University Hospitals of Derby and Burton NHS Foundation Trust

PATIENT GROUP DIRECTION (PGD)

Administration of FLUID BOLUS using Sodium Chloride or Compound Sodium Lactate (Hartmann's) By Registered UHDB Staff trained in Advanced Life Support

Documentation details

Reference no:	UHDB180
Version no:	1
Valid from:	15/06/2022
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Expiry date:	14/12/2025

Change history

Version number	Change details	Date
1	New PGD to supplement other IV drugs in the ALS regimen and as an option for administration in peri-arrest scenarios	15/02/2022

Glossary

Abbreviation	Definition

1. PGD template development (PGD Working Group)

PGD Working Group Membership (minimum requirement of consultant, pharmacist and a registered professional who can work under a PGD (or manages the staff who do). If this is a review of existing PGD, replace previous names with the individuals involved for this version

Name	Designation
James Hooley	Medicines Safety Officer (Pharmacist)
Tom Morley	Lead Medicines Information Pharmacist (Pharmacy Resus lead)
David Jones	Resuscitation & Clinical Skills Manager, UHDB
Peter Cull	Consultant, ED & Clinical Tutor for Simulation

Where an antimicrobial is included, confirm the name, designation and date of the antimicrobial pharmacist who has reviewed this version

Name of antimicrobial pharmacist	Designation	Date Reviewed
N/A	-	-

2. Organisational authorisations

The PGD is not legally valid until it has had the relevant organisational authorisation.

University Hospitals of Derby & Burton NHS Foundation Trust authorises this PGD for use by the services or providers listed below:

Authorised for use by the following organisation and/or services
All UHDB staff who are trained to provide advanced life support This is a core PGD for staff with ALS qualifications, and can be implemented in all adult services where training and resources have been allocated by senior staff to do so.
Limitations to authorisation
See section 3 qualifications.

Organisational Authorisation (legal requirement).			
Role	**Name**	**Sign**	**Date**
Chief Pharmacist / Deputy	**D Moore**	**Signed copy held in Pharmacy**	**15/06/2022**

Additional signatories (required as per legislation and locally agreed policy)			
Role	**Name**	**Sign**	**Date**
Medicines Safety Officer (pharmacist) *Clinical Pharmacist from PGD working group*	**James Hooley**	**Signed copy held in Pharmacy**	**06/06/2022**
Interim Medical Director / Deputy *Doctor*	**Dr James Crampton**	**Signed copy held in Pharmacy**	**25/05/2022**
Chief Nurse / Deputy *Registered Professional representing users of the PGD*	**Phil Bolton**	**Signed copy held in Pharmacy**	**16/05/2022**

Local enquiries regarding the use of this PGD may be directed to UHDB.PGDgovernance@nhs.net

Section 7 provides a registered health professional authorisation sheet. Individual professionals must be authorised by name to work to this PGD.

3. Characteristics of staff

Qualifications and professional registration	RCUK Advanced Life Support Provider or Instructor (in-date certification) All Divisions, Adult Areas, registered professional with current professional registration operating within their usual scope of practice. Must be a profession permitted by current legislation to practice under a patient group direction.
Initial training	- RCUK Advanced Life Support Provider or Instructor - Completion of all Essential-to-role training as outlined in the UHDB PGD policy. - Individual has read and understood full content of this PGD and signed authorisation (section 7) - Completion of Medicines Management Drug Assessment - Trust IV competency
Competency assessment	Staff operating under this PGD are encouraged to review their competency using the NICE Competency Framework for health professionals using patient group directions Individuals operating under this PGD are personally responsible for ensuring they remain up to date with the use of all medicines included in the PGD - if any training needs are identified these should be discussed with either the authorising manager (section 7) or the manager within the PGD working group (section 1) so that further training can be provided as required.
Ongoing training and competency	RCUK Advanced Life Support Provider or Instructor Annual Medicines Safety Training (essential to role) Review/repeat initial training above when this PGD is revised Aseptic non-touch Technique (ANTT)
The decision to supply any medication rests with the individual registered health professional who must abide by the PGD and any associated organisation policies.	

