Papworth Hospital NHS
NHS Foundation Trust

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Key points of this document

- The purpose of the procedure is to provide direction and guidance in the management of hydration within Papworth Hospital NHS Foundation Trust.
- This Document sets out the procedure for assessing patient's hydration status, recognising those at risk of dehydration and responding to hydration needs of patients within Papworth Hospital NHS Foundation Trust.
- All patients admitted to Papworth Hospital NHS Foundation Trust who require fluid balance monitoring will receive accurate measurement of fluid balance.
- This Document seeks to enable improved detection of patients who require fluid management and ensure an effective response by nursing and medical staff with appropriate monitoring and treatment.

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1 Introduction

The purpose of the procedure is to provide direction and guidance in the management of patients within Papworth Hospital NHS Foundation Trust who are admitted with hydration issues or who become dehydrated as part of their treatment.

Accurate fluid balance is strongly recommended by both the National Patient Safety Agency (NPSA) and the National Institute for Clinical Excellence (NICE). Fluid balance is also a key component of the acutely ill competencies produced by NICE. Further guidance has been issues by NICE on intravenous fluid therapy in adults. (NICE CG174). This guideline ensures that those recommendations are incorporated into the fluid management procedures at Papworth Hospital NHS Foundation Trust.

The Care Quality Commission (CQC) has carried out a special review into Nutrition and Hydration as one of the five priorities, along with Acute Kidney Injury which according to US studies affects 4.9% of hospitalised patients.

2 Duties

2.1 Responsibility of all employees:
NB: All employees refers to all personnel who work within the trust, including non-executive directors, bank staff, agency and locum staff, volunteers, trainees, students and contracted staff.

2.1.1 *To adhere to the policy.*

2.1.2 To ensure that they have read and understood sufficient detail of this policy and other documents relevant to their job to enable them to carry out their work.

2.1.3 To seek clarification from their line manager or the senior manager responsible for the initiation and review of this policy if unsure about any part of the policy or relevant document.

2.1.4 To be aware of the current version of this policy and other documents and how to access them.

2.2 Responsibility of managers:

2.2.1 To be responsible for the implementation of, and compliance with this policy and other documents within their area of management. To report any non-compliance to senior management via the trusts incident reporting system and ensure action is taken in relation to the non- compliance, ensuring closure of the loop.

2.2.2 To ensure that this policy is accessible to staff members in the form of a paper copy or through the intranet.

2.2.3 To clarify issues for any member of staff who does not understand any part of this policy or assist them in obtaining clarification from the document initiator.

2.2.4 To make staff aware of any changes to, or revision of the procedure.

2.2.5 To take local decisions within the defined parameters of the policy.

3 Training

3.1 Competency of ward staff

3.1.1 All qualified nursing staff caring for patients in the hospital should be able to assess a patient on admission and identify hydration requirements or deficits.

3.1.2 Unqualified nursing staff should be assessed locally to ensure they are competent in the monitoring and measurement of fluid balance charts.

3.1.3 Ward nurses shall be competent in the assessment of patients with hydration needs and make appropriate decisions regarding measurement and documentation of fluid balance requirements. Nurses will commence appropriate care plans to enable clear documentation of patient need and escalation of these to the appropriate personnel.

3.1.4 All clinical staff will be given information and training on local induction programmes regarding fluid balance measurement, guidelines on who to start fluid balance charts on and the required standards regarding the completion of fluid balance charts.

3.1.5 Designated link people within each clinical area will support all staff in ensuring high standards of fluid management are maintained and in ensuring compliance with the procedure.

4 Exclusions

Patients admitted to Theatres, Critical Care and Radiology departments.

5 Who requires a fluid balance chart?

- All patients who are recovering following cardiac or thoracic procedures and / or according to the appropriate Integrated Care Pathway (ICP)
- All patients undergoing major cardiology investigations and procedures and / or according to the appropriate Integrated Care Pathway (ICP)
- All patients admitted to Papworth Hospitals NHS Foundation Trust who require constant monitoring of fluid intake and output
- All patients who have activated the ALERT escalation algorithm and are deemed to be Medium Risk or higher
- Any patient who is identified as being ‘at risk’ of dehydration or overload, either on admission to hospital or during their inpatient stay, should have a chart and care plan commenced to ensure that appropriate management and monitoring is in place

