Primary Care Management Pathway
Irritable Bowel Syndrome (IBS)

Background

Primary care management pathways are being developed by specialist and primary care groups to support the management of common, non-urgent conditions for which long wait times to specialty care currently exist. The pathways will help identify patients with high-risk features and facilitate early referral to specialists as needed.

IBS is one of the most common GI disorders affecting about 10% of the population. It can have a significant impact on quality of life. Its symptoms can include bloating, abdominal pain and alteration in bowel habit with constipation, diarrhea or an alternating bowel habit. The symptoms can wax and wane and can be exacerbated by food triggers and by stress.

Defining condition and/or other important definitions

Irritable bowel syndrome (IBS) is a brain-gut disorder characterized by recurrent abdominal pain/discomfort and altered bowel habits (constipation, diarrhea, or both). It is often associated with bloating or abdominal distention.

IBS is considered to be a manifestation of bidirectional disordered communication within the brain-gut axis that influences gastrointestinal motility, secretion, and sensation. Contributing factors include visceral hypersensitivity, altered gastrointestinal (GI) motility, post-infectious diarrhea, chronic stress, altered brain networks, and the microbiome. Alterations in the colonic immune system, neuronal activity, and gut permeability also play a role.

The current recommended diagnostic criteria for IBS are the **Rome IV criteria**:

- Recurrent abdominal pain (≥ 1 day/week for ≥ 3 months) associated with two or more of the following:
    - related to defecation
    - associated with a change in the frequency of stool
    - associated with a change in the form (appearance) of stool.

A characteristic feature is the relief of abdominal discomfort after a bowel movement or in association with a change in stool form or frequency. Bowel dysfunction includes frequent bowel movements, fecal urgency, altered stool form (hard/lumpy or loose/watery), sense of or incomplete evacuation, straining with stool passage, and passage of mucous.

IBS is divided into three main subtypes based on stool consistency:

- Constipation-predominant (IBS-C, > 25% hard stools and < 25% loose stools)
- Diarrhea-predominant (IBS-D, > 25% loose stools and < 25% hard stools)
- Mixed bowel habits (IBS-M, > 25% loose stools and > 25% hard stools)

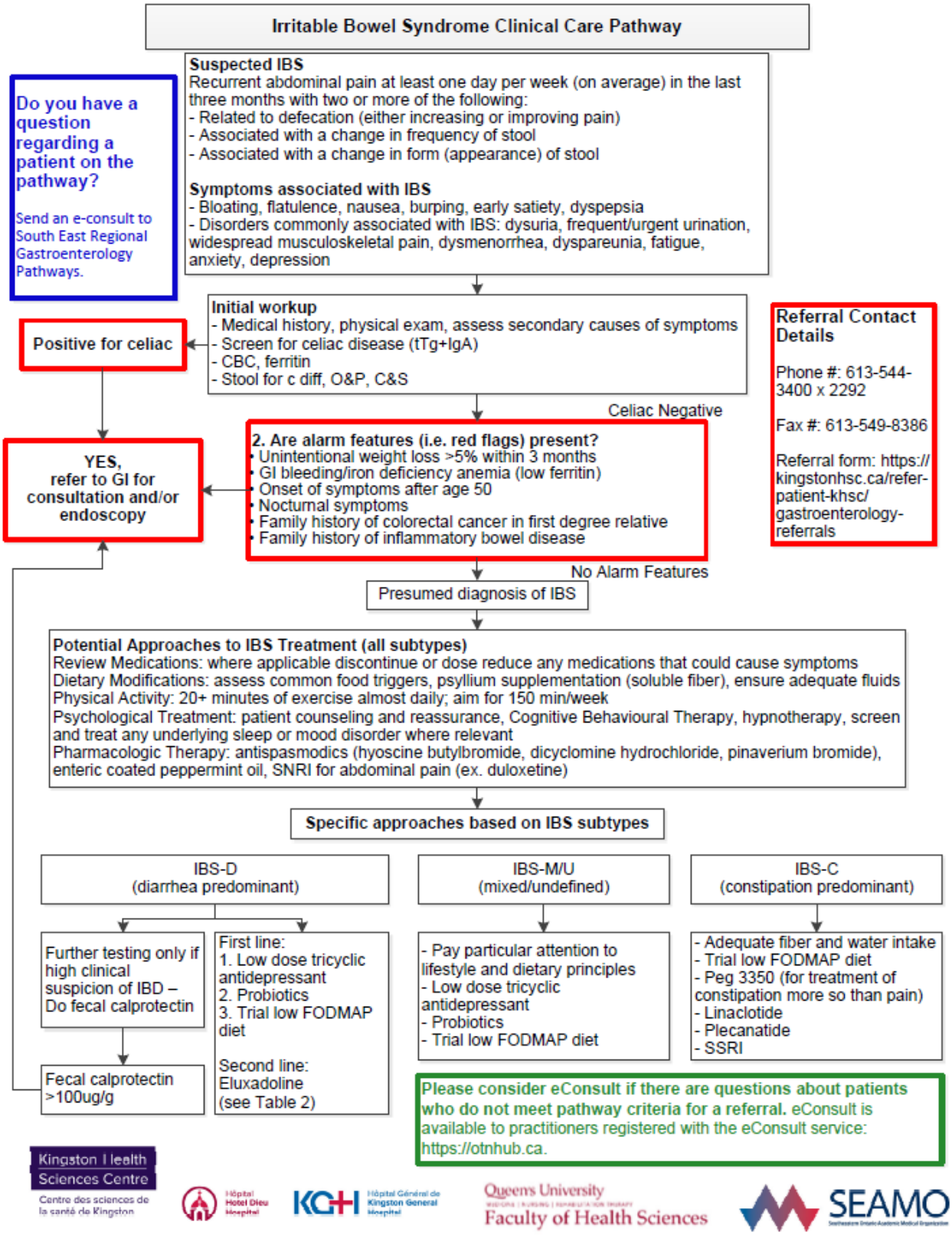
The IBS clinical care pathway facilitates identification of people who are more likely to have an underlying organic pathology for their symptoms that would require endoscopic evaluation and investigation.

Patient information

It is possible that your patient and/or their family member may express a desire for additional information about the primary care management pathway and their role or experience throughout the process of being on a pathway. Additional information for patient education has been provided in “Appendix B – Patient Information”.

Pathway document continued on next page.

Primary Care Management Pathway – Clinical Flow Diagram
Irritable Bowel Syndrome (IBS)



Appendix A – Expanded Detail

Suspected IBS

Recurrent abdominal pain at least one day per week (on average) in the last three months, with two or more of the following:

- Related to defecation (either increasing or improving pain)
- Associated with a change in frequency of stool
- Associated with a change in form (appearance) of stool

Are symptoms consistent with IBS? Some important questions to guide the history.

- Do you experience pain?
- Does the pain improve/worsen/stay the same with bowel movements?
- When the pain is present, is it often associated with a change in stool frequency or stool form?
- Do these symptoms represent an acute change?
- Typically associated lower GI symptoms include bloating and flatulence. Upper GI symptoms include nausea, burping, early satiety, and dyspepsia.
- IBS correlates with other pain syndromes, so other symptoms such as dysuria, frequent/urgent urination, widespread musculoskeletal pain, dysmenorrhea, dyspareunia, fatigue, anxiety, depression, and headaches may also be present. Pain often is variable and may be related to the subtype.

It is vital to understand a patient's predominant symptom (pain, constipation, or diarrhea) as this influences treatment selection.

Alarm Features

If any of the following alarm features are present, patient should be referred for consultation/endoscopy. Any alarm features present should be noted on the referral in order to assist with triage.

- Unintentional weight loss (>5% in 3 months)
- GI bleeding/iron deficiency anemia
- Onset of symptoms after age 50
- Nocturnal symptoms
- Family history of colorectal cancer in first degree relative
- Family history of inflammatory bowel disease

Baseline Investigations

A detailed history and physical exam should be performed to assess for other conditions that can mimic IBS. A careful medication history should be obtained to identify any culprit that could be causing GI side effects.

Blood work:

CBC, ferritin
Celiac serology (TTG and IgA)*

- Sensitivity and specificity of 95%
- The higher the titre, the more likely a true positive result
- 2-3% of individuals may have IgA deficiency
    - Should be measured concurrently to ensure an accurate result
- Patients should be on a gluten-containing diet prior to completing the test (general recommendations are 10g per day or ~2 slices of bread for 6-8 weeks)

Stool tests may be appropriate if patients are presenting with diarrhea as a predominant symptom:

- Culture and sensitivity
- C difficile
- Ova and parasites
    - If there is relevant travel history this should be noted on the requisition

Patients often ask about small intestinal bacterial overgrowth (SIBO) as a cause of symptoms. Without an underlying condition that would predispose to SIBO, this diagnosis is unlikely. The accuracy of the breath test is highly variable and may not be reliable. Routine testing for SIBO is not recommended.

A significant percentage of patients with chronic abdominal pain or other functional GI disorders have a history of trauma (e.g. sexual assault or physical and psychological abuse) or PTSD. This type of trauma may contribute to symptoms through the brain-gut axis, so it is important to explore this in a compassionate manner. Undergoing endoscopy may trigger a negative response in survivors of trauma. Addressing this possibility may be appropriate if considering a referral for endoscopy when the clinician is aware of a history of trauma.

To ensure that testing costs are not a barrier to patient care, **Kingston Health Sciences Centre has developed a unique laboratory requisition to access TTG+IGA testing for patients who are on the pathway.*

The unique laboratory requisition is meant to be completed by referring primary care physicians for patients who are following the IBS pathway and would prefer to have this test completed at KHSC (KGH: Armstrong 1 or HDH: Jeanne Mance 5) at no cost to the patient. Patients may still prefer to have this testing completed at a community medical laboratory and pay for the associated costs.

The requisition can be accessed and downloaded by primary care physicians at:
https://kingstonhsc.ca/refer-patient-khsc/gastroenterology-referrals

General Principles for Management

Patients with functional bowel disorders will benefit from lifestyle and dietary modifications. In patients with mild to moderate symptoms this may be all that is needed if there is not a significant impact on quality of life. Diet, exercise, stress reduction and, if appropriate, psychological counselling may be beneficial. Screening for underlying anxiety or mood disorders is also important as patients may have refractory symptoms if underlying mental health issues are not addressed.

Non-Pharmacologic Treatments

- **Education** on the wide variation in "normal" stool form and frequency
    - If stool habit changes substantially and persists, further investigation may be needed.

- **Patient reassurance** and management of expectations
    - Provide reassurance after initial diagnosis, offer points of reappraisal and reassessment to help develop therapeutic relationship.
    - Reassessment recommended if significant change in or worsening of symptoms.

- **Diet**
    - Identify **trigger foods**
        - Follow systematic process of removing and assessing symptoms before permanent elimination.
        - Diets high in processed foods, fatty foods, caffeine, sugar alcohols, alcohol, and insoluble fibre(e.g. wheat bran, raw vegetables, the skin of fruits, and cruciferous vegetables such as broccoli, cauliflower, Brussels sprouts, and legumes) can increase IBS symptoms.
        - Some patients may benefit from referral to a dietician.
        - Some patients may benefit from keeping a food/symptom journal to help identify triggers.

    - **Fibre and Fluids**
        - Two types of fibre
        - **Insoluble fibre**
            - Wheat bran, skin of fruits, raw vegetables.
            - Adds bulk to the stool and contributes to daily fibre requirement but may not have health benefits of soluble fibre.
        - **Soluble fibre**
            - Psyllium, oats, barley, fruits, seeds.
            - Absorbs water in the intestine to form a viscous gel that thickens stool and stimulate peristalsis.

        - There is a dose response relationship between fibre and fluid intake and stool output. Fibre acts as a sponge, so it is important to combine fluid and fibre. Increasing fluid intake on its own will only increase urination.

- **Soluble fibre supplementation**
  - May provide symptom relief for patients with IBS, constipation and chronic diarrhea. The goal is **5-10g of soluble fibre/day.**
    - 1 tbsp of psyllium husk/powder = 3.0g
    - 2 tbsp ground flax seed = 1.8g
    - ½ cup kidney beans = 2.8g
    - 1 pear = 2.2g

- Increasing fibre may cause negative side effects that can be avoided or minimized
  - **Start low and go slow** to minimize bloating, gas and abdominal pain
    - Start with a third of the recommended dose and assess tolerance
  - **Drink additional fluid** to compliment a high fibre diet. Inadequate fluid intake may result in hardened stool, constipation, bloating and abdominal pain.
  - Caution with soluble fibre with patient at risk of bowel obstruction or with a narrowing of the bowel or small intestine.

- **Ensure adequate fluids**
  - 2L/day for females
  - 3L/day for males

- **Physical activity**
  - 20+ minutes of physical activity/day, aiming for 150min/week is known to be an effective stress reducing strategy.

- **Psychological therapy**
  - Cognitive based behavioral therapy and hypnotherapy may help with stress management and GI symptoms.
  - Screening for an treating any underlying mood disorders may be important.

Pharmacologic Treatment Options (All IBS Subtypes)

Use of pharmaceutical options in patients with IBS is generally reserved for those who have not adequately responded to lifestyle or dietary interventions or have moderate or severe symptoms that impair quality of life. These often need to be tailored to their predominant symptom subtype (ex pain, diarrhea, constipation).

Table 1. Pharmacologic treatment for all IBS subtypes.

Antispasmodics	**Place in therapy:** May reduce symptoms of abdominal pain **Mechanism of action:** Relaxes smooth muscle by various mechanisms **Adverse effects:** Some agents may produce anticholinergic reactions (xerostomia, CNS depression) **Recommended agents:** Trimebutine (Modulon): 100-200mg tid Pinaverium bromide (Dicetel): 50-100mg tid Hyoscine butylbromide (Buscopan): 10mg tid-qid Dicyclomine hydrochloride (Bentylol): 20mg tid-qid A reasonable trial is 1-2 agents (not at the same time) for four week duration. Can use regularly or prn.
Enteric coated peppermint oil	**Place in therapy:** Benefit in reducing abdominal pain **Adverse effects:** May interact with medications—patient should review with pharmacist. May cause dyspepsia. **Recommended agents:** Enteric coated peppermint oil capsules (0.2-0.275mL caps): 2 capsules bid IBgard (80mg/capsule): 2 capsules 30-90min before meals. Max dose is 6 capsules per day
Serotonin noradrenalin reuptake inhibitor (SNRI)	**Place in therapy:** May reduce symptoms of abdominal pain **Mechanism of action:** Block 5-HT and NA reuptake **Adverse effects:** nausea, agitation, sleep disturbance, constipation (though less common than with TCAs) **Recommended agents:** **Duloxetine** 30mg po daily for 2-4 weeks, then titrate up to 60mg po daily

Management Options Based on IBS Subtypes

IBS-D (Diarrhea-predominant)

If high clinical suspicion for IBD, can consider ordering fecal calprotectin.**

- A stool-based test used to detect a protein released into the gastrointestinal tract from inflammatory cells (neutrophils) when present.
- Fecal calprotectin may be elevated and useful when there is a high clinical suspicion of IBD.
- Elevated levels can be seen in IBD.
- Mid-range levels can also be seen in benign conditions, such as with NSAID use, PPIs and infections. It may also be elevated in celiac disease and microscopic colitis.
- Fecal calprotectin level <100mcg/g unlikely patient has IBD.

***To ensure that testing costs are not a barrier to patient care, **Kingston Health Sciences Centre has developed a unique laboratory requisition** to access fecal calprotectin testing for patients who are on the pathway.*

The unique laboratory requisition is meant to be completed by referring primary care physicians for patients who are following the IBS pathway and would prefer to have this test completed at KHSC (KGH: Armstrong 1 or HDH: Jeanne Mance 5) at no cost to the patient. Patients may still prefer to have this testing completed at a community medical laboratory and pay for the associated costs.

The requisition can be accessed and downloaded by primary care physicians at:
https://kingstonhsc.ca/refer-patient-khsc/gastroenterology-referrals

Table 2. Treatment options for IBS-D.

Tricyclic Antidepressants	**Mechanism of action**: Most studied antidepressant for treatment of abdominal pain. Suggested to be beyond serotonin and norepinephrine, and as a result of blocking voltage-gated ion channels, opioid receptor activation and potential neuro-immunologic anti-inflammatory effects. Their anticholinergic properties also slow GI transit time. **Place in therapy:** recommended for overall symptom improvement in patients with IBS, as well as sleep issues, anxiety or depression **Adverse effects:** Antihistamine and anticholinergic (drowsiness, xerostomia, weight gain, palpitations, constipation, urinary retention) Use in caution in patients with prolonged QT. Can take 2-3 months to reach maximal effect. Lowest effective dose should be used. Dose should be reduced gradually if discontinuing. **Recommended medications:** Nortriptyline - 10-25 mg qhs. Increase dose by 10-25 mg every 3-4 weeks (due to delayed onset). May require 25-75 mg/day. Often takes 2-3 months for peak effect.

	Amitriptyline - 10-25 mg qhs. Increase dose by 10-25 mg every 3-4 weeks (due to delayed onset). May require 25-75 mg/day. Often takes 2-3 months for peak effect. Desipramine - 25 mg qhs. Increase based on response and tolerability. Doses up to 150 mg daily have been studied in IBS.
Probiotics	**Place in therapy:** May improve global symptoms, bloating and flatulence The most effective probiotic strain is unknown. Strains with the most evidence: Align® - 1 capsule/day TuZen® - 1-2 capsules/day Visbiome® - 0.5-1 sachet/day
Low FODMAP diet	A trial of a low fermentable oligosaccharides, disaccharides, monosaccharides, polyols (FODMAP) diet is suggested, while an exclusive gluten-free diet is not. Some patients may wish to trial the elimination of a single nutrient/food (e.g. lactose, fructans, fructose, sugar alcohols) or an elimination of multiple nutrients/foods using this diet. Referral to a dietitian should be considered if this diet is planned. A single nutrient/food elimination trial is the removal of a nutrient/food for 2-4 weeks. Use a symptom diary to note the impact of the dietary modification. If no improvement, the nutrient/food can be added back and a second single nutrient/food elimination trial can be tested. A low FODMAP diet trial is the removal of multiple nutrients/food all at once for 2-6 weeks (max) until symptoms have improved. A single nutrient/food is then added back into the diet, using a food diary to test for tolerance.
Second Line Treatment for IBS-D	
Eluxadoline (Viberzi)	**Mechanism of action:** Belongs to the class of medications called opioid receptor agonists/antagonists. Works in the bowel to regulate muscle activity and slow the rate that material passes through the digestive system, thus improving diarrhea. **Dose:** 100mg po bid with food **Contraindications**: Not to be used in patients with significant alcohol use (more than 3 drinks per day, history of pancreatitis, prior cholecystectomy and severe liver impairment. Not recommended in individuals over age 65 as safety profile not well studied in this population.

IBS Mixed

Table 3. Treatment options for IBS-M

Lifestyle interventions	See **General Principles for Management** (page 6)
Tricyclic antidepressant	See IBS-D treatment recommendations
Probiotics	See IBS-D treatment recommendations
Low FODMAP diet	See IBS-D treatment recommendations

IBS-C (Constipation predominant)

Table 4. Treatment options for IBS-C

Fibre and fluids	See **General Management section** (page 6)
Low FODMAP diet	See IBS-D treatment recommendations
PEG 3350	**Evidence:** Laxatives do not affect global IBS symptoms, but may help with frequency and consistency of bowel movements. **Mechanism of action:** Drawing water into the colon to increase bowel movements and allow easier passage of stool. **Place in therapy:** Consider use of laxatives in patients with constipation. Advise titration of dose to assure well-formed stool. Stepwise treatment with laxatives of increasing strength is recommended until constipation relief is reached. **Recommended dose:** Polyethylene Glycol (PEG 3350) – Start with 17 g at night dissolved in a full glass of liquid. Titrate to effect or max 34 g/day. Onset of action 48-96 hours. Safe for long-term use.
Guanylate Cyclase-C agonists (Linaclotide and Plecanatide)	**Mechanism of action:** A guanylate cyclase agonist which increases chloride and bicarbonate secretion from enterocytes and increases intestinal transit. May decrease visceral pain by reducing pain-sensing nerve activity. **Place in therapy:** For persistent IBS symptoms with patients motivated for more intensive or expensive treatments. **Adverse effects:** Diarrhea, upper abdominal pain. **Recommended dose:** Linaclotide (Constella) 290 mcg daily PO 30 minutes before the first meal of the day Plecanatide (Trulance) 3mg daily po

Selective serotonin reuptake inhibitors (SSRI)	**Evidence:** Limited data to support use of SSRIs for IBS-C. **Place in therapy:** Can be helpful with abdominal pain and may loosen bowel movements for patients. **Adverse effects:** Nausea, diarrhea, weight gain, sexual dysfunction, tremor, insomnia. Caution with citalopram in patients with prolonged QT. Lowest effective dose should be used. It can take 2-3 months to reach maximum effect. Reassess therapy in 6-12 months. Dose should be gradually reduced if discontinuing. **Recommended Medications** Fluoxetine (Prozac®) - 10 mg daily. May dose escalate up to 60 mg daily Citalopram (Celexa®) - 10-20 mg daily. May dose escalate up to 40 mg daily

When Should I Refer my Patient to a Specialist?

1. **If alarm features are present.**
2. **Celiac testing (tTG) is positive.**
3. **Fecal calprotectin >100mcg/g** (this test should only be done in patients with high clinical suspicion for IBD)
4. **Patients with IBS-D who have persistent symptoms** and fail to respond to treatment strategies noted above may potentially benefit from assessment and consideration of colonoscopy.
5. **Patients with IBS-C or IBS-M, colonoscopy is unlikely to yield relevant findings.**
6. If recommended strategies have not led to satisfactory treatment or management of symptoms.
7. Include as much information as possible on the referral form, including identified alarm features, investigation results, treatments that have been tried, duration and patient response.
8. **In the absence of alarm features for patients under age 50, colonoscopy is unlikely to be additive for the diagnosis of IBS.** Studies show that a colonoscopy does not provide reassurance to patients with IBS.

Appendix B – Patient Information

Please note: This information is intended to be given to the patient, either as a handout or in the form of a conversation with their primary care provider.

What is IBS?

- A condition that causes pain, bloating or cramping and may be associated with constipation or diarrhea
- Symptoms vary in severity and tend to come and go
- Symptoms can often be related to dietary triggers and stress
- It can affect your daily activities and impact your quality of life

What can you do to help manage your symptoms?

- Identify foods that trigger your symptoms. Keeping a food diary may be helpful
- Choose high soluble fibre foods such as oats, flax, barley. Slowly increase the amount of fibre you eat.
- Consider use of a psyllium fibre (ie Metamucil)
- Drink plenty of water throughout the day
- Working on stress reduction techniques, get 20 minutes of physical activity daily.

You are enrolled on the IBS primary care pathway. What does this mean?

- The pathway helps to provide a map to ensure the care you are receiving is safe and helpful in managing your condition
- Patients can be enrolled on the pathway for several months, or possibly even for years
- Your primary care provider will take a detailed history of your IBS symptoms and to may ask questions about your diet and medications to help identify potential triggers.
- They may ask you to do blood work and stool tests to rule out infections and assess for celiac disease.
- If concerning features are identified, such as weight loss, GI blood loss or a significant family history then you may be referred to a specialist for assessment.

Additional resources

Canadian Digestive Health Foundation
https://cdhf.ca/digestive-disorders/irritable-bowel-syndrome-ibs/

Nutrition Education Materials
https://www.albertahealthservices.ca/nutrition/Page11115.aspx

https://www.albertahealthservices.ca/assets/info/nutrition/if-nfs-fibre-facts.pdf

Appendix C – Endnotes

Black C et al. Efficacy of soluble fibre, antispasmodic drugs, and gut brain neuromodulators in irritable bowel syndrome: a systematic review and network meta-analysis. *The Lancet Gastroenterology and Hepatology* (2020) 5:117-131

Khanna et al. Peppermint oil for the treatment of irritable bowel syndrome: a systematic review and meta-analysis. *Journal of Clinical Gastroenterology* (2014) 48:505-512

Moayyedi P et al. Canadian Association of Gastroenterology clinical practice guidelines for management of irritable bowel syndrome (IBS). *Journal of the Canadian Association of Gastroenterology* (2019) 2:6-29

Ruepert et al. Bulking agents, antispasmodics and antidepressants for the treatment of irritable bowel syndrome. *Cochrane database of systematic reviews* (2011) 8.

Su G et al. AGA Clinical Practice Guidelines on the Role of Probiotics in the Management of Gastrointestinal Disorders. *Gastroenterology* (2020) 159:697-705

Irritable Bowel Syndrome (IBS) Primary Care Pathway. Alberta Health Services and Primary Care Networks. 2021. https://www.albertahealthservices.ca/assets/about/scn/ahs-scn-dh-pathway-ibs.pdf

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Appendix D – IBS Diet and Symptoms Diary Template

	WEEK OF:		NAME:				
	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
FOOD/DRINK *Note the time and the food/drink consumed*							
DISCOMFORT/ PAIN *Note the time and intensity of the pain* *0 = no pain* *10 = worst pain*	Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10	Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10	Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10	Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10	Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10	Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10	Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10 Time: 0 1 2 3 4 5 6 7 8 9 10
BOWEL MOVEMENT *Note the time and consistency of the stool, e.g. watery/loose, hard/difficult to pass*							
