

Patient Jane Doe#3
DOB 02/02/1971
Sex F

Completed 3/23/17
Received 3/22/17
Collected 3/20/17

Ordering Practitioner
Bradley Bush, ND
Natural Medicine of Stillwater

Diagnosis = POSITIVE for Small Intestinal Bacterial Overgrowth (SIBO); ICD-10 A04.9

Gasses Tested	Result	Normal (Criteria Per MFR)	Laboratory Diagnostic Criteria*
Hydrogen (H ₂)	-1 ppm	<20 ppm	≥20 ppm
Methane (CH ₄)	3 ppm	<12 ppm	≥3 ppm ^{1,2}
Combined H ₂ + CH ₄	2	<15 ppm	≥15 ppm
Double H ₂ peak	Present	----	Present

Laboratory Director Notes

Baseline and 2nd specimen collection were contaminated with room air. Ability to diagnose test results accurately was not compromised due to nature of sustained methane gas elevation.

Methane gas >12 ppm at two consecutive readings is considered positive for SIBO.
Methane levels ≥10 p.p.m. at 90 minutes is considered diagnostic for methane-positive SIBO.

Pimentel M, et al. Methane, a gas produced by enteric bacteria, slows intestinal transit and augments small intestinal contractile activity. *Am J Physiol Gastrointest Liver Physiol.* 2006;290(6):G1089-G1095.

Rezaie A, Buresi M, Lembo A, Lin H, McCallum R, Rao S, Schmulson M, Valdovinos M, Zakko S, Pimentel M. Hydrogen and Methane-Based Breath Testing in Gastrointestinal Disorders: The North American Consensus. *Am J Gastroenterol.* 2017 May;112(5):775-784.

Results reported are rises over lowest preceding values within 120 minutes of lactulose consumption.

*Laboratory diagnostic criteria

There are many factors that affect testing outcome and our lab director and/or your practitioner may use different diagnostic criteria than those recommended by the device manufacturer. There is no standardized diagnostic criteria for SIBO via breath testing, therefore diagnosis is ultimately the responsibility of the ordering practitioner and based on testing, medical history and clinical presentation.

1. Chatterjee S, Park S, Low K, Kong Y, Pimentel M. The degree of breath methane production in IBS correlates with the severity of constipation. *Am J Gastroenterol.* 2007 Apr;102(4):837-41.
2. Kim G, et al. Methanobrevibacter smithii is the predominant methanogen in patient with constipation-predominant IBS and methane on breath. *Dig Dis Sci.* 2012 Dec;57(12):3213-8.

About Small Intestinal Bacterial Overgrowth

Small Intestinal Bacterial Overgrowth (SIBO) is defined as an excessive amount of bacteria in the small intestines. SIBO occurs when colonic bacteria, normally found in the large intestines, are found in large amounts in the small intestines. The increased bacterial load in the small intestine results in excessive fermentation and inflammation, leading to a variety of clinical complaints ranging from mild, non-specific symptoms such as abdominal pain, bloating, and flatulence (passing gas), to more severe symptoms such as malabsorption, fatty liver and weight loss. Symptoms of SIBO outside the GI include, but are not limited to: headaches, muscle pain, joint pain, neuropathic pain, and cognitive complaints including brain fog.

SIBO bacteria produce hydrogen (H₂) and methane (CH₄) gasses as a result of disaccharide metabolism. These gasses are measured during the lactulose breath test you completed.

An accurate diagnosis of SIBO includes your breath test results, your presenting symptoms, diet and response to treatments.

SIBO Treatment Options

Treatments revolve around minimizing bacterial growth while reducing/eliminating the amount of colonic bacteria (SIBO) in the small intestines. This is typically accomplished through a combination of dietary changes and antibiotics (herbal and/or prescriptive). Additional support for malnutrition, mucosal damage and intestinal permeability may also be recommended by your practitioner. SIBO can be caused by improper digestion (achlorhydria, use of stomach acid blockers, food sensitivities, poor diet) or impairment of the mass motor complex of the intestines as a result of another health condition (diabetes, autoimmune disorders, Parkinson's disease, etc.); additional medical workups may be needed.

Retesting

Retesting is recommended after SIBO directed treatment(s) to evaluate treatment efficacy or potential recurrence. Reassessments can be done immediately after SIBO directed treatments or 1-2 months after reducing therapeutics and expanding diet.

Condition	SIBO Prevalence Rates
Celiac disease	9-67%
Connective tissue disease (e.g. scleroderma)	43-55%
Crohn's disease	25-88%
Diabetes	8-44%
Hypothyroidism	54%
Ulcerative colitis	81%
Chronic fatigue syndrome	81%
Fibromyalgia	93%
Irritable Bowel Syndrome	4-78%
Obesity	17-41%
Rosacea	46%
Muscular dystrophy	65%
Parkinson's disease	54%
Abdominal surgery	82%
Gastrectomy	63-78%

Reference: Grace E, Shaw C, Whelan K, Andreyev HJ. Review article: small intestinal bacterial overgrowth--prevalence, clinical features, current and developing diagnostic tests, and treatment. *Aliment Pharmacol Ther.* 2013 Oct;38(7):674-88.