Fluid Balance Charts will also be commenced on any patient within Papworth Hospital NHS Foundation Trust who is / has;

- Receiving intravenous or subcutaneous fluids
- Receiving enteral and/or parenteral nutrition.
- Poor urine output (i.e. <0.5ml/kg/hr)
- Nil by mouth
- On a prescribed fluid restriction
- Abnormal urea, creatinine and/or electrolytes
- Any type of wound drains
- Have vomiting and / or diarrhoea
- A nasogastric tube on free drainage
- Causing concern or who require monitoring

6 Who does not routinely require a fluid balance chart?

Patients admitted for minor cardiology, thoracic or cardiothoracic investigations including diagnostic tests are not routinely commenced on fluid balance charts. Patients admitted for minor cardiology investigations are sometimes given a bag of intravenous fluid prior to the procedure; this is documented in the patient's integrated care pathway (ICP) and does not require a fluid balance to be commenced.

7 What is the goal for the patient?

The medical team should prescribe daily fluid intake based on information such as blood results, daily weight, urine output and cumulative fluid balances. This information should be documented on the front of the daily fluid balance chart so that all ward staff are aware of the patients prescribed balance. If a fluid balance chart is not available this information should be documented in the medical notes on a daily basis.

Information such as weight, left ventricular function, previous day's balance and reasons for starting a fluid balance chart should appear on the front of the fluid balance chart and can be completed by either the medical team or the nursing staff directly caring for the patient. The types of reasons for commencing or continuing a fluid balance chart are given below;

- Recommended input …….
- Encourage oral fluid intake
- Improve / normalise blood results
- To ensure a satisfactory output > 0.5mls/kg/hr
- Weight reduction / fluid overload
- Reduction in oedema
- Weaning dopamine
- Fluid restriction
- Patient at risk of dehydration i.e. Nil by mouth / diarrhoea / Vomiting

Methods of fluid administration

- Oral
- Intravenous
- Enteral
- Parenteral
- Subcutaneous

8 Fluid Requirements for individual patients

8.1 Fluid balances should be appropriate for the patient's size and should also reflect their left or right ventricular function and this should be calculated on an individual patient basis each 24 hours:

Cardiac Surgical patients should follow Day 0 and Day 1 Fluid Management Flow Charts (Appendix 4 / 5). Please refer to the Standard IV Fluid Maintenance Protocol in order to calculate fluid requirements for all surgical patients requiring IV fluid postoperatively;

- Patients with a poor left/right ventricle should receive 20 ml/kg over 24 hours or 0.75ml/kg/hr unless assessed by the medical team and reduced / increased
- Patients with a confirmed good left/right ventricle should receive 35 ml/kg over 24 hours or 1.5ml/kg/hr if under 65 years of age and 30ml/kg over 24 hours or 1.25ml/kg/hr if over 65 years of age unless otherwise dictated by the medical team
- Patients with a confirmed moderate left/right ventricle should receive 30ml/kg over 24 hours or 1.25ml/kg/hr if under 65 years of age and 25ml/kg over 24 hours or 1ml/kg/hr if over 65 years of age unless otherwise dictated by the medical team

8.2 A 1500 ml or less fluid restriction may be instituted for patients with a very poor left or right ventricle, right sided heart failure, hyponatraemia, pulmonary oedema, renal impairment or fluid overload and this decision should be made by the patient's medical team.

9 Intravenous Therapy

9.1 Principles and protocols for maintenance intravenous fluid therapy

The assessment and management of patients' fluid and electrolyte needs is fundamental to good patient care.

9.1.1 Assess and manage patients' fluid and electrolyte needs as part of every ward review in the medical notes. Provide intravenous (IV) fluid therapy only for patients whose needs cannot be met by oral or enteral routes and stop as soon as possible.

9.1.2 Skilled and competent healthcare professionals should prescribe and administer IV fluids, and assess and monitor patients receiving IV fluids

9.1.3 When prescribing IV fluids, remember the 5 Rs: Resuscitation, Routine maintenance, Replacement, Redistribution and Reassessment. Please refer to the NICE Pathways on intravenous fluid therapy in adults in hospital for further information.

