

Standard Operating Procedure

The operating procedure set out below must comply with the Data Quality Principles set out within Trust Data Quality Policy

Title:	Electronic Fluid Balance Monitoring and Implementation of a Hydration Assessment on Adult inpatient wards, emergency departments and assessment areas.
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Mandatory BU's/Groups consulted (if applicable)	Deteriorating Patient Group Patient Safety Group Nutrition and Hydration Steering Group	
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Please refer to [Koha Policies and Guidelines Catalogue](#) for the most recent version.

SOP Document Controls:

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3.0.0	Nov 24	Claire McGuire, Elita Phiri and Leah Torr	New to Koha

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1. Introduction

Fluid balance monitoring and hydration assessment are a daily essential component of inpatient care. It ensures patients are assessed and adequately hydrated but is often not carried out thoroughly or consistently. Lack of or incomplete fluid balance charting has been shown to correlate with deterioration and acutely unwell patients. There is a lack of national and local guidelines, for non-intravenous fluids, to highlight the importance of daily fluid balance monitoring. Effective patient fluid balance monitoring can help detect, amongst other clinical issues, early dehydration, oliguria, or fluid overload in already sick patients.

2. Purpose

To introduce a standardised electronic fluid balance monitoring across UHDB admissions, assessment, and inpatient areas. The electronic charting will replace all the current paper charts. This will ensure that patients commence appropriate fluid monitoring, following a hydration assessment, from initial admission, and that intra-site or inter-site transfers will have continuous appropriate monitoring. This aims to improve clinical reviews and overall fluid balance assessment of patients. A single intravenous fluid prescription chart, for those patients that require it, will be introduced on the Derby sites until this can also be added to the electronic prescribing system. Burton sites have electronic prescribing within Meditech (EPR).

3. Scope

Areas to be included; Adult inpatient ward areas and emergency departments and assessment units, i.e. Medial Assessment, Surgical Assessment unit and Acute Medical Unit.

Areas to be excluded; Critical care; Intensive care units and Stepdown unit, Paediatric and Maternity areas.

4. Abbreviations and Definitions

UHDB	University Hospitals of Derby and Burton
AKI	Acute Kidney Injury
NICE	National Institute for Health and Care Excellence
NMC	Nursing and Midwifery Council
IV	Intravenous
SC	Subcutaneous
TPN	Total parenteral nutrition
NG	Nasogastric
EOL	End of Life
NBM	Nil by mouth

5. Responsibilities

All staff who currently input on fluid balance or hydration charts must complete the e-learning package available on Learning Passport; Patientrack – Fluid balance

Ward Sisters/Charge Nurse:

- Ensure all ward staff have completed the e-learning package on Learning Passport and monitor compliance of daily hydration assessments

Doctors/ACP's:

- Clinically assess patient's hydration status **daily** during the ward round or requested review. This should be based upon their history, clinical examination (pulse, BP, capillary refill time, JVP, presence of pulmonary or peripheral oedema and postural hypotension), current medications and laboratory investigations. NEWS, fluid balance and weight charts should be reviewed, along with trends in FBC and U/Es.
- Review fluid balance daily
- Complete the new IV fluid prescription chart for patients that require this.

Registered (nursing and nursing associate) Staff:

- To complete a daily hydration assessment on Patientrack and commence appropriate fluid balance/hydration chart monitoring.
- Ensure fluid balance monitoring updated throughout the shift, minimum every 4 hours.
- Highlight any fluid balance concerns and communicate these promptly to the nurse in charge or report to the doctors/ACP's.
- Educate patients on the importance of accurate fluid balance and encourage their participation

Unregistered Staff/Student Nurses:

- Ensure fluid balance monitoring updated throughout the shift, minimum every 4 hours.
- Highlight any fluid balance concerns and communicate these promptly to the registered staff.

Allied Healthcare Professionals:

- To continue the supporting and prompting of patient's hydration and fluids.
- Liaise with relevant staff to ensure any assisted fluids are charted in a timely manner.

6. Procedure

- On the current Patientrack system a daily hydration assessment for each patient is to be completed by registered staff at a locally agreed time of day. This is automatically scheduled on admission and renews overnight. Registered staff must confirm positive patient identification.
- Completing this assessment will determine the patient's hydration monitoring requirements for the next 24 hours. This can be changed and updated, if required, in conjunction with the patient's clinical status. If not completed in 4 hours this will display, in red, as overdue.
- The completed hydration assessment will then generate a full fluid balance chart, a hydration only chart or no charting required.

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- Patients who automatically require a full fluid balance are patients with one or multiple of the following: Sepsis, AKI, IV fluids, NG/TPN, diarrhoea of high output stoma, NBM, fluid restricted, high drainage wounds, current chemotherapy, increased vomiting, short-term catheters or any request by the clinical teams.
- Patients on a full fluid balance chart should ensure all forms of input and output are accounted for. This includes but is not exclusive to: oral, including thickened fluids, IV fluids and IV medications, S/C fluids and medications, NG/Peg feed and flushes, TPN, irrigation, urine, catheters, drains, stoma's, vomit, diarrhoea, excess fluids losses (i.e. dressings).
- The fluid balance chart should be updated continuously throughout the day to reflect the current fluid status of the patient. This should be input every 4 hours as a minimum.
- The electronic charting will automatically calculate the cumulative fluid balance total.
- Patients on a hydration only chart are monitored to ensure they are receiving oral intake and are passing urine at regular intervals but do not need the specific amounts of fluid recording. These are patients whose hydration status should be considered stable and are at low risk of becoming dehydrated or fluid overloaded.
- There is an option for no fluid balance monitoring if the patients do not meet any of the assessment criteria. This may be suitable for specific patients such as those on EOL or those the doctors have agreed for no monitoring required and should be reflected in the patients care plan.
- Daily nutrition and hydration written documentation will continue to be recorded via patient's individual care plans and should reflect their fluid balance charts and status.
- If patients require IV fluids, then these will be prescribed on the new paper prescription chart. This now includes advice on the reverse of this chart for prescribers on appropriate fluids for individual patients tailored to their fluid replacement requirements.

7. Information Governance

The full Patienttrack system has previously passed Information Governance approval. No data flows or sharing agreements have been changed. An addendum to the Original Clinical Safety Case report is being completed. In the event of any planned or unplanned Patienttrack downtime there will be a standardised fluid balance chart available to print in the downtime folder.

8. References and Associated/Linked Documents

UHDB Sepsis Management in non-pregnant adult patients,	https://derby.koha-ptfs.co.uk/cgi-bin/koha/opac-detail.pl?biblionumber=1944 UHDB 'Sepsis management in non-pregnant, adult patients, full clinical guideline' (2024); states all patients with sepsis should be commenced on a fluid balance chart as soon as fluids have been prescribed and given.
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full clinical guideline, 2024	
NMC The Code 2018	Read The Code online - The Nursing and Midwifery Council (nmc.org.uk) NMC 'The Code' (2018) ensures all registered staff keep clear and accurate records relevant to your scope of practice.
NICE Clinical Guideline CG174 Intravenous fluid therapy in adults in hospital (2017)	Recommendations Intravenous fluid therapy in adults in hospital Guidance NICE NICE Clinical Guideline CG174 (2017) 'Intravenous fluid therapy in adults in hospital' states that all patients receiving IV fluid therapy should be monitored regularly, including daily reassessments and fluid balance charting.
UHDB Acute Kidney Injury (AKI) Guideline (2023)	https://derby.koha-ptfs.co.uk/cgi-bin/koha/opac-detail.pl?biblionumber=708 UHDB 'Acute Kidney Injury (AKI) Guidelines' (2023) Management of AKI states all patients should have volume status and fluid balance monitored.
UHDB High Stoma Output full clinical guideline (2023)	https://derby.koha-ptfs.co.uk/cgi-bin/koha/opac-detail.pl?biblionumber=2177 UHDB 'High Stoma Output full clinical guideline' (2023) Patients with a high stoma output (>2000mls/day) require close monitoring and accurate fluid balance record-keeping.

