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**Type:**        **Guideline**

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**Name:**        **Constipation guideline for community and hospitalised adults.**

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**Purpose:**

To provide up to date, best practice guidance in the prevention and management of constipation for community and inpatient adults at Capital & Coast District Health Board (CCDHB).

**Scope:**

- **Includes:** All CCDHB nursing, midwifery, medical, physiotherapy and community staff including casual, agency and temporary employees and access holders/independent contractors.
  
- **Excludes:**
  - Constipation in children
  - Constipation in the Intensive Care Unit (ICU)
  - Constipation post bariatric surgery
  - Constipation post acute spinal cord injury ([see relevant protocol](#))
  - Differentiating subtypes of primary (idiopathic) constipation
  - Managing slow transit constipation and defecation disorders
  - Bowel preparation prior to endoscopy or abdominal surgery
  - Clozapine induced constipation ([see relevant protocol](#))
  - Prosecretory (Secretagogues) and Serotonergic laxatives

**Definition:**

Constipation has variable definitions for both patients and clinicians. It may refer to a subjective complaint or an objective observation including:

- Symptoms - feeling full, feeling bloated or abdominal cramps.
- Disruption of habit - less than normal stool amount or frequency.
- Altered consistency - lumpy, hard or dry stools.
- Difficulties with defecation - straining, painful or incomplete evacuation.
- Needing laxatives or suppositories.
- Needing manual manoeuvres - digital evacuation or pelvic floor support.

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## Normal bowel habit

There isn't a perfect definition for normal bowel habit, as each individual is different. Contrary to popular belief, only about 32% of women and 39% of men have one bowel motion a day. The majority of people (>90%) range between three bowel motions a day to three bowel motions a week. (1-3)

## Prevalence of constipation

Prevalence is hard to measure due to the lack of a universally accepted definition. Most studies report an average of 15% of community dwelling adults suffer from Chronic Idiopathic Constipation (CIC). (4-9) There are higher rates among older adults, women and individuals with little daily activity or low socioeconomic and educational status. The following table shows constipation rates amongst specific groups, noting that different definitions were used in different studies.

High risk groups:	% Constipated
Opioid use for cancer related pain (10)	51-87%
Living in a rest home (11)	55-83%
ICU stay (12)	20-83%
Multiple Sclerosis (13, 14)	70%
Hospitalisation, especially if using laxatives prior to admission (15, 16)	38-61%
-Prevalence upon admission to a medical ward (17)	39%
-Incidence during first three days on a medical ward (17)	43%
Parkinson's disease (18)	61%
Opioid use for non-cancer related pain (10)	41-57%
Older adults (over 60) (9, 19)	24-50%
Hemiplegia (20)	30%
Terminally ill patients (upon admission to hospice) (21)	45%
Pregnancy (22, 23)	11-44%
-1 <sup>st</sup> trimester	24%
-2 <sup>nd</sup> trimester	26%
-3 <sup>rd</sup> trimester	16%

-3 months postpartum	24%
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## Impact of constipation

Only a minority of patients seek medical advice for constipation, yet it is one of the five most common diagnoses made at gastroenterology outpatient clinics. It accounts for an enormous healthcare expenditure due to consultations, investigations, treatment, time off work and negative effects on physical and mental wellbeing. (24, 25) For instance, in England during the year 2017, £162 million was spent on constipation-related hospitalisations and prescribed laxatives alone. (26)

## Types of constipation

### Chronic Constipation (CC):

Constipation lasting more than three months.

### Secondary (organic) Constipation:

Constipation that is caused by either:

- a) medications
- b) local organic disease (e.g. colon stricture)
- c) systemic medical conditions (e.g. diabetic neuropathy)

### Primary (Idiopathic/Functional) Constipation:

Constipation without an identifiable cause despite a thorough history, physical and digital rectal examination. Those who fail to respond to empiric treatment may require physiological bowel tests (e.g. colon transit studies, anorectal manometry and balloon expulsion test) to differentiate from the following sub-types:

#### a) Normal-transit constipation (NTC):

Account for 68% of cases and is usually related to lifestyle or psychological factors. (27)

#### b) Slow-transit constipation (STC):

Account for 4% of cases and is caused by delayed stool passage through the proximal colon. (27) Patients often have low stool frequency and a lack of response increased fibre intake. (28)

#### c) Defecatory disorders (DD):

Accounts for 28% of cases and is characterised by difficulties expelling stool due to impaired relaxation and/or coordination of abdominal, recto-anal and pelvic floor muscles. (27) Suppositories and biofeedback (pelvic floor retraining) achieve better results in this

group. (9, 29)

The ROME IV criteria are helpful in diagnosing 'Functional' constipation in patients with a long history of constipation but no obvious pathology or red flags (online [MDCalc](#) calculator). (30, 31)

## **Factors associated with constipation**

**Life style:** dehydration, inadequate fibre intake, immobility, the lack of privacy and ignoring the urge to pass stool.

**Medical conditions:** diabetes, Parkinson's disease, spinal cord injury, multiple sclerosis, hypothyroidism, hypercalcaemia and anorexia nervosa.

**Medications:** numerous medications are associated with constipation. The most common medications are: opioids, Ondansetron, oral iron, anti-depressants, anti-psychotics (especially [Clozapine](#)), anti-spasmodics, anti-cholinergics and anti-histamines.

## **Symptoms**

### **Typical presentations:**

The most common presenting complaint is of a recent or persistent change in bowel habit. However, the majority of patients don't seek immediate medical advice. (32) This may be due to embarrassment, trialling self-prescribed medication or misconceptions about what is considered normal. For instance, hospitalised patients commonly attribute the lack of bowel movements to reduced food intake when faeces are predominantly made of water (75%) and bacterial biomass (5-10%). (33, 34)

### **Atypical presentations:**

Patients may also complain of: anorexia, nausea, belching, vomiting, bloating, abdominal pain, abdominal distention (with or without respiratory compromise), lower back pain, cramping rectal pain, pain on defecation, haemorrhoids, anal fissures, rectal bleeding, rectal prolapse, spurious diarrhoea (overflow, with or without faecal incontinence), urinary retention, syncope or cardiac ischemia.

### **Catastrophic presentations with life threatening complications:**

In severe cases, constipation may cause bowel obstruction or perforation

which may present with severe chest pain, abdominal pain, abdominal distension, abdominal mass, sepsis or shock.

## **Roles and responsibilities**

Staff should be vigilant about constipation especially in [high risk groups](#).

### **Nurses:**

- Assess current and baseline bowel function in hospitalised and community patients.
- For inpatients, document bowel care plans as per the Patient Admission to Discharge Plan (**PADP**) and document bowel habits in the Bowel Management Chart ([appendix I](#)) in conjunction with the Bristol Stool Scale to identify stool type ([appendix II](#)).
- Administer regular and as needed (PRN) natural supplements, laxatives, suppositories and enemas as prescribed.
- Document and assess response to laxatives.
- If the prescribed laxatives aren't successful, discuss using a higher dose or additional agents with the patient and medical team.

### **Health Care Assistants (HCA):**

- Hospital HCAs do not administer laxatives, suppositories or enemas.
- Community HCAs are provided with in-service training for bowel management by clinical nurse educators. This includes healthy bowel advice and achieving competencies around administration of suppositories, enemas and performing manual removal. This is only for patients with chronic constipation and must be done under the direction and delegation of the district nurses; the process of which is audited yearly.

### **Doctors and nurse practitioners:**

- Familiarise themselves with the preferred list of fibres, laxatives, suppositories and enemas at CCDHB.
- Assess current and baseline bowel function in hospitalised and community patients.
- Prescribe patients their usual fibre supplements and laxatives on admission.c
- Prescribe regular and as needed (PRN) natural supplements, laxatives,

suppositories and enemas on the drug chart.

- Identify patients at high risk and those affected by constipation,
- Discuss the need for prophylactic and/or therapeutic interventions for constipation.
- Formulate a management plan with the patient; taking into account their current circumstances, comorbidities, preference for and past experience with various laxatives.
- Follow-up on their progress and adjust your approach accordingly.

## **Approach to constipation**

Constipation is a very common problem; bowel function should be assessed in all adults upon admission to hospital and in the community.

A thorough history, physical and digital rectal examination are needed to rule out alarm features and secondary causes of constipation. Once excluded, initiate and monitor the response to empiric therapy which may include education, non-pharmacological interventions and fibre supplements. (29, 35)

Investigations (blood tests, imaging, endoscopy and physiological studies) aren't required in the absence of alarm features.

Consider investigating and/or referring patients in the presence of:

- Alarm features.
- Suspicion for pathological or secondary causes of constipation.
- Concerns about life threatening complications or differentials.
- Failure to respond to empiric therapy or over-the-counter laxatives. (9)

Investigations are always guided by the history and examination findings. For more detail visit the [BMJ Best Practice Website](#).

### **History:**

Approach this topic in a dignified manner, using language and terms appropriate for the patient. Collateral information from carers, family and medical records are essential when caring for patients with communication difficulties due to aphasia, cognitive impairment, altered consciousness and/or limited English.