9.1.4 Follow the fluid management pathways for Day 0 and Day 1 post-operative patients (see appendix 4 and appendix 5)

9.1.5 Include the following information in IV fluid prescriptions:

- The type of fluid to be administered with details of any additives
- The rate and volume of fluid to be administered
- Provide a clear signature, bleep number and date

9.1.6 Patients should have an IV fluid management plan, which should include details of:

- The fluid and electrolyte prescription over the next 24 hours
- The assessment and monitoring plan.
- The weight of the patient

9.1.7 The IV fluid management plan should be reviewed by an expert daily. IV fluid management plans for patients on longer-term IV fluid therapy whose condition is stable may be reviewed less frequently.

9.1.8 When prescribing IV fluids and electrolytes, take into account all other sources of fluid and electrolyte intake, including any oral or enteral intake, and intake from drugs, IV nutrition, blood and blood products.

9.1.9 Patients have a valuable contribution to make to their fluid balance. If a patient needs IV fluids, explain the decision, and discuss the signs and symptoms they need to look out for if their fluid balance needs adjusting. If possible or when asked, provide written information (for example, NICE's Information for the public), and involve the patient's family members or carers (as appropriate).

9.2 Fluid resuscitation

9.2.1 If patients need IV fluid resuscitation, use crystalloids that contain sodium in the range 130–154 mmol/l, with a bolus of 100ml over 15 minutes for patients with poor or moderate left or right ventricular function and 250ml over 15 minutes for patients with good LV/RV function.

9.2.2 Do not use tetrastarch for fluid resuscitation.

9.2.3 Consider human albumin solution 4–5% for fluid resuscitation only in patients with severe sepsis.

9.2.4 Consider involving the ALERT team if patient's clinical condition deteriorates; escalate using the Deteriorating Patient Escalation Algorithm, Refer to DN538 for guidance.

Assessment and monitoring

9.3 Initial assessment

9.3.1 Clinical examination should include an assessment of the patient's fluid status, including:

- pulse, blood pressure, capillary refill and jugular venous pressure
- presence of pulmonary or peripheral oedema
- presence of postural hypotension.
- clinical monitoring should include current status and trends in:
- CTEWS
- fluid balance charts
- weight.

9.3.2 Assess whether the patient is hypovolaemic taking into account the clinical examination and the patient's history. Indicators that a patient may need urgent fluid resuscitation include:

- systolic blood pressure less than 90 mmHg *
- heart rate is more than 120 beats per minute *
- capillary refill time is more than 2 - 3 seconds or peripheries are cold to touch *
- respiratory rate is more than 20 breaths per minute *
- Cardiothoracic Early Warning Score (CTEWS) is 4 or more *
- passive leg raising suggests fluid responsiveness. Do not attempt this if you suspect any element of cardiac failure i.e. breathlessness, orthopnea, lower limb oedema, pulmonary oedema etc.

* These signs can also be seen in patients with severe decompensated right heart failure where fluid restriction is needed rather than fluid resuscitation – if in doubt please ask for senior help.

9.3.3 Assess the patient's likely fluid and electrolyte needs from their history, clinical examination, current medications, clinical monitoring and laboratory investigations:

- History should include any previous limited intake, thirst, the quantity and composition of abnormal losses (see Diagram of ongoing losses), and any comorbidities, MUST score, including patients who

are malnourished and at risk of re-feeding syndrome (see Nutrition support in adults [NICE clinical guideline 32]).

9.3.4 Laboratory investigations should include current status and trends in:

- Full blood count
- Urea, creatinine, Sodium and potassium
- Albumin
- Creatinine Clearance or eGFR in patients with CKD.

9.4 Reassessment

9.4.1 If patients are receiving IV fluids for resuscitation, reassess the patient using the ABCDE approach (Airway, Breathing, Circulation, Disability, Exposure), monitor their respiratory rate, pulse, blood pressure and perfusion continuously, and measure their venous lactate levels and/or arterial pH and base excess according to guidance on advanced life support (Resuscitation Council [UK], 2011).

