Oral bowel cleansing solutions: Endoscopy

1. Introduction
The National Patient Safety Agency (NPSA) has raised concern about the risk of harm, or even death, resulting from the use of oral bowel cleansing solutions. These solutions are commonly used prior to Endoscopic investigations. Their use is important to ensure a clean bowel and a good quality diagnostic examination. In most cases these solutions are safe. In some cases, however, electrolyte disturbances, dehydration or serious gastro-intestinal problems have been reported.

There needs to be a clear clinical responsibility for:
- Clinical assessment of the patient by the clinician ordering the investigation/procedure.
- Explanation on the safe use of the medicine to the patient or carer.
- An advice leaflet must be given to the patient or carer when the solution is supplied.

2. What oral bowel cleansing solutions are used and when
The only oral bowel cleansing solutions used within Endoscopy are Picolax® and Moviprep®. Picolax® has both a stimulant effect to promote peristalsis and is hyperosmotic so draws large volumes of water into the colon which promotes evacuation of the colon. Moviprep® contains polyethylene glycols which are non-absorbable isosmotic solutions, when taken with large quantities of water they exert an osmotic action resulting in a laxative effect.

The endoscopic investigations that require a bowel cleansing solution are colonoscopy and flexible sigmoidoscopy. Moviprep® is used first line for colonoscopy and Picolax® is used for flexible sigmoidoscopy. Picolax® may also be used for colonoscopy in situations where Moviprep® has failed.

3. Clinical assessment of the patient
The assessment includes reviewing the contraindications and risks for Picolax® or Moviprep® against the patient (see appendix 1). The doctor or endoscopy nurse specialist requesting the investigation must be fully aware of the patient’s past medical history. Ideally the clinician should have access to recent laboratory results to establish the patient’s current renal function and have a full list of current medication. This assessment will be documented on either the inpatient or outpatient endoscopy request forms by the doctor requesting the procedure. These forms include a mandatory declaration that a clinical assessment of the patient has been undertaken and that it is considered safe for them to receive an oral bowel cleansing solution. This must be completed before the investigation can be ordered and an oral bowel cleansing solution can be supplied. There is an additional declaration that written information is given to the patient.
4. Prescribing
The oral bowel cleansing solution may only be prescribed after an assessment has taken place and been documented. For inpatients oral bowel cleansing solutions are prescribed on the patient’s inpatient prescription chart (usually PCIS). This can be prescribed by a doctor other than the one who originally assessed the patient provided the prescribing doctor has seen the completed assessment form to confirm that an oral bowel cleansing solution is suitable. If the patient needs to take the oral bowel cleansing solution at home prior to the procedure, they will be supplied with Picolax® or Moviprep® against a PGD by an endoscopy nurse, as long as the supply has been authorised via the assessment.

In exceptional circumstances, usually following a failed endoscopy due to poor bowel preparation, a gastroenterologist may decide that the patient requires a higher dose of oral bowel cleansing solution. In this situation an Oral Bowel Cleansing Solution prescription form should be completed and sent to the hospital pharmacy department. This prescription form includes the assessment — which must be completed before the pharmacy department can dispense the prescription. The standard Trust outpatient prescription form will not be accepted by the hospital pharmacy for oral bowel cleansing solutions. At the time of completing this prescription, the time of the procedure will not be known and therefore the pharmacy department will not be able to label the product with specific timings. The timings of the dose will be included in the appointment letter. The timings are as follows:

Moviprep®
For a morning appointment, take one sachet at 4pm, 6pm and 8pm on the day before the procedure. For an afternoon appointment, take one sachet at 5pm and 8pm on the day before and 6am on the day of the procedure.

Picolax®
For a morning appointment, take one sachet at 10am, 2pm and 6pm on the day before the procedure. For an afternoon appointment, take one sachet at 12pm and 4pm on the day before and 8am on the day of the procedure.

5. Explanation on use of the medicine
It is the responsibility of the clinician assessing the patient to ensure the patient receives a full explanation (verbal and written) regarding the use of the oral bowel cleansing solution. This explanation should include:

- What the medicine is for
- How to take the medicine (see administration below)
- Any expected side effects (see appendix 1)
- Medication that must be stopped around the time of taking the oral bowel cleansing solution (see appendix 1 – drug interactions)
- The importance of compliance with treatment

For those patients taking the oral bowel cleansing solution at home the following additional information must be provided:

- Guidance to enable the patient to decide if it is still safe to use the oral bowel cleansing solution just prior to administration if their clinical condition has changed since the investigation was ordered.
- A named person and telephone number for the patient to contact for advice if there are any problems, concerns or changes in condition.
- Dietary advice (see section below)

Inpatients will be given a copy of the manufacturer’s patient information leaflet. Outpatients will be given a Trust advice sheet by the referring doctor or endoscopy nurse specialist which includes a contact number if they have any queries or concerns. They will also receive the manufacturer’s patient information leaflet and, with Moviprep®, an additional leaflet provided by the manufacturer that details how to administer the sachets. The Trust advice leaflet includes space to specify any medicines that need to be stopped prior to endoscopy and the duration for which they should be withheld. The doctor referring the patient should complete this section. Outpatients will also receive an information leaflet about the procedure, which includes some brief information about oral bowel cleansing solutions.

6. Supply

For inpatients, a supply of oral bowel cleansing solution should be made from the Trust pharmacy or ward stock. (Ward stock is stored in locked medicines cabinets on the ward and is supplied through the hospital pharmacy department.) For outpatients, Picolax® or Moviprep® will be posted to the patient along with the manufacturer’s information leaflet and appointment letter. This should be done by an endoscopy nurse who has read, understood and signed the patient group direction for oral bowel cleansing solutions. Stock of the medicine (within the endoscopy department) is kept in a locked medicines cabinet; the keys are kept with a registered nurse. The medicine must be sent in the form of a pre-labelled pack with the patient’s name written on to the label. The label includes the name of the Trust and brief instructions; this is required to show from where the medication was supplied. The supply must be documented in a book in endoscopy.

In exceptional cases where a gastroenterologist has decided the patient needs a higher dose of oral bowel cleansing solution, they will complete the Trust oral bowel cleansing prescription form. This will be issued by the Hospital pharmacy and then posted out to the patient by the Endoscopy department.

It is the responsibility of the endoscopy nurse to check the investigation order and confirm that the patient has been assessed and that it is considered safe for them to receive an oral bowel cleansing solution. A supply may only be sent to the patient if the assessment has been completed and it is considered that they may receive an oral bowel cleansing agent.

7. Administration

Each sachet of Picolax® should be reconstituted in a cup of water (approximately 150mL). The solution should be stirred for 2 to 3 minutes and then consumed. The adult dose is one sachet reconstituted in water as directed, taken before 8am on the day before the procedure and a second sachet 6 to 8 hours later.³

Sachet A and sachet B of Moviprep® should be mixed together in one litre of water. This should be drunk over a period of 1 to 2 hours. This should then be repeated with a second litre of Moviprep®.⁴ The exact timing of administration is dependent on the time of the investigation.
In situations where patients require high-dose oral bowel cleansing solutions, the timings of the dose are detailed on the appointment letter.

8. Dietary advice
A low-residue diet is recommended prior to the hospital procedure, for patients taking Picolax®. An information leaflet detailing the food that may be eaten will be posted to the patient along with the appointment letter and supply. No solid food should be taken for at least 2 hours before taking an oral bowel cleansing solution. To avoid dehydration during treatment with Picolax®, patients are advised to drink approximately 250mL per hour of water or other clear fluid while the washout effect persists.

9. Further information:
Summaries of product characteristics for Picolax® and Moviprep® are available from: [www.emc.medicines.org.uk](http://www.emc.medicines.org.uk)

NPSA website: [www.npsa.nhs.uk/](http://www.npsa.nhs.uk/).

References
4. Norgine LTD. Summary of product characteristics, Moviprep®. 04/05/10. Available at [www.medicines.org.uk](http://www.medicines.org.uk)

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<td>Target audience</td>
<td>Gastroenterologists, Endoscopy nurses, Endoscopy staff, Referring Clinician – Hospital Consultant or GP. Colorectal surgeons.</td>
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Appendix 1: Prescribing Information

Side effects
Oral bowel cleansing solutions are expected to cause diarrhoea and likely to cause abdominal pain. Other common side effects include nausea, vomiting, headache, abdominal distension, flatulence and sleep disturbance. Oral bowel cleansing solutions can also cause rash, urticaria, pruritis, purpura and rarely hypersensitivity or anaphylactoid reactions.

Oral bowel cleansing solutions can cause electrolyte disturbance — in particular hyponatraemia. This is more common with Picolax® where the hyponatraemia has been associated with grand mal convulsion and convulsions. There have also been cases of seizures in the absence of hyponatraemia in patients known to have epilepsy. Picolax® can also cause confusional state and proctalgia. Picolax® is associated with a risk of hypovolaemia and intravascular volume depletion, which can lead to complications such as syncope, myocardial ischaemia and acute kidney injury.

The period of bowel cleansing should not exceed 24 hours due to an increased risk of fluid and electrolyte disturbance.

Contraindications
Oral bowel cleansing solutions are contraindicated in patients with:

- Bowel obstruction
- Bowel perforation
- Ileus
- Acute intestinal or gastric ulceration
- Severe acute inflammatory bowel disease or toxic megacolon
- Reduced levels of consciousness
- Hypersensitivity to any of the ingredients
- Inability to swallow without aspiration
- Ileostomy

Moviprep® is also contraindicated in phenylketonuria due to the presence of aspartame and in disorders of gastric emptying. Picolax® is contraindicated in congestive cardiac failure and nausea and vomiting.

Cautions
Oral bowel cleansing solutions should be used with caution in patients at risk of hypovolaemia, for example patients with:

- Congestive heart disease
- Advanced liver cirrhosis
- Chronic diarrhoea
- Chronic kidney disease
- Taking high dose diuretics
- Hypovolaemia and electrolyte disturbances (these should be corrected prior to administration of an oral bowel cleansing solution)

Moviprep® should be used first line for patients with congestive cardiac failure and liver cirrhosis. It should also be used first line in patients with chronic kidney disease
(CKD) stage 4 or 5 (eGFR less than 30ml/min) if they are able to tolerate the volume of fluid. Patients undergoing chronic haemodialysis may require admission to hospital if an oral bowel cleansing solution is required. Picolax® should be avoided in patients with severe renal impairment as accumulation of magnesium can occur. Picolax® should also be avoided in renal transplant patients.

**High-risk patients**
Special caution should be exercised when administering oral bowel cleansing solutions to high-risk patients such as frail/debilitated patients, elderly patients or children.

Patients at high risk of hypovolaemia may require admission to hospital to monitor hydration.2

Patients in whom alteration of the absorption of routine medicines might be catastrophic (eg, patients taking immunosuppressants following transplant) may require admission to hospital to administer intravenous preparations.2

Certain patients with diabetes mellitus may require admission to hospital for close supervision and management of blood glucose levels if required to remain nil by mouth for a long period.

**Drug interactions**

- **ACEI/ARB**
  Patients taking angiotensin converting enzyme inhibitors (ACEIs) or angiotensin-receptor blockers (ARBs) are predisposed to deterioration in renal function during hypovolaemia. Where possible these should be omitted on the day of administration of oral bowel cleansing solution and for 72 hours after the procedure.2

- **Diuretics**
  Diuretics will also predispose a patient to dehydration and unless there is a significant risk of pulmonary oedema, consideration should be given to omitting diuretics on the day of administration of oral bowel cleansing solution.2

- **NSAIDs**
  Non-steroidal anti inflammatory drugs (NSAIDs) reduce renal perfusion and therefore may exacerbate the problem of hypovolaemia. Consideration should be given to stopping NSAIDs on the day of administration of oral bowel cleansing solution and for 72 hours after the procedure.2

- **Oral contraceptive pill**
  Patients taking the oral contraceptive pill should be advised to use additional precautions during the week following administration of an oral bowel cleansing solution2 as the bioavailability of the pill may be affected.

Other regular medicines should be taken as usual but patients should be advised not to take oral medicines **one hour before or after** administration of an oral bowel cleansing solution as absorption of the medicine may be impaired.2