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Rehydration and Intravenous Fluid Administration Trust Wide Standard Operating Procedure

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Type of document	Standard Operating Procedure
Target audience	All inpatient staff
Document purpose	The purpose of this standard operating procedure (SOP) is to provide all clinical practitioners with a clear framework to administer intravenous fluids appropriately, timely and safely.to patients requiring intravenous rehydration.

Approving meeting	Clinical Practice and Standards Sub-Committee	Date 9-Jan-20
Implementation date	09-Jan-20	

CWP documents to be read in conjunction with	

Document change history	
What is different?	Trust IV lead added into Section 5 Updated flowchart 1
Appendices / electronic forms	NA
What is the impact of change?	This is an overarching standard operating procedure providing details of a framework and guidance for IV rehydration for CWP inpatients. This is a Trust wide approach across all localities with some variations in respect of available medical cover.

Training requirements	Yes - Training requirements for this policy are in accordance with the CWP Training Needs Analysis (TNA) with Education CWP.
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Document consultation	
Clinical Services	Modern Matrons
Corporate services	Medical Director
External agencies	NA

Financial resource implications	Yes Require Intravenous Infusion Pumps
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External references	
<ol style="list-style-type: none"> NICE Guidance Replacement and redistribution of intravenous fluid therapy in adults in hospital: https://pathways.nice.org.uk/pathways/intravenous-fluid-therapy-in-hospital/replacement-and-redistribution-of-intravenous-fluid-therapy-in-adults-in-hospital 	

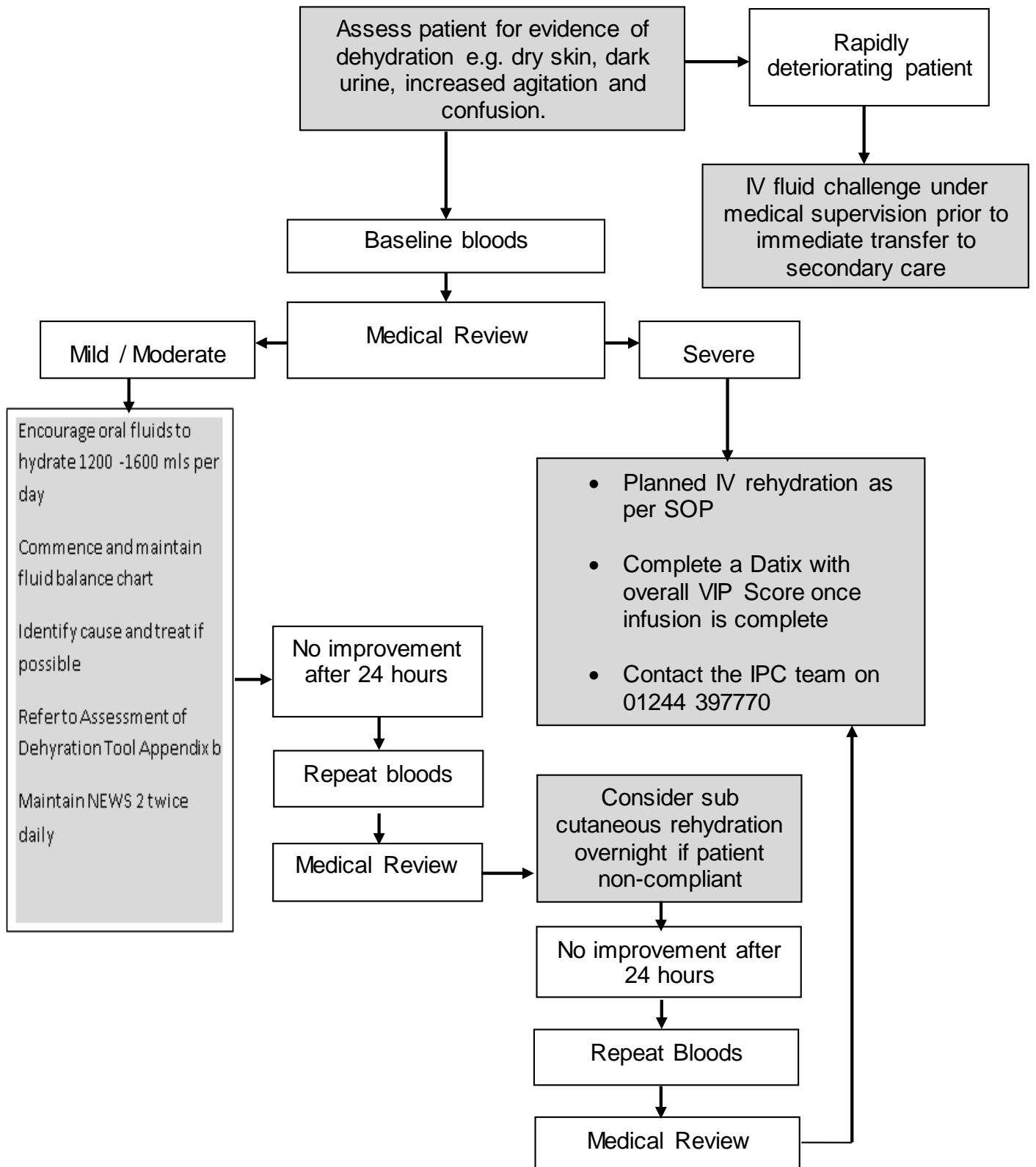
3. <https://www.nice.org.uk/guidance/cg139/chapter/1-guidance>
4. <http://www.vipscore.net/wp-content/uploads/2012/04/002-IV3000-A4-score-and-vein-card.pdf>
5. <https://www.infectionpreventioncontrol.co.uk/content/uploads/2018/12/Urine-colour-guide-for-GPs-480-1.jpg>
6. Al-Benna S, O'Boyle C and Holley J (2013). Extravasation injuries in adults. <http://https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3664495/>

