Holland Bloorview

Kids Rehabilitation Hospital

Neurogenic Bowel Management

SOC-INTP-BBM-6524-09-21-2022

Manual	Cluster	Theme
Standards of Care	Interprofessional	Bowel and bladder management

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Standard Purpose

The aim of this standard is to provide clinicians with best practice guidelines on bowel care program assessment, design and evaluation for achieving social continence. It also addresses how to problem solve when a bowel care program is not effective and/or management of constipation. This standard has been adapted from 3 clinical practice guidelines using clinical expertise from the interprofessional working group.

This standard is built upon the following principles identified by the interprofessional working group:

- Outlines standard and consistent elements of care
- Flexible and responsive to individual needs
- Interdisciplinary
- Addresses psychosocial and cognitive needs
- Facilitates implementation
- Leads to improved outcomes
- An interprofessional approach is used for the assessment, development of plan, implementation and ongoing evaluation using the following steps:
    1. Evaluate current bowel function and history
    2. Perform a holistic assessment and exam
    3. Optimize fibre, fluids and ph`ysical activity
    4. Prescribe appropriate equipment
    5. Manage constipation and incontinence with oral and or rectal agents

6. Establish a consistent personalized routine

- Identification of the type of neurogenic bowel is the first step to developing a bowel management routine.
- A bowel management routine is established using a stepped approach from conservation to less conservative.

Fibre, fluids, physical activity, equipment	Conservative i  Surgical
Oral and rectal agents (digital evacuation, digital stimulation, suppositories, antidiarrheal agents, laxatives)	
Retrograde interventions 9cone enemas and trans-anal irrigation)	
Antegrade (surgical) interventions (cecostomy, MACE, Stoma)	

Note: Not all steps are appropriate to all individuals and the pyramid does not represent strict lines of therapy. Movement up and down the hierarchy is guided by ongoing monitoring and evaluation.

Standard Statement

Definitions:

Areflexic: Areflexic bowel usually results from a spinal cord injury (SCI) that damages the lower end of the spinal cord or the nerve branches that

go out to the bowel. In this case you have reduced reflex control of your anal sphincter. You can't feel the need to have a bowel movement, and your rectum can't easily empty by itself. Also known as a lower motor neuron injury. (UPMC, 2019)

Reflexic: This usually occurs from a SCI above the chest area. This type of injury interrupts messages sent between the colon and the brain that are relayed up the spinal cord. The brain cannot communicate to the person to have a bowel movement; however, the reflexes from the spinal cord to the bowel still work. When stool builds up in the rectum it can trigger a reflex bowel movement without warning. This is also known as an upper motor neuron injury. (UPMC, 2019)

Social Continence: This is the concept that an individual can control their symptoms from the SCI to the extent that is acceptable to them, with no significant effect on their life. The purpose of a bowel management program is to control the emptying of the rectum at a time that is convenient to the individual so that there is little impact to their social life. (Rutledge, Doughty, Moore & Wooldridge (2004)

Gastrocolic Reflex: This is a physiological reflex that controls the motility of the lower gastrointestinal tract following a meal. (Malone & Thavamani, 2019)

Standard Procedure

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Procedure:

	Step	Rationale
1.	• Prior to admission, MD/NP will consult with the acute care team to initiate a bowel clean-out before discharge from the acute care setting if appropriate. • Consider: o The hardness of the stool	Clients may benefit from a bowel clean-out before designing a bowel care program at Holland Bloorview.

	○ The amount of stool ○ Number of days since last bowel movement The approach for the clean out: (1) PICO-SALAX® or (2) Polyethylene glycol 3350. Refer *to Bowel Clean out Standard of Care*	
2.	On admission within the first 24 hours:	
a.	The physician/NP completes a history & physical	

	assessment, including: • Elimination • Stool Consistency using Bristol Stool Chart • Medications (pharmacy) • Bowel program initiated in acute care • Pre-injury pattern of elimination • Abdominal exam • Anorectal exam that includes sensation, tone, anal contraction	

	and reflexes as required • Stool testing for occult blood as indicated	
b.	The physician/NP completes a referral for dietician consult, OT, PT, and psychologist, Child Life Specialist, etc.	All relevant referrals are entered into the system.
c.	The dietician completes a full dietary assessment and includes: Dietitian consults with the nurse to prescribe a diet that contains at least 15 g fibre	Fibre, fluids and activity are used to modulate stool consistency and evacuation frequency. These areas must be addressed first before considering other bowel care interventions.

	and fluids as below: • Modify fibre intake based on current and desired stool consistency, the client's age, and weight. • When modifying fibre, consider the following: • Make any increases in fibre gradually, from a variety of sources. • Do not place clients on uniformly high	Dietary fibre in appropriate quantities can promote bowel regularity and improve constipation. Modifying insoluble fiber can assist with stool consistency. Increased fluid intake prevents hard stool that can result from decreased colon transit time.

	fibre diets (greater than 20g a day) • Attention should be paid to the combination of soluble and insoluble fibre • Ensure adequate hydration based on the client's age, weight, stool consistency and current fluid intake. • Refer to **Appendix A** for further guidance on liquid and fibre intake.	

	For infants who were breastfed prior to injury, continue to breastfeed. For mothers who are pumping refer to the Handling, Storage, Thawing and Administration of Expressed Human Milk (EHM) standard of care.	
d.	The pharmacists complete a full medication reconciliation and assessment	
3.	All members of the team complete their profession specific assessment following the 5-day admission guidelines using the following standards with rationale:	

a.	Developmental age and size	• The age and size of a client influences bowel program aspects such as:
		  ○ Fibre/fluid intake
		  ○ Independence and ability to participate in the bowel program
		• Bowel care interventions (e.g. medications, equipment)

b.	Physical function & performance OT/PT will collaborate to assess: • Upper and lower extremity function • Breath patterns • Sitting tolerance and posture • Transfer skills • Spasticity	• Equipment needs for hospital, home and community settings • Client's ability to participate in the bowel program • Intervention selection

