies – 5 ml/kg

AGE	12-Adult	11 years	10 years	9 years	8 years	7 years	6 years	5 years	4 years	3 years
INITIAL DOSE	250 ml	175 ml	160 ml	145 ml	130 ml	115 ml	105 ml	95 ml	80 ml	70 ml
REPEAT DOSE	250 ml	175 ml	160 ml	145 ml	130 ml	115 ml	105 ml	95 ml	80 ml	70 ml
DOSE INTERVAL	PRN	PRN	PRN	PRN	PRN	PRN	PRN	PRN	PRN	PRN
CONCENTRATION	0.9%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%
VOLUME	250 ml	175 ml	160 ml	145 ml	130 ml	115 ml	105 ml	95 ml	80 ml	70 ml
MAX DOSE	2 litres	1,400 ml	1,280 ml	1,160 ml	1,040 ml	920 ml	840 ml	760 ml	640 ml	560 ml

Burns (10 ml/kg, given over 1 hour)

TBSA: Between 10% and 20% and time to hospital is greater than 30 minutes

TBSA: More than 20%

Child Trauma Emergencies – 10ml/kg (Burns)

AGE	12-Adult	11 years	10 years	9 years	8 years	7 years	6 years	5 years	4 years	3 years
INITIAL DOSE	500 ml	350 ml	320 ml	290 ml	250 ml	230 ml	210 ml	190 ml	160 ml	140 ml
REPEAT DOSE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
DOSE INTERVAL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CONCENTRATION	0.9%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%
VOLUME	500 ml	350 ml	320 ml	290 ml	250 ml	230 ml	210 ml	190 ml	160 ml	140 ml
MAX DOSE	500 ml	350 ml	320 ml	290 ml	250 ml	230 ml	210 ml	190 ml	160 ml	140 ml

Administration notes	**Fluid replacement in cases of dehydration should occur over hours;** **Rapid fluid replacement is seldom indicated;** **Refer to Intravascular Fluid Therapy in Adults and Intravascular Fluid Therapy in Children .**
Maximum or minimum treatment period	Seek senior clinical advise if more than 2 litres are required
Adverse effects	Over-infusion may precipitate pulmonary oedema and cause breathlessness.
Records to be kept	The administration of any medication given under a PGD must be recorded within the patient's medical records

Patient information

Information for patients

Written information to be given to patient or carer	Verbal information must be given to patients and or carers for all medication being administered under a PGD Where medication is being supplied under a PGD, written patient information leaflet must also be supplied
Follow-up advice to be given to patient or carer	If symptoms do not improve or worsen or you become unwell, seek medical advice immediately .

Appendices

Appendix A: key references

1. **British National Formulary (BNF) available online: https://bnf.nice.org.uk**
2. **Joint Royal College Advanced Liaison Committee (JRCALC)**

Appendix B: Paramedics / Advanced Nurse Practitioners agreement to practise

I have read and understood the patient group direction and agree to administer this medicine only in accordance with this PGD.

Details of participating individual

Name	Signature	Senior authorising representative	Date