- Prompt the conversation and ask about symptoms of constipation.
- Clarify what is meant by the term 'constipation'.
- Establish the patient's most troubling symptom.
- Compare patient's current and usual bowel habits.
- Clarify the duration of symptoms (e.g. acute, chronic, since childhood).
- Note that self-reported consistency and frequency of bowel movements are unreliable compared to pictorial representations and bowel diaries. (9)
- Assess the temporal relationship with **potential causes** whilst noting that most cases are multifactorial:
  - inadequate fibre or fluid intake
  - sedentary lifestyle
  - neglecting the urge to defecate
  - pregnancy
  - past abdominal surgeries
  - medications, supplements and non-prescription drugs
  - comorbidities; local or systemic medical conditions of relevance
  - Psychosocial history: (36-38)
    - mood disorders are significantly higher among patients with functional gastrointestinal disorders
    - psychotropic medications with anti-cholinergic properties are associated with constipation
    - psychotropic medications and psychological interventions have a therapeutic role in the management of functional gastrointestinal disorders
    - anorexia nervosa, bulimia and previous sexual or physical abuse may result in severe constipation and defecatory problems

**Examination:**

1. General exam: look for systemic causes for constipation.
2. Fluid review: look for signs of dehydration.
3. Abdominal exam:
  - a. inspect for scars, distension, peristalsis, radiation marks
  - b. palpate for faeces, organomegaly, masses, uterus, bladder, lymphadenopathy
  - c. auscultate for the presence or absence of bowel sounds
  - d. percuss for ascites
4. Perform a [Digital Rectal Examination \(DRE\)](#) especially if the patient has

faecal incontinence, difficulties defecating or rectal pain:

- a. inspect for fissures, haemorrhoids, prolapse, blood
- b. gauge rectal tone
- c. assess for pain
- d. feel for hard stools, rectal loading or a hard mass

Defecation disorders may result in a paradoxical contraction of the pelvic floor and external rectal sphincter, increased anal resting tone or impaired relaxation. These are better identified by experienced clinicians. (9)

**Alarming features (red flags):** (29, 35)

- gross or occult gastrointestinal blood loss
- unexplained iron deficiency anaemia
- unintentional weight loss > 5Kg
- symptom onset in a patient over 50 years that has never been screened for colon cancer
- sudden/acute onset of new change in bowel habit or stool calibre
- family history of colon cancer or inflammatory bowel disease
- palpable abdominal mass
- symptoms of obstruction
- severe and refractory constipation despite adequate fibre intake and traditional laxatives
- if contemplating referral for surgery or to psychiatry

## [Interventions to prevent constipation](#)

For patients at risk of constipation:

- Educate them about constipation.
- Optimise non-pharmacological interventions (hydration, mobilisation, toileting abilities, dietary fibre)
- Continue their usual fibre supplements and laxatives on admission.
- Avoid and stop unnecessary constipating medications.
- Initiate prophylactic laxatives if there is a high likelihood of developing constipation e.g. when initiating opioids in patients with other risk factors or propensity for constipation.

## **Interventions to treat constipation**

At CCDHB, a wide range of supplements, laxatives, suppositories and enemas exist. These are prescribed on a daily basis in various doses and combinations to prevent and/or treat both acute and chronic constipation. Some of these agents are not recommended for constipation or for specific populations while others are often mis-prescribed resulting in either under or over treatment.

### **The constipation ladder (algorithm)**

The Constipation Ladder has been developed to provide a standardised, yet flexible, stepwise approach to constipation. It prioritises the safest and most effective agents available in New Zealand. It also clarifies the recommended doses to use in different settings.

The ladder is not designed for patients with slow transit constipation or defecatory disorders and those excluded from the scope of this guideline. It is an adjunct rather than a substitute to clinical judgement and patients' preferences.

# CCDHB Constipation Ladder

Try higher doses of the same laxative before adding another agent from a different class. Aim to reinforce non-pharmacological interventions and wean off laxatives as possible. Read the accompanying guideline for more details.

For ambulatory patients with Primary Constipation (no obvious pathology or red flags)	
Step 1: Lifestyle changes	Remain active, hydrated and increase dietary fibre intake.
Step 2: Dietary supplements	Best option: <b>Psyllium Husk</b> [Konsyl-D] <sup>S</sup> (1 Tbsp in 250ml H <sub>2</sub> O, OD then BD if tolerated) Other options: <b>Prunes</b> (6 pieces BD) <b>Kiwifruit</b> <sup>Ax</sup> (1 whole peeled BD) <b>Kiwi Crush</b> <sup>Ax</sup> (70mL in 130mL H <sub>2</sub> O BD) <b>Zyactinase</b> [Phloe] <sup>Ax</sup> (1-2 tablets OD or BD as per response)
If hospitalized, bed-bound, initiating opioids or constipated despite above:	
Step 3: Add an osmotic agent	<b>Macrogol</b> <sup>S</sup> (1 Sachet OD, BD or TDS as per response) <b>or</b> <b>Lactulose</b> <sup>S</sup> (15mL OD or BD as per response)
Step 4: Add a stimulant:	<b>Bisacodyl</b> <sup>S</sup> (10mg oral tablet or rectal suppository OD)
For severe constipation or faecal impaction	
Step 5: try one or more of the following:	<b>Macrogol</b> <sup>S</sup> (8 sachets with 1L H <sub>2</sub> O over 8 hours, repeat daily for 3 days if needed) <b>Mineral Oil Enema</b> (1 enema OD) Manual Removal of Faeces

S: Subsidised agents.

Ax: Avoid if allergic to Kiwifruit or Latex.

For opioid induced constipation: Avoid Psyllium Husk.

For pregnant and breastfeeding women: safest options are Psyllium Husk, Macrogol and Lactulose.

For moderate Chronic Kidney Disease (GFR <45): may develop fluid overload or hyperkalaemia from hydration, Psyllium Husk, Prunes, Kiwifruit, Kiwi Crush or high dose Macrogol.

## Non-pharmacological interventions

Education and the optimisation of hydration, mobility, toileting and dietary fibre are first-line interventions for the prevention and treatment of constipation.

### Education

- Assess and correct patient's perception of 'normal bowel habits' as many believe they should have at least one motion a day or none while fasted.
- Discourage reliance on and overuse of laxatives.
- Favour non-pharmacological interventions such as: <sup>(29)</sup>
  - increasing physical activity
  - increasing fluid and fibre intake
  - identifying patients' normal triggers for going to the toilet and not ignoring the urge to defecate
  - promoting regular and consistent toileting every day based on triggers

### Hydration

Dehydration is one of the commonest causes of constipation. <sup>(2)</sup> In comparison to a high-fibre diet alone, increased fluid intake (1.5-2L) *in combination with* a high-fibre diet (25g daily) significantly increases the frequency of bowel movements and significantly reduces laxative use. <sup>(39, 40)</sup> Facilitating eating and drinking by maintaining oral hygiene and good denture cares also play a role in hydration.

- Optimise hydration:
  - Ensure a variety of drinks are offered frequently.
  - Ensure fluids are in appropriate containers and within easy reach.
  - Encourage drinking fluids in divided doses throughout the day.
  - Aim for 25-30mL/Kg/day fluid intake based on ideal body weight.
  - Consider 20-25ml/Kg/day for old or frail patients. <sup>(41)</sup>
  - Beware the risk of overhydration in patients with cardiac or kidney disease.
- Maintain oral hygiene to facilitate eating and drinking via:
  - brushing teeth twice a day
  - rinsing with mouth wash once a day
  - eating healthy food
  - avoiding smoking

- monitoring for and treating infections such as candida
- Ensure good denture cares via:
  - brushing without toothpaste twice a day
  - removing dentures at night to allow gums to rest
  - soaking dentures in cool water when not worn

### Mobilisation

An increase in activity has been associated with less constipation, less bloating and better intestinal gas clearance. <sup>(9)</sup> This is particularly important in the hospital setting where ambulator patients spend around 83% of their hospital stay lying in bed. <sup>(42)</sup>

- Assess mobilisation status soon after admission as per PADP.
- Warn patients of the risks associated with immobility including constipation, deconditioning, loss of independence and longer hospital stays.
- Provide appropriate walking aids.
- Maintain effective pain management.
- Encourage ambulatory patients (who can walk independently or with one person assist) to:
  - get out of bed and into a chair for all meals
  - mobilise as soon as allowed after surgery or admission
  - mobilise at least three times a day
  - mobilise at increasing distances on the ward until discharge
- Encourage non-ambulatory patients (who require more than one person assist for ambulation/transfers, who cannot maintain weight on their legs or require any form of lift equipment) to: <sup>(43)</sup>
  - perform active range-of-motion exercises (ankle pumps, heel slides, hip abduction, quad sets, shoulder flexion)
  - perform passive range-of-motion exercises (ankle dorsiflexion, hip flexion, hip abduction, shoulder flexion)
  - complete at least three activity sessions a day
  - sit on side of bed if possible
  - get out of bed and into a chair with appropriate equipment
- Consider referring those who cannot walk to the physiotherapist to identify causative factors and provide an achievable mobilisation plan.

### Optimisation of toileting abilities

- Implement individualised toileting plans (See PADP for inpatients).
- Ensure privacy and dignity when toileting.

- Ensure patients' bed bells are within reach.
- Prompt assistance to those with urge or urge incontinence.
- Toileting should ideally be in the bathroom facilities. This can be encouraged by:
  - orienting patients to toilet location
  - ensuring clear access to toilets
  - considering raised toilet seats and hand rails for easier transfers
  - considering using a toilet stool and assume a squatting position <sup>(44)</sup>
  - assisting with washing hands at sink if needed
- Ensure the toilet or commode is at the correct height for bowel emptying.
- Those with limited mobility may need a commode or bedpan, the use of this equipment can be optimised by: <sup>(45)</sup>
  - ensuring curtains close acceptably
  - using extra pins and Do Not Disturb signs
  - using waterproof mattress protectors in case there are spills
  - bridging or rolling them onto the pan
  - supporting them to sit upright on the pan or simulate a squatting position by lying on the left-side and lifting the knees
  - covering them with a towel
  - assisting with perineal and perianal hygiene
  - providing toilet paper, disposable towels, cloths or wet pads
  - ventilating the room
  - once finished, providing wet wipes, antibacterial gel or soap, water and a warm flannel to wash their hands
- For patients with visual, verbal or cognitive impairments and falls:
  - use bright-coloured toilet seats
  - use a picture of the toilet to communicate or as a reminder
  - consider toilet seat lights or keep the toilet lights on at night
- For those with painful defecation, consider local or systemic analgesia.

### Increasing dietary fibre

Fibre regulates and bulks the stool making it softer and easier to pass. Insoluble fibre irritates the gut, stimulating water and mucous secretion. Soluble fibre absorbs and holds water, which provides bulk and softness to the stool. Soluble fibre also reduces the risk of diabetes, coronary and cerebrovascular disease by slowing the absorption of sugars and reducing cholesterol levels. <sup>(46)</sup>

The recommended daily intake of fibre is 20 to 35 grams a day but most

people only have around a third of this. <sup>(47, 48)</sup> Fibre is only present in plant foods such as beans, grains, nuts, seeds, vegetables, and fruits. Fibre rich whole foods typically contain both types of fibre. The more processed or refined foods are, the less fibre they contain.

Offer fibre in acceptable forms:

- **Cereals/grains:** whole wheat bread or pasta, barely, wholegrain crackers, bran, brown rice, muesli and porridge
- **Legumes:** baked beans, peas, split peas, lentils, chickpeas, hummus, kidney beans
- **Fruits:** prunes, pears, kiwifruit, apple, oranges
- **Nuts:** almond, hazelnuts, walnuts
- **Seeds:** sunflower, sesame, pumpkin, chia, flaxseed
- **Vegetables:**
  - raw lettuce, tomato or carrots
  - cooked broccoli, Brussels sprouts, potato or kumara

Aim for at least 3 servings of vegetables and at least 2 servings of fruit per day. A serve is a portion equivalent in size to the patient's own fist. Where possible, leave edible skins on fruit, as the skin contains much of the fibre. For instance, a cup of apple juice has only 0.5 grams of fibre whereas a whole apple with skin has 4.5 grams.

Fibre should be increased slowly and with plenty of water to prevent abdominal discomfort. Warn your patient; it may take up to 4 weeks before the full effects are evident.

### Supplements

These natural products have proven laxative effects. The main ones are Psyllium, Prunes, Kiwifruit and Kiwifruit related products.

#### Psyllium husk (Konsyl-D)

Psyllium is made of the husks of seeds of the *Plantago ovata* plant. It has soluble fibre with high water-holding capacity which prevent stool dehydration. It has proven laxative effects compared to other fibre supplements such as bran, calcium polycarbophil and methylcellulose where evidence is inconsistent. <sup>(25)</sup>

Konsyl-D is the preferred brand of Psyllium; it is fully funded and is

artificially sweetened. Without a prescription, the cheapest Psyllium supplements to purchase from the supermarket are the Macro and Ceres brands.

<i>Psyllium husk (Konsyl-D)</i>	
Dose:	One tablespoon (10g) in a cup (250mL) of cold liquid, OD or BD.
Cost per 10g:	\$0.121 (fully subsidised)
Side effects:	Flatulence and abdominal distension which usually improve after several days.
Contraindications:	Avoid in dysphagia, bowel obstruction, faecal impaction, palliative or bed-ridden patients and if unable to consume the required amount of water.
Advantages:	<ul style="list-style-type: none"> <li>• Better than placebo at improving stool frequency, consistency, straining and sense of incomplete evacuation in chronic constipation. (25, 34, 49)</li> <li>• Improves stool form and reduces symptoms in chronic diarrhoea and IBS. (34, 50)</li> <li>• Proven and clinically meaningful effects on cholesterol levels and glycaemic control. (34)</li> </ul>
Notes:	<ul style="list-style-type: none"> <li>• Considered first line therapy for chronic constipation especially in the outpatient setting due to effectiveness, low cost and safety profile. (9)</li> <li>• Start with 1 tablespoon once a day for 7-10 days then increase to twice a day to reduce bloating.</li> <li>• Drink soon after mixing with cold liquid to prevent unwanted thickening.</li> <li>• Take early in the day, e.g. morning and noon, to allow enough time to consume fluid without inducing nocturia.</li> <li>• Inform patients bloating improves after several days.</li> <li>• Inform patients not to expect immediate results but trial for several weeks.</li> <li>• Recommended fluid intake while on Psyllium ~8 glasses/day.</li> <li>• Equates to ~80 Calories (4 Calories/gram).</li> <li>• Often ineffective for slow-transit constipation, defecation disorders and drug-induced constipation. (28)</li> </ul>

### Prunes (Dried plum)

Prunes are recommended for mild to moderate chronic constipation. Their laxative effects are likely caused by fibre, sorbitol and polyphenol.

<i>Prunes (dried plum)</i>	
Dose:	50g (~6 prunes or 3g of fibre), BD
Cost per serve:	\$0.52 (not subsidised).
Advantages:	<ul style="list-style-type: none"> <li>• More effective than Psyllium at increasing stool frequency and consistency with equal palatability. (51)</li> </ul>
Notes:	<ul style="list-style-type: none"> <li>• Equates to ~150 Calories/day.</li> <li>• Not validated in severe, acute or secondary constipation.</li> <li>• Not validated in hospitalised or immobile adults.</li> </ul>

	<ul style="list-style-type: none"> <li>Available for inpatients through dietitians</li> </ul>
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### Green and Golden Kiwifruits

These seasonal fruits have short shelf-life but unique and proven laxative effects in ambulatory adults. This is due to good fibre content (3.4g fibre/100g fruit), favourable effects on gut micro-flora and the naturally present enzyme Actinidine which aids in digestion. <sup>(52)</sup>

It should be noted that Kiwifruit is the most common cause of fruit-related allergic reactions and one of the commonest food-allergies world-wide. <sup>(53)</sup> Reactions can be mild (oral tingling, oral burning and skin rash) or life-threatening (swelling, respiratory failure and anaphylaxis) and are more common among individuals with atopy and those allergic to other-foods or pollen. Kiwifruit and related products should be avoided if allergy is suspected.

<i>Green and Golden Kiwifruits</i>	
Dose:	One ripe Green Kiwifruit BD or Three Gold-fleshed Kiwifruits OD
Cost per Kiwifruit:	~\$0.2 green Kiwifruit (not subsidised) ~\$0.44 gold Kiwifruit (not subsidised)
Side effects:	Flatulence Allergic reactions ranging from mild to severe.
Contraindications:	Hyperkalaemia. Allergy to Kiwifruit or latex. <sup>(54)</sup> Caution in patients with food allergies or allergy to pollen. Caution in patients at risk of hyperkalaemia e.g. if taking potassium-sparing diuretics or ACE-Inhibitors or stage 4-5 Chronic Kidney Disease.
Advantages:	<ul style="list-style-type: none"> <li>Validated in ambulatory adults with either normal bowel habits, chronic functional constipation or irritable bowel syndrome with constipation (IBS/C).</li> <li>Significantly improves stool frequency, volume and consistency. <sup>(55)</sup></li> <li>Significantly improved frequency of complete spontaneous bowel motions, satisfaction with bowel habit, total colonic transit time, anorectal physiology and significantly reduced bothersomeness of constipation and laxative use. <sup>(56)</sup></li> <li>High dose (360g/day) better than Psyllium at improving the rate of complete spontaneous bowel motions and reducing gastrointestinal discomfort in adults with functional constipation and IBS with predominant constipation. <sup>(57)</sup></li> <li>Provides vitamins.</li> </ul>

Notes	<ul style="list-style-type: none"> <li>• Kiwifruit allergy is not uncommon.</li> <li>• Recommend avoiding in atopic patients especially those allergic to pollen, latex or other foods.</li> <li>• Seasonal fruit, not available year round.</li> <li>• Provides calories (~55 Calories/fruit)</li> <li>• Significant increase in bowel frequency may take about three weeks.</li> <li>• Not validated in severe, acute or secondary constipation.</li> <li>• Not validated in hospitalised or immobile adults.</li> </ul>
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### Kiwi Crush

These are a range of Kiwifruit based drinks prepared in a way which intends to preserve the natural and functional ingredients in Kiwifruit.

