



High Output Stoma Policy

This procedural document supersedes: PAT/T 71 v.1 - High Output Stoma Policy



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Amendment Form

Please record brief details of the changes made alongside the next version number. If the procedural document has been reviewed **without change**, this information will still need to be recorded although the version number will remain the same.

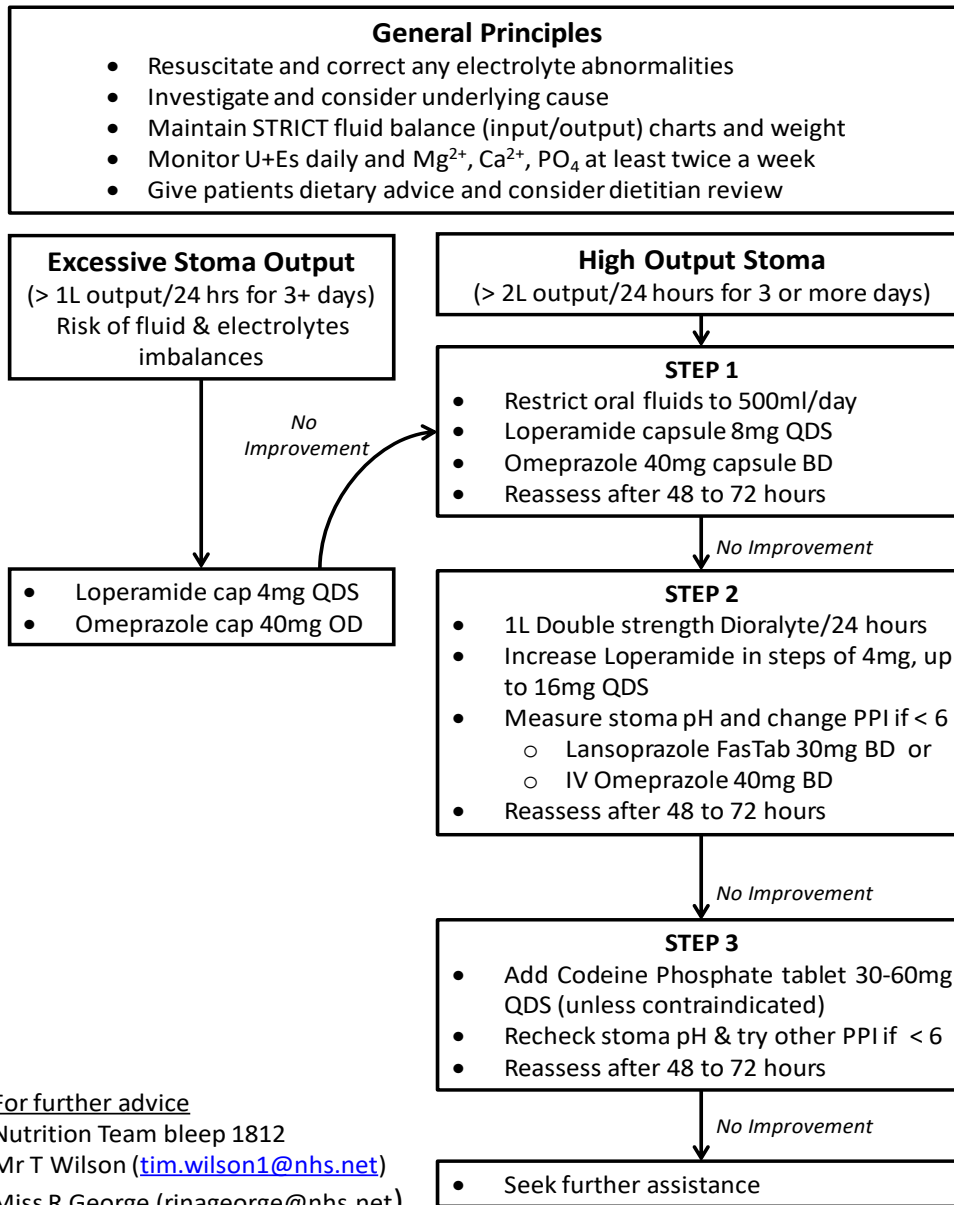
Version	Date Issued	Brief Summary of Changes	Author
Version 2	December 2021	<ul style="list-style-type: none"> • Updated patients lacking capacity section • Rewording of oral rehydration solutions • Removed duplication from excessive stoma output 	H Stirland K L Yee T R Wilson
Version 1	October 2018	This is a new procedural document, please read in full	T R Wilson A Brigid H Stirland M Peck K L Yee