Equality Impact Assessment (EIA) - Initial assessment	Yes/No	Comments
Does this document affect one group less or more favourably than another on the basis of:		
- Race	No	
- Ethnic origins (including gypsies and travellers)	No	
- Nationality	No	
- Gender	No	
- Culture	No	
- Religion or belief	No	
- Sexual orientation including lesbian, gay and bisexual people	No	
- Age	No	
- Disability - learning disabilities, physical disability, sensory impairment and mental health problems	No	
Is there any evidence that some groups are affected differently?	No	
If you have identified potential discrimination, are there any exceptions valid, legal and/or justifiable? N/A		
Is the impact of the document likely to be negative?	No	
- If so can the impact be avoided?	N/A	
- What alternatives are there to achieving the document without the impact?	N/A	
- Can we reduce the impact by taking different action?	N/A	
Where an adverse or negative impact on equality group(s) has been identified during the initial screening process a full EIA assessment should be conducted.		
If you have identified a potential discriminatory impact of this procedural document, please refer it to the human resource department together with any suggestions as to the action required to avoid / reduce this impact. For advice in respect of answering the above questions, please contact the human resource department.		
Was a full impact assessment required?	No	
What is the level of impact?	Low	

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Quick reference flowchart



1. Introduction

Cheshire and Wirral Partnership NHS Foundation Trust is committed to ensuring the safety of all staff, service users and patients.

The purpose of this standard operating procedure (SOP) is to provide all clinical practitioners with a clear framework to administer intravenous (IV) fluids appropriately, timely and safely to patients requiring IV rehydration.

IV hydration should only be commenced under exceptional circumstances and under the direct supervision of medical staff.

This SOP is to support patients who require IV hydration; who have no other requirement for medical intervention or where transfer to another medical facility would result in distress and possible deterioration of their condition

2. Scope

This is an overarching SOP providing details of a framework and guidance for IV rehydration for CWP inpatients. This is a Trust wide approach across all localities with some variations in relation to available medical cover. This SOP will be used when rehydration with oral and sub-cutaneous fluids has failed and agreement of the Responsible Clinician and Multi-Disciplinary Team, including families and carers, has been sought. This decision to rehydrate with IV fluids will be supported by the modern matron who will oversee the plan of care. A datix must be completed.

This SOP will be used for existing inpatients only, and therefore excludes newly admitted patients as the patient must be deemed medically stable before considering IV rehydration. It will also not be used to prevent or delay a transfer to secondary care where the overall medical condition of the patient has not been assessed and there is an acute and physical deterioration in their health.

This SOP excludes all patients on Oaktrees Ward, Ancora House, any Respite Unit in the Trust and Saddlebridge or Alderley Units. Essentially this SOP is for use on the organic, all age acute wards and learning disability assessment and treatment units only.

3. Guidance and Procedure (NICE 2019)

This SOP will only be used for patients requiring IV fluids for replacement purposes.

Expert secondary care advice must be sought if IV fluids are required for redistribution and other complex issues or significant comorbidity, for example:

- Gross oedema
- Severe sepsis
- Hyponatraemia or hypernatraemia
- Renal, liver and /or cardiac impairment

The IV prescription must be adjusted to account for existing fluid and/or electrolyte deficits or excesses, ongoing losses or abnormal distribution. No additives (eg potassium) must be given on

CWP inpatient areas. If additives are required expert secondary advice must be sought and the patient transferred to secondary care.

All patients continuing to receive IV fluids need regular monitoring. This should initially include at least daily reassessments of clinical fluid status, laboratory values (urea, creatinine and electrolytes) and fluid balance charts, along with weight measurement twice weekly.

All IV or SC fluids must be checked by a second checker before administration.

The patient will require level 3 observations by a competent person for the duration of the infusion.

4. Definitions

Aseptic Technique (AT)

An aseptic technique ensures that only uncontaminated equipment and fluids come into contact with susceptible body sites. It should be used during any clinical procedure that bypasses the body's natural defences. Using the principles of asepsis minimises the spread of organisms from one person to another (NICE 2017)

Creatinine

A waste product produced by the body during muscle metabolism and normally excreted in urine. If the creatinine level increases in the blood, this may indicate decreased kidney function.

Dehydration

A lack of water in the body resulting from inadequate intake of fluids or excessive loss through sweating, vomiting, or diarrhoea

Electrolytes

Ions in solution that acquire the capacity to conduct electricity

Erythema

superficial reddening of the skin, usually in patches, as a result of injury or irritation causing dilatation of the blood capillaries.

Extravasation

Extravasation is defined as damage caused by efflux of solutions from a vessel into surrounding tissue spaces during intravenous infusion (Al-Benna, O'Boyle and Holley, 2013). The damage caused by extravasation can extend to nerves, tendons and joints and has the potential to cause long lasting even permanent damage.

Hypernatraemia

Increased sodium level in blood

Hyponatraemia

Decreased sodium level in blood

Induration

The act or process of becoming hardened. The hardening of a normally soft tissue or organ, especially the skin, due to inflammation, infiltration of a neoplasm, or accumulation of blood.

Intravenous Fluids

Intravenous therapy (IV) is a therapy that delivers fluids directly into a vein. Intravenous therapy may be used for fluid volume replacement and to correct electrolyte imbalances

Phlebitis

Inflammation of the walls of a vein

Sub-cutaneous Fluids

Subcutaneous fluid administration is the infusion of a solution into the subcutaneous tissue to supply the patient with a continuous and sufficient amount of fluid, electrolytes or nutrients

VIP score

The Visual Infusion Phlebitis score (VIP) (Appendix E) is an essential tool that facilitates the timely removal of short peripheral intravenous catheters at the earliest signs of infusion phlebitis

5. Responsibilities

Trust IV Lead

The Trust IV Lead is the Director of Nursing, Therapies and Patient Partnership and has overall responsibility for training, clinical governance, audit and review of IV Fluid prescribing, and patient outcomes

Medical Staff

- Physical assessment of patient, including a risk assessment for suitability for intravenous fluids
- Prescribing of intravenous fluids
- Review patient's blood results
- Cannulation of patient using an Aseptic technique.