<i>Kiwi Crush</i>	
Doses used in trials:	70mL Kiwi Crush with 130mL water PO BD  Various flavouring ingredients are used in different products including pineapple, mango, passionfruit, apple, berries and/or spirulina.
Cost per dose:	\$0.8 (\$8.03/2L bottle)
Side effects:	Same as Kiwifruit (See above table).
Contraindications:	
Advantages:	<ul style="list-style-type: none"> <li>• Addresses the seasonal availability problem of Kiwifruit</li> <li>• Palatable</li> <li>• Provides calories (71 Calories/serve)</li> <li>• Provides hydration (200mL/serve)</li> <li>• Provides vitamins.</li> </ul>
Notes	<ul style="list-style-type: none"> <li>• There are no published trials assessing whether Kiwi Crush retains Kiwifruit’s laxative effects or not. Noting that Kiwifruit was not validated in hospitalised or immobile patients and those with severe, acute or secondary constipation.</li> <li>• Avoid if allergic to Kiwifruit or other ingredients such as pineapple.</li> <li>• Recommend avoiding in atopic patients especially those allergic to pollen, latex or other foods.</li> <li>• Kiwi Crush is supplied by the hospital kitchen, it should be refrigerated upon opening and should be discarded after three days once opened.</li> <li>• There may be considerable wastage as 2L bottles of Kiwi Crush are discarded after three days once opened.</li> </ul>

### Zyactinase (Phloe)

Zyactinase is a patented, dried extract from green Kiwifruit marketed as Phloe capsules. Phloe capsules contain a combination of fibre, prebiotic material and enzymes. One of these enzymes, Actinidin, is a major allergen in Kiwifruit which stimulates gut motility and aids in protein digestion (53, 58).

<i>Zyactinase (Phloe)</i>	
Dose:	1-2 capsules before food, OD. If required may increase to 2 capsules, BD. Each capsule contains 575mg Zyactinase, Isomalt, Magnesium Stearate and Silicon Dioxide.
Cost per capsule:	~\$0.2-0.5 (not subsidised)
Mean time to 1 <sup>st</sup> bowel motion:	Significant increase in stool frequency evident within 24 hours of therapy (58).
Side effects:	Allergic reactions ranging from mild oral tingling to swelling, rash, respiratory failure and anaphylaxis.
Contraindications:	Allergy to Kiwifruit or latex. Caution in patients with food allergies or allergy to pollen.
Advantages:	<ul style="list-style-type: none"> <li>• Validated in ambulatory adults with either normal bowel habits, occasional constipation, functional constipation or IBS/C.</li> <li>• Significantly better than placebo at improving stool frequency, consistency and symptoms of IBS (bloating, tenesmus, flatulence and abdominal pain). (58, 59)</li> <li>• Effects experienced as early as 24 hours post consumption. (58, 59)</li> <li>• Contrary to other laxatives, Zyactinase reduced flatulence, abdominal pain, urgency and didn't cause diarrhoea. (58, 59)</li> </ul>
Notes:	<ul style="list-style-type: none"> <li>• Expensive and not subsidised.</li> <li>• Avoid if allergic to Kiwifruit.</li> <li>• Recommend avoiding in atopic patients especially those allergic to pollen, latex or other foods.</li> <li>• Not validated in severe, acute or secondary constipation.</li> <li>• Not validated in hospitalised or immobile adults.</li> </ul>

### Oral laxatives

Laxatives are generally recommended as a temporary measure while introducing and optimising non-pharmacological interventions with or without fibre-supplements. However, long-term use may be required in severe or secondary constipation. The main laxatives are the osmotics (Lactulose and Macrogol), stimulants (Bisacodyl, Glycerine, Senna) and the stool softeners (Docusate). Osmotic laxatives are preferable over other agents due to their safety profile, affordability and long-term efficacy in various settings. (60) Stimulants can be added as short term rescue agents.

(9)

### Macrogol (Poly Ethylene Glycol)

A synthetic, non-absorbable and non-metabolized macromolecule. Works as an osmotic agent which retains water in the stool thus softening it and increasing the frequency of bowel movements. Both Macrogol with or without electrolytes appear to be as effective, safe and tolerated for

constipation. (61)

<i>Macrogol (Molaxole)</i>	
Dose:	Constipation: One sachet in 125mL of water, OD, BD or TDS as per response. Faecal impaction: 8 sachets/day, repeated over three days if needed, given as: <ul style="list-style-type: none"> <li>• 2 sachets in 250mL of water every 1-2 hours or</li> <li>• 8 sachets in 1L of water consumed over 8 hours</li> </ul> Each sachet contains macrogol-3350 (13.12 g), sodium chloride (350.7mg), potassium chloride (46.6 mg) (quiv. 0.63 mmol potassium) and sodium bicarbonate (178.5mg).
Cost per sachet:	\$0.234 (fully subsidised)
Side effects:	Abdominal pain, diarrhoea, flatulence, nausea.
Contraindications	Avoid excessive use (>2 sachet/hour) in those with renal and cardiac dysfunction. (62)
Advantages:	<ul style="list-style-type: none"> <li>• More effective than placebo at increasing stool consistency, frequency and subjective measures without adverse events in short or long term studies. (31)</li> <li>• Accelerates colon transit time. (63)</li> <li>• More effective than Psyllium at improving stool frequency with similar tolerability. (31)</li> <li>• More effective than Lactulose at improving stool consistency, frequency and abdominal pain with better tolerability. (31)</li> <li>• Cost effective due to superior clinical effectiveness. (64, 65)</li> <li>• Effective and well tolerated in young and older adults and for up to 12 months of therapy. (66)</li> <li>• Effective and well tolerated in severely intellectually disabled long-term mental institution residents for up to 24 months of therapy. (65)</li> <li>• Effective</li> <li>• High dose (8 sachets/day repeated up to 3 days) very effective at treating severe constipation and faecal impaction in 89% of patients. (67)</li> <li>• More effective than Docusate with Senna in the prevention and treatment of post-operative constipation following elective knee and hip replacements. (68)</li> </ul>
Notes	<ul style="list-style-type: none"> <li>• Can be diluted and administered via nasogastric tube.</li> <li>• Use immediately after mixing with water</li> <li>• Prepared mixtures should be covered and stored in fridge (2-8 °C)</li> <li>• Discard made up mixture after 24 hours.</li> <li>• For ambulatory patients, start with one sachet a day and increase to two or three sachets a day if required. (69)</li> <li>• Currently available for general sale without a prescription or special authority.</li> <li>• Extremely frail patients may find it challenging to drink the whole dose.</li> </ul>

### Lactulose

A synthetic, poorly absorbable disaccharide made of galactose and fructose. Its osmotic and faecal acidifying effects stimulate colonic peristalsis. It has almost no effects beyond the lumen of the bowels (70).

<i>Lactulose</i>	
Dose for constipation:	Recommended: 15 mL OD or BD. Maximum: 60mL, OD or in divided doses.

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	Strength: 10g/15mL.
Cost per 15mL:	\$0.09 (fully subsidised).
Mean time to 1 <sup>st</sup> bowel motion:	10-24h according to administered dose. (71)
Side effects:	<ul style="list-style-type: none"> <li>• Belching, abdominal cramps, abdominal distention, nausea, vomiting and increased flatus due to bacterial fermentation. These side effects resolve within a few days either spontaneously or after reducing or ceasing the drug. (63, 70, 71) They are more common with higher doses affecting about 6% and 10% of subjects receiving ~40mL and ~60mL per day respectively. (71)</li> <li>• Dehydration, hyponatremia or hypokalaemia with prolonged use especially in frail elderly.</li> </ul>
Contraindications:	<ul style="list-style-type: none"> <li>• Avoid if Galactose intolerant (i.e. Galactosaemia; a metabolic condition screened for in neonates in New Zealand).</li> </ul>
Advantages:	<ul style="list-style-type: none"> <li>• Shorter time to first bowel motion, higher number of bowel motions/week, higher number of satisfactory bowel movements, better stool consistency. (39, 71)</li> <li>• Accelerates colon transit time. (63)</li> <li>• Significantly reduces faecal impaction among rest home residents. (72)</li> </ul>
Notes	<ul style="list-style-type: none"> <li>• Can be diluted and administered via nasogastric tube.</li> <li>• Preferred option for patients with hepatic encephalopathy.</li> <li>• Mitigate sweet taste by mixing with water, milk or fruit juice.</li> <li>• Effective at preventing faecal impaction</li> <li>• GI side effects are comparable to Macrogol except for significant increase in flatus. (69)</li> </ul>