4. Clinical condition or situation to which this PGD applies

Clinical condition or situation to which this PGD applies	IV Fluid for volume resuscitation in the following scenarios: • **Cardiac arrest** caused by hypovolaemia • **Anaphylaxis** in the presence of hypotension or shock; or following poor response to adrenaline • **Hypovolaemia requiring fluid resuscitation** (peri-arrest) in situations such as severe dehydration, sepsis/SIRS, trauma or haemmorhage • **Oliguria in critically ill patients**
Criteria for inclusion	**Patients 16 years or over as below:** **Cardiac arrest or anaphylaxis (with hypotension/shock):** Give without delay when hypovolaemia has caused, or is considered a possible cause, for cardiac arrest. Give without delay for anaphylaxis with hypotension/shock or where there has been poor response to IM adrenaline. **Hypovolaemia:** Assess whether the patient is hypovolemic. Indicators that a patient may need urgent fluid resuscitation include: • Systolic blood pressure is less than 100 mmHg • Heart rate is more than 90 beats per minute • Capillary refill time is more than 2 seconds or peripheries are cold to touch • Respiratory rate is more than 20 breaths per minute • Passive leg raising suggests fluid responsiveness **Oliguria** • Urine output <0.5ml/kg/hr <u>after confirming:</u> - No signs of fluid overload - No exclusions/cautions relating to renal disease (below)
Criteria for exclusion	**Exclusions for use of any fluid bolus via this PGD:** • Patients under 16 years of age • Pregnancy • Cardiac Failure • Uncontrolled hypertension • Peripheral or pulmonary oedema • <u>Severe</u> liver or renal disease (dialysis and transplant patients are excluded from this PGD) - Urgent referral to a prescriber required. • Patients only requiring maintenance rate fluids - see general 'core' adult PGDs or refer to prescriber for maintenance fluids • Traumatic head injury and / or raised intracranial pressure

	Exclusions for compound sodium lactate (Hartmann's) option: • Patients at risk of tumour-lysis syndrome (if in doubt, use sodium chloride 0.9% bolus for all patients on chemotherapy) • Hyperkalaemia
Cautions including any relevant action to be taken	• Trauma / haemorrhage - Excessive rise in blood pressure may cause re-bleeding and exacerbate haemorrhage in trauma. Consider giving the lower 250ml volume bolus and additional monitoring. • Renal impairment – patients with kidney disease are at increased risk of fluid overload and potassium retention – avoid Hartmann's and use lower bolus doses as per dosing section. Consider renal or medical referral prior to bolus if clinical situation allows time for this • Diabetic patients on intravenous insulin – these patients should be referred for prescription in accordance with trust diabetic guidelines (DKA / HHK etc). • GI bleeding – Initial dose may be given in arrest/peri-arrest but immediate referral to specialist advised • Infusion of an excessive volume may overload the circulation and precipitate heart failure (evidenced by increased breathlessness, wheezing and distended neck veins). Volume overload is unlikely if the patient is correctly assessed initially and judicious approach to fluid therapy is adopted.
Action to be taken if the patient is excluded	• Record reasons for exclusion in patient notes • Advise patient on alternative treatment • Refer to medical staff or prescriber for review and prescribing of alternative agent if appropriate.
Action to be taken if the patient or carer declines treatment	• Document advice given • Advise patient on alternative treatment • Refer to medical staff if appropriate.
Arrangements for referral for medical advice	For anaphylaxis/cardiac arrest, follow your local medical emergency procedures (e.g. 2222 / 3333 / 999 procedures) In other situations, contact the patient's medical team, the on-call team or refer to agreed medical contacts in your core service (e.g. CCOT to intensivists etc).

5. Description of treatment

Name, strength & formulation of drug	Sodium Chloride 0.9% Infusion (contains 154mmol/l sodium) Or Compound Sodium Lactate (Hartmann's) Solution (contains 131mmol/l sodium + 5mmol/l potassium + calcium + lactate)
Legal category	POM

Route / method of administration	Intravenous (for cardiac arrest indication only, intraosseous route may be considered where necessary as per RCUK guidance)
Indicate any off-label use (if relevant)	n/a
Dose and frequency of administration	Cardiac Arrest, anaphylaxis (with hypotension/shock) or hypovolaemic states: 500ml bolus (reduced to 250ml in frail/elderly/renal) over 10-15 minutes then reassess Oliguria: 250ml bolus the reassess (only use sodium chloride 0.9% option in patients with existing kidney disease)
Duration of treatment	**In all indications - re-assess the patient after every bolus look at heart rate, blood pressure, capillary refill time, respiratory rate, oxygen saturation and conscious level.** **Cardiac Arrest or anaphylaxis (with hypotension/shock) or hypovolaemic states:** • Repeat as necessary after checking patient still meets the criteria for inclusion for use of this PGD • In distributive shock, such as may be seen in sepsis or anaphylaxis, many litres may be required to address circulatory volume. If a prescriber has not taken over, be aware of risk of hyperchloraemia with high volume sodium chloride and consider switch to Hartmann's (if not contraindicated) if > 2 litres is likely to be exceeded Oliguria: • ***ALWAYS REMEMBER*** *to pay particular attention to adverse signs of fluid overload every time you consider repeating boluses.* • *Repeat as necessary until hourly urine output improves (>0.5ml/kg/hr) or medical support / prescriber is available*
Quantity to be supplied (leave blank if PGD is administration ONLY)	n/a
Storage	Room temperature in original box or a labelled tray/basket to minimise fluid selection errors.
Drug interactions	Drug interactions are primarily related to sodium, potassium, chloride and calcium content which may be additive to effects of other drugs which also affect these electrolytes (e.g. ACE inhibitors or potassium sparing diruetics). A detailed list of drug interactions is available in the SPC, which is available from the electronic Medicines Compendium website:

	www.medicines.org.uk
Identification & management of adverse reactions	Excessive volume may overload the circulation and precipitate pulmonary oedema (evidenced by increased breathlessness, wheezing and distended neck veins). General side effects of sodium chloride excess in the body: sensitivity and injection site reactions, nausea, vomiting, diarrhoea, abdominal cramps, thirst, headache, dizziness, restlessness, irritability, weakness, muscle twitching and rigidity. A detailed list of adverse reactions is available in the SPC, which is available from the electronic Medicines Compendium website: www.medicines.org.uk
Management of and reporting procedure for adverse reactions	• Healthcare professionals and patients/carers are encouraged to report suspected adverse reactions to the Medicines and Healthcare products Regulatory Agency (MHRA) using the Yellow Card reporting scheme on: https://yellowcard.mhra.gov.uk • Record all adverse drug reactions (ADRs) in the patient's medical record. Serious adverse reactions (moderate harm or above as per NRLS definition) should be reported via trust incident management system (e.g. Datix) to ensure duty of candour and learning from harm during clinical use.
Written information to be given to patient or carer	None routinely given. If patient has questions, consider providing marketing authorisation holder's patient information leaflet (PIL) provided with the product or obtained via www.medicines.org.uk.
Patient advice / follow up treatment	Patients will remain under supervision in most circumstances. Advise patient to inform any healthcare professional if new symptoms occur. Prompt the patient, where possible, to report any worsening breathlessness or wheezing.
Records	For inpatients the record of administration should be documented in the ePMA system or other approved medicines chart used in your area (e.g. fluid chart). IN areas who do not routinely use ePMA/Medication charts, records can be made in the medical notes or within the patient pathway (e.g. in daycase or triage where a pathway booklet is in use) but must include the legal requirements below. Either the system holding the record, or the healthcare practitioner working under the PGD, must capture/document all of the following: • name of individual, address, date of birth and GP with whom the individual is registered (if relevant) • name of registered health professional • name of medication supplied/administered • date of supply/administration • dose, form and route of supply/administration • quantity supplied/administered • batch number and expiry date (if applicable e.g. injections and implants) • advice given, including advice given if excluded or declines treatment • details of any adverse drug reactions and actions taken • Confirm whether supplied and/or administered via Patient Group

	Direction (PGD) Records should be signed and dated (or a password controlled e-records). All records should be clear, legible and contemporaneous. If you are not recording in ePMA (or other electronic system which has ability to generate audit reports) then a record of all individuals receiving treatment under this PGD should also be in the clinical area for audit purposes as per UHDB PGD policy.

6. Key references

Key references	• *Electronic Medicines Compendium http://www.medicines.org.uk/* • *Electronic BNF https://bnf.nice.org.uk/* • *NICE Medicines practice guideline "Patient Group Directions" https://www.nice.org.uk/guidance/mpg2* • *https://medusa.wales.nhs.uk* • *UHDB .Previous PGDs for paramedic ACP/tACP in ED, RDH. Archived Feb 2022.* • *UHDB. PGD – Sodium Chloride bolus for sepsis in ED, QHB. March 2020. Accessed via Koha 15/02/2022* • *UHDB (Derby Site) – Clinical Guideline for IV fluids. Oct 18. Accessed via Koha 15/02/2022* • *UHDB (Burton Site) – Clinical Guideline IV Fluid Prescribing. Jan 17. Accessed via Koha 15/02/2022*

7. Registered health professional authorisation sheet

PGD Name [version]: Adult Core - Fluid bolus using Sodium Chloride or Compound Sodium Lactate (Hartmann's)

PGD ref: UHDB180

Valid from: 15/06/2022 Expiry date: 14/06/2025

Before signing check that the document you have read is published on Koha or is an in-date hard-copy with all necessary authorisations signed in section 2. The Name/Version/Ref of the document you have read MUST match this authorisation form.

Registered health professional

By signing this patient group direction you are indicating that

a) You agree to and understand all content and commit to only work within this framework.
b) You have completed any core PGD e-Learning or training records on My Learning Passport or within your department.
c) You meet the staff characteristics and have completed any additional learning/competency outlined in Section 3 of this PGD.

Patient group directions do not remove inherent professional obligations or accountability.
It is the responsibility of each professional to practise only within the bounds of their own competence and professional code of conduct.

I confirm that I have read and understood the content of this Patient Group Direction and that I am willing and competent to work to it within my professional code of conduct.			
Name	**Designation**	**Signature**	**Date**

Authorising manager / Assessor

I confirm that the registered health professionals named above have declared themselves suitably trained and competent to work under this PGD. I give authorisation on behalf of University Hospitals of Derby & Burton NHS Foundation Trust for the above named health care professionals who have signed the PGD to work under it.			
Name	**Designation**	**Signature**	**Date**

Note to authorising manager

Score through unused rows in the list of registered health professionals to prevent additions post managerial authorisation.

This authorisation sheet must be retained by a manager in the clinical department where the PGD is in-use to serve as a record of those registered health professionals authorised to work under this PGD.