Nursing Staff

- Check the prescribed fluids before commencing the infusion in accordance with Trust policy.
- Initiate level 3 observations of the patient by a competent person for the duration of the infusion
- Maintain accurate fluid balance (Fluid Balance Chart - Appendix D)
- Setting up of infusion pump if familiar with equipment and feel competent to do so.
- Manage pump
- Observe and assess cannula site using VIP score
- Removing cannula once infusion is complete using an aseptic technique.
- Take bloods from the patient for reassessment.
- Update the plan of care
- Complete a Datix form regarding the commencement of the infusion and the rationale for commencing the infusion.

6. Competence Required

Medical Staff

- Adherence to the principles of utilising an aseptic technique
- Competent and confident in I.V cannulation

Nursing Staff

- Priming the infusion line
- Set up the infusion pump.
- Document patient's VIP score assessment, taking appropriate action if the score is 2 or above.
- Adherence to the principles of utilising an aseptic technique
- Troubleshooting infusion pump
- Cannula dressings.

7. Venous Infusion Phlebitis scoring

All patients with an intravenous access device in place must have the I.V site checked at least daily for signs of infusion phlebitis. The subsequent score and any actions taken must be documented. The cannula site must also be observed when:

- IV flow rates are checked or altered
- Solution containers are changed
- Bolus injections are administered

The incidence of infusion phlebitis varies. The following 'Good Practice Points' may assist in reducing the incidence of infusion phlebitis:

1. Observe cannula site at least daily
2. Secure cannula with a proven intravenous dressing
3. Replace loose, contaminated dressings
4. Cannula must be inserted away from the joints whenever possible
5. Utilising an aseptic technique and its principles must be followed.
6. Plan and document continuing care
7. Use the smallest gauge cannula most suitable for the patient's needs
9. Replace the cannula at the first indication of infusion phlebitis (Stage 2 on the VIP score)

8. Monitoring



Compliance will be monitored by each Care Group. SOP is ratified and updated through the Clinical Practice Standards Sub Committee.

Step	Intervention	Recommendations / requirements to enable
Step 1 NB in an emergency situation or rapidly deteriorating patient go straight to step 4	Prevention of Dehydration Assess patient signs of dehydration. Dry skin, dark urine, increased agitation/ confusion (attached guidance) Baseline Bloods – repeat regularly during admission ‘Pee Charts’ (appendix c) ‘Alternative fluids’ e.g. ice lollies, high water content foods such as fruit etc Maintain fluid balance charts NEWS2	Dietician involvement Food and Hydration group Recognising signs of dehydration
Step 2	Sub-cutaneous Rehydration To try if possible before considering IV fluids SC fluids – consider overnight via infusion pump if non-compliant patient	Staff competencies Review other more secure infusion lines e.g. Neria Available infusion pumps
Step 3	Planned IV Rehydration As an exception and not a rule – only if step 1 and 2 have not been successful Risk v Benefit evaluation (see attached NICE Guidance) Only during working hours of 9-9pm, Mon – Fri and by medical staff only (dependent on competencies) Rule out any other underlying problems e.g. sepsis Use Infusion Pump. 6-8 hourly fluids . No additives or drugs are to be administered via the cannula. Remove cannula after infusion – can be done by nurses	Staff competencies to site cannula Nursing management of cannula e.g. VIP Available infusion pumps
Step 4	Fluid Challenge If there is an acute deterioration in patient’s condition including increasing NEWS2 score and decreasing BP This must only be undertaken on a CWP inpatient area in an emergency situation. It must be implemented and monitored by medical staff whilst the patient is awaiting transfer to secondary care via a 999 call to the ambulance service.	Staff competencies to site cannula