### Bisacodyl (dulcolax) tablets

Bisacodyl reaches the colon intact and is very poorly absorbed there. Its effects on colonic mucosa, smooth muscles and myenteric plexus results in increased fluid content, peristalsis and emptying. (25)

<i>Oral Bisacodyl tablets</i>	
Dose:	5mg-10mg PO, NOCTE.
Cost per 5mg tablet:	\$ 0.03 (fully subsidised).
Mean time to 1 <sup>st</sup> bowel motion:	6-12 Hours.
Side effects:	Abdominal pain, diarrhoea, nausea, vomiting, syncope, dizziness and reports of colitis.
Contraindications:	<ul style="list-style-type: none"> <li>• Ileus</li> <li>• Bowel obstruction</li> <li>• Acute surgical abdominal conditions like appendicitis</li> <li>• Acute inflammatory bowel diseases</li> <li>• Severe dehydration</li> <li>• Prolonged or excessive use may lead to dehydration and electrolyte loss</li> </ul>

	including hypokalaemia.
Advantages:	<ul style="list-style-type: none"> <li>Validated in acute and chronic constipation and for up to 4 weeks of therapy. (73, 74)</li> <li>Increases frequency of complete spontaneous bowel movements, and improves constipation-related symptoms and disease-related quality of life. (75)</li> <li>Appears to be the most superior laxative at increasing the number of spontaneous bowel motions in chronic constipation. (76)</li> </ul>
Notes	<ul style="list-style-type: none"> <li>Recommended as rescue therapy if bowels haven't moved for 2-4 days. (9, 56)</li> <li>Beware Bisacodyl 10mg PO OD was commonly associated with diarrhoea when used as a single agent. (75)</li> <li>Beware high dose Bisacodyl (10mg OD) used as a single agent was associated with high rates of diarrhoea (53%) and abdominal pain (25%), although these appeared to be well tolerated by patients and largely resolved with dose reductions. (31, 75)</li> </ul>

### Docusate (Coloxyl) and Docusate with Senna (Laxsol)

Docusate should no longer be prescribed; the initial trials supporting its use were of poor quality and the latest studies proved its ineffectiveness. (25, 29, 31, 77-80)

Senna should also not be prescribed for several reasons. Firstly, it is only funded in combination with Docusate in New Zealand. Secondly, an alternative stimulant laxative, Bisacodyl, costs the same as Laxsol and has superior evidence and efficacy. (25, 60, 75) Finally, 73-95% of patients on Senna develop Melanosis Coli (brown to black discolouration of the colon) within 4 months of regular use. This can result in unnecessary referrals and investigations or mask precancerous colonic lesions during endoscopy. (25, 81, 82)

### Suppositories

These are solid preparations in roughly conical or cylindrical shapes, designed to be inserted into the rectum or stoma to dissolve. It is recommended to give these 30 minutes after breakfast to synchronise the drug effect with the gastro-colonic reflex. (9)

**Indications:** suppositories are indicated for severe constipation when oral laxatives fail. They are recommended, and often necessary, in defecation disorders and neurogenic constipation. Their predictable time of onset is advantageous. In spinal cord injury, suppositories significantly reduce time spent on bowel care in dependent and independent patients. (83)

**For patients with colostomy:** Contact stoma nurse before inserting a suppository into colostomy. Due to sphincter absence, suppositories should be held in place using the gloved finger until dissolved, this may take 5 minutes.

**For patients with ileostomy:** never administer suppositories into an ileostomy as this can cause severe dehydration.

### Bisacodyl (dulcolax) suppositories

Bisacodyl is very poorly absorbed in the colon. It stimulates peristaltic colonic contractions and emptying. (84-86) It also has secretory effects, increasing water content in the colon. (87)

<i>Rectal Bisacodyl suppositories</i>	
Dose:	10mg PR OD (Preferably 30 minutes after breakfast).
Cost per 10mg:	\$3.74 (10mg dose is fully subsidised; 5mg dose is not subsidised).
Mean time to 1 <sup>st</sup> bowel motion:	15-60 minutes.
Side effects:	Abdominal pain and urge Local irritation in the presence of anal fissures or ulcerative proctitis.
Contraindications:	Ileus Bowel obstruction Acute surgical abdominal conditions (e.g. appendicitis) Acute inflammatory bowel diseases Severe dehydration.
Advantages:	<ul style="list-style-type: none"> <li>• Recommended and used as rescue therapy when oral therapy fails. (51, 57, 59)</li> <li>• Well tolerated and more effective than placebo at producing bowel motions and avoiding enemas in bedridden older adults. (88)</li> <li>• Reduces bowel care time in patients with spinal cord injuries. (89)</li> <li>• Twice as effective as Glycerine suppositories at treating constipation. (90)</li> </ul>
Notes	<ul style="list-style-type: none"> <li>• Bisacodyl 5mg suppositories aren't funded.</li> <li>• The suppository may be wet with warm water to ease insertion.</li> <li>• Remain in position for 15-20 minutes following insertion until a strong urge to defecate is sensed.</li> </ul>

### Glycerol (Glycerin) suppositories

Glycerol is a poorly absorbed hyperosmotic irritant agent. Rectal administration triggers a recto-colonic excitatory reflex and an urge to defecate. (91)

<i>Glycerol suppositories</i>	
Dose:	3.6g suppository OD.
Cost per day:	\$0.478 (fully subsidised).

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Mean time to 1 <sup>st</sup> bowel motion:	15-60 minutes.
Side effects:	Abdominal cramp Rectal discomfort or irritation Prolonged use may precipitate slow transit constipation.
Contraindications:	Bowel obstruction.
Advantages:	<ul style="list-style-type: none"> <li>• Triggers recto-colonic excitatory reflex and urge to defecate. (91)</li> </ul>
Notes	<ul style="list-style-type: none"> <li>• Scarce evidence of effectiveness in adults particularly in chronic idiopathic constipation. (39)</li> <li>• The suppository may be wet with warm water to ease insertion.</li> <li>• Remain in position for 15-20 minutes following insertion until a strong urge to defecate is sensed</li> </ul>

### Enemas

Enema refers to the administration of liquid preparations through the anus into the rectum for various reasons including the treatment of constipation.

**Fleet enemas:** avoid the term ‘Fleet’ as it refers to a company that produces a range of suppositories and enemas.

### Sodium acetate enemas (MICROLAX® or MICOLETTE®)

There is very little evidence supporting their use. Their effects are most likely caused by sorbitol and glycerine.

<i>MICROLAX® or MICOLETTE® enemas</i>	
Dose:	One enema OD Each enema contains: sorbitol 3.125 g/5 mL, citrate sodium dihydrate 450 mg/5 mL, lauryl sulfoacetate sodium 45 mg/5 mL, Glycerine and carbopol.
Cost per dose:	\$0.5342 (fully subsidised).
Mean time to 1 <sup>st</sup> bowel motion:	5-10 minutes.
Side effects:	Abdominal cramps.
Contraindications:	<ul style="list-style-type: none"> <li>• Acute gastro-intestinal conditions.</li> </ul>
Advantages:	<ul style="list-style-type: none"> <li>• Triggers recto-colonic excitatory reflex and urge to defecate. (91)</li> </ul>
Notes	<ul style="list-style-type: none"> <li>• Scarce evidence of effectiveness in adults particularly in chronic idiopathic constipation. (39)</li> <li>• The nozzle provides an alternative method of administering medications without the need for digital insertion.</li> <li>• The nozzle may cause mucosal injury.</li> <li>• <a href="#">Video explaining how to administer Microlax</a></li> </ul>

### Mineral Oil enema

A lubricant laxative which prevents water absorption from faecal material.

<i>Mineral Oil enemas</i>	
Dose:	One enema OD Contents: 118mL of 100% Paraffin.
Cost per dose:	\$6.35 (Not subsidised)
Mean time to 1 <sup>st</sup> bowel motion:	2-15 minutes.
Side effects:	<ul style="list-style-type: none"> <li>• Anal seepage and irritation</li> <li>• Rectal reflex impairment</li> <li>• Infection/impaired healing of anorectal lesions.</li> </ul>
Contraindications:	<ul style="list-style-type: none"> <li>• Allergy</li> <li>• Acute gastro-intestinal conditions</li> <li>• Inflammatory bowel disease</li> <li>• Ileostomy or colostomy.</li> </ul>
Advantages:	<ul style="list-style-type: none"> <li>• Reduces total and left-sided colonic transit time. <sup>(92)</sup></li> </ul>
Notes	<ul style="list-style-type: none"> <li>• Experts recommend considering it as an initial step to soften stool in faecal impaction. <sup>(19)</sup></li> <li>• <a href="#">Pamphlet on how to administer Mineral oil enema</a></li> </ul>

### Sodium Phosphate enema

An osmotic enema which increases the water content of stool thus stimulating colonic and rectal motility.