9.4.2 All patients continuing to receive IV fluids need regular monitoring. This should include daily reassessments of clinical fluid status, laboratory values (urea, creatinine and electrolytes) and fluid balance charts, along with weight measurement. Be aware that:

- Patients receiving IV fluid therapy to address replacement or redistribution problems may need more frequent monitoring.
- Additional monitoring of urinary sodium may be helpful in patients with high-volume gastrointestinal losses. (Reduced urinary sodium excretion [less than 30 mmol/l] may indicate total body sodium depletion even if plasma sodium levels are normal. Urinary sodium may also indicate the cause of hyponatraemia, and guide the achievement of a negative sodium balance in patients with oedema. However, urinary sodium values may be misleading in the presence of renal impairment or diuretic therapy).
- Patients on longer-term IV fluid therapy whose condition is stable may be monitored less frequently, although decisions to reduce monitoring frequency should be detailed in their IV fluid management plan.

9.4.3 If patients have received IV fluids containing chloride concentrations greater than 120 mmol/l (for example, sodium chloride 0.9%), monitor their serum chloride concentration daily. If patients develop hyperchloraemia or acidaemia, reassess their IV fluid prescription and assess their acid–base status. Consider less frequent monitoring for patients who are stable.

9.4.4 Clear incidents of fluid mismanagement (for example, unnecessarily prolonged dehydration or inadvertent fluid overload due to IV fluid therapy) should be reported through DATIX to encourage improved training and practice

9.4.5 If patients are transferred to a different location, reassess their fluid status and IV fluid management plan on arrival in the new setting

10 Documentation

10.1 Fluid balance charts should be kept up to date and tallied / balanced a minimum of every four hours. For patients deemed to be Medium / High Risk on CTEWS or patients where the main concern is low urine output or increased chest drainage this should be done continuously (Hourly).

10.2 All patients requiring a fluid balance chart should have an agreed 24 hour fluid balance / restriction and the reason for fluid monitoring recorded either on the fluid balance chart or in the medical notes.

11 Fluid management in Patients with Kidney Injury

11.1 Acute Kidney Injury

11.1.1 All patients admitted as an emergency, regardless of specialty, should have their electrolytes checked routinely on admission and appropriately thereafter. This will prevent the insidious and unrecognised onset of Acute Kidney Injury (AKI).

11.1.2 If AKI diagnosed, please observe AKI pathway and guidelines detailed in DN622.

11.2 Chronic Kidney Disease

11.2.1 Chronic kidney disease (CKD) describes abnormal kidney function and/or structure. It is common, frequently unrecognised and often exists together with other conditions (for example, cardiovascular disease and diabetes)

11.2.2 Monitor eGFR in people prescribed drugs known to be nephrotoxic and regularly observe for any deterioration to ensure prompt management to reduce the incidence of complications. Ensure medication is prescribed according to eGFR and altered appropriately

11.2.3 Monitor kidney function appropriately and identify any deterioration promptly – AKI can occur in CKD and if identified, use DN622 AKI Guidelines.

12. Fluid balance / recording / monitoring & review

12.1 Input

All IV fluids should be recorded as the actual amount infused each hour and all oral fluids should only be charted once the patient has consumed it. The type of oral fluid does not need to be identified on the fluid balance chart only the volume of fluid requires documentation.

Fluids included in the overall balance.

- Morphine/PCA
- Dopamine/Amiodarone
- Insulin/Heparin
- Any other continuous infusions.

Fluids not included in the overall balance.

- Epidural/ Extrapleural
- *Colloid (Blood products and Gelofusine) - however these need to be documented on the fluid balance chart.

*It may be necessary to include colloid in the overall balance when patients are fluid restricted or at risk of fluid overload. Individual assessment of fluid requirements is necessary to ensure fluid management is appropriate for each patient.

12.2 Output

Insensible loss:

- Mechanism whereby patients lose fluid through processes such as sweating and respiration Estimated to approx 500ml
- This does not need to be documented on the fluid balance chart but should be taken into account if the patient is sweating, hyperpyrexic or tachypneoic,

All other forms of fluid loss need to be documented on the chart

Urine Output:

- Must be calculated accurately, using receptacles for urine collection
- Ambiguous documentation such as +++ is not acceptable
- It may be necessary to estimate urine output in cases of incontinence, staff should estimate fluid loss in this instance.
- Hourly drainage bags should be measured hourly and the running total documented, concerns should be escalated via the medical team or ALERT team in a timely manner.
- Patients with long term urinary catheters insitu will need these measuring at least 8 hourly or according to the patient's normal routine. The total should be documented clearly on the fluid balance chart.