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SUMMARY OF HIGH OUTPUT STOMA (HOS) PATHWAY

High Output Stoma Pathway



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1. INTRODUCTION

Patients are considered to have a high output stoma (HOS) if their stoma output is more than 2000ml / 24 hours for **three or more** consecutive days.

Early HOS develops in the immediate postoperative period (<3 weeks from stoma formation) and before discharge from hospital. This may affect up to 15% of people who undergo formation of a small bowel stoma and is more common in men and following emergency surgery. The most prevalent causes are:

- Short bowel syndrome
- Abdominal or pelvic sepsis
- Incomplete bowel obstruction
- Bowel infection (e.g. *Clostridium difficile* / Norovirus), inflammation or ischaemia
- Medication: Prokinetics (e.g. metoclopramide), Metformin, rapid withdrawal of some drugs (e.g. steroids / opiates).

Late HOS develops more than 3 weeks after formation and is less common. Causes include obstruction, new medication or new onset of bowel pathology e.g. inflammatory bowel disease.

Up to 20% of HOS will remain with a high output until the stoma is reversed. Readmission rate to hospital is common (40-43%), usually due to electrolyte disturbances and renal impairment.

Common complications of HOS include:

- Dehydration and Acute Kidney Injury (AKI)
- Low serum and urinary sodium
- Low serum magnesium
- Weight loss / malnutrition
- Low Vitamin B12 (if more than 60-100cm of terminal ileum resected)

Patients are considered to have excessive stoma output (ESO), if their stoma output is between 1000ml and 2000ml over 24 hours and they are at risk of developing problems with dehydration and electrolyte disturbances.

PATIENTS LACKING CAPACITY

Sometimes it will be necessary to provide care and treatment to patients who lack the capacity to make decisions related to the content of this policy. In these instances staff must treat the patient in accordance with the Mental Capacity Act 2005 (MCA 2005).

- A person lacking capacity should not be treated in a manner which can be seen as discriminatory.
- Any act done for, or any decision made on behalf of a patient who lacks capacity must be done, or made, in the persons Best Interest.

- Further information can be found in the MCA policy, and the Code of Practice, both available on the Extranet.

There is no single definition of Best Interest. Best Interest is *determined on an individual basis. All factors relevant to the decision must be taken into account, family and friends should be consulted, and the decision should be in the Best interest of the individual. Please see S5 of the MCA code of practice for further information.*

2. PURPOSE

The purpose of this document is to provide:

1. Clear, consistent and evidence based information for patients with high output stoma.
2. To ensure a clear clinical management plan is followed.
3. To reduce the risk of complications that patients with high output stoma may experience.

3. DUTIES AND RESPONSIBILITIES

Medical staff must identify patients with high output stoma and follow an appropriate clinical management plan as outlined in this document. They must ensure dietary advice has been provided to the patient and a dietitian referral has been made. They are responsible for monitoring and correcting electrolyte abnormalities and maintaining adequate fluid balance by prescribing the correct intravenous fluids. They will provide support and advice for patients in managing their high output stoma and will refer to other specialist services when required.

Nursing staff are responsible for monitoring the patient's fluid balance and weight. They must ensure prescribed medication is administered at the correct times to provide optimal effect. Nursing staff are responsible for ensuring a dietitian referral is made and dietary/fluid intake information is provided for this group of patients. They will provide support and advice for patients in managing their high output stoma and will refer to other specialist services when required.

4. PATHWAY FOR MANAGING HIGH OUTPUT STOMA (HOS)

4.1 General Principles

1. Resuscitate and correct any electrolyte abnormalities:
 - Check U+Es, Magnesium, Phosphate and Calcium and correct deficiencies
 - Resuscitate with crystalloid
 - Consider checking random urinary sodium (<10mmol/L suggests sodium depletion)

2. Investigate and consider underlying causes:
 - Stool culture to exclude GI infection
 - Medication review
 - Stop prokinetics
 - Check whether steroids/opiates recently stopped
 - If taking Metformin consider seeking diabetic advice with regards to stopping/ substituting
 - CT imaging to exclude bowel obstruction / intra-abdominal sepsis
3. Maintain a **strict** daily fluid balance (input/output) chart and monitor weight:
 - It is impossible to manage this problem without a clear picture of stoma output and intake to assess response to treatment and guide further changes. Failure to do this every day will unnecessarily delay patient discharge.
 - Weights should be checked at least once a week. Rapid decreases or increases in weight over the course of a week usually indicate dehydration or response to fluid resuscitation respectively.
4. Dietetic assessment:
 - These patients are all at risk of malnutrition and should be reviewed by a dietitian
 - Give patients dietary advice (if eating), see attached patient advice sheet (Appendix 1).
5. On-going biochemical assessment:
 - U+Es should be checked daily
 - Phosphate and Magnesium should be checked twice a week, unless they are abnormally low or the patient is suspected of having refeeding syndrome in which case they require daily monitoring.
6. Consider involving stoma team:
 - Patients with HOS are at higher risk of skin damage from active stomas
 - If patients are having problems with their appliance or stoma please involve the stoma team as soon as possible. They can be contacted on 644365. If you are calling out of hours please leave a clear message giving details of the patient and their location.

4.2 Step 1

1. Fluid restrict to 500ml / day of oral hypotonic fluids
 - Drinking excessive hypotonic fluids (e.g. water, tea, fizzy drinks etc) will usually increase stoma output and make the patients more dehydrated. **PATIENTS CANNOT CORRECT DEHYDRATION BY DRINKING MORE.** This must be corrected by giving IV fluids.
 - Patients should be encouraged to eat and drink separately and not to have drinks with their meals.
 - IV fluids should be continued to replace any excessive losses

2. Start anti-diarrhoeal medication
 - Loperamide 8mg QDS – patients should take at least 30mins before meals
 - Prescribe capsule as the first choice. The capsule can be opened and the powder contents dispersed in 10ml of water for administration.
 - Avoid syrup as this may be too hygroscopic and the potential osmotic effect may increase stoma output.
3. Start Proton Pump Inhibitor (PPI)
 - Omeprazole capsule 40mg BD (patients should switch to this if on another Proton Pump Inhibitor)*
4. Reassess after 48 to 72 hours
 - If the volume of stoma output is not significantly improving proceed to step 2 and continue all current action from step 1 unless directed otherwise.
 - If improvement, then can gradually build up oral fluids and have any IV fluid support withdrawn. U+Es will need careful monitoring. Most patients will be able to manage with up to 1000ml of stoma output a day without needing additional fluids.

*Anti-secretory drugs: PPIs have been shown to be superior to high dose Ranitidine for HOS. Omeprazole (the most commonly used PPI for this purpose) is absorbed in duodenum and proximal jejunum, so oral preparations are appropriate and much cheaper than IV preparations. Unlike other PPIs, its suppression of acid increases as the dose increases (dose dependent response). However, gastrointestinal transit is usually increased in patients with HOS and Omeprazole may not be adequately absorbed. If this is a concern then Lansoprazole FasTab can be tried as they are readily dissolved on the tongue. Alternatively, Omeprazole can be given intravenously.

4.3 Step 2

1. Encourage patients to drink an oral hypertonic electrolyte solution (in addition to fluid restriction of 500ml of oral hypotonic fluids).
 - First-line: ‘Double Strength’ Dioralyte
 - Dissolve 10 sachets of Dioralyte in 1 litre of water. Alternatively, mix 2 sachets in 200ml water and drink this five times a day. Patients should aim to drink 1 litre of ‘Double Strength’ Dioralyte (or more if tolerated[†]) throughout the day.
 - Each litre of ‘Double Strength’ Dioralyte solution contains 40mmol of Potassium. This should be avoided in patients with renal impairment or hyperkalaemia. Potassium levels should be monitored.
 - Second-line: St Mark’s solution
 - Mix 1 tub of “*St Mark’s Electrolyte Mix*” with 1 litre of cold water. Fruit or lime cordials may be added to flavour the solution to improve the taste. Patients should aim to drink 1 litre of St Mark’s solution (or more if tolerated[†]) throughout the day.
 - “*St Mark’s Electrolyte Mix*” is available ~~for~~ from ‘specials’ manufacturer and with a higher procurement cost. It should only be used if patients cannot tolerate Dioralyte or develop hyperkalaemia.
 - If St Mark’s solution is to be continued at discharge, patients are advised to make the electrolyte mix using a recipe (see Appendix 1). If this is not feasible, please check with Pharmacy for ongoing supply as “*St Mark’s Electrolyte Mix*” is a ‘specials’ product, which is not available from the GP.

2. Increase Loperamide in steps of 4mg, up to 16mg QDS
 - If high doses are required, consider switching to oro-dispersible tablet as can be better absorbed.
3. Measure the pH of the stoma effluent after one week and consider changing PPI.
 - If the pH is less than 6 then the stomach is still producing too much acid.
 - The following adjustments can be made
 - Switch to Lansoprazole FasTab 30mg BD
 - Switch to IV omeprazole 40mg BD
4. Reassess after 48 to 72 hours
 - If no response then proceed to Step 3.

† Oral hypertonic electrolyte solutions with sodium concentration of at least 90mmol/L favour sodium absorption by the bowel and improve sodium balance (rather than sodium and fluid loss which happens with hypotonic fluids). This in turn improves thirst and so decreases overall fluid intake and stoma output. Patient may have up to 2 litres of oral hypertonic electrolyte solutions if tolerated. This should not be given in unrestricted amounts as excess consumption will still increase stoma volume.

4.4 Step 3

1. Add Codeine Phosphate 30 to 60mg QDS (unless contraindicated)
 - Prescribe tablet as the first choice. The tablet can be dispersed in 10ml of water.
 - Avoid syrup as this may be too hygroscopic and the potential osmotic effect may increase stoma output
2. Recheck stoma pH after one week and try alternative PPI if pH still less than 6
3. Reassess after 48 to 72 hours
 - If no improvement then seek further assistance.
 - Contact consultant colorectal surgeon via switchboard
 - Nutrition Support Team (Bleep 1812)

The role of Octreotide

The use of Octreotide in HOS is controversial. Evidence suggests that there may not be any additional benefit of this medication if the patient is already on high dose PPI.

4.5 Summary

A one page summary of the HOS policy is provided at the beginning of this document, this will also be available on Dr Toolbox.

5. MANAGING EXCESSIVE STOMA OUTPUT (ESO)

If a patient's stoma output is excessive, but is less than 2000ml / 24 hours and they are at risk of developing fluid and electrolyte imbalances then the same principles should be followed as for HOS. However, fluid restriction should not be introduced immediately and a more modest treatment can be tried initially (see Section 5.2).

5.1 General Principles of ESO Management

The same general principles apply as for HOS above. However, not all patients with ESO are at risk of malnutrition and patients should only be referred onto the dietitian if they are judged to be at risk (e.g. MUST score of 2 or above).