Phosphate enemas shouldn't be used for constipation according to the American Gastroenterological Association. <sup>(93)</sup> The FDA has issued a safety warning for Phosphate enemas following reported side effects and deaths. <sup>(94)</sup> There are multiple conditions and medications contradicting its administration and safer alternatives exist. Their use for non-constipation related indications, such as bowel preparation prior to endoscopy or surgery, is beyond the scope of the current guideline.

<i>Sodium Phosphate enema</i>	
Dose:	One enema OD Contains: dibasic sodium phosphate 7g and monobasic sodium phosphate 19g.
Cost per dose:	\$2.50 (fully subsidised).
Mean time to 1 <sup>st</sup> bowel motion:	1-5 minutes.
Side effects (94, 95):	<ul style="list-style-type: none"> <li>• Nausea, vomiting, abdominal pain, abdominal distension</li> <li>• Local irritation</li> </ul>

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	<ul style="list-style-type: none"> <li>• Electrolyte derangement (hyperphosphatemia, hypocalcaemia, hypernatremia, hypokalaemia and metabolic acidosis)</li> <li>• Acute phosphate nephropathy (&lt;1:1000) (93)</li> <li>• Dehydration</li> <li>• Death with higher than recommended dose.</li> </ul>
Contraindications:	<ul style="list-style-type: none"> <li>• Allergy</li> <li>• Dehydration</li> <li>• Heart disease</li> <li>• Kidney disease</li> <li>• Older age (&gt;55 years)</li> <li>• Taking nephrotoxic drugs e.g. NSAIDs, ARBs and ACE-Is and diuretics</li> <li>• Conditions associated with decreased intestinal motility</li> <li>• Conditions associated with increased colonic absorption</li> <li>• Acute gastro-intestinal conditions</li> <li>• Inflammatory bowel disease</li> <li>• Bowel obstruction</li> <li>• Delayed bowel emptying.</li> </ul>
Advantages:	<ul style="list-style-type: none"> <li>• Effective for bowel preparation prior to sigmoidoscopy. (96, 97)</li> </ul>
Notes	<ul style="list-style-type: none"> <li>• Not recommended for the treatment of constipation for several reasons: (93, 94, 98) <ul style="list-style-type: none"> <li>○ multiple contraindications</li> <li>○ potential for serious complications</li> <li>○ safer alternatives exist</li> </ul> </li> <li>• Never administer more than one enema/day.</li> <li>• Never use for more than three consecutive days</li> <li>• Inform patients of possible risks</li> <li>• <a href="#">Pamphlet on how to administer enema</a></li> </ul>

### Opioid receptor-antagonists

Peripherally acting mu-opioid receptor antagonists (PAMORAs) are reserved for patients with opioid-induced constipation (OIC) that is resistant to other laxatives.

### Methylnaltrexone bromide (MTNX)

Methylnaltrexone is the only PAMORA which is fully subsidised in New Zealand for OIC in the palliative setting.

<i>Methylnaltrexone bromide subcutaneous injection</i>	
Dose:	Subcutaneous alternate day dosing based on weight and renal function. See <a href="#">NZ formulary for details about dosing and administration</a>
Cost per 12mg vial:	\$39.74 (fully subsidised with special authority).
Side effects:	<ul style="list-style-type: none"> <li>• Abdominal pain, diarrhoea, nausea, vomiting, flatulence</li> <li>• Dizziness</li> <li>• Mild to moderate opioid withdrawal symptoms</li> </ul>

	<ul style="list-style-type: none"> <li>• Injection site reactions</li> <li>• Reports of gastrointestinal perforation and hyperhidrosis.</li> </ul>
Contraindications:	<ul style="list-style-type: none"> <li>• Acute surgical abdomen</li> <li>• Bowel obstruction</li> <li>• Post-operative ileus</li> <li>• Caution in known or suspected intestinal wall lesions due to risk of perforation.</li> </ul>
Advantages:	<ul style="list-style-type: none"> <li>• Better than placebo and traditional laxatives for OIC in palliative setting. <sup>(99)</sup></li> <li>• Better than other PAMORAs for OIC. <sup>(100)</sup></li> </ul>
Notes	<ul style="list-style-type: none"> <li>• Doesn't cross the brain-blood barrier thus doesn't affect central nervous system.</li> <li>• Limited data in pregnancy.</li> <li>• Special authority criteria:             <ol style="list-style-type: none"> <li>1) The patient is receiving palliative care</li> <li>2) Oral and rectal laxatives are either ineffective or intolerable.</li> </ol> </li> </ul>

### Manual removal of faeces (MRF)

MRF involves inserting a finger into the rectum to remove impacted faeces. For patients with neurogenic constipation, it is performed as a primary procedure, at routinely scheduled intervals and shouldn't be interrupted. It is also performed as an acute intervention for severe constipation when other interventions have failed ([section on how to perform a MRF](#)).

### Surgery

A subset of patients with severe and medically-refractory constipation may benefit from surgery.

## Complications of constipation & faecal impaction

Constipation may cause haemorrhoids, fissures, faecal impaction and rectal prolapse.

### **Faecal impaction:**

Faecal impaction refers to the presence of copious amounts or hard stool within the large bowel, which cannot be evacuated by regular peristaltic movements. Prolonged retention of hard stool can cause increased mucous secretion and overflow incontinence. It can decrease mucosal perfusion leading to colitis, ulceration and perforation. It can also compress nearby structures resulting in urinary retention. It is most commonly seen in older, immobile and institutionalised adults especially those receiving opioids. A digital rectal exam can confirm faecal impaction but it cannot rule

it out as faeces may be higher up in the colon thus necessitating an abdominal X-ray or CT scan to diagnose. Faecal impaction at the rectum can be treated with Mineral oil enema to soften the stool and/or manual removal of faeces ([MRE](#)). <sup>(19)</sup> Higher levels of impaction may require high dose Macrogol therapy unless contraindicated. Faecal impaction is largely preventable through the use of effective laxatives such as lactulose. <sup>(72)</sup>

## **Monitoring progress**

Patient-reported consistency and frequency of bowel movements are unreliable compared to the use of pictorial representations and bowel diaries. <sup>(9)</sup> If required, encourage patients and carers to monitor bowel habit using paper diaries ([Continence.org.au](#)) or mobile-apps (e.g. PoopTrack and PoopLog).

In hospital, nurses must document inpatient laxative use and effectiveness in patients' clinical records.

## **Discharging patients with constipation**

Inform your patient of relevant risk factors for constipation and how to address these through life-style interventions, fibre supplements and/or pharmacological agents. Provide them with educational material about constipation and specific instructions on how to take their laxatives and for how long.

## **Differential Diagnoses**

### **Irritable bowel syndrome (IBS)**

IBS is one of the most common diagnoses made by gastroenterologists. It should be considered when altered bowel habits are associated with recurrent abdominal pain in the absence of detectable structural or biochemical causes. Consider the ROME IV diagnostic criteria for IBS ([online MDCalc calculator](#)).

### **Mechanical bowel obstruction**

Mechanical bowel obstruction should be considered in the presence of nausea, bilious/faecal vomiting, colicky abdominal pain, borborygmi, abdominal distension, or distended bowel loops on X-ray. Risk factors for

obstruction include previous obstruction, adhesions from previous abdominal surgery, cancer, diverticulosis, inflammatory bowel disease and hernias. An abdominal CT with oral contrast is required to confirm obstruction, search for a cause and to exclude complications such as perforation and ischaemia. Obstruction usually warrants an urgent surgical consultation.

### Ileus

Ileus refers to hypo-motility of the small and large intestines without mechanical obstruction. Possible presentations include nausea, vomiting, anorexia, vague abdominal pain, bloating, distension and reduced or absent flatus and bowel movements. Unlike bowel obstruction, ileus is commonly associated with reduced or absent bowel sounds and no apparent peristalsis or succession splash. It is most commonly seen following abdominal surgery.

### Pseudo-obstruction (Ogilvie syndrome)

An acute and marked distension of the colon in the absence of mechanical obstruction. Most commonly seen following trauma and in older bedridden patients with serious extra-intestinal illness. It may be precipitated by electrolyte derangement, medications or sepsis. Abdominal CT with oral contrast is helpful to exclude mechanical obstruction. Correction of electrolytes, cessation of offending drugs and urgent surgical consultation are usually indicated.

## Special groups

### Opioid induced constipation (OIC)

Defined as “A change when initiating opioid therapy from baseline bowel habits (over 7 days) that is characterized by any of the following: reduced bowel movement frequency, development or worsening of straining to pass bowel movements, a sense of incomplete rectal evacuation, or harder stool consistency”. (101)

### Pathophysiology and prevalence

Constipation is a side-effect of all opioids. It is an opioid-receptor mediated effect resulting in altered GI motility, secretion and fluid resorption; the tolerance to which develops slowly if at all. (102, 103) Prevalence correlates to the dose, frequency and duration of opioid use but it doesn't appear to be

significantly dependent on the type of opioid being used. <sup>(103-106)</sup> When actively questioned about side effects, 90% of patients report constipation as a major side effect of their opioid regimen. <sup>(107)</sup>

### **Prevention and treatment**

Life-style and dietary modifications haven't been assessed in OIC. <sup>(105)</sup> Psyllium and other fibre-supplements should be avoided in OIC due to their combined effects on slowing down colon transit time which may lead to the development of bowel obstruction and perforation. <sup>(108)</sup>

Prophylactic laxatives are effective at preventing OIC in opioid naïve patients initiating opioid therapy. <sup>(109)</sup> However, co-medication may not be appropriate as a proportion may not develop constipation and may experience laxative induced side effects.