Intercostal Drains / Redivac Drains:

- All drainage from chest drains, redivac drains should be documented on the fluid balance chart at regular intervals to ensure that output and cumulative balances are calculated accurately
- Patients who are immediately postoperative should have their intercostal drains measured hourly for 24 – 48 hours and then 4 – 8 hourly until removal.
- Drainage via intercostal or redivac drains should be charted using the appropriate column. Additional columns can be used if necessary

Other forms of output:

- Stoma bags, Wound drains, Nasogastric drainage bags, flexiseal drainage bags, VAC pump drainage
- All drainage from stoma bags, nasogastric drainage bags etc. should be documented on the fluid balance chart 4 – 8 hourly unless otherwise indicated, to ensure that output and cumulative balances are calculated accurately
- Drainage of the above should be charted using the free text columns. Additional columns can be used if necessary.

Fluid Balance assessment:

- Record total input & output 4 hourly.
- Record +ve or –ve balance 4 hourly and initial with grade.
- Registered practitioner must record and sign +/- balance at least every 8 hours.
- Ensure running totals are completed at end of handover period.

13. Process for monitoring compliance

13.1 The failure to identify and manage patient's hydration status is a key element of local risk management, failure to comply with the system is reportable via the incident reporting system. To address this hospital policy incorporates the following elements:

- Outlines the duties and responsibilities of various professional groups.
- Outlines processes in place for monitoring the effectiveness of these measures.

13.1 Compliance with the guideline will be determined through increased compliance with Productive Ward audits.

13.2 Ongoing audit following the introduction of new fluid balance charts across the trust by individual ward areas to ensure compliance with the IFM bundle and recommendations.

13.3 Productive Ward audits to show compliance with completion of fluid balance charts

Element to be monitored	Lead	Tool	Frequency	Reporting arrangements	Acting on recommendations and Lead(s)	Change in practice and lessons to be shared
The appropriate assessment and monitoring of patient's hydration status across the trust.	Lead for the ALERT Team	Productive Ward Audit of fluid balance charts	Monthly Compliance of productive ward audits to be monitored and reported by each individual ward sister.		Individual Ward Sisters / Managers	Changes in practice and any training needs identified will be brought to the attention of the Director of Nursing and relevant modern matron & addressed in conjunction with them. Education / Resuscitation will be made aware of training issues and potential need for additions or changes to training programmes.
Appropriate prescribing and administration of intravenous fluids	Lead Pharmacist	Pharmacy rolling audit	Annually		Pharmacy, Alert Team, Medical teams	

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Appendix 1 – Fluid Balance Chart

24-hour Input/Output Chart

6th PROOF 19/12/11

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Location: ..... Date: .....

Reasons for commencing/continuing fluid chart: MUST BE COMPLETED	Weight	LV Function
Instructions/Information: .....Signature		

Hosp no: ..... NHS no: .....
Name: .....
Address: .....
Postcode: ..... DoB: .....
(or attach patient label)

Previous days fluid balance:.....mls Positive/Negative *(delete as appropriate)*

ONLY ADD MLS OF FLUID WHEN THE PATIENT HAS HAD IT

Abbreviations (only these to be used):

NBM = nil by mouth
PEG = percutaneous endoscopic gastroscopy
TPN = total parenteral nutrition
NG = nasogastric
HNPU = has not passed urine
TWOC = trial without catheter
KCL = potassium chloride
IVI or IV = intravenous infusion
IVAB = intravenous antibiotics
D/S = dextrose saline
N/S = normal saline

Jablonski, S (1998) Dictionary of Medical Acronyms and Abbreviations (3rd Ed), Hanley & Belfus Inc, Philadelphia
www.rcgp.org.uk/patient_information/patient_partnership_group/pog_publications

Hospital Mug | Hospital Glass | Hospital Cup | Fruit Juice

Instructions for completing chart:

Oral
- All intake to be documented in mls.
- Use a separate column to record oral, NG, enteral feed and flushes.
- Record all enteral or TPN hourly.

IV
- Document type, volume and time due for all IV fluids.
- Record rate hourly if administered via a pump.
- Estimate hourly if administered via gravity.
- Carry over remaining IV fluid at 0700 hrs.
- Do not include colloid in the input total column, calculate separately.

