

Gut Review Case Assignments

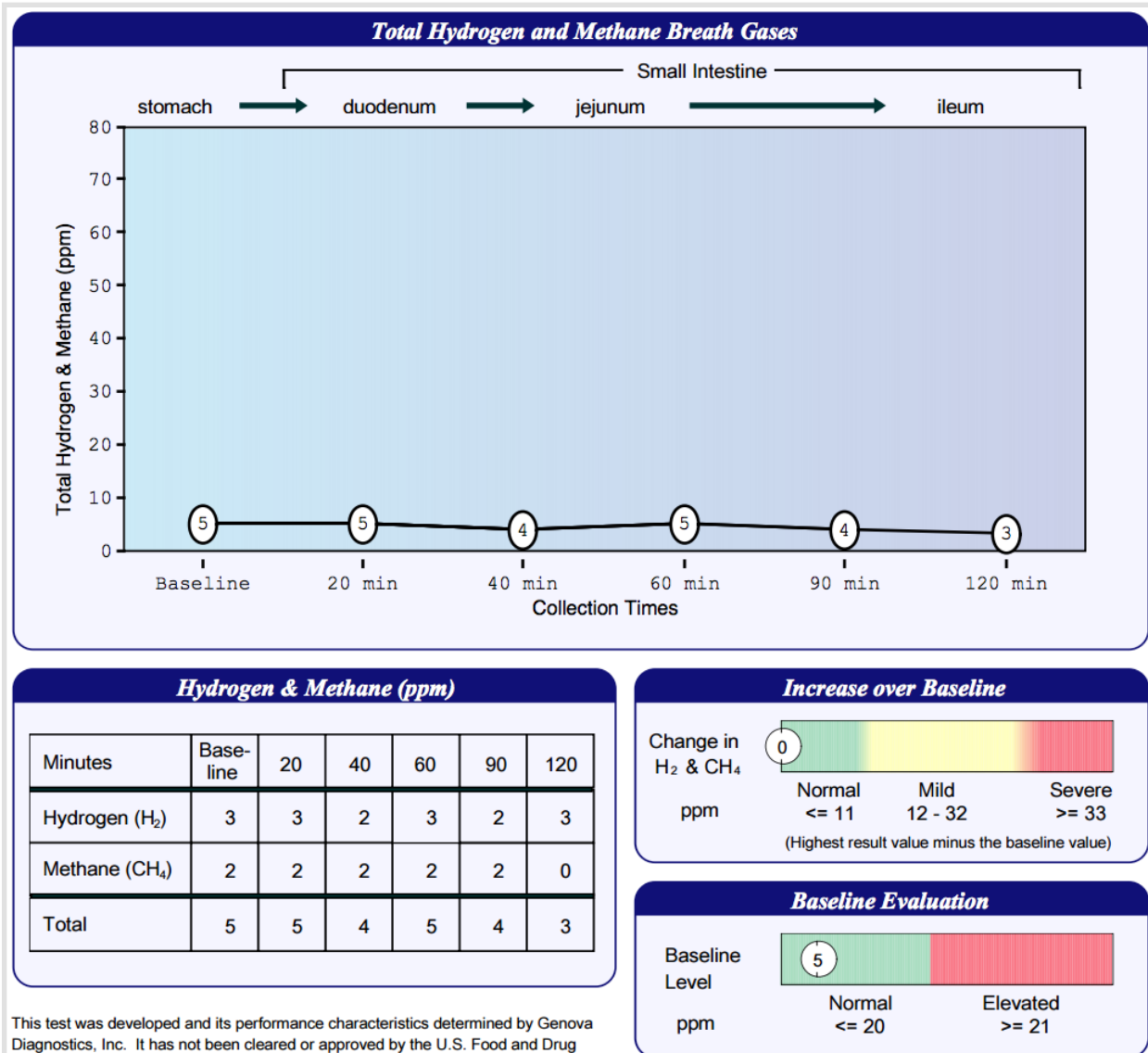
Please review the following case studies and evaluate them to the best of your ability. You should treat these case studies as if they were your own patients and determine what treatment protocol to recommend. Don't worry, you won't have to turn in your answers for a grade. These assignments should be treated as more of a self study tool to help you measure your progress throughout the course. We have also provided an answer key, detailing the treatment protocol recommended by Chris and his staff for your comparison.

