

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 practice interpreting each lab. 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 in a separate document, detailing the lab interpretation by Chris and his staff for your comparison.

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

SIBO Case Assignments

Of note, all presented test results are from lactulose breath tests rather than glucose.

CASE 1:

A 65-year-old female has Hashimoto's disease, hyperlipidemia, rosacea, heart palpitations, and occasional abdominal bloating/distention.

Data	H ₂ = Hydro	gen CH4	= Methane	CO ₂ = Meas	ured					
	Sample	ppm H ₂	ppm CH₄	Total H2 + CH4	CO2 %*	160 140	۵	0		
1	Baseline	1	4	5	OK	120 -	A. 0		2	
2	20 min	8	9	17	OK	100 -		/ A~	A Q	
3	40 min	86	23	109	OK	80 - /🕰		/		
4	60 min	114	21	135	OK	60 - //				
5	80 min	94	20	114	OK	40 //				
6	100 min	67	21	88	OK	20 -				
7	120 min	109	24	133	OK	o Larrenter				
8	140 min	92	23	115	OK	1 2 3			8 9 10	
9	160 min	76	20	96	OK					
10	180 min	50	18	68	OK	Hydrogen O	Methane —•	- Combined H	lydrogen & Methane	
Analysis	and the entries to			baseline total =		or details if cells are highlighted and blan	5	-	≤20ppm	
Gre	atest H ₂ increa	ase over t	he lowest	preceding valu	e withi	n first 120 minutes =	113	н	≤20ppm	
	-					n first 120 minutes =	20	Н	≤12ppm	
Greatest co	mbined H ₂ & C	H₄ increa	se over the	e lowest preced	ding va	ue within first 120 minutes =	130	н	≤15ppm	
Interpretati	on									
SIBO Suspect	SIBO Suspected - Elevated Hydrogen first 120 minutes (+/- 5min deviation) are indicative of bacterial overgrowth.							POSITIVE		
SIBO Suspect	ed - Elevated M	Nethane				in 12ppm over the lowest precedin eviation) are indicative of bacteria		POSITIVE		
SIBO Suspecte Hydrogen	ed - Elevated C & Methane Ga		Increase			and methane gas values greater alue are indicative of bacterial over		POSITIVE		



CASE 2:

A 20-year-old male has food sensitivities, diarrhea, gas, and anxiety.

			CO2 QC	Check	Pass				
	Gases	Expe	cted	Obse	erved	Norm	al/Abnorm	al	
	H2 †	<20	ppm	2.:	25		Normai		
	CH4	<10.00	ppm	0.6	D6		Normai		
	H ₂ S	<5.00	ppm	9.3	24	Abnormal			
Indicative of Exce	ess Hydrog	en Sulfide		Interpi	retation				
Indicative of Exce	ess Hydrog	en Sulfide							
			13	Re	sults	Th	7	18	19
andicative of Exce Samples	ess Hydrog 11 0	en Sulfide <u>T2</u> 17	13 33			16 80	<u>17</u> 96	18 111	19 127
amples Interval (hr:min)	11	12		Re: 14	sults 15	Card and a second s	2412-2412-2412-2412-2412-2412-2412-2412		and the second se
Samples	11	12		Re: 14	sults 15	Card and a second s	2412-2412-2412-2412-2412-2412-2412-2412		and the second se

Suboptimal Sample-Bag Deflated (T1, T6)

9.24

6.21

5.81

6.61

6.97

5.43

7.07

8.08

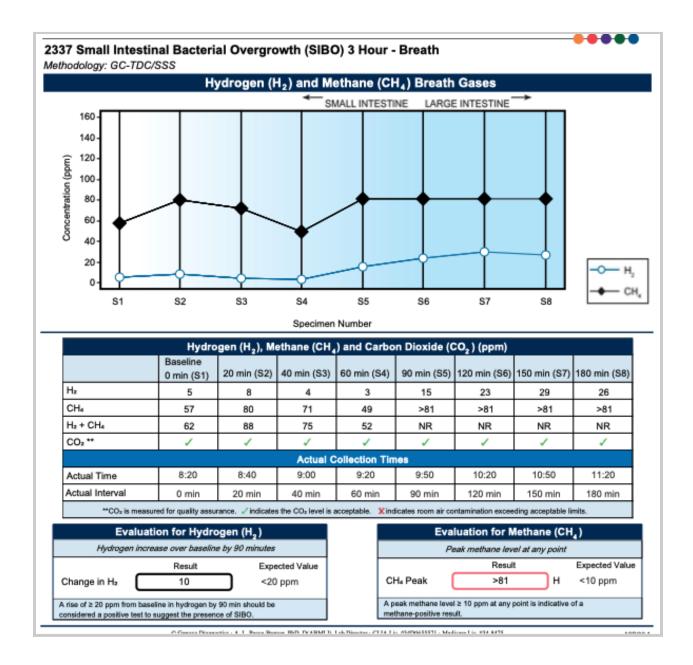
7.25

H₂S (ppm)



CASE 3:

A 68-year-old female has Parkinson's disease and associated mild hand tremor. She reports otherwise being in good health and has no digestive complaints. Small intestinal bacterial overgrowth (SIBO) is associated with Parkinson's disease in the scientific literature, so the positive finding is not surprising.