9. Appendices

New IV fluid prescription chart:

ADULT IV FLUIDS PRESCRIPTION CHART

DO NOT CARRY OVER A PRESCRIPTION FROM ONE DAY TO THE NEXT – MARK AS NOT GIVEN

Please affix patient's sticker here
(To include name, address, GP,
D.O.B and Hospital No)

Ward _____

Consultant _____

Indication for iv fluids: -----

Usual maintenance requirements	Weight:
	Use ideal body weight if BMI >30
	Volume requirement, 25-30ml/kg/d
	Elderly or frail 20-25ml/kg/d
	Sodium requirement (~1mmol/kg/d)
	Potassium requirement (~1mmol/kg/d)
	Glucose 50-100g/day

Special considerations: delete as appropriate
Severe heart failure/end of life/extreme frailty/advanced dementia

For maintenance aim to prescribe all fluids for that day to finish by

10 pm

Re-prescribe all fluids every day after assessing requirements

Date Previous day input Previous day output Balance

IV FLUIDS PRESCRIPTION <small>(for blood/blood products refer to Trust blood transfusion prescription)</small>				ADMINISTRATION					
Name of preparation – see reverse <i>"Dex/Saline" is NOT an adequate prescription</i>	Volume	Infusion duration	Start time	Signature	Batch No.	Start time	Started by	Finish time	Removed by

	Volume (ml)	Calories (kcal)	Glucose (mmol)	Na (mmol)	K (mmol)	Cl (mmol)	Ca (mmol)	Mg (mmol)	PO ₄ (mmol)	pH	Osm
Sodium Chloride (NaCl) 0.9%	500ml 1000ml	0 0	0 0	77 154	0 0	77 154	0 0	0 0	0 0	4.5-7	308
Sodium Lactate Compound – Hartmann's Solution*	500ml 1000ml	0 0	0 0	65.5 131	2.5 5	55.5 111	1 2	0 0	0 0	5-7	275
Glucose 5%	500ml 1000ml	100 200	139 (25g) 278 (50g)	0 0	0 0	0 0	0 0	0 0	0 0	3.5-6.5	278
Glucose 10%	500ml	200	278 (50g)	0	0	0	0	0	0	3.5-6.5	556
Glucose 4% / NaCl 0.18%	500ml 1000ml	80 160	111 (20g) 222 (40g)	15.5 31	0 0	15.5 31	0 0	0 0	0 0	4.5	284
Potassium chloride 20 mmol/ Glucose 5%	500ml	100	139 (25g)	0	20	20	0	0	0	3.5-5.5	358
KCl 40mmol / NaCl 0.9%	1000ml	0	0	154	40	194	0	0	0	4.5-7	388
KCl 20 mmol / Glucose 4% / NaCl 0.18%	1000ml	160	222 (40g)	31	20	51	0	0	0	3.5-6.5	324
KCl 40 mmol / Glucose 4% / NaCl 0.18%	1000ml	160	222 (40g)	31	40	71	0	0	0	3.5-6.5	364

Pharmacy can also provide the following electrolyte containing bags for replacement (please look at the respective guidelines for further information on their use):

	Volume (ml)	Calories (kcal)	Glucose (mmol)	Na (mmol)	K (mmol/l)	Cl (mmol)	Ca (mmol)	Mg (mmol)	PO ₄ (mmol)	pH	Osm
500ml Phosphate Polyfusor*	500ml	0	0	81	9.5		0	0	50	7-7.7	281
Magnesium 10mmol / NaCl 0.9%	100ml** 500ml	0 0	0 0	15.4 77	0 0	15.4 77	0 0	10 10	0 0		
Calcium Chloride 10mmol / NaCl 0.9%	100ml	0	0	15.4	0		10	0	0		

*Give a proportion of this polyfusor to provide the intended dose via a pump

**For fluid restricted patients

Infusions of 1000 ml: Duration of infusion showing ml delivered per hour: (1 can coke 330ml)

1000 ml over 12 hours	83.33 ml/h	1000 ml over 4 hours	250 ml/h
1000 ml over 10 hours	100 ml/h	1000 ml over 2 hours	500 ml/h
1000 ml over 8 hours	125 ml/h	1000 ml over 1 hours	1000 ml/h
1000 ml over 6 hours	166.6 ml/h	1000 ml stat	-----