Output
- All output to be documented in mls.
- Use separate columns for urine, diarrhoea, aspirate, vomit, stoma and intercostal drains.

General
- All fluid charts to be filed in patient's notes.
- Report significant (parameters may need to be decided) +ve or -ve balances to doctors.
- Accountability for accuracy of fluid balance recording and reporting remains with registered practitioner.
- Record your name and initials in patient record.

Running totals instructions:
As a minimum:
- Record total input and total output 4-hourly.
- Record +ve and -ve balance 4-hourly and initial with grade.
- Registered practitioner to record and sign +/- balance at least every 8 hours.
- Ensure running totals are completed at handover.

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Patient name: ..... Hosp no: ..... Location: ..... Date: .....

Time	Oral	IVI type & volume	IVI rate/hr	free text	free text	free text	Input Total	Colloid	Total	Urine	free text	free text	Output Total	Hourly Drains / Cumulative	Balance	+ / -	Initials/ Grade
08.00																	
09.00																	
10.00																	
11.00																	
12.00																	
13.00																	
14.00																	
15.00																	
16.00																	
17.00																	
18.00																	
19.00																	
20.00																	
21.00																	
22.00																	
23.00																	
00.00																	
01.00																	
02.00																	
03.00																	
04.00																	
05.00																	
06.00																	
07.00																	
TOTAL															24-hr Total		

24-hr Total: .....mls Positive / Negative Fluid chart to continue? Yes ☐ No ☐

Appendix 2 – Patient Information Sheet

Date_____ Restriction _____ (mls/litres)

Patient Name_____

Cross off each drink as you finish it to keep track of your intake…

Full Glass

= 200 mls

Full Cup

= 180 mls

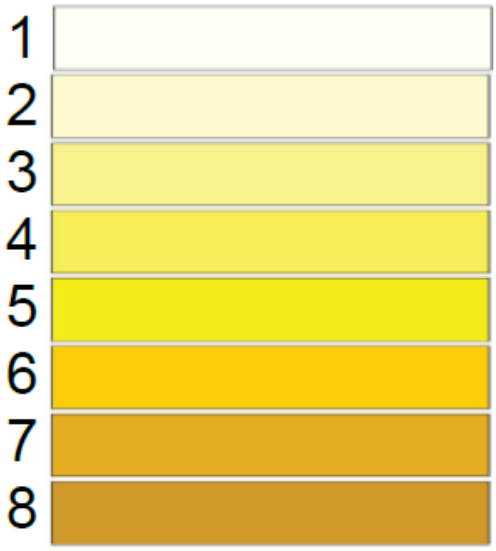
Full Mug

= 250 mls

If you are unable to manage to drink your recommended daily amount or are experiencing any of the other signs or causes of dehydration, please inform you nurse/carer.

Check your urine colour each time you go to the toilet, if your urine is colour dark or has a strong odour, you need tell your nurse, you may need to have more fluid.

Healthy pee is 1 to 3 - 4 to 8 you must hydrate



Consider the quantity of urine you are passing, was it a lot or a little? If you are concerned, please check with your nurse.

Frequently Asked Questions...

What should I drink?

Water, fruit juice and fruit squash are good drinks for hydration. These can be taken as well as tea and coffee. It is better to avoid too many drinks containing large amounts of caffeine and alcoholic drinks as these can have a diuretic effect and you will pass more urine.
However do remember that if what you drink contains sugar it will increase your calorie intake and may lead to weight gain. Sugar free options may be best.

How can I drink the right amount?

- Take note of your restriction (if applicable)
- Use the recording tool to help your care team monitor your fluids
- Find out how many mls are in your cups or glasses, and then work out how much you can have for one day.
- Tell your doctor or nurse if you feel unwell and unable to drink.

Will I need to go to the toilet more frequently?

You may do, however this is good, as it is a sign that your kidneys are working. If you are concerned about managing to get to the toilet, please speak to your nurse who can help you with this.

Staying Hydrated, Staying Healthy

Drinking good amounts and ensuring you remain hydrated can contribute towards staying fit and healthy.

Benefits of staying well hydrated-

- Improves concentration, reduces headaches
- Reduces urinary tract infections and kidney stones
- Reduces symptoms of constipation
- Improves low blood pressure
- Reduces the possibility of pressure sores
- Improves the health of your mouth.