PAMORAs effectiveness and safety profile are well established in the treatment of OIC. <sup>(105)</sup> [Methylnaltrexone \(MTNX\)](#) is the best PAMORA and is available in New Zealand for refractory constipation in the palliative setting. <sup>(100)</sup> PAMORAs are more expensive than traditional laxatives but it is unclear which is more effective in the prevention and treatment of OIC. The Bowel Function Index (BFI) is recommended as a brief, physician-administered tool to assess patients' perception of opioid-induced constipation. <sup>(110)</sup> Patients with a BFI score  $\geq 30$  points despite prophylactic and first-line interventions should be considered for PAMORA therapy. <sup>(104)</sup>

### **Takeaway messages about OIC**

- Awareness of OIC is a priority for the treating team.
- Avoid Psyllium for opioid-induced constipation as both reduce colon transit time.
- Prophylactic laxatives should be considered according to perceived risk of constipation in a particular patient and their personal preferences. <sup>(105)</sup>
- Ongoing monitoring and support is required due to the refractory nature of OIC. <sup>(111)</sup>
- Consider MTNX in the palliative setting for refractory OIC.

### [Constipation at the end of life](#)

Constipation at the end of life is a common issue which may exacerbate symptoms of pain and restlessness. It is often multifactorial secondary to immobility, dehydration, low fibre intake, constipating drugs and medical

problems such as spinal cord compression, gastrointestinal obstruction and metabolic abnormalities. A careful assessment of symptoms, signs and the clinical records is required as symptoms may not be obvious and constipation may be inappropriately dismissed due to limited oral intake.

Regular assessments and screening is required to diagnose, prevent and treat constipation. However, vigorous interventions should be avoided to preserve comfort and dignity which are of outmost importance in this population. Optimise your patients' toileting abilities, ensure you stop unnecessary constipating agents, avoid initiating new ones, consider prophylactic laxatives and don't forget to prescribe their usual laxatives upon admission or discharge. Take into consideration your patients' and their families' preferences, their ability to take oral or rectal medications and the potential side effects from these medications or interventions.

### **Constipation-related interventions at the end of life:**

- Dietary fibre and fibre supplements may not be appropriate nor effective due to dysphagia, reduced activity and limited fluid intake.
- Docusate was not more effective than placebo according to a double-blind, placebo-controlled randomised trial conducted in the hospice setting. <sup>(112)</sup>
- In bowel obstruction avoid Psyllium Husk, Senna, oral and rectal Bisacodyl, Glycerine suppositories and Phosphate enemas.

### **Pregnancy and post-partum constipation**

Constipation is a common gastrointestinal complaint in pregnancy. It is often multifactorial due to altered dietary habits, reduced physical activity, hormonal effects, the enlarged uterus putting pressure on the bowel and medications such as iron supplements. Constipation presents similarly in pregnant women but abdominal pain should be assessed carefully to rule out other differentials.

Initial management should include non-pharmacological interventions and reassurance that pregnancy related constipation is common, usually transient and treatable.

Laxatives should be initiated if non-pharmacological interventions fail. Take care to choose an effective laxative that is safe in pregnancy and breast feeding. The safest options are Psyllium, Lactulose, Macrogol and Glycerol

suppositories.

### Chronic kidney disease (CKD)

Patients with moderate to severe CKD (glomerular filtration rate below 45mL/min) should remain active and obtain dietary fibre from low potassium and phosphorus food. Lactulose, Macrogol, Bisacodyl and glycerine can be used for persistent constipation.

On the other hand, increased fluid intake, fibre supplementation, prunes, Kiwifruit and Kiwi Crush may not be appropriate because of the risk fluid overload and hyperkalaemia. Furthermore, Sodium Phosphate preparations shouldn't be administered even in mild CKD due to the risk of hyperphosphatemia, acute kidney injury and death.

## Procedures:

### How to perform a Digital Rectal Exam (DRE)

#### Prepare the following:

- sheet to cover the patient
- disposable gloves
- lubricating gel
- incontinence sheet
- toilet paper, wipes, disposable cloths or towels
- a chaperon
- a private area.

#### Prepare your patient:

- Explain the procedure.
- Obtain consent (Refer to the CCDHB Informed Consent policy if the patient cannot consent).
- Encourage the patient to empty their bladder beforehand.
- Place an incontinent sheet underneath the patient.
- Ask the patient to lie on their side (lateral recumbent position) or their back (dorsal lithotomy position) with their knees and hips bent. An alternative approach is to bend over a table at the waist with the knees bent, the feet parted to shoulder width and the toes pointing inwards.

#### Performing the procedure:

- Wash your hands.

- Wear an apron and gloves.
- Inform your patient what is about to happen as you perform various aspects of the exam.
- Spread the buttocks and observe the perineal and perianal area for various abnormalities.
- Lubricate your gloved index finger.
- Warn the patient of imminent examination.
- Place the tip of your index finger over the anus.
- Ask your patient to relax and advance your finger slowly as the sphincter starts to relax following the curve of the sacrum posteriorly (i.e. the 6 o'clock position).
- Palpate the entire rectum:
  - Palpate the posterior rectal wall in the 6 o'clock position.
  - Supinate your arm to palpate the rectal wall from 6 to 9 o'clock.
  - Pronate your arm to return to the 6 o'clock position.
  - Pronate further to palpate the rectal wall to the 3, 12 then 9 o'clock position.
- Note the presence and consistency of faeces, masses or pain.
- Withdraw and examine your finger for the presence of fresh blood or melena.
- Provide the patient with toilet paper, wipes, disposable cloths or towels and assist with perineal hygiene if needed.
- Remove apron, gloves and hands.
- Wash your hands and record your findings.

For pictures and further information on how to perform a digital rectal exam, assess the sacral dermatomes, perineal reflex and anal tone read the following [article](#) by Anna Shirley and Simon Brewster. <sup>(113)</sup>

### How to administer suppositories and enemas

#### **Prepare the following:**

- sheet to cover the patient
- disposable gloves
- lubricating gel
- incontinence sheet
- toilet paper, wipes, disposable cloths or towels
- a chaperon
- a private area

- a bed pan or commode if immobile
- the suppository or enema (check prescription details and expiry date)
- a jug of warm water (if inserting enema).

**Prepare your patient:**

- Explain the procedure.
- Obtain consent (Refer to the CCDHB Informed Consent policy if the patient cannot consent).
- Identify any allergies or contraindications to the suppository or enema.
- Place an incontinence sheet underneath the patient.
- If possible, ask the patient to lie on their left side (lateral recumbent position) with their knees and hips bent to ease the passage of the suppository and help retain it.

**Performing the procedure:**

- Wash your hands.
- Wear an apron and gloves.
- Inform your patient what is about to happen as you perform various aspects of the exam.
- Perform a DRE if needed.
- For suppositories: Lubricate end with jelly.
- For enemas:
  - Warm in a jug of hand hot water.
  - Remove the cap.
  - Lubricate the end of the nozzle.
  - Expel any excess air.
  - Insert just over 5cm deep into the rectum.
  - Slowly introduce the contents.
  - Slowly withdraw the nozzle while keeping the enema receptacle squeezed.
- Ask patient to retain suppository or enema as per manufacturer's instructions.
- Ensure easy access to call bell, bed-pan, commode or toilet.
- Dispose of waste.
- Remove apron, gloves and hands.
- Wash your hands.
- Document the procedure, results and effectiveness.

## Manual removal of faeces (MRF)

### Performing MRF as an acute intervention

- Obtain verbal or written consent.
- Encourage patient to empty their bladder before MRF.
- Remove patient's lower garments.
- Lay patient on left side with hips and knees flexed if possible.
- Measure vital signs prior to the procedure.
- Use disposable gloves and aprons.
- Part patient's buttocks to inspect the anus and perianal area.
- Use ample lubrication and your gloved finger.
- Warn the patient and ask them to relax.
- Perform a DRE:
  - Remove hard small lumps of stool one at a time.
  - Push finger into large lumps to split them (Manual fragmentation).
  - For large unbreakable hard stool (>4cm diameter) consider using Mineral Oil Enema to soften the stool before MRF. Use small amounts of the enema repetitively to avoid discomfort.
  - Don't hook and drag stool out (as this may cause injury).
- Monitor heart rate during the procedure, stop if bradycardia develops.
- Wash and dry the perianal area when finished.
- Abandon the procedure and consider repeating it with local anaesthetic or under general anaesthesia in the presence of marked discomfort, pain, distress or bleeding.
- Prevent constipation to avoid further episodes of faecal impaction. This may require daily laxatives such as Lactulose or Macrogol until the precipitating cause is treated and life-style interventions are consolidated.

### Performing MRF for patients with spinal cord injury

MRF as an acute intervention for patients with spinal cord injuries, at or above T6 level, should be planned carefully in anticipation for autonomic dysreflexia.

- Ensure responsible consultant is aware of the procedure.
- Familiarise self with the signs of autonomic dysreflexia (Bradycardia, severe hypertension, nasal congestion or flushing/sweating/pallor above the level of spinal injury).
- Perform in an area where help is available and appropriate anti-

hypertensives can be administered promptly.

- Ensure constricting and tight clothes are removed.
- Two professionals should be present:
  - the first person performs the procedure
  - the second person monitors the pulse and BP during the procedure.
- If patient develops signs of autonomic dysreflexia such as symptomatic hypertension:
  - Abort the procedure
  - Call for help
  - Sit the patient up.
  - Remove any constricting garments to allow blood pooling into abdomen and legs.
  - Consider anti-hypertensives.

Read the following articles for more information about diagnosing faecal impaction, performing a MRF and autonomic dysreflexia:

- [Constipation in the older adult](#) <sup>(19)</sup>
- [Protocol for the manual removal of faeces](#) <sup>(114)</sup>
- [Autonomic Dysreflexia](#) <sup>(115)</sup>

### When to avoid rectal procedures and interventions

#### **Caution is required when examining patients with**

- past physical or sexual abuse
- cognitive impairment
- anal fissures
- large haemorrhoids
- latex or lignocaine allergy
- spinal cord injury above T6
- rectal anastomosis or anal surgery in the last 6 months
- acute inflammatory bowel disease

#### **DRE, MRF, suppositories and enemas shouldn't be performed in:**

- neutropenia (may precipitate infections)
- thrombocytopenia (may precipitate bleeding)
- GI obstruction and ileus (may precipitate perforation)
- immediately post-abdominal and rectal surgery (may precipitate infections and bleeding)



Amount L = Large, M = Medium, S = small	Colour brown, black, ta
Interventions Kiwi-crush, laxatives, suppositories, enemas	Comments Any mucous pr

Appendix II: Bristol Stool Chart

## Bristol Stool Chart

Type 1		Separate hard lumps, like nuts (hard to pass)
Type 2		Sausage-shaped but lumpy
Type 3		Like a sausage but with cracks on the surface
Type 4		Like a sausage or snake, smooth and soft
Type 5		Soft blobs with clear-cut edges
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Watery, no solid pieces. <b>Entirely Liquid</b>

## Appendix III: Recommendations for health professionals

Recommendation for health professionals
Constipation is very common; assess bowel function in all adults in the hospital and community setting.
Constipation has variable definitions; clarify what is meant by ‘constipation’ and what the most troubling symptoms are.
Bowel habits vary considerably; establish your patient’s usual bowel pattern when assessing for constipation.
Faeces are mostly made of water and bacterial biomass; avoid dismissing it in fasted patients and those with reduced food intake.
For chronic constipation, a thorough history, physical and rectal exam is required to exclude alarming features and secondary causes.
In the absence of alarm features, a trial of empiric therapy is indicated. This may involve education, hydration, physical activity, dietary fibre, supplementary fibre and simple laxatives.
For secondary constipation; consider stopping the offending drug and treating the precipitating illness.
Investigations are indicated in the presence of alarm features, suspicion for secondary causes, concerns about life threatening complications or alternative diagnoses, or if the patient doesn’t respond to empiric therapy
Use the constipation ladder to prescribe effective interventions at recommended doses in a step-wise approach.
Use recommended doses to avoid unwanted side-effects such as bloating, flatus and incontinence.
Try higher doses of the same laxative before adding another agent from a different class.
Suppositories have a special role in neurogenic constipation, defecatory disorders and in severe constipation when oral laxatives fail. Their predictable time of onset is advantageous.
Aim to reinforce non-pharmacological interventions and wean off laxatives as possible.
When initiating opioids, prescribe ‘as needed’ or regular laxatives according to your patients unique risk profile.
Avoid psyllium husk and fibre-supplements in patients with medication-induced or slow-transit constipation; they slow transit time which may cause bowel obstruction or perforation.
Avoid Docusate; it is ineffective according to the latest evidence.
Avoid initiating/consider ceasing Laxsol in favour of other laxatives such as Macrogol, Lactulose and Bisacodyl.
Avoid Phosphate enemas; they are no longer indicated for ‘constipation’ as much safer alternatives exist.
Use the term ‘Macrogol’ instead of trade names such as Movicol, Lax-sachet or Molaxole.
Avoid the term ‘Fleet enema’; Fleet is a company which produces a range of suppositories and enemas.

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## Disclaimer

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### Recommendation for health professionals

Constipation is very common. Assess bowel function in all adults in the hospital and community setting.
Constipation has variable definitions. Clarify what your patient means by 'constipation' and what their most troubling symptoms are.
Bowel habits vary considerably. Establish your patient's usual bowel pattern when assessing for constipation.
Faeces are mostly made of water and bacterial biomass. Avoid dismissing it in fasted patients and those with reduced food intake.
For chronic constipation; a thorough history, physical and rectal exam is required to exclude alarming features and secondary causes.
In the absence of alarm features, a trial of empiric therapy is indicated. This may involve: education, hydration, physical activity, dietary fibre, supplementary fibre and simple laxatives.
For secondary constipation; consider stopping the offending drug and treating the precipitating illness.
Investigations are indicated in: the presence of alarm features, suspicion for secondary causes, concerns about life threatening complications or alternative diagnoses, or if the patient doesn't respond to empiric therapy.
Use the constipation ladder to prescribe effective interventions at recommended doses, in a step-wise approach.
Use the recommended doses of laxatives to avoid unwanted side-effects such as bloating, flatus and incontinence.
Try higher doses of the same laxative before adding another agent from a different class.
Suppositories have a special role in neurogenic constipation, defecatory disorders and in severe constipation when oral laxatives fail. Their predictable time of onset is advantageous.
Aim to reinforce non-pharmacological interventions and wean off laxatives whenever possible.
When initiating opioids, prescribe 'as needed' and/or 'regular' laxatives according to your patients unique risk profile.
Avoid psyllium husk and fibre-supplements in patients with opioid or medication-induced constipation as both slow transit time.
Avoid Docusate; it is ineffective according to the latest evidence.
Avoid initiating/consider ceasing Laxsol in favour of other laxatives such as Macrogol, Lactulose and Bisacodyl.
Avoid Phosphate enemas. They are no longer indicated for constipation and much safer alternatives exist.
Use the term 'Macrogol' instead of trade names such as Movicol, Lax-sachet or Molaxole.
Avoid the term 'Fleet enema'. This is often incorrectly used when prescribing Phosphate enemas. Fleet is a company which produces a range of suppositories and enemas.

# CCDHB Constipation Ladder

Try higher doses of the same laxative before adding another agent from a different class. Aim to reinforce non-pharmacological interventions and wean off laxatives as possible. Read the accompanying guideline for more details.

## For ambulatory patients with Primary Constipation (no obvious pathology or red flags)

Step 1: Lifestyle changes	Remain active, hydrated and increase dietary fibre intake.
Step 2: Dietary supplements	Best option: <b>Psyllium Husk</b> [Konsyl-D] <sup>S</sup> (1 Tbsp in 250ml H2O, OD then BD if tolerated) Other options: <b>Prunes</b> (6 pieces BD) <b>Kiwifruit</b> <sup>Ax</sup> (1 whole peeled BD) <b>Kiwi Crush</b> <sup>Ax</sup> (70mL in 130mL H2O BD) <b>Zyactinase</b> [Phloe] <sup>Ax</sup> (1-2 tablets OD or BD as per response)

## If hospitalized, bed-bound, initiating opioids or constipated despite above:

Step 3: Add an osmotic agent	<b>Macrogol</b> <sup>S</sup> (1 Sachet OD, BD or TDS as per response) <b>or</b> <b>Lactulose</b> <sup>S</sup> (15mL OD or BD as per response)
Step 4: Add a stimulant:	<b>Bisacodyl</b> <sup>S</sup> (10mg oral tablet or rectal suppository OD)

## For severe constipation or faecal impaction

Step 5: try one or more of the following:	<b>Macrogol</b> <sup>S</sup> (8 sachets with 1L H2O over 8 hours, repeat daily for 3 days if needed) <b>Mineral Oil Enema</b> (1 enema OD) Manual Removal of Faeces
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**S:** Subsidised agents.

**Ax:** Avoid if allergic to Kiwifruit or Latex.

**For opioid induced constipation:** Avoid Psyllium Husk.

**For pregnant and breastfeeding women:** safest options are Psyllium Husk, Macrogol and Lactulose.

**For moderate Chronic Kidney Disease (GFR <45):** may develop fluid overload or hyperkalaemia from hydration, Psyllium Husk, Prunes, Kiwifruit, Kiwi Crush or high dose Macrogol.