CASE 4:

A 42-year-old male has high cholesterol, impaired fasting glucose, mild reflux, and diarrhea that comes and goes.

	CO ₂ QC Check Pass						
Gase	Gases Expected Observed Normal/Abnormal						
H ₂ †	<20	ppm	7.99	Normal			
CH4	<10.00	ppm	24.90	Abnormal			
H ₂ S	<5.00	ppm	10.00	Abnormal			

[†]Note: The "observed" peak for H₂ is within the first 90 minutes.

Interpretation

Indicative of Intestinal Methanogenic Overgrowth and Excess Hydrogen Sulfide

				Re	sults				
Samples	7999 1 99999		T3		T5	<u></u>	77		
Interval (hr:min)	0	15	30	45	60	75	90	105	120
Gases		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	****************	******************	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
H ₂ (ppm)	0.00	0.08	0.00	7.99	4.54	1.65	0.50	3.03	1.36
CH₄ (ppm)	3.99	4.70	9.53	5.37	16.33	10.50	24.90	11.91	13.16
H ₂ S (ppm)	10,00	10,00	10.00	10,00	10.00	10,00	10,00	10,00	10.00



CASE 5:

A 52-year-old female has complaints of "silent reflux," upper gastrointestinal discomfort after meals, irritable bowel syndrome mixed type, fatigue, and depressed mood. Gut symptoms started after a trip to Mexico 5 years ago and again worsened 1 year ago after another food illness episode.

	$\mathbb{C}(\mathbb{Q}_{2},\mathbb{Q})$	Pass	
Gases	Expected	Observed	Normal/Abnormal
H ₂ †	<20.09 ppm	44.23	Abnormal
CH₄	<10.00 ppm	23.13	Abnormal
H ₂ S	<5.00 ppm	10.00	Abnormal

*Note: The "observed" peak for H₂ is within the first 90 minutes.

Interpretation

Indicative of Small Intestinal Bacterial Overgrowth, Intestinal Methanogenic Overgrowth, and Excess Hydrogen Sulfide

Samples	T1	T2	T3	T4	T5	T6	17	T8	T9
Interva! (hr:min)	0	17	32	47	62	77	92	107	122
Gases		*****************		*********************	******	*****	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	********************	*****
				0.01	0.43	11.00	E/ 4E	50.05	45.00
H ₂ (ppm)	0.09	1.81	1.77	2.21	8.61	44.23	56.45	59.95	45.22
H₂ (ppm) CH₄ (ppm)	0.09 23.13	1.81 22.78	1.77 22.45	2.21 20.52	8.61 21.47	44.23 21.87	21.31	20.23	45.22

Suboptimal Sample-Bag Deflated (T1-T3)

	RESULTS	
Antibody Detected	Patient Value (OD)	Antibody Levels
Anti-CdtB Ab	0.35	Not Elevated
Anti-Vinculin Ab	2.81	Elevated

ABOUT THE ASSAY

Diarrhea-predominant irritable bowel syndrome (IBS-D) is a gastrointestinal disorder affecting 10-15% of the population. Host antibodies to CdtB cross-react with vinculin, a protein in the intestinal lining, leading to a small intestinal bacterial overgrowth (SIBO) and IBS-like phenotype. Elevated levels of anti-CdtB and anti-vinculin antibodies have been identified in IBS-D and IBS-M patients compared to patients with inflammatory bowel disease (IBD).^{1,2}

Results were achieved using ELISA test methodology. An elevated result supports the diagnosis of diarrheapredominant or mixed-typed IBS. A normal result does not preclude the diagnosis of IBS-D or IBS-M due to the low negative predictive value. The ibs.smart[™] assay has a specificity of 94% for anti-CdtB and 91% for antivinculin and a positive predictive value of 96% for anti-CdtB and 91% for anti-vinculin. An indeterminate result is denoted as (*) and indicates a level beyond the measurable range of the assay.

Anti-CdtB Ab Anti-Vinculin Ab	Reference Interval 0.00 – 1.56 0.00 – 1.60	Reportable Range 0.00 – 4.00 0.00 – 4.00	
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