You may also want to discuss the cases with others in the ADAPT Forum.

CASE #2, STEP 1:

This patient was a 59-year-old female who presented with a known diagnosis of Blastocystis and reported having tried many natural therapies with persistent Blastocystis species, upper abdominal pain, weight loss resistance, hyperglycemia, and poor thyroid function.

SIBO breath test October 2014:



CSAP x3 October 2014:

Comprehensive Stool Analysis / Parasitology x3

BACTERIOLOGY CULTURE		
Expected/Beneficial flora 1+ Bacteroides fragilis group 3+ Bifidobacterium spp. 3+ Escherichia coli 3+ Lactobacillus spp. 1+ Enterococcus spp. 2+ Clostridium spp. NG = No Growth	Commensal (Imbalanced) flora 1+ Alpha hemolytic strep	Dysbiotic flora

BACTERIA INFORMATION

Expected /Beneficial bacteria make up a significant portion of the total microflora in a healthy & balanced GI tract. These beneficial bacteria have many health-protecting effects in the GI tract including manufacturing vitamins, fermenting fibers, digesting proteins and carbohydrates, and propagating anti-tumor and anti-inflammatory factors.

Clostridia are prevalent flora in a healthy intestine. Clostridium spp. should be considered in the context of balance with other expected/beneficial flora. Absence of clostridia or over abundance relative to other expected/beneficial flora indicates bacterial imbalance. If *C. difficile* associated disease is suspected, a Comprehensive Clostridium culture or toxigenic *C. difficile* DNA test is recommended.

Commensal (Imbalanced) bacteria are usually neither pathogenic nor beneficial to the host GI tract. Imbalances can occur when there are insufficient levels of beneficial bacteria and increased levels of commensal bacteria. Certain commensal bacteria are reported as dysbiotic at higher levels.

Dysbiotic bacteria consist of known pathogenic bacteria and those that have the potential to cause disease in the GI tract. They can be present due to a number of factors including: consumption of contaminated water or food, exposure to chemicals that are toxic to beneficial bacteria; the use of antibiotics, oral contraceptives or other medications; poor fiber intake and high stress levels.

YEAST CULTURE	
Normal flora No yeast isolated	Dysbiotic flora

MICROSCOPIC YEAST

Result:	Expected:
None	None - Rare

The microscopic finding of yeast in the stool is helpful in identifying whether there is proliferation of yeast. Rare yeast may be normal; however, yeast observed in higher amounts (few, moderate, or many) is abnormal.

YEAST INFORMATION

Yeast normally can be found in small quantities in the skin, mouth, intestine and mucocutaneous junctions. Overgrowth of yeast can infect virtually every organ system, leading to an extensive array of clinical manifestations. Fungal diarrhea is associated with broad-spectrum antibiotics or alterations of the patient's immune status. Symptoms may include abdominal pain, cramping and irritation. When investigating the presence of yeast, disparity may exist between culturing and microscopic examination. Yeast are not uniformly dispersed throughout the stool, this may lead to undetectable or low levels of yeast identified by microscopy, despite a cultured amount of yeast. Conversely, microscopic examination may reveal a significant amount of yeast present, but no yeast cultured. Yeast does not always survive transit through the intestines rendering it unviable.