It can be difficult to drink in good amounts. This leaflet is advice to help you keep hydrated. Each individual is different, your nurse or doctor will advise you of your own requirements.

You may become dehydrated...

- If you do not drink sufficiently
- If you are experiencing diarrhoea or vomiting
- If you have exercised and been sweating
- As a side effect of some medications

Signs of dehydration can include, a dry mouth or lips, thirst, headaches, dizziness, tiredness, confusion, dry, loose skin, dark coloured urine or passing only small amounts of urine.

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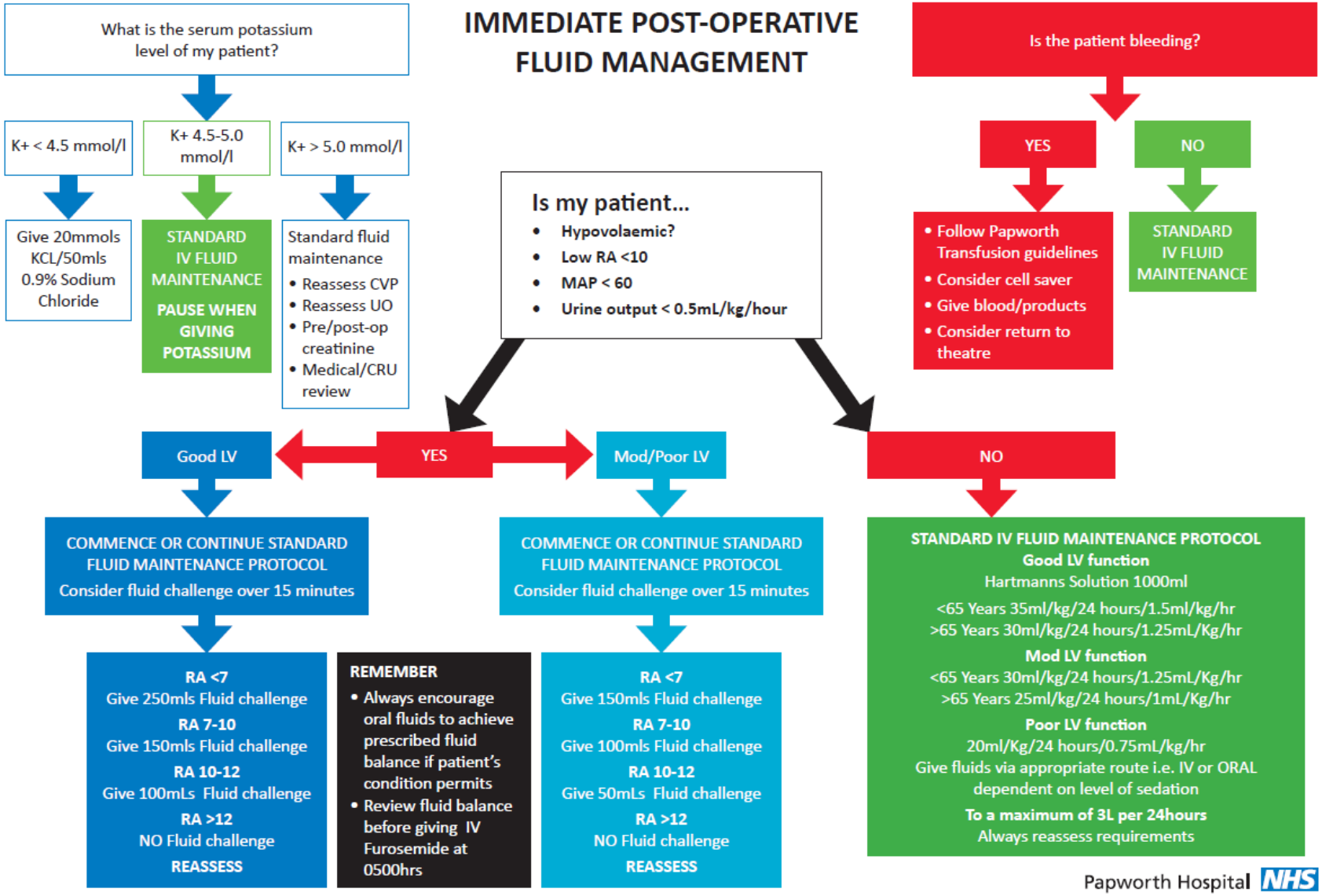
Appendix 4 – Day 0 Fluid Protocol



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Appendix 5 - Day 1 Fluid Protocol

REMEMBER

- Review need for IV furosemide at 0500hrs.
- Document crystalloid and overall balances on CRU discharge summary.
- Always try to achieve fluid prescription via oral route if possible by the time of discharge to the ward.
- Send bloods for day 1 urea and electrolytes. Check creatinine levels.