	• Risk for pressure injury • Toileting environment and will assess for equipment needs	
c.	Psychosocial The interprofessional team will assess: • Readiness to participate • Coping with trauma • Family conflict and support • And make referrals to psychology when appropriate.	Psychosocial components can impact a client's motivation and ability to participate in the bowel program.

d.	Cognition The Psychologist will assess and identify co-morbidities that may affect: • Ability to learn and direct others • Understanding of injury • Attention, memory and planning skill	Cognitive functioning impacts a client's ability to participate, level of independence and adherence to the bowel program, as well as intervention selection.
4.	A personalized bowel care program is developed by the interprofessional team as soon possible after admission. An interprofessional meeting may be	Comprehensive assessment is required to ensure a holistic approach is used.

	required to facilitate this. See Protocols for Reflexic and Areflexic.	
5.	Determine client and family readiness once level of injury and type of bowel dysfunction is determined.	Client and family readiness is integral to the success of the bowel program.
6.	The interprofessional team determines a personalized plan to provide education to client and family as appropriate.	Education is a key component for a successful bowel care program. • An educational program should reflect the client's personalized bowel program and is the responsibility of the interprofessional team. Education delivery should be ongoing and based on client/family needs, age and readiness: o Impact of SCI on bowel function o Rationale of bowel program o Role of regularity, timing, positioning

		○ Address misconceptions on willful or defiant behaviour ○ Prevention and treatment of common bowel problem ○ Managing emergencies ○ Techniques for oral and rectal interventions ○ Long-term implications
7.	Ensure first family team goal plan meeting is scheduled within 5 days of admission to establish goals and priorities for the bowel routine.	A common understanding between clients, families and clinicians increases the success of the bowel care program.
8.	PT/OT will encourage physical activity based on clinical judgement and informed by best available	Physical activity promotes overall bowel health. "Undertaking physical activity, including standing and passive movements, may also help to reduce constipation. " Https://scireproject.com/evidence/rehabilitation-evidence/bowel-dysfunction-and-management/conservative-bowel-management

	evidence such as the *Canadian 24-Hour Movement Guidelines for Children and Youth (2018)* and the *Evidence-based Scientific Exercise Guidelines for Adults with Spinal Cord Injury: An Update and a New Guideline (2017)* PT/OT will provide teaching intervention on physical activity. Consider the client's	This may be indicated for incomplete SCI.

	appropriateness for pelvic muscle training (Vasquez et al., 2015) and refer to a trained healthcare professional as available."	
9.	OTs and PTs will: Prescribe equipment to maximize client function and work with the interprofessional team to decrease the risk of pressure injury.	Equipment can support client participation in the bowel program
10.	The nurse assesses all clients at risk for pressure injury using the Braden	Clients are at high risk of pressure injuries from prolonged sitting. Refer to *Positioning and Surface Selection for Pressure Injury Prevention and Management* standard of care. Excellent communication is required between healthcare

	Scale on admission and every 30 days.	providers on the plan to reduce and treat pressure injuries, especially as bowel management plans are implemented.
11.	Pharmacy/RN/NP will consider a two-pronged approach of oral and rectal interventions. Refer to **Appendix B** for further guidance. Provide teaching intervention on constipation, incontinence, and the proper use and effects of medications.	These strategies can manage constipation and fecal incontinence. They should only be considered after fiber, fluids, and physical activity have been optimized.
12.	The interprofessional team will consider potential assistive	Assistive techniques can address constipation issues and/or promote pelvic health. *Note: Abdominal massage may not be appropriate for all clients based on co-

	techniques for use with the client including but not limited to some of the examples below: • Warm fluids • Core exercises (Mannell et al., 2017) • Diaphragmatic (deep) breathing (Zivkovic et al., 2012). • Toilet positioning • Epsom salt baths • Abdominal massage* • Standard forward learning	morbidities and age, consultation with medical team is required. Consider the client's appropriateness for pelvic muscle training (Vasquez et al., 2015) and refer to a trained healthcare professional as available."

	The appropriate profession will provide a teaching intervention on selected assistive techniques. Refer to **Appendix C** for further guidance.	
13.	The nurse documents the personalized routine in the Collaborative Care Plan.	The routine should reflect an interprofessional approach that is: • Based on history, exam and assessment of developmental age, physical function, psychosocial and cognition. • Addresses fiber, fluid, activity, equipment needs. • Reflects appropriate oral and rectal interventions when indicated. • Tailored to reflexic or areflexic bowel. Developmental consideration: For children under the age of 6, habit training and toilet training may be appropriate.

14.	RN/NP will monitor and document the following aspects after each bowel routine: • Date and time • Time from rectal stimulation until evacuation is completed • Total time for bowel care routine • Stool colour, consistency, amount • Rectal interventions used	

	• Oral interventions used • Unplanned evacuations • Positioning and pressure injury • Signs and symptoms of hemorrhoids and anal fissures • How the program is tolerated Consult and collaborate with the appropriate members of the interprofessional team if issues arise.	

15.	The team evaluate and re-evaluate the bowel program based on the algorithm below with every 5 bowel movements.	• The interprofessional team will adhere to a consistent program for 5 bowel movements
		• The following indicators should be used to determine effectiveness by the interprofessional team:
		  ○ Time taken is less than 30 minutes
		  ○ Stool form is:
		  ▪ Bristol stool type 4 for reflexic
		  ▪ Bristol stool type 3 for areflexic
		  ○ Regular and predictable evacuations in a socially acceptable time and place
		  ○ Evacuations occur daily or alternate days
		  ○ No incontinence
		  ○ Routine fits with the client's lifestyle
		  ○ No chronic constipation
		  ○ No abdominal pain
		  ○ No rectal pain
		  ○ Signs and symptoms of hemorrhoids
		  ○ No straining
		  ○ Signs and symptoms of autonomic dysreflexia
		  ○ No pressure injury

		○ Client is adjusting/coping well with the routine
16.	Nursing notifies the MD/NP if the client experiences an increase or decrease in established bowel routine.	Goal of bowel routine is to establish one soft bowel movement every 1-2 days. If client does not have a BM within 3 days, the Physician/NP is always notified.

Protocols for Reflexic and Areflexic bowels.

What type of neurogenic bowel does the client have?

Reflexic		Areflexic
Goal: Soft-formed stool (Bristol type 4), daily or alternate days at a regular time		Goal: Firm stool (Bristol type 2-3), daily or alternate days at a regular time
Initiation		Initiation

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▪ Stimulant laxative 8-12 hours before planned bowel routine (as indicated) should be given ▪ Ingest food 30 minutes before bowel routine to trigger gastrocolic reflex ▪ Take oral medication as prescribed ▪ Consider prophylactic use of topical creams upon initiation of digital stimulation to prevent adverse effects for e.g. Annusol. ▪ Encourage optimal toilet position			▪ Ingest food 30 minutes before bowel routine to trigger gastrocolic reflex ▪ Take oral medication PRN ▪ Encourage optimal toilet position	
Routine			Routine	
Step 1	Gastrocolic reflex		Step 1	Gastrocolic reflex
Step 2	Insert rectal stimulant (suppository/enema)		Step 2	Digital removal of feces
Step 3	Digital rectal stimulation		Step 3	Digital rectal exam to check if evacuation is complete
Step 4	Digital removal of feces if required		Step 4	Rectum empty? No - return to step 2
Step 5	Digital rectal			

	examination to check complete evacuation			Yes - repeat check in 5 minutes to ensure evacuation is complete
Step 6	Rectum empty? No - return to step 3 Yes - repeat check after 5 minutes to ensure evacuation is complete			

Note: If the client has a successful bowel movement after step 2, determine the need to continue to step 5 based on the results.

Management Considerations in Children with Cancer

Goals: Achievement of a soft formed bowel movement every 1 to 2 days. Protect integrity of rectal mucosa especially in leukopenic or thrombocytopenic clients.

Rectal manipulations such as enemas, suppositories are contraindicated in patients with abnormal counts. They are discouraged for those on chemotherapy and/or with central lines even when counts are good.

- All Healthcare professionals should be mindful of the signs and symptoms of constipation in children with cancer and start management immediately to prevent long-term complications.

- Ensure non-pharmacological treatments are implemented
- Add fiber to diet, see Appendix A
- Avoid bulk agents like bran since:

  1) normalizes stool but not a good laxative,

  2) need to use with a lot of water,

  3) in debilitated patients may precipitate obstruction by forming a viscous mass.

Pharmacological Treatments

Do not use if suspect bowel obstruction.

NOTE: All children receiving Vincristine and/or an opiate should be prescribed an osmotic laxative prophylactically. Do not wait for a presentation of constipation.

Prophylactic Bowel Regimen:

a) Osmotic laxative daily with increased dose if no results.
b) Stimulant laxative if no bowel movement after 3 days while receiving osmotic laxative.
c) Continue osmotic laxative in addition to stimulant.

Opioids decrease the peristaltic contractions of the bowel and increase water absorption, causing stool to become excessively dehydrated. Clients may also experience an increase in anal sphincter tone and a decreased sensation to defecate, which can contribute to constipation. It is important to prevent constipation from occurring, if possible, by prescribing a laxative early in the course of treatment with an opioid.

The recommendation is to prescribe osmotic laxatives and stimulants for the treatment and prevention of chronic constipation in children with cancer. For further details for dosing, see appendix B.

If other treatments are not effective, recommend consulting with primary pediatric oncology/hematology team.

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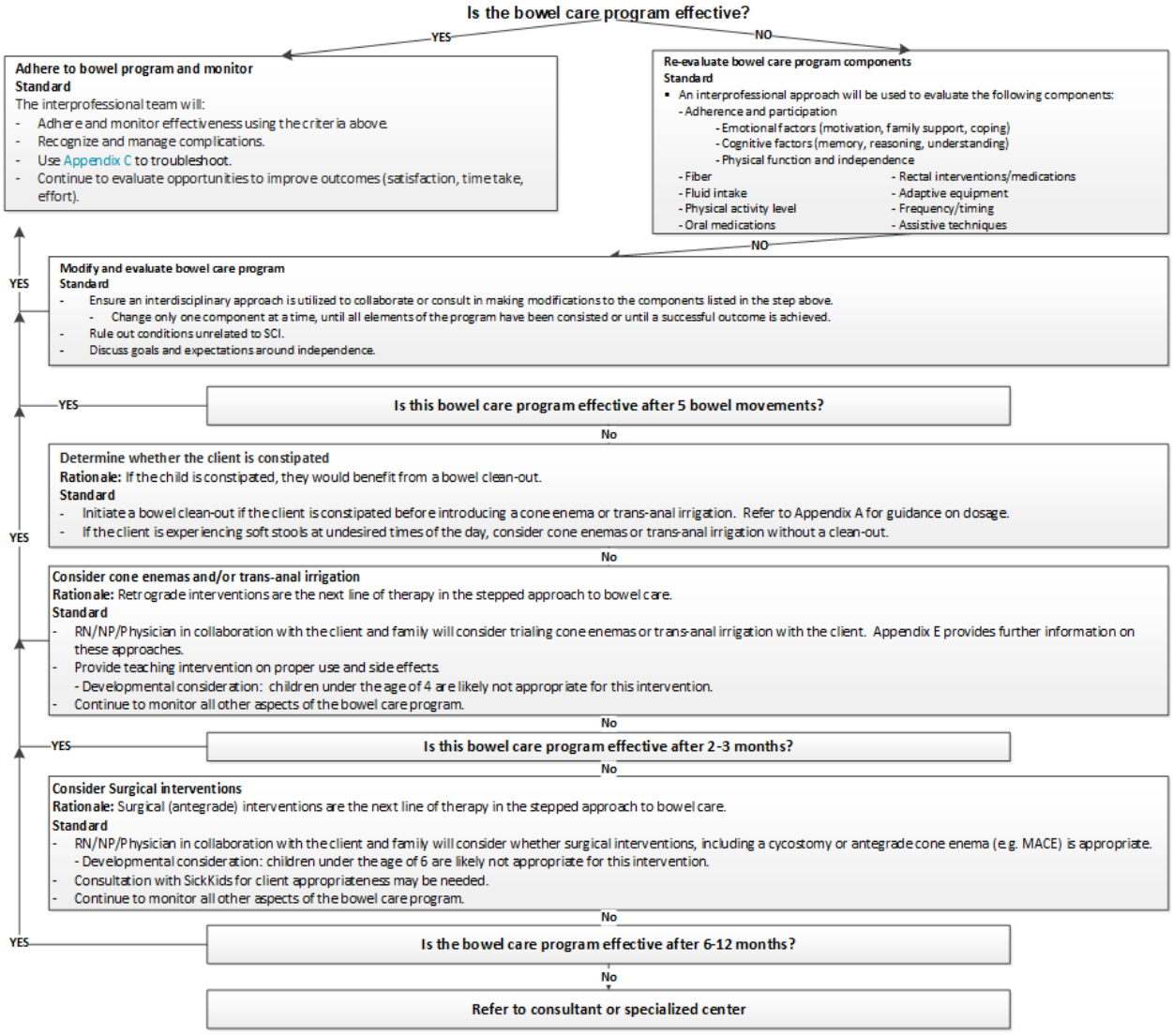
Evaluation Algorithm