***A trichrome stain and concentrated iodine wet mount slide is read for each sample submitted.**

DIGESTION / ABSORPTION				
	Within	Outside	Reference Range	Elastase findings can be used for the diagnosis or the exclusion of exocrine pancreatic insufficiency. Correlations between low levels and chronic pancreatitis and cancer have been reported. Fat Stain: Microscopic determination of fecal fat using Sudan IV staining is a qualitative procedure utilized to assess fat absorption and to detect steatorrhea. Muscle fibers in the stool are an indicator of incomplete digestion. Bloating, flatulence, feelings of "fullness" may be associated with increase in muscle fibers. Vegetable fibers in the stool may be indicative of inadequate chewing, or eating "on the run". Carbohydrates: The presence of reducing substances in stool specimens can indicate carbohydrate malabsorption.
Elastase	357		> 200 µg/mL	
Fat Stain	Few		None - Mod	
Muscle fibers	None		None - Rare	
Vegetable fibers	Rare		None - Few	
Carbohydrates	Neg		Neg	

INFLAMMATION				
	Within	Outside	Reference Range	Lysozyme* is an enzyme secreted at the site of inflammation in the GI tract and elevated levels have been identified in IBD patients. Lactoferrin is a quantitative GI specific marker of inflammation used to diagnose and differentiate IBD from IBS and to monitor patient inflammation levels during active and remission phases of IBD. White Blood Cells (WBC): in the stool are an indication of an inflammatory process resulting in the infiltration of leukocytes within the intestinal lumen. WBCs are often accompanied by mucus and blood in the stool. Mucus in the stool may result from prolonged mucosal irritation or in a response to parasympathetic excitability such as spastic constipation or mucous colitis.
Lysozyme*	484		<= 600 ng/mL	
Lactoferrin	< 0.5		< 7.3 µg/mL	
White Blood Cells	None		None - Rare	
Mucus	Neg		Neg	

IMMUNOLOGY				
	Within	Outside	Reference Range	Secretory IgA* (sIgA) is secreted by mucosal tissue and represents the first line of defense of the GI mucosa and is central to the normal function of the GI tract as an immune barrier. Elevated levels of sIgA have been associated with an upregulated immune response.
Secretory IgA*		46.0	51 - 204mg/dL	

SHORT CHAIN FATTY ACIDS				
	Within	Outside	Reference Range	Short chain fatty acids (SCFAs): SCFAs are the end product of the bacterial fermentation process of dietary fiber by beneficial flora in the gut and play an important role in the health of the GI as well as protecting against intestinal dysbiosis. Lactobacilli and bifidobacteria produce large amounts of short chain fatty acids, which decrease the pH of the intestines and therefore make the environment unsuitable for pathogens, including bacteria and yeast. Studies have shown that SCFAs have numerous implications in maintaining gut physiology. SCFAs decrease inflammation, stimulate healing, and contribute to normal cell metabolism and differentiation. Levels of Butyrate and Total SCFA in mg/mL are important for assessing overall SCFA production, and are reflective of beneficial flora levels and/or adequate fiber intake.
% Acetate	57		40 - 75 %	
% Propionate	13		9 - 29 %	
% Butyrate	27		9 - 37 %	
% Valerate	3.1		0.5 - 7 %	
Butyrate	1.3		0.8 - 4.8 mg/mL	
Total SCFA's	4.6		4 - 18 mg/mL	

INTESTINAL HEALTH MARKERS				
	Within	Outside	Reference Range	Red Blood Cells (RBC) in the stool may be associated with a parasitic or bacterial infection, or an inflammatory bowel condition such as ulcerative colitis. Colorectal cancer, anal fistulas, and hemorrhoids should also be ruled out. pH: Fecal pH is largely dependent on the fermentation of fiber by the beneficial flora of the gut. Occult blood: A positive occult blood indicates the presence of free hemoglobin found in the stool, which is released when red blood cells are lysed.
Red Blood Cells	None		None - Rare	
pH	6.5		6 - 7.8	
Occult Blood	Neg		Neg	

Organix Dysbiosis October 2014:

