Announcing SIBO Testing Updates for February 2018

Dear Valued Client,

In the spirit of continuous improvement and updating our testing services with the most current science and research, BioHealth is aligning the SIBO #900 and #901 tests with the recently published consensus on hydrogen and methane-based breath testing.

As documented in the North American Journal of Gastroenterology publication: *Hydrogen and Methane-Based Breath Testing in Gastrointestinal Disorders: The North American Consensus*, we are changing patient instructions and result interpretation to emulate the latest in standardized guidelines for clinical practice and research. Below is a FAQ that addresses these changes.

Attached are sample reports for the #900-C and #901-C tests which highlight the updates. Glucose report updates are the same as the Lactulose report except for one additional change, highlighted in the #901-C example report below.

**SIBO Test Update FAQ**

**How do I order the new SIBO test?**

The old format (represented by #900, #901, and #910) will continue to be available for order until May 1, 2018, to be used for follow-up testing on patients with baseline results which were done using the old format. The new tests will be represented by #900-C, #901-C, and #910-C. The “C” stands for Consensus.

At biohealthlab.com, the special ordering page for SIBO kits will separate the old and new kits for convenient ordering. You are also welcome to call us at the numbers below for personalized assistance.

**What changed in the patient test instructions?**

- Laxatives are to be avoided 7 days prior to the test (instead of 4 days).
- Antibiotics should be avoided for 4 weeks prior to the breath test (instead of 2 weeks).
- Breath collection intervals are now every 15 minutes (instead of every 20 minutes).

**Did the kit itself change?**

The patient test instructions have changed and the glucose dosing instructions have been updated and simplified. There are still 10 vials collected.

**The collection process used to take 3 hours. Why did that change?**

It has been determined through peer reviewed literature consensus that the relevant testing time period for capturing the intestinal transit of the substrate is 2 hours (120 minutes). The updated BioHealth SIBO test provides one extra collection at 135 minutes to accommodate patients with slow intestinal transit times.
For the lactulose SIBO test in patients who do not have delayed intestinal transit time or constipation, the late hydrogen peaks that occur after 120 minutes are the usually result of normal bacterial fermentation in the colon. Our patient data show that the late hydrogen peaks typically occur around 120 to 160 minutes. If patients are methane producers, values often remain elevated throughout all vials. Glucose SIBO testing does not need to extend to 3 hours as this sugar is rapidly absorbed and the 135 minute collections is specific for capturing proximal small intestine overgrowth.

**What do the test results look like? Are they different than before?**

We have made improvements to the interpretation of our test reports, while keeping them simple and easy to use. Attached are sample reports for the #900-C and #901-C tests which highlight the updates made to the report.

**What changed for interpretation of the lactulose test?**

The greatest hydrogen rise will be analyzed from the first 90 minutes of collections instead of the first 120 minutes. Also, the peak methane guideline is now Normal: <= 10 ppm instead of Normal: <= 3 ppm. Providers may wish to investigate patients with methane values between 3-9 ppm, however patients who are methane dominant producers often have elevated values well above 10 ppm cutoff.

**What changed for interpretation of the glucose test?**

The greatest hydrogen rise will be analyzed from the first 90 minutes of collections instead of 180 minutes. The hydrogen rise guideline is now Normal: < 20 ppm instead of Normal: <= 12 ppm. Also, the peak methane guideline is now Normal: < 10 ppm instead of Normal: <= 3 ppm.

**Are these new versions of the SIBO breath tests more accurate than past tests?**

Yes, our laboratory is continually researching improvements and developments in the clinical and scientific research communities and these guidelines represent the current consensus on interpretation guidelines. The new versions of the SIBO breath tests will help to refine diagnostic accuracy by narrowing the interpretation timeframe and SIBO positive cutoffs.

We look forward to serving you with the industry’s leading SIBO assessments. Contact us at the numbers below, or through our website, to obtain assistance.
The North American consensus recommends a 120 minute test duration for lactulose and glucose SIBO breath testing. The final reading at 135 minutes is provided to capture delayed reactions in patients with constipation or prolonged orocecal transit time due to factors such as medications or disease. Within 90 minutes, the sugar substrate should transition from the small intestine to the colon; however, slow transit times may result in SIBO markers appearing after 90 minutes. The late hydrogen peaks that typically occur after 120 minutes are usually the result of normal bacterial fermentation in the colon. Health providers have the ultimate authority as to how they interpret their patient’s results.

In an effort to remain up to date on the latest data analysis and literature consensus, we are updating our SIBO breath testing interpretation guidelines to reflect the recommendations recently published in the American Journal of Gastroenterology.

**Summary of Results**

<table>
<thead>
<tr>
<th>Trace Gas Markers</th>
<th>Result (ppm)</th>
<th>Guideline</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greatest Hydrogen (H2) rise over lowest previous value in first 90 minutes</td>
<td>66</td>
<td>Normal: &lt; 20 ppm</td>
<td>Elevated</td>
</tr>
<tr>
<td>Peak Methane (CH4) at any point in the test</td>
<td>7</td>
<td>Normal: &lt; 10 ppm</td>
<td>Normal</td>
</tr>
</tbody>
</table>

**Updated to < 10 ppm. Previously <=3 ppm.**

In an effort to remain up to date on the latest data analysis and literature consensus, we are updating our SIBO breath testing interpretation guidelines to reflect the recommendations recently published in the American Journal of Gastroenterology.
Small Intestinal Bacterial Overgrowth (SIBO) is suspected if one or more of the following criteria are met. These guidelines are for research purposes only. Additional criteria used by some clinicians to identify possible SIBO presence, are also listed below. The results should be interpreted by the clinician in the context of the patient’s symptoms and other external diagnostic data.

**Elevated Hydrogen:** In the first 90 minutes after ingesting the solution, an increase in hydrogen gas of greater than or equal to 20 ppm from the lowest previous result may be an indication of bacterial overgrowth.

**Peak Methane:** In any of the collections, a methane gas result of greater than or equal to 10 ppm are considered methane-positive and may suggest methanogen overgrowth. Studies have shown a relationship between methane production and constipation-predominant IBS. Methane results may not increase and instead stay elevated throughout all collections. Some providers may wish to interpret any amount of methane production as positive therefore values between 3 and 9 ppm may also suggest methanogen overgrowth.

**Elevated Baseline:** Some literature suggests a baseline hydrogen gas result of greater than 20 ppm may be an indication of bacterial overgrowth; however clinical significance is unclear. An elevated baseline may also be an indication of a lack of adherence to the test’s diet and fasting instructions.

**Elevated Sum of Hydrogen and Methane:** Although the 2017 North American consensus did not provide a recommendation on interpretation of combined gases, some providers may wish to evaluate the rise in the sum of hydrogen and methane results for individuals who produce both gases. Previous guidelines suggested an indication of bacterial overgrowth if there is a rise of >15 ppm above the lowest previous sum of hydrogen and methane.

**References:**
**SIBO Breath Test (Glucose #901-C)**

**Collection Time** | ppm H2 | ppm CH4 | Sum H2 and CH4 | CO2*  
--- | --- | --- | --- | ---  
1. Baseline | 3 | 0 | 3 | OK  
2. 15 min | 12 | 1 | 13 | OK  
3. 30 min | 32 | 3 | 35 | OK  
4. 45 min | 13 | 1 | 14 | OK  
5. 60 min | 14 | 0 | 14 | OK  
6. 75 min | 9 | 3 | 12 | OK  
7. 90 min** | 4 | 2 | 6 | OK  
8. 105 min | 3 | 1 | 4 | OK  
9. 120 min | 2 | 0 | 2 | OK  
10. 135 min | 3 | 0 | 3 | OK  

* Samples are corrected for Carbon Dioxide (CO2) concentration to account for variations in collection. Invalid samples are categorized as Quantity Not Sufficient (QNS).

**90 minutes is the typical time at which the biomarker travels from the small intestine to the colon. However, slow transit times may result in SIBO markers during the last 45 minutes.

This guideline was updated January 2018 as a result of ongoing research and recently published literature consensus.

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<td>Greatest Hydrogen (H2) rise over lowest previous value in the first 90 minutes</td>
<td>29</td>
<td>Normal: &lt; 20 ppm</td>
<td>Elevated</td>
</tr>
<tr>
<td>Peak Methane (CH4) at any point in the test</td>
<td>3</td>
<td>Normal: &lt; 10 ppm</td>
<td>Normal</td>
</tr>
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Incorrect sample handling may affect results. Results are not intended to diagnose, treat, cure, or prevent any disease or replace medical advice from a qualified health care provider.