External Links

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Attachments

Forms

Related Standards of Care

Digital removal of stool; Digital stimulation; Height & Weight; Bowel Clean out

References

Atlantic Provinces Pediatric Hematology/Oncology Network (2017) Clinical Practice Guideline on the Prevention and Management of Constipation in Children with Cancer. https://www.apphon-rohppa.com/

Belsky J, Stanek J, Yeager N*, et al*., Constipation and GI diagnoses in children with solid tumours: prevalence and management. *BMJ Supportive & Palliative Care* 2023;**13:**e1166-e1173. https://doi.org/10.1136/spcare-2021-003506

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Appendixes

The purpose of the appendix is to provide clinicians with supplemental information to inform clinical decision making. The information presented

here is intended for clinical education/decision-making only; it is not suitable for use with clients/families

Bowel Clean out protocols – now a standard of care (end of document)

Appendix A: Fiber and Fluids

Appendix B: Pharmacological Agents

Appendix C: Performing Assistant Techniques

Appendix D: Peristeen and Cone enema

Created by: Interprofessional SCI Standard of Care Task Force

Family Leader: November 2019

OT Practice Council: February 2020

PT Practice Council: February 2020

Dietician Practice Council: December 2019

Nursing Practice Council: September 2024

Pharmacy & Therapeutics: September 2024

Medical Advisory Committee: October 2024

Professional Advisory Committee: October 2024

Other Policies:

Digital removal of stool; Digital stimulation; Height & Weight; Bowel Clean Out

Appendix A: Fiber and Fluids

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Recommendations for fibre and fluid intake should be individualized. Clinical judgement can be informed by the following tables, charts, education materials and recommendations.

Definitions

- **Insoluble fibre** bulks and softens stool, increasing faecal weight, and decreasing intestinal transit time in normal gut function, found in whole-grains such as wheat, maize and rice (MASCIP, 2012)

- **Soluble fibre** is associated more with lowering blood cholesterol and blood glucose levels, found in oats, fruit and vegetables; however insoluble fibre is also found in these foods in varying proportions. In view of the associated health benefits, current guidelines are for 5 portions of fruit and vegetables daily (MASCIP, 2012)

A.1. Fiber Recommendations Reference

The American Health Foundation (AHF) recommends a goal for minimal intake of dietary fibre for children and adolescents based on age.

For patients aged 3-20 years the target amount is the age of the child plus 5 grams of dietary fiber. The American Academy of Pediatrics (AAP) recommends a daily dietary fiber intake of 0.5g/kg body weight per day, up to a maximum of age plus 10g/day.

The maximum recommended is 35g/day after age 20 years. Increasing to or above the normal requirements should be done slowly to prevent cramping and fluid should be given with the fiber. Acceptable sources of

fiber include fruit, vegetables, prune juice (can mix with orange juice to increase palatability or use strained prunes for babies).

Reference

Coggrave, M., Mills, P., Willms, R., Eng, JJ., (2014). Bowel Dysfunction and Management Following Spinal Cord Injury. In Eng JJ, Teasell RW, Miller WC, Wolfe DL, Townson AF, Hsieh JTC, Connolly SJ, Noonan VK, Loh E, McIntyre A, editors. Spinal Cord Injury Rehabilitation Evidence. Version 5.0. Vancouver: p 1- 48. Available at: https://scireproject.com/wp-content/uploads/bowel_management1.pdf

Recommendation

Start an initial diet with no less than 15g – 18g of fibre a day. Do not place the client on a uniformly high fibre diet (greater than 20g per day) and make adjustments if problems arise with stool consistency.

There is a need for further research to examine the optimal level of dietary fibre intake in patients with SCI.

Note: This resource is primarily based on adult literature

A.2. Fiber: What to do when stools are too soft or too hard (Fiber titration)

Reference

Multidisciplinary Association of Spinal Cord Injured Professionals. (2012). Guidelines for management of neurogenic bowel dysfunction in individuals with central neurological conditions. Available at:

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https://www.mascip.co.uk/wp-content/uploads/2015/02/CV653N-Neurogenic-Guidelines-Sept-2012.pdf

The following two charts are directly from the Multidisciplinary Association of Spinal Cord Injured Professionals (pages 48-49), as part of an **adult-focused** resource. The numbers are based on the Englyst method of calculating fibre content used in the UK. This gives a number about 30% lower than the AOAC method, which is used by the USA and the rest of Europe.

