Oral Bowel Cleansing Solutions - Surgery

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\(^1\). These solutions are occasionally used prior to elective surgery. Their use is important to ensure a clean bowel prior to surgery. 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 surgeon prior to administration of an oral bowel cleansing agent.
- 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 main oral bowel cleansing solution used within surgery is Picolax®.

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\(^2\).

Moviprep® is used for patients unable to take Picolax®, for example if they have previously taken it and experienced severe side effects or have renal impairment. Moviprep® contains polyethylene glycols which are non-absorbable isosmotic solutions, when taken with large quantities of water they exert as osmotic action resulting in a laxative effect.

Oral bowel cleansing solutions are used prior to surgery for bowel resection and cystectomy.

3. Clinical assessment of patient

3.1 Colorectal surgery
When a surgeon decides a patient requires a bowel resection they will assess whether the patient requires a phosphate enema (first line in the majority of patients) or an oral bowel cleansing solution. If it is the latter then the surgeon will clinically assess the patient prior to prescribing the product. This assessment includes reviewing the contraindications and risks for Picolax® or Moviprep® against the patient (see appendix 1). The surgeon must be fully aware of the patients 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 a specific oral bowel cleansing solution assessment form, which must be filed in the patient’s notes. This form includes a declaration that an assessment of the patient has been undertaken and that it is considered safe for them to take an oral bowel cleansing solution. It also includes a declaration that some verbal information has been provided to the patient. There is some additional information to assist nursing staff on the colorectal ward and a prompt to prescribe the oral bowel cleansing solution at the same time as assessing the patient.
3.2 Urology Surgery
Patients undergoing urology surgery will always be admitted to hospital to receive an oral bowel cleansing solution and the assessment will be done through PCIS when the oral bowel cleansing solution is prescribed.

3.3 Gynaecology Surgery
Patients will be seen in clinic by gynaecology specialist nurses or a gynaecology surgeon and if an oral bowel cleansing solution is required the patient will be assessed. This assessment includes reviewing the contraindications and risks for Picolax® or Moviprep® against the patient (see appendix 1). The clinician must be fully aware of the patients 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 a specific oral bowel cleansing solution assessment form, which must be filed in the patient’s notes. This form includes a declaration that an assessment of the patient has been undertaken and that it is considered safe for them to take an oral bowel cleansing solution. It also includes a declaration that some verbal information has been provided 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 may be prescribed by a doctor other than the surgeon who originally assessed the patient as long as the prescribing doctor has seen the completed assessment form in the patient’s notes confirming that they may receive an oral bowel cleansing solution. If the patient must take the oral bowel cleansing solution at home prior to surgery, then in the outpatient clinic the surgeon will complete the specific “Oral Bowel Cleansing Solution – Prescription”. This prescription will be attached to the oral bowel cleansing solution assessment form. Once this prescription has been completed it should be left in the patient’s notes, ready for pre-op assessment clinic during which the nurse will issue the prescription to the patient. If patients are not attending pre-op clinic then the prescription may just be given to the patient in the outpatient clinic.

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. Where an oral bowel cleansing agent is being prescribed as an inpatient or outpatient the assessing clinician will provide this information. This verbal information is supplemented by written information leaflets. This information is to include:

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

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 manufacturers’ patient information leaflet, which is available from the box of medication. Outpatients will be given a Trust advice sheet at pre op clinic by the pre op nurse, which includes a contact number if they have any queries or concerns. The pre op nurse will provide brief verbal information about why they are being given an oral bowel cleansing solution, likely side effects and how to take it. Outpatients will also receive the manufacturers’ patient information leaflet and with Moviprep® an additional leaflet provided by the manufacturer which details how to administer the sachets. The manufacturer’s leaflet will be provided by the Trust pharmacy when the oral bowel cleansing solution is dispensed.

6. Supply

For inpatients the supply is from the Trust pharmacy or ward stock as per normal processes. Ward stock is stored in locked medicines cabinets on the ward and is supplied through the hospital pharmacy department. For outpatients once the patient has attended pre-op clinic and the nurse has given the patient a full explanation about the oral bowel cleansing solution, the completed prescription will be given to the patient which is to be dispensed at the hospital pharmacy.

7. Administration

Each sachet of Picolax® should be reconstituted in a cup of water (approximately 150ml). The solution should be stirred for 2-3 minutes and then consumed. The adult dose is one sachet reconstituted in water as directed, taken before 8 am on the day before the procedure and a second sachet 6 to 8 hours later³.

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.

8. Dietary advice

A low residue diet is recommended prior to the hospital procedure. An information leaflet detailing the food that may be eaten will be given to the patient at pre op clinic. 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® it is recommended to drink approximately 250ml per hour, of water or other clear fluid while the washout effect persists.

9. Further information:

Picolax® and Moviprep® summary of product characteristics for available from: www.emc.medicines.org.uk

NPSA website http://www.npsa.nhs.uk/.
References
4. Norgine LTD. Summary of product characteristics, Moviprep®. 04/05/10. Available at www.medicines.org.uk

<table>
<thead>
<tr>
<th>Name and Designation of author(s)</th>
<th>Mr Ciaran Walsh, Consultant Colorectal surgeon Debbie Hughes, Highly Specialist Pharmacist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target audience</td>
<td>Colorectal surgeons, nursing staff on the colorectal ward, nursing staff in the pre operation clinic. Urology surgeons. Gynaecology surgeons, gynaecology nursing staff.</td>
</tr>
</tbody>
</table>
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, pruritus, 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.

Patients in whom alteration in the absorption of routine medicines might be catastrophic for example patients taking immunosuppressant medication following transplant may require admission to hospital to administer intravenous preparations.

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 (ACEI) or angiotensin receptor blockers (ARB) 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.

- **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.

- **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.

- **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 solution as the bioavailability of the pill may be affected.

Other regular medications 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.