5.2 Initial Management of ESO

1. Start anti-diarrhoeal medication
 - Loperamide 4mg QDS – patients should take at least 30mins before food
2. Consider starting Proton Pump Inhibitor (PPI)
 - Omeprazole 40mg OD (patients should switch to this if on another PPI)
3. Reassess after 48 to 72 hours
 - If the volume of stoma output is not significantly improving progress to follow the HOS pathway above

5.3 Subsequent Management of Persistent ESO

Follow the HOS pathway beginning at Step 1, adjust doses of existing medications as required.

6. TRAINING/ SUPPORT

For further support and advice please contact:

- Consultant colorectal surgeon via switchboard within working hours
- Nutrition Support Team (Bleep 1812)

The training requirements of staff will be identified through a training needs analysis. Role specific education will be delivered by the service lead.

7. MONITORING COMPLIANCE WITH THE PROCEDURAL DOCUMENT

What is being Monitored	Who will carry out the Monitoring	How often	How Reviewed/ Where Reported to
Compliance with the policy	Divisions	Twice a year	Datix reports reviewed by the Nutrition Steering Committee

8. DEFINITIONS

HOS = High output stoma
 ESO = Excessive stoma output
 U+Es = Urea and electrolytes

9. EQUALITY IMPACT ASSESSMENT

An Equality Impact Assessment (EIA) has been conducted on this procedural document in line with the principles of the Equality Analysis Policy (CORP/EMP 27) and the Fair Treatment For All Policy (CORP/EMP 4).

The purpose of the EIA is to minimise and if possible remove any disproportionate impact on employees on the grounds of race, sex, disability, age, sexual orientation or religious belief. No detriment was identified (**Appendix 2**).

10. DATA PROTECTION

Any personal data processing associated with this policy will be carried out under 'Current data protection legislation' as in the Data Protection Act 2018 and the UK General Data Protection Regulation (GDPR) 2021.

For further information on data processing carried out by the trust, please refer to our Privacy Notices and other information which you can find on the trust website:

<https://www.dbth.nhs.uk/about-us/our-publications/information-governance/>

11. ASSOCIATED TRUST PROCEDURAL DOCUMENTS

CORP/EMP 4 – Fair Treatment for All Policy
 CORP/EMP 27 – Equality Analysis Policy

APPENDIX 1 – ADVICE SHEET FOR PATIENTS WITH HOS

ADVICE FOR PATIENTS WITH A HIGH OUTPUT STOMA

This leaflet provides advice on ways to reduce your stoma output.

What is a high stoma output?

If your stoma produces more than 1L of fluid per day, then it is considered to have a high output and you may be at risk of getting dehydration. As well as obtaining nutrients from food, the bowel has an important role in absorbing fluid and electrolytes (salts). Most fluid is absorbed in the lower bowel. If this has been removed or is disconnected from the upper bowel by a stoma, you are more likely to experience a high output from your stoma. A high stoma output can lead to poor absorption of nutrients, salts and fluids which can lead to dehydration and weight loss. Depending on the length of your remaining bowel, your absorption may get better over time and your high output may decrease. However, there are several things that can be done to help this earlier on.

Reducing your stoma output.

Your stoma output may be reduced by:

1. Drinking less ordinary fluid and replacing this with an oral rehydration solution such as Dioralyte or St Marks.
2. Increasing salt intake
3. Reducing fibre intake
4. Taking medication to reduce your stoma output

Fluids

Drinking too much ordinary fluid (e.g. tea, coffee, water, squash, fruit juice) will increase your stoma output and make you become thirsty and dehydrated. You may be advised to limit your consumption of ordinary fluid to 500-1000mls per day. Your health care team will advise you on this. You may be advised to take a rehydration solution such as Dioralyte. This is high in salt and helps your body absorb fluid, therefore helping to reduce your stoma output and keeping you hydrated. The usual prescribed daily amount is 10 sachets of Dioralyte dissolved in 1000ml water or St Marks solution which can be made as follows:

The electrolyte mix needs to be made up freshly every day. To do this you need to measure out the following powders:

- 20g (six level 5ml spoonful) of Glucose
- 2.5g (one heaped 2.5ml spoonful) of Sodium Bicarbonate (baking soda)
- 3.5g (one level 5 ml spoonful) of Sodium Chloride (salt)

This needs to be dissolved in 1litre of cold tap water. It is recommended that you drink 1litre of the electrolyte mix each day.