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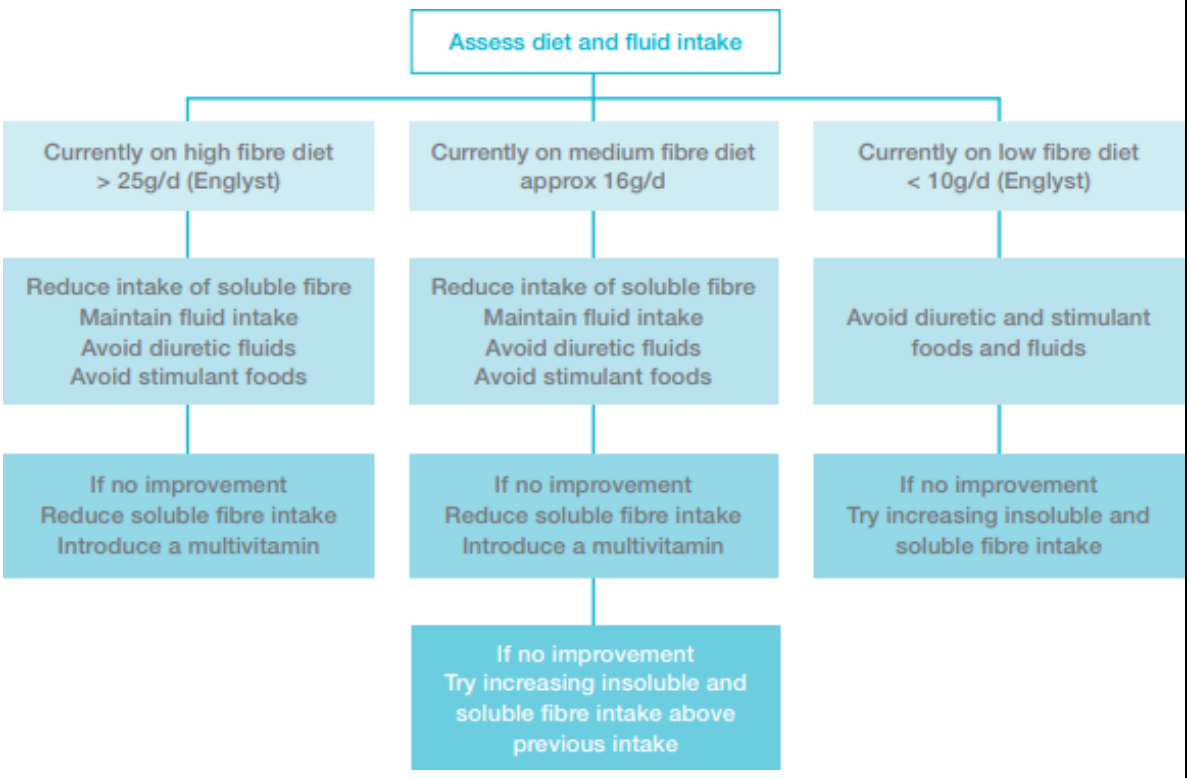
Stools too soft:



Stools too hard:

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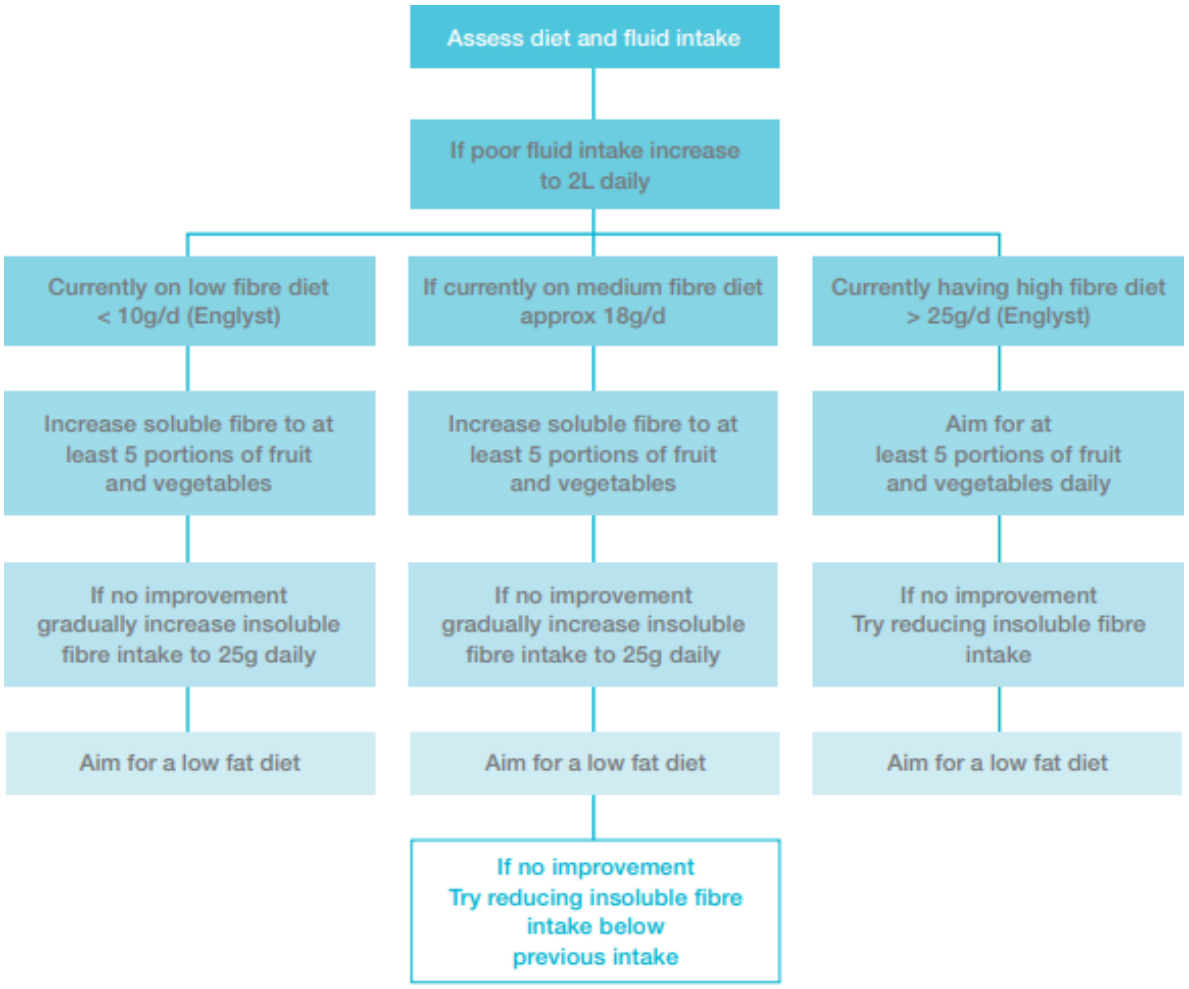