Appendix 2




Assessment of Dehydration

Criteria	Rationale
Dry skin	Dry skin indicates a lack of moisture in the skin cells which is often secondary to dehydration.
Skin turgor unsatisfactory	When a person is dehydrated their skin loses its elasticity.
Patient tongue coated or furrowed	When the cilia of the tongue becomes dry it makes the tongue appear furry, this indicates dehydration. Poor oral health and the tongue becoming coated are often secondary to dehydration.
Dry oral mucosa	The absence of mucosa would indicate dehydration.
Poor urinary output <700mls	This would suggest a poor fluid intake provided urinary retention can be ruled out.
Concentrated Urine	This may indicate poor fluid intake.
Constipation	Provided a bowel obstruction can be ruled out, dehydration is one of the major causes of constipation.
Increased confusion	Dehydration can cause symptoms of delirium
Increased agitation	People who are dehydrated are more prone to becoming agitated due to electrolyte imbalance.
Increased falls	Dehydration causes the blood pressure to become hypertensive, this may explain increased falls.
Urine Specific Gravity > 0.1020	This is a clinical marker for dehydration
Loss of body weight despite good dietary intake	A loss in weight could be attributed to fluid loss – a fluid loss that causes body weight changes could cause major fluid imbalance
BMI <20	People with poor nutritional intakes are more at risk of dehydration
Poor fluid intake	Poor fluid intake leads to dehydration
Dysphagia	People who have difficulty swallowing have an increased risk of dehydration due to the risks associated with choking. They require special supervision to ensure adequate intake.
Nil by mouth	People who are NBM pose a greater risk of dehydration
Medications >4	The more medications, the greater the renal effort to filtrate medications meaning more fluid may be used for filtration
Vomiting and diarrhoea	These cause gross fluid loss which will lead to dehydration
Blood results with raised Sodium, Urea or Creatinine	These are a clinical marker of dehydration









Are you drinking enough?

Colours 1-3 suggest normal urine

1		Check the colour of your urine against this colour chart to see if you're drinking enough fluids throughout the day. If your urine matches 1-3, then you're hydrated.
2		
3		

Colours 4-8 suggest you need to rehydrate

4		If your urine matches 4-8, then you're dehydrated and you need to drink more.
5		
6		If you have blood in your urine (red or dark brown), seek advice from your GP. Please be aware that certain foods, medications and vitamin supplements can change the colour of urine.
7		
8		

Community Infection Prevention and Control, Haringale and District NHS Foundation Trust
www.infectionpreventioncontrol.co.uk September 2018

Appendix 4






Fluid Balance Chart

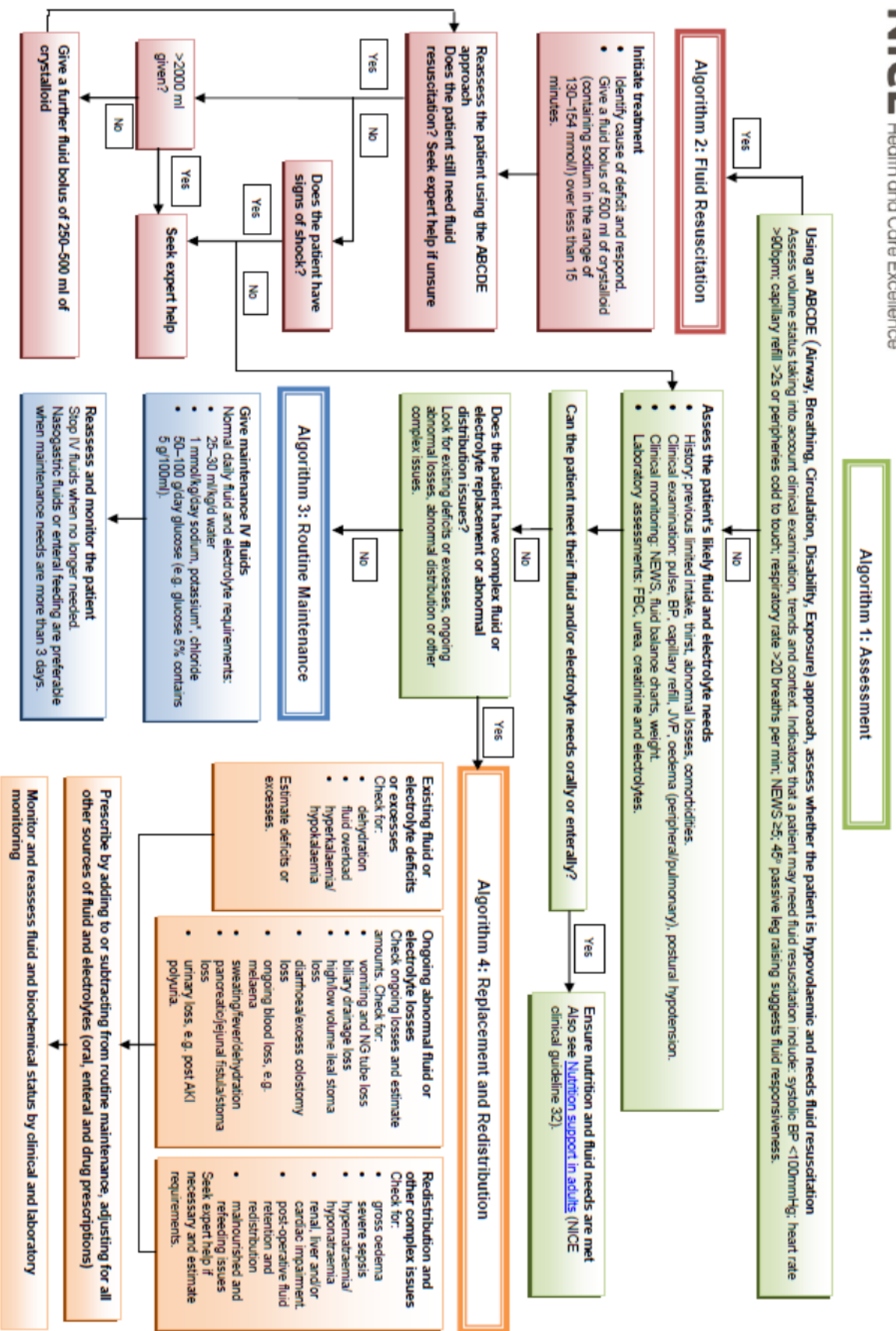
Name			Date			
Ward			NHS Number			
Time	Oral, SC, IV, PEG	Type of fluid	Total Input (ml)	Output - urine, faeces, vomit (ml)	Total Output (ml)	Signature
Total Fluid input in 24 hrs				Total Output in 24 hrs		Signature