DAY 1 FLUID MANAGEMENT FLOW CHART

From CCA/CRU to the Ward

STANDARD IV FLUID MAINTENANCE PROTOCOL

Good LV function
<65 Years 35ml/kg/24 hours/1.5ml/kg/hr
>65 Years 30ml/kg/24 hours/1.25mL/Kg/hr

Mod LV function
<65 Years 30ml/kg/24 hours/1.25mL/Kg/hr
>65 Years 25ml/kg/24 hours/1mL/Kg/hr

Poor LV function
20ml/Kg/24 hours/0.75mL/kg/hr
Give fluids via appropriate route i.e. IV or ORAL dependent on level of sedation

To a maximum of 3L per 24hours
Always reassess requirements

Is my patient...

ALERT/ORIENTATED EATING & DRINKING

YES → **Give oral fluids**

FOLLOW THE STANDARD IV FLUID MAINTENANCE PROTOCOL

Ensure patient is achieving fluid prescription on discharge to ward

Reassess if condition changes

NO → **DROWSY/NAUSEOUS/ VOMITING**

YES → **STANDARD IV FLUID MAINTENANCE PROTOCOL**

Give IV fluids to achieve prescribed balance

Stop IV Maintenance once patient is able to tolerate oral intake

FRAIL/ELDERLY/POOR LV/ CARDIAC FAILURE Weight >80Kg

YES → **Review each patient with surgical team - consider using the standard IV maintenance protocol at: 20mL/kg/24hours/0.75mL/kg/hr**

Review CVP, MAP and urine output regularly

DIABETIC ON VRIII

YES → **Please refer to DN Diabetic guidelines**

5% Glucose & 20mmols KCL (unless K+ >5.0 mmol/l). Commence at 0.5-0.75ml/kg/hour

Consider giving at the same rate as per the standard IV fluid management protocol

Check with Diabetic Liason Nurse

Refer to ALERT Team if concerned/MEWS >4 OR OLIGURIC

Papworth Hospital NHS
NHS Foundation Trust

Further Document Information

Approved by Executive Director/local committee **(required for all documents):**	Alert Service Steering Group Fluid & AKI Group CPD Group Nursing Advisory Committee (NAC)
Approval date (*this version*):	November 2014
Approved by Board of Directors or Committee of the Board **(required for Strategies and Policies only):**	N/a
Date:	N/a
This document supports: *standards and legislation – include exact details of any CQC & NHSLA standards supported*	NICE Clinical Guideline (2007) Acutely ill patients in hospital: Recognition of and response to acute illness in adults in hospital (CG50); NICE Clinical Guideline (2008) Chronic kidney disease. Early identification and management of chronic kidney disease in adults in primary and secondary care (CG73); NICE Clinical Guideline (2011) Anaemia Management in Chronic Kidney Disease (CG114); NECPOD (2009) Adding Insult to Injury. A review of the care of patients who died in hospital with a primary diagnosis of acute kidney injury (acute renal failure); NPSA Guidance (2007), Recognising and responding to early signs of deterioration in hospitalised patients; Lord Darzi (2008) High Quality Care for all, NHS STAGE Review Final Report; NHSLA 2011/2012 Risk Management Standard 1.4.3; NMC (2008), The Code, Standards of Conduct, performance and ethics for nurses & midwives.
Key related documents:	DN538 Management of the Deteriorating Patient Procedure DN598 Management of Severe Sepsis Procedure

Equality Impact Assessment: Does this document impact on any of the following groups? If YES, state positive or negative, complete Equality Impact Assessment form from DN507 Single Equality Scheme, and attach.

Groups:	Disability	Race	Gender	Age	Sexual orientation	Religious & belief	Other
Yes/No:	No	No	No	No	No	No	No
Positive/ Negative:							

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