A.3. Fiber Contents of Food

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Reference

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A.4 Fluid Intake Guidelines (miscellaneous)

FIBER CONTENT OF FOODS

BREADS/GRAIN RICE/PASTA	SERVING SIZE	FIBER (grams)	SOLUBLE FIBER (grams)	CALORIES
Teff flour	_ cup	6.8	trace	192
Pearl Barley	1 cup cooked	5.9	1.66	193
Brown rice	1 cup cooked	3.5	0.39	218
White rice	1 cup cooked	0.5	0.10	205
Oat bran bagel	4"	2		247
Rye Bread	1 slice	1.9	0.84	82
Whole wheat bread	1 slice	1.9	0.57	68
White bread	1 slice	0.5	0.15	80
Corn Grits	1 cup cooked	0.5	0.41	145
Whole wheat pasta	1 cup cooked	3.9	0.78	173
White pasta	1 cup cooked	2.3	0.56	197
CEREALS	**SERVING SIZE**	**FIBER (grams)**	**SOLUBLE FIBER (grams)**	**CALORIES**
Grape Nuts	1 cup	10	5.07	380
Raisin Bran	1 cup	8	1.97	186
Corn Bran	1 cup	7.9	0.24	156
Oatmeal (instant)	1 cup	2.5	1.64	103

SNACKS	SERVING SIZE	FIBER (grams)	SOLUBLE FIBER (grams)	CALORIES
Almonds (with salt)	1 oz dry roasted	3	0.43	169
Peanuts	1 oz dry roasted	2	0.64	165
Walnuts	1 oz	1.8	0.45	185
Popcorn	1 cup	1.2	trace	30

BEANS AND LEGUMES	SERVING SIZE	FIBER (grams)	SOLUBLE FIBER (grams)	CALORIES
Split peas	1 cup cooked	16	5.53	231
Kidney beans (canned)	1 cup	16	1.41	217
Lentils	1 cup cooked	15.6	6.73	229
Pinto beans	1 cup canned	14.0	trace	206
Baked beans	1 cup canned	12.7	1.79	236
Chick Peas	1 cup canned	12.0	3.87	286
Black eyed peas	1 cup canned	11.0	1.38	160
Tofu	_ cup firm	0.5	0.25	97

FRUIT/ VEGETABLE	SERVING SIZE	FIBER (grams)	SOLUBLE FIBER (grams)	CALORIES
Prunes (dried)	_ cup	11.0	2.53	203
Dates (dried)	_ cup	6	1.69	203
Orange	1 large	4.4	0.79	86
Pear	1 medium	3.9	2.44	97
Blackberries	cup	3.8	0.97	37
Apple (with skin)	1 medium	3.7	0.28	81
Avocado	_ cup (whole)	3.5	1.95	117.5

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HMC022005-ver2.doc
Wt Regulation Class; Fiber Facts
English/English
Nutrition/Food Services, 206-731-4612
Adapted from: http://www.dietsite.com/Diets/EatingWell/Fiber/High%20Fiber%20Diet.htm

Reference

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The National Academies. (2004). Dietary reference intakes for water, potassium, sodium, chloride, and sulfate. Retrieved from: http://www.nationalacademies.org/hmd/~/media/Files/Activity%20Files/Nutrition/DRI-Tables/9_Electrolytes_Water%20Summary.pdf

Dietary Reference Intakes : Electrolytes and Water

Nutrient	Function	Life Stage Group	AI	UL[a]	Selected Food Sources	Adverse Effects of Excessive Consumption	Special Considerations
Potassium	Maintains fluid volume inside/outside of cells and thus normal cell function; acts to blunt the rise of blood pressure in response to excess sodium intake, and decrease markers of bone turnover and recurrence of kidney stones.		(g/d)	No UL.	Fruits and vegetables; dried peas; dairy products; meats, and nuts.	None documented from food alone; however, potassium from supplements or salt substitutes can result in hyperkalemia and possibly sudden death if excess is consumed by individuals with chronic renal insufficiency (kidney disease) or diabetes.	Individuals taking drugs for cardiovascular disease such as ACE inhibitors, ARBs (Angiontensin Receptor Blockers), or potassium sparing diuretics should be careful to not consume supplements containing potassium and may need to consume less than the AI for potassium.
		Infants					
		0–6 mo	0.4				
		7–12 mo	0.7				
		Children					
		1–3 y	3.0				
		4–8 y	3.8				
		Males					
		9–13 y	4.5				
		14–18 y	4.7				
		19–30 y	4.7				
		31–50 y	4.7				
		50–70 y	4.7				
		> 70 y	4.7				
		Females					
		9–13 y	4.5				
		14–18 y	4.7				
		19–30 y	4.7				
		31–50 y	4.7				
		50–70 y	4.7				
		> 70 y	4.7				
		Pregnancy					
		14–18 y	4.7				
		19–50 y	4.7				
		Lactation					
		14–18 y	5.1				
		19–50 y	5.1				

NOTE: The table is adapted from the DRI reports. See www.nap.edu. Adequate Intakes (AIs) may be used as a goal for individual intake. For healthy breastfed infants, the AI is the mean intake. The AI for other life stage and gender groups is believed to cover the needs of all individuals in the group, but lack of data prevent being able to specify with confidence the percentage of individuals covered by this intake; therefore, no Recommended Dietary Allowance (RDA) was set.

[a]UL = The maximum level of daily nutrient intake that is likely to pose no risk of adverse effects. Unless otherwise specified, the UL represents total intake from food, water, and supplements. Due to lack of suitable data, ULs could not be established for potassium, water, and inorganic sulfate. In the absence of ULs, extra caution may be warranted in consuming levels above recommended intakes.

[b]ND = Not determinable due to lack of data of adverse effects in this age group and concern with regard to lack of ability to handle excess amounts. Source of intake should be from food only to prevent high levels of intake.

SOURCE: *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate.* This reports may be accessed via www.nap.edu.

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Reference

NSW Agency for Clinical Innovation. (2014). Nutrition fact sheet healthy eating for adults with spinal cord injury. Eds: Simon Wright. Retrieved from:
https://www.aci.health.nsw.gov.au/data/assets/pdf_file/0010/224677/ACI_Eat_for_Health_Nutritio n.pdf

Recommendation

- The National Health and Medical Research Council recommend an adequate intake of 2.6L of fluid a day for women (from plain water, milk and other drinks). The adequate intake of total water from food and fluids is set at 3.4L for men and 2.8L for women.
- In clinical practice 35ml/kg or 1ml/kcal may also be used.
- Patients should be encouraged to drink plain water as their main fluid, and they should space their intake of fluid over the day. Further research is required to assess fluid requirements in the SCI population.

Note: This recommendation is reflective of the adult spinal cord injury population.

Reference

Consortium for Spinal Cord Medicine. (1998). Neurogenic bowel management in adults with spinal cord injury: Clinical Practice Guidelines

for Health-Care Professionals. Washington, DC: Paralyzed Veterans of America. Retrieved from: https://www.andeal.org/worksheet.cfm?worksheet_id=250191

Recommendation

- The amount of fluid needed to promote optimal stool consistency must be balanced with the amount needed for bladder management. In general, fluid intake should be approximately 500ml/day greater than the standard guidelines used to estimate the needs of the general public (National Research Council, 1989). Standard guidelines indicate that adult fluid needs can be estimated by either of the following formulas:
    - 1ml fluid/Kcal of energy needs + 500ml/day or 40ml/kg body weight + 500ml/day
- (Scientific evidence – none; grade of recommendation – expert consensus; strength of panel opinion – moderate)

Note: This recommendation is reflective of the adult spinal code injury population.

Reference

Brylowski, L., & Lowndes, R. et al (1989). Nutritional Prescription. In *Nutrition Care Manual* (Sixth Edition, pp. 97). Toronto, Ontario: The

Ontario Hospital Association.

Recommendation

- 40-60 mL/kg

A.5. List of Bladder Irritants and Constipation Foods

Reference

Lea Damata MSc (PT). (2019). List of bladder irritants and constipation foods. Adapted from: The John Hopkins Women's Center for Pelvic Health. (n.d.) & Pelvic Health Solutions: Pediatric incontinence & pelvic floor dysfunction. (2018).

List of bladder irritants and constipation foods:

Bladder irritants:

Certain foods and drinks have been associated with worsening symptoms of urinary frequency, urgency, urge incontinence, or bladder pain. If you suffer from any of these conditions, you may wish to try eliminating one or more of these foods from your diet and see if your symptoms improve. Once you are feeling better, you can begin to add foods back into your diet, one at a time. If symptoms return, you will be able to identify the irritant. Most people are not sensitive to ALL of these products; your goal is to find the foods that make

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YOUR symptoms worse.

- Acidic foods
- Tomato based products
- Vinegar
- Coffee
- Tea
- Curry
- Citrus fruits & juices
- Spicy foods
- Caffeinated beverages
- Carbonated beverages
- Cola
- Milk
- Artificial sweeteners
- Chocolate
- Foods with red or blue dye in them

Constipation foods:

Just as there are many foods you can eat to help prevent or relieve your constipation, there are foods that can have a binding effect that can make your constipation worse. These are some common foods to avoid when you are constipated:

- Apple sauce
- Arrowroot biscuits
- Marshmallow
- Banana
- Peanut Butter

- Tapioca
- Cheese

Appendix B – Pharmacological Agents

CLASS	MECHANISM OF ACTION	ONSET OF ACTION	MEDICATION EXAMPLES	SIDE EFFECTS	DOSE	OTHER NOTES
OSMOTIC	Increases water retention in bowel, stimulating peristalsis	24-96 hours	• PEG3350 o MiraLax o Restoralax o Lax-A-Day	Nausea, cramping, diarrhea	0.5-1 g/kg/day (up to 1.5g/kg/day) PO/Enteral Tube once daily Usual dose limit: 17-34 g/day. May increase to a maximum dose of 100 g/day in children weighing >34 kg who have failed to respond to lower doses.	At HB, product is ordered in 'mL' of powder: **Weight** / **Volume** 4.25 g / 5 mL 8.5 g / 10 mL 12.75 g / 15 mL 17 g / 20 mL
HYPER-OSMOTIC		24-48 hours	Lactulose	Bloating, flatulence, cramps, diarrhea	Initial dose: 5-10 mL/day PO/Enteral Tube once daily; double daily dose until stool is produced Usual adult dose: 15-30 mL/day (constipation) Dose limit: 60 mL/day	Sweet taste and volume may be intolerable to some patients. Can be used in patients with diabetes.
LUBRICANTS	Coat stool to prevent colon from reabsorbing water	15-30 minutes	Glycerin suppositories	Leakage from rectum can cause irritation	Children 2 to 5 years: 1 pediatric suppository once	May not be effective if stool is higher up in colon

				and pruritus	daily as needed or as directed Children ≥6 years and Adolescents: 1 adult suppository once daily as needed or as directed	

ORAL STIMULANT	Irritate bowel wall which stimulate colonic peristalsis	6-12 hours	• Bisacodyl
			  ○ Dulcolax
			• Senna
			  ○ Senokot
				Abdominal cramping, Melanosis coli (Senna)	<u>Bisacodyl:</u>
					Children 3-12 yrs.: 5–10 mg PO daily or 0.3 mg/kg/dose PO once daily
					Adolescents (over 12 yrs): 5–15 mg PO daily
					Dose limit: 15 mg/day
					
					Oral: 0.3 mg/kg/dose PO/Enteral Tube 6-12 hrs before desired effect
					Dose limit: 15 mg PO/Enteral Tube
					
					<u>Senna:</u>
					Liquid:
					2-5 yrs: 3-5 mL/dose PO/Enteral Tube qhs
					6-12 yrs: 5-10 mL/dose PO/Enteral Tube qhs
						<u>Bisacodyl:</u>
						Do not cut or crush tablets due to enteric coating.
						Do not administer within 1hr of antacids or milk.

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					Tablet: 6-12 yrs: 1-2 tablets/dose PO/Enteral Tube qhs Dose limit: Usual adult dose: 2-4 tablets PO/Enteral Tube qhs	
RECTAL STIMULANT	Increase peristalsis by providing mild colonic irritation	30 min – 1 hour	• Bisacodyl suppository ○ Dulcolax suppositories	Rectal irritation	≤6 yrs: 5-10 mg suppository PR 15-60 min before desired effect >6 yrs: 10 mg suppository PR 15-60 min before desired effect	

FIBER	Absorbs water to create stool bulk	12-72 hours	• Psyllium
			  ○ Metamucil
			• Fiber
			  ○ Benefiber
				Bloating, flatulence, abdominal cramps, GI obstruction	<u>Metamucil:</u>
					Children 6-12 years:
					Half a teaspoon (2.9 g) mixed in 240 mL liquid up to 3 times daily
					
					Children over 12 years:
					Three level teaspoons (5.8 g) mixed in 240 mL liquid up to 3 times daily
					
					<u>Benefibre:</u>
					Children 6-12 years: 0.5 – 1 teaspoon mixed in ½ a cup of water up to twice daily
						Must be dissolved in and taken with adequate fluids to prevent fecal impaction
						
						Contraindicated if partial obstruction of GI tract. Not appropriate for fluid restricted patients or those with dysphagia.

					Adults: 1-2 teaspoons mixed in ½ a cup of water up to twice daily	

Appendix C

The resources in the following sub-appendices include more information on performing assistive techniques.

C.1 Toilet Posture

Reference

Lea Damata MSc(PT). (2019). Toilet posture. Adapted from: Hodges, M.D. (2016). &

Pelvic Health Solutions: Pediatric Incontinence & Pelvic Floor Dysfunction. (2018).

Toilet Posture

The 90/90 Rule:

- Feet supported & legs apart
- Elevate hip/knee to at least 90/90 degrees position while sitting on the toilet (a deep squat)
- Forearms on thighs
- Spine straight with a slightly lean forward

The 90/90 rule is a general guideline to strive towards but

must be adapted according to a client's individual needs.

Why?

Sitting in this position stretches the abdominal cavity, giving the colon more room to pump stool to the rectum for emptying. It also helps the pelvic floor muscles relax and places the rectum in a more vertical position, giving the child the benefit of gravity.

Image from:

https://thea.care/articles/common-toilet-behaviours-that-can-lead-to-pelvic-floor-dysfunction

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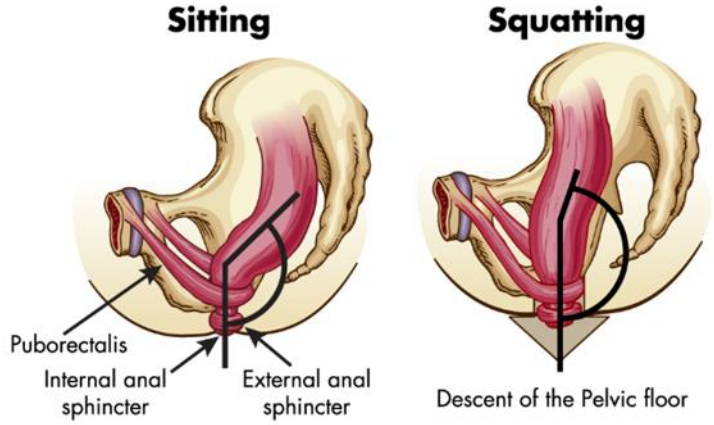

Image from:

https://comicvine.gamespot.com/forums/off-topic-5/pooping-have-you-been-doing-it-wrong-1835527/

*Do not distribute to clients

C.2. ILU Massage

Reference

Pelvic Health Solutions©. (n.d.). ILU massage.

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ILU Massage

Pelvic Health Solutions

Restoring Pelvic Health through Physiotherapy

The purpose of ILU (I Love You) massage is to calm tension in your abdominal wall, intestines and/or to help move chyme (digested food) through your system more efficiently.

This can be done in lying, sitting or standing. Always go from right to left, using soap in the shower, or cream on your fingertips.

Start by forming the letter "I" by stroking with moderate pressure from the back of your left ribcage forward and down to the front, left hipbone. Repeat this 10 times.

Next, form the letter "L" by stroking with moderate pressure from the right ribcage, underneath the ribcage to the left, and down to the left hip bone, forming the letter "L". Repeat this 10 times.

Last, do 10 strokes from the right hip bone up to the right ribcage, across to the left ribcage, and down to the left hip bone, forming the letter "U". Repeat this 10 times.

Finish with 1-2 minutes of clockwise circular massage around the belly button to stimulate the small intestine.

Diagram: Murina Hamill

*Do not distribute to clients

Appendix D

Peristeen

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https://www.scisupply.ca/products/coloplast-peristeen-anal-irrigation-system

Cone Enema

This video shows the nurse performing the enema with the child lying on their left side. For our families, we recommend they do it with the child sitting on the toilet. It is the same procedure but just the child is upright.

https://www.chop.edu/video/administration-high-volume-cone-enema

Committee	Review Date
Louise Rudden	April 2025
Ana DiMambro	April 2025
Cindy Truong	April 2025
Nursing Practice Council	September 2024

Standard Lead	Last Revised	Last Reviewed
Ana DiMambro	22 December 2025	22 December 2025

Contributing Content Experts

Reviewed and approved by:

Nursing Practice Council – September 2024

Professional Advisory Council – October 2024

Vsc1.0

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Medical Advisory Council – October 2024