Appendix 5

Venous Infusion Phlebitis Chart

IV site appears healthy		0	>	No signs of phlebitis	OBSERVE CANNULA
One of the following is evident: • Slight pain near IV site or • Slight redness near IV site		1	>	Possible first signs	OBSERVE CANNULA
Two of the following are evident: Pain at IV site • Erythema • Swelling		2	>	Early stage of phlebitis	RESITE CANNULA
All of the following signs are evident: • Pain along path of cannula • Erythema • Induration		3	>	Mid-stage of phlebitis	RESITE CANNULA CONSIDER TREATMENT
All of the following signs are evident and extensive: • Pain along path of cannula • Erythema • Induration • Palpable venous cord		4	>	Advanced stage of phlebitis or start of thrombophlebitis	RESITE CANNULA CONSIDER TREATMENT
All of the following signs are evident and extensive: • Pain along path of cannula • Erythema • Induration • Palpable venous cord • Pyrexia		5	>	Advanced stage of thrombophlebitis	INITIATE TREATMENT

Visual Infusion Phlebitis (VIP) Score			
Number	Signs	Picture	Action guidelines. Also refer to local policy
0	No pain or signs of phlebitis		Continue to observe and document at each shift.
1	Pain / redness around insertion site		Remove & replace cannula in alternative site. Observe both sites and document.
2	Pain, swelling, redness Palpable venous cord		Remove & replace cannula in alternative site. Observe both sites and document. Treat where necessary.
3	Pain, swelling, induration, redness Palpable venous cord above 3cms Presence of pus		Remove, send tip for culture and sensitivity. If pyrexia present take blood cultures from alternative site. Inform Doctor. Document and complete Clinical Incident Form.
4	All the above Presence of tissue damage		Remove, send tip for culture and sensitivity. Implement plan as above. Inform Doctor. Complete clinical incidence form



Appendix 6

Algorithms for IV Fluids in Adults

*Weight-based potassium prescriptions should be rounded to the nearest common fluids available (for example, a 67 kg person should have fluids containing 20 mmol and 40 mmol of potassium in a 24-hour period). Potassium should not be added to intravenous fluid bags as this is dangerous. †Intravenous fluid therapy in adults in hospital, NICE clinical guideline 174 (December 2013; Last update December 2016)