You can buy the ingredients (powders) from any pharmacy and some supermarkets or you can obtain them on prescription from your GP. They are cheaper to buy than to get through a prescription if you pay prescription charges.

You may find the solution tastes salty. This can be improved by:

- Storing the drink in the refrigerator and taking it chilled. It can also be frozen and taken as a slush
- Sipping it through a straw
- Adding a small amount of squash, fruit juice or cordial to improve the taste. This is best added while making up the solution rather than adding to each glass so that the salt content remains high
- Adding fresh lemon or lime juice

Salt

Each day you will lose salt from your stoma and it is important to try to replace this loss by following a diet high in salt, as follows:

- Sprinkle a little salt on your meals: ½ - 1 teaspoon per day
- Try cooking with salt
- Increase your intake of the following salty foods: cheese, bacon, ham, smoked fish, fish canned in brine (tuna, sardines, salmon), meat and fish pastes, oxo, bovril, marmite, salted crisps, savoury or salty biscuits.

Fibre

Foods high in fibre are often difficult to digest and can increase your stoma output. Lower fibre foods may help to decrease your stoma output. You can limit your fibre intake by:

- Having white-based cereal products such as white bread, white rice, white pasta, white breakfast cereals such as corn flakes and rice krispies.
- Have small portions of fruit and vegetables and remove skins, stalks, seeds and pips.
- Avoid nuts and dried fruit

Medications

Certain medications can be used to slow down the bowel and aid absorption.

- Loperamide
This tablet slows down the action of the bowel, helping more fluid, salt and nutrients to be absorbed. It is usually taken four times per day and needs to be taken 30-60 minutes before eating.
- Codeine phosphate
This also slows down the bowel and is often used in conjunction with Loperamide. It should also be taken 30-60 minutes before eating.
- Omeprazole or Lansoprazole
These drugs reduce the amount of acid produced by the stomach and hence stoma output.

APPENDIX 2 - EQUALITY IMPACT ASSESSMENT PART 1 INITIAL SCREENING

Service/Function/Policy/Project/ Strategy	Care Group/Executive Directorate and Department	Assessor (s)	New or Existing Service or Policy?	Date of Assessment
High output stoma	Surgery	T Wilson	New	07/12/2021
1) Who is responsible for this policy? Surgery				
2) Describe the purpose of the service / function / policy / project/ strategy? Improve care and understanding of high output stoma management				
3) Are there any associated objectives? Legislation, targets national expectation, standards				
4) What factors contribute or detract from achieving intended outcomes? –				
5) Does the policy have an impact in terms of age, race, disability, gender, gender reassignment, sexual orientation, marriage/civil partnership, maternity/pregnancy and religion/belief? No				
<ul style="list-style-type: none"> • If yes, please describe current or planned activities to address the impact [e.g. Monitoring, consultation] – 				
6) Is there any scope for new measures which would promote equality? [any actions to be taken]				
7) Are any of the following groups adversely affected by the policy?				
Protected Characteristics	Affected?	Impact		
a) Age	no			
b) Disability	no			
c) Gender	no			
d) Gender Reassignment	no			
e) Marriage/Civil Partnership	no			
f) Maternity/Pregnancy	no			
g) Race	no			
h) Religion/Belief	no			
i) Sexual Orientation	no			
8) Provide the Equality Rating of the service / function /policy / project / strategy – tick (✓) outcome box				
Outcome 1 ✓	Outcome 2	Outcome 3	Outcome 4	
<i>*If you have rated the policy as having an outcome of 2, 3 or 4, it is necessary to carry out a detailed assessment and complete a Detailed Equality Analysis form in Appendix 4</i>				
Date for next review: August 2021				
Checked by: H Stirland		Date: December 2021		