

A national consensus guideline on the performance and interpretation of hydrogen- and methane-based breath tests for carbohydrate malabsorption, small intestinal bacterial overgrowth, and intestinal methanogen overgrowth

Tsachi Tsadok Perets^{a,b}

Rabin Medical Center, Beilinson Campus, Petach Tikva, Israel; Holon Institute of Technology, Holon, Israel

We thank Dr. Zavos for his constructive comments and for highlighting 3 important issues that extend beyond the scope of our guideline.

First, the concept of using hydrogen sulfide (H_2S) as a breath biomarker for various gastro-intestinal disorders, particularly in patients with diarrhea-predominant symptoms, is relatively new [1,2]. Therefore, our recommendations were limited, and included gases measurable by instruments available in routine Israeli clinical laboratories during the development of the guideline. To date, validated 3-gas systems were not available to all centers involved in this initiative, nor are they broadly available at this time. Additionally, there was no clear standardization in clinical cutoff values and interpretive pathways to justify their inclusion in a practical national guideline. We are currently evaluating the acquisition and validation of instruments allowing simultaneous H_2 , CH_4 , and H_2S measurement.

Second, we acknowledge the controversy regarding lactulose versus glucose for small intestinal bacterial overgrowth testing. Our preference for lactulose was a pragmatic local standard, rather than a claim of universal superiority. It permits a uniform protocol across the laboratory service, may detect more distal fermentation, and avoids a substantial glucose load in patients for whom this may be undesirable, particularly those with uncontrolled hyperglycemia. We nevertheless recognize lactulose-related confounding by rapid orocecal transit [3] and agree that glucose may be preferable when specificity is prioritized.

Third, sucrose intolerance and sucrase-isomaltase deficiency deserve greater attention. However, the 35% figure

cited derives from a selected tertiary-referral cohort and should not be interpreted as population prevalence [4]. We did not recommend sucrose breath testing in view of the insufficient standardization of substrate dose, analytical method, diagnostic thresholds and clinical validation. Our group is examining whether a validated sucrose-testing protocol can be incorporated into future laboratory practice.

We appreciate these important observations, which will help us better prioritize the next update of this guideline.

References

1. Villanueva-Millan MJ, Leite G, Mathur R, et al. Hydrogen sulfide and methane on breath test correlate with human small intestinal hydrogen sulfide producers and methanogens. *Dig Dis Sci* 2025;**70**:3846-3856.
2. Pimentel M, Leite G, Joo L, et al. Real-world study of three-gas breath testing nationwide and the association with symptoms. *J Clin Gastroenterol* 2026;**60**:406-417.
3. Kashyap P, Moayyedi P, Quigley EMM, Simren M, Vanner S. Critical appraisal of the SIBO hypothesis and breath testing: a clinical practice update endorsed by the European Society of Neurogastroenterology and Motility (ESNM) and the American Neurogastroenterology and Motility Society (ANMS). *Neurogastroenterol Motil* 2024;**36**:e14817.
4. Kim SB, Calmet FH, Garrido J, Garcia-Buitrago MT, Moshiree B. Sucrase-isomaltase deficiency as a potential masquerader in irritable bowel syndrome. *Dig Dis Sci* 2020;**65**:534-540.

^aThe Gastroenterology Laboratory and the Division of Gastroenterology, Rabin Medical Center, Beilinson Campus, Petach Tikva, Israel (Tsachi Tsadok Perets); ^bDepartment of Digital Medical Technologies, Holon Institute of Technology, Holon, Israel (Tsachi Tsadok Perets)

Conflict of Interest: None

Correspondence to: Dr. Tsachi Tsadok Perets, PhD, EuSpLM, Head of the Gastroenterology Laboratory, Rabin Medical Center, Beilinson Campus, 39 Jabotinsky Street, Petach Tikva 4941492, Israel, e-mail: tzahipe1@clalit.org.il; tsadokt@hit.ac.il; kaiser1974@gmail.com

Received 7 August 2026; accepted 8 August 2026;
published online 30 September 2026

DOI: <https://doi.org/10.20524/aog.2026.1118>

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms