

Irritable Bowel Syndrome

Diagnosis/Condition:	Irritable Bowel Syndrome (IBS) spastic colon Other symptoms involving digestive system
Discipline:	ND, LAC
ICD-10 Codes:	K58.9; R19.4; R19.8
Origination Date:	2011
Review/Revised Date:	04/2023
Next Review Date:	04/2025

Irritable bowel syndrome (IBS) is the most common diagnosed gastrointestinal condition in the United States (U.S.) It is characterized by chronic altered bowel habits and abdominal discomfort or pain (in the absence of a known organic cause). Prevalence of IBS in North America is estimated to be 10 -20%.¹ Younger patients and women are more likely to be diagnosed with IBS and a systematic review suggests there is an overall 2:1 female predominance in North America.² Only about 15% of those affected seek medical attention, yet IBS still constitutes 25-50% of all gastroenterologist referrals³ and is the highest cause of work absenteeism after upper respiratory infections (colds).⁴ Patients with IBS have more frequent medical visits, have more diagnostic tests, prescribed more medications, miss more workdays, have lower work productivity, hospitalized more often, and consume more overall direct costs than patients without IBS. Resource utilization is highest in patients with severe symptoms, and poor health-related quality of life (HRQOL).⁵ Some studies suggest annual direct/indirect costs of up to \$30 billion.⁶ There are many comorbidities associated with IBS, including anxiety, depression, somatization, fibromyalgia, chronic fatigue, chronic pelvic pain, interstitial cystitis, sexual dysfunction and sleep disturbances. The treatment of pain in IBS remains a challenge.⁷

The pathophysiology and cause of IBS is incompletely understood.⁸ Current research indicates that pathology involves the interaction of gut-brain immune, inflammatory, and hormonal interaction, and the multifactorial nature is evident including environmental and host factors.^{9,10,11} Three primary factors have been observed: 1) psychosocial, 2) altered intestinal motility, and 3) altered bowel sensations.¹² Recent research suggests other possible etiologies, most notably neuro-hormonal dysfunction between the CNS and the 'gut' leading to inflammatory and immune-modulated reactions of the 'brain-gut axis'.¹³ Other areas of investigation that have garnered attention include alterations within intestinal microbial flora and serotonin modulation.^{14,15,16} In addition, several precipitating factors have been identified, including gender (female), family history (genetics), infection¹⁷, mucosal barrier disruptions, and a history of gastroenteritis or bowel movement disorders.^{18,19,20}

Subjective Findings and History

- Abdominal discomfort or pain with altered bowel habits (constipation, diarrhea, or alternating constipation and diarrhea) that is accompanied by at least two of the following: relief by defecation, change in frequency of stool, or change in consistency of stool.
- Abdominal pain severity, location, and character can vary. Symptoms may be triggered by food, particularly fats, or by stress.
- Other upper gastrointestinal (GI) symptoms may be associated: mucous discharge with stools, bloating, feeling of incomplete evacuation, straining, post-prandial urgency, gastroesophageal reflux (GERD), dysphagia, early satiety, intermittent dyspepsia, nausea, non-cardiac chest pain, abdominal bloating, increased gas production with flatulence or belching, abnormal stool frequency (≤ 3 bowel movements per week or >3 bowel movements per day), and abnormal stool form (lumpy/hard or loose/watery).
- Associated non-GI symptoms: sexual dysfunction, dysmenorrhea, dyspareunia, increased urinary frequency and urgency, and fibromyalgia symptoms.
- A subgroup of patients have a history of acute viral or bacterial gastroenteritis, which then leads to a subsequent disorder characteristic of diarrhea-predominant IBS (post-infectious IBS).
- Symptom onset at least 6 months prior to diagnosis.

Diagnosis and Differential Diagnosis

Symptom based criteria are used as a standard diagnostic tool.

The Manning Criteria was developed in 1978 and is a formulation of a symptom complex associated with IBS. The predictive ability of this criteria is conflicting.²¹

Manning Criteria for the diagnosis of IBS

- Sensation of incomplete evacuation.
- Pain relieved with defecation.
- More frequent stools at the onset of pain.
- Looser stools at the onset of pain.
- Noticeable abdominal distention.
- Passage of mucus with stool.

The Rome Criteria is a consensus definition that was created in 1992, revised in 2005 and again in 2016 in order to standardize clinical research protocols.^{22,23,24}

The ROME IV criteria suggest categorization of the syndrome into four sub-types: 1) IBS with constipation (IBS-C), 2) IBS with diarrhea (IBS-D), 3) mixed IBS, and 4) unclassified IBS and includes recurrent abdominal pain or discomfort at least 1 day per week in the last 3 months associated with 2 or more of the following criteria:

- Related to defecation.
- Onset associated with a change in frequency of stool.
- Onset associated with a change in form (appearance) of stool.

Current guidelines recommend suspicion of IBS *only* if a patient presents with abdominal pain that is either:²⁵

1. Relieved by defecation.
2. Associated with altered bowel frequency or stool form.

The presenting conditions should be accompanied by at least two of the following:

1. Altered stool passage (e.g., urgency or incomplete sensation).
2. Abdominal bloating, distension, tension, or hardness.
3. Symptoms made worse by eating.
4. Passage of mucus with stool.

In comparison to the above ROME IV criteria, (common in research, but less utilized in clinical practice), other diagnostic criteria are also suggested.²⁶

Three categories are based on symptoms:

1. IBS with predominant bowel dysfunction.
2. IBS with predominant pain.
3. IBS with predominant bloating.

Three additional categories are based on etiology:

1. Post-infectious IBS.
2. Food induced IBS.
3. Stress-induced IBS.

The American Gastroenterological Association (AGA) recommends that the diagnosis of IBS should be based upon: “the identification of positive symptoms consistent with the condition as summarized by the Rome criteria and excluding in a cost-effective manner other conditions with similar clinical presentations”.^{27,28}

According to Traditional Chinese Medicine (TCM) theory, IBS corresponds to several possible disease categories: 1) abdominal pain (*Fu Tong*); 2) diarrhea (*Xie Xie*); 3) constipation (*Bian Bi*); and 4) epigastric pain (*Wei Tong*).^{29,30} Individual symptom presentations, including bowel habits and the location and nature of pain, will determine the categories and eventual pattern differentiation for each patient.

TCM practitioners view the body in terms of *Qi*-dynamics and use unique and specific terminology. This is best summarized by the axiom “*One Pattern many Diseases, one Disease many Patterns*”; suggesting that identification of the correct ‘pattern’ (e.g., Liver *qi* stagnation) leads to improved patient care through the selection of pattern-specific acupuncture points. In the case

of IBS, patients are categorized as one of seven patterns, which often overlap, e.g., Liver *Qi* stagnation with Spleen *Qi* deficiency. In Chinese medicine, pain is considered to be an obstruction of *qi* and *blood*, which in turn may be due to an underlying imbalance of the viscera and bowels (*zang-fu*).³¹

Objective Findings and Assessment

Patients generally appear to be healthy. May exhibit anxiety or fatigue.

Acupuncture Objective Findings

Individual symptom presentations, including tongue, pulse, and abdominal diagnosis (in addition to location and nature of pain), will determine the pattern differentiation for each patient. In the case of IBS, patients are categorized as one of seven patterns, which often overlap, e.g., Liver *Qi* stagnation with Spleen *Qi* deficiency.^{32,33} As a concrete example of this, a recent secondary analysis of 113 patients identified seven primary patterns and 8 secondary patterns; most common of which, were *Liver Qi* stagnation and *Damp-Heat*.³⁴

Physical Exam

Abdominal tenderness may be present, particularly in the left lower quadrant. Abdominal distension and increased bowel sounds may be present. There may be no significant physical findings. A digital rectal examination (DRE), and a test for occult blood, should be done on all patients. In women, a pelvic examination helps rule out ovarian tumors and cysts or endometriosis, which may mimic IBS.

Diagnostic Tests

The main goal of evaluation is to rule out more serious organic disease. Clinical testing can appraise the mechanisms responsible for symptom generation, including rectal evacuation disorders, abnormal intestinal motility, visceral hypersensitivity or hypervigilance, bile acid diarrhea, sugar intolerances, barrier dysfunction, the microbiome, and chemicals released through immune activation.³⁵

Routine laboratory studies (complete blood count (CBC), blood chemistries, thyroid, ESR, Ca²⁺) are normal in IBS. They are not recommended unless warranted by other symptoms. A more extensive evaluation should be considered in patients who have had a change or progression of symptoms, do not respond to general treatment measures, or have “**alarm**” symptoms.

“**Alarm**” or atypical symptoms, which are not compatible with IBS, include: Rectal bleeding, nocturnal or progressive abdominal pain, fever(s), weight loss, laboratory abnormalities such as anemia, elevated inflammatory markers, or electrolyte disturbances. Patients with these symptoms should be considered for additional testing.

- In those with diarrhea as the predominant symptom:
 - Stool cultures – for enteropathogens, and tests to rule out *Giardia and other parasites* if there is suspected exposure.
 - Celiac disease screening – with serum IgA antibody to tissue transglutaminase should be performed.
 - Twenty-four-hour stool evaluation should be considered if osmotic or secretory diarrhea or malabsorption is suspected.
 - Colonoscopy or flexible sigmoidoscopy and biopsy. Many causes of chronic diarrhea such as microscopic colitis require endoscopic evaluation.
 - Occult blood testing.
- In those with constipation as predominant symptom:
 - Radiography of the abdomen can detect retained stool and suggest the diagnosis of constipation.
 - Flexible sigmoidoscopy and colonoscopy. Sigmoidoscopy or colonoscopy should be performed if a structural lesion is suspected. Colonoscopy is preferred in patients who are older than 50 because of the increased risk of colon cancer in this age group.
 - Occult blood testing.
- Mixed IBS – In patients with both diarrhea and constipation, screening should be performed based on medical history and other symptoms reported.
- Lactose breath testing can be considered when lactose maldigestion remains a concern despite dietary modification.
- Psychosocial Factors: Assess mental health history and symptoms. Because of the positive correlation between abuse and certain GI illness patterns, patients with refractory or severe IBS should be questioned about physical and sexual abuse. Some patients may have sleep disturbance, anxiety disorders, depression, or a somatization disorder. However, stress and emotional conflict do not always coincide with symptom onset and recurrence.

Plan

It is clear that there are multifactorial causes and presentations of IBS, and treatment needs to be directed at the individual presentation.

Naturopathic:³⁶

Lifestyle and Dietary Modifications^{37,38,39}

- Treatment is individualized and directed at specific symptoms.⁴⁰
- Education about IBS to establish appropriate therapeutic goals (e.g., expectations regarding the normal course or variability in symptoms, adverse effects of drugs, the appropriate working relationship between the doctor and the patient) should be established.
- There can be a risk of nutritional deficiencies with restrictive diets which must be taken into consideration and monitored.^{41,42}

- Avoid gas-producing and diarrhea-producing foods such as beans, onions, celery, carrots, raisins, bananas, apricots, prunes, brussels sprouts, wheat germ, and simple carbohydrates. A few contemporary studies have suggested carbohydrate malabsorption as a major contributor to IBS in some cases.⁴³
- Reduce portion size and implement pace eating. Those with abdominal distention and increased flatulence may benefit from reducing or eliminating foods containing fermentable carbohydrates (beans, cabbage). Underlying visceral hyperalgesia in IBS may explain the exaggerated discomfort experienced with consumption of gas-producing foods.
- Food allergies/sensitivities – The role of food allergy in IBS is unclear. Various testing methods for food allergies are available, although there is conflict about their reliability and an elimination/challenge diet is helpful to identify change in symptoms.⁴⁴
- Gluten sensitivity – Gluten sensitivity (without overt celiac disease) has been proposed as a cause of functional bowel disorders and an elimination/challenge diet may help to decipher this condition.^{45,46}
- Reduced intake of sweeteners (e.g., sorbitol, mannitol, fructose) and ethyl alcohols, which are constituents of natural and processed foods (e.g., apple and grape juice, bananas, nuts, and raisins). This may decrease flatulence, bloating, and diarrhea.⁴⁷ Patients with evidence of lactose intolerance should reduce their intake of milk and dairy products.⁴⁸ A lower-fat diet may reduce postprandial abdominal symptoms.⁴⁹
- Restricting rapidly fermentable, short-chain carbohydrates (Fermentable Oligo-, Di- and Monosaccharides and Polyols or FODMAPs).^{50,51,52,53,54,55}
- Increased fiber intake (primarily for constipation). Dietary fiber supplements may soften stool and improve the ease of evacuation. A bulk-producing agent may be used supplemented with increased fluid intake. Alternatively, psyllium (natural) with excess water may be used. However, excessive use of fiber can lead to bloating and diarrhea, so fiber doses must be individualized. Occasionally, flatulence may be reduced by switching to a synthetic fiber preparation (e.g., methylcellulose).^{56,57}
- Psychologic stress, anxiety, or mood disorders should be identified, evaluated, and treated.
- Behavioral or mental health therapy. Cognitive-behavioral therapy, standard psychotherapy, biofeedback, and hypnotherapy^{58,59,60,61} may help selected IBS patients to help reduce anxiety levels, encourage health promoting behavior, increase patient responsibility and involvement, and improve pain tolerance.⁶²
- Relaxation techniques (yoga, meditation, deep breathing, progressive muscle relaxation, visualization).^{63,64}
- Regular physical activity helps relieve stress and assists in bowel function, particularly in patients with constipation.⁶⁵
- Multi-component therapy incorporates elements of education, relaxation therapy, biofeedback, mediation,⁶⁶ and cognitive therapy or psychotherapy. Several studies have been done with these criteria in mind.^{67,68,69}
- Manipulative medicine.⁷⁰

- Homeopathy.^{71,72}
- Fecal Microbiome transplant (FMT).^{73,74,75,76,77}
- Evaluation of gut microbial dysbiosis.^{78,79}

Supplementation or Nutraceuticals:^{80,81}

- Preliminary data suggest that certain pre/probiotics (e.g., *Bifidobacterium infantis*, *Lactobacillus rhamnosus* GG) improve IBS symptoms, particularly bloating. Studies on specific strains are not conclusive.^{82,83,84,85,86,87,88}
- Some aromatic oils (carminatives) can relax smooth muscle and relieve pain caused by cramps in some patients. Peppermint oil, ginger, and fennel are the most common used agents in this class, but peppermint can also exacerbate GERD.
- *Curcuma* sp. (Turmeric), *Cynara scolymus* (artichoke leaf), *Fumaria officinalis*, *Hypericum perforatum* (St John's wort), *Maranta arundinacea* (Arrowroot), *Mentha × piperita* (peppermint oil),^{89,90,91,92} *Plantago psyllium*.⁹³
- Chinese herbs (Tong xie yao fang (TXYF), STW 5 and STW 5–II).^{94,95}
- Carmint (an Iranian herbal medicine containing total extracts of *Melissa officinalis*, *Mentha spicata*, and *Coriandrum sativum*).⁹⁶
- A Tibetan herbal digestive formula known as Padma Lax.⁹⁷
- STW 5 (Iberogast).^{98,99}
- C-IBS and DA-IBS formulations.¹⁰⁰
 - Gwakhyangjeonggisan (GJS).¹⁰¹
 - Tongxiening.¹⁰²
 - Glutamine 1000-3000 mg per meal.
 - HCl with meals if indicated, enzymatic support from plant-based enzymes or true pancreatic enzymes with or after meals, probiotics and maybe specifically, *saccharomyces boulardii* twice daily for a month or two or three.
 - With lots of mucus, Sea-cure and colostrum have been used.
- Slippery elm tea or products with that and marshmallow and licorice may be indicated.
- Glutamine supplementation for IBS-D.¹⁰³
- Western botanical medicines have been extensively and reviewed in several research meta-analyses.^{104,105,106}
- Boswellic acids.¹⁰⁷
- Soy isoflavones.¹⁰⁸
- Vitamin D supplementation.^{109,110}
- Resveratrol and other bisphenol rich products.¹¹¹
- Fiber supplements and probiotics.^{112,113}

Acupuncture and Traditional East Asian Medicine:

- Guidelines from the World Gastroenterology Organization include the suggestion that acupuncture may be a valuable component of the multi-modal approach to care.^{114,115}

- As a generalization, IBS involves an aspect of internal disharmony, especially within the *Liver system* and inclusion of acupuncture points to address this imbalance is of importance.
- Both local (abdominal) and distal acupuncture points are most often selected as the primary treatment of choice, with a focus on the acupoints of the Stomach, Large Intestine and Liver channels. Frequency of treatment: Severity of symptoms will guide frequency of treatment.
 - The largest RCT to date (n=531) provided 18 Tx's (3x/wk.); positive effects observed starting at week 6.¹¹⁶
 - A large scale (n=233) pragmatic trial from UK provided 10 Tx's (1x/wk.).¹¹⁷
- Whole food nutrition is important and dietary assessment is an important part of ongoing treatment.

Acupuncture Research:

Although >30 RCTs have been published, most are in Chinese; 14 are English language.^{118,119,120,121,122,123,124,125,126,127,128,129,130,131} With the exception of one recent pilot study¹¹⁵, the most recent systematic reviews include and summarize these trials,^{132,133,134} as well as others published in Chinese and not indexed in PubMed. Based on the literature, the following conclusions can be drawn:

The evidence is promising to suggest benefit from acupuncture for the treatment of IBS; more research is required to draw definitive conclusions.

- A 2022 network meta-analysis of acupuncture (25 RCTs; n=3,041) suggests, "Acupuncture provided additional benefits to usual care, and it might be considered as adjunctive therapy..."¹²¹
- A 2022 meta-analysis (31 RCTs; n=3,468) concluded that although the quality of evidence was variable, "...acupuncture and/or moxibustion are beneficial for symptom severity, abdominal pain and quality of life."¹²³
- A 2022 network meta-analysis for IBS-D (21 RCTs; n=1,626) concluded that Acupuncture [and various moxa therapies] were superior to pinaverium bromide (a medication used in China but not FDA approved) but call for more research.
- Two earlier reviews (2012 & 2019) suggest that acupuncture is more effective than medications commonly utilized in China (demonstrated to provide modest benefit for IBS: PEG 4000 & pinaverium bromide).^{135,136}

Chinese Herb Research:

- Two recent meta-analyses suggest the benefits of various herbal formulation; more research is required to draw definitive conclusions.
 - A 2021 network meta-analysis (28 RCTs; n=3,323) suggests that, "Chinese Herbal medicines could be beneficial for patients with IBS in relieving their clinical symptoms and should be recommended as alternative therapies."¹³⁷

A 2021 network meta-analysis (28 RCTs; n=3,323) suggests that herbal formula were as effective as common anti-spasmodic medications (e.g., drotaverine), “Chinese Herbal medicines and antispasmodics were efficacious for improvement of global IBS symptoms and abdominal pain.”¹³⁸

Moxibustion:

- Two network meta-analyses (both from 2022) suggest that combining moxibustion with acupuncture leads to better effects, however the caution is warranted due to low quality trials (n=6).^{122,123}
- A 2022 meta-analysis (11 RCTs; n=725) of moxa for IBS-D suggests the results are preliminary, but promising, and but calls for more research.¹³⁹

Behavioral and cognitive approaches:

- Diet changes:¹⁴⁰
 - Some foods make IBS worse including fatty foods like French fries, milk products like cheese or ice cream, chocolate, alcohol, caffeine (found in coffee and some sodas), carbonated drinks like soda.
 - Dietary fiber improves IBS symptoms.
 - Eating smaller meals may improve IBS.
- Stress reduction through regular exercise, meditation, massage, yoga, or counseling.¹⁴¹
- There is some limited support for comprehensive Cognitive Behavioral Therapy (CBT) approaches^{142,143} which may include information and education, progressive muscle relaxation, training in illness-related cognitive coping strategies, problem-solving, and assertiveness training.^{144,145}

Prescription Medications:¹⁴⁶

Drug therapy is directed toward the dominant symptoms¹⁴⁷. The chronic use of prescription medications for IBS should be avoided.

- Anticholinergic/antispasmodic drugs (e.g., *hyoscyamine*, *cimetropium*, *pinaverium*) may be used for their antispasmodic effects.
- Prokinetic and prosecretory agents.¹⁴⁸
- Bile acid modulators.
- Chloride channel activator lubiprostone may help patients with constipation.
- In patients with diarrhea, anti-diarrheal medications, such as oral diphenoxylate or loperamide may be given before meals. The dose of loperamide should be titrated upward to reduce diarrhea while avoiding constipation.^{149,150,151}
- For many patients, tricyclic antidepressants (TCAs) help relieve symptoms of diarrhea, abdominal pain, and bloating. These drugs are thought to reduce pain by down-regulating the activity of spinal cord and cortical afferent pathways arriving from the intestine.
- Secondary amine TCAs (e.g., nortriptyline, desipramine) are often better tolerated than parent tertiary amines (e.g., amitriptyline, imipramine, doxepin) because of fewer

anticholinergic, sedating antihistaminic, and α -adrenergic adverse effects. Treatment should begin with a very low dose of a TCA increasing as necessary and tolerated.¹⁵²

- Serotonin receptor modulation may be of benefit.
SSRIs/SNRIs are also useful, particularly for patients with anxiety or an affective disorder, but may exacerbate diarrhea.
Antibiotics (rifaximin).^{153,154}

Referral Criteria

- Pain associated with anorexia, malnutrition, or weight loss. This constellation is extremely rare in IBS unless there are concurrent alternate factors, such as major psychological illness.
- Pain that is progressive, awakens the patient from sleep, or prevents sleep.
- Large volume diarrhea, persistent fever, bloody stools, nocturnal diarrhea, and greasy stools are NOT associated with IBS and suggest an organic disease.
- Rectal bleeding or persistent presence of occult blood not explained by hemorrhoids.

Resources for Clinicians

Rome IV includes a section called “Twelve Steps to Enhance the Therapeutic Relationship” which is a recommended guide to partner with patients to improve treatment outcomes.

Rome Foundation. What’s new for Rome IV. <http://theromefoundation.org/rome-iv/whats-new-for-rome-iv/>.

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[Defrees DN, Bailey J. Irritable Bowel Syndrome: Epidemiology, Pathophysiology, Diagnosis, and Treatment. *Prim Care*. 2017;44\(4\):655-671.](#)

Resources for Patients

International Foundation for Functional Gastrointestinal Disorders. About Irritable Bowel Syndrome. <http://www.aboutibs.org/>

Medline Plus. National Library of Medicine. Irritable Bowel Syndrome. <http://www.nlm.nih.gov/medlineplus/irritablebowelsyndrome.html>

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