

Cost Benefit Associated with the Use of Sitzmarks® for the Diagnosis of Constipation in an Adult Population

Ibrahim R¹, Salt II WB², Magar R³

¹AHRM Inc., Buffalo, NY, USA, ²IBS and Gut Microbiome Solutions, Dublin, OH, USA, ³AHRM Inc., Raleigh, NC, USA

INTRODUCTION

In the United States, chronic constipation is a highly prevalent symptom-based disorder affecting approximately 16% of the population. Chronic constipation affects both quality of life and results in substantial economic burden. There are three main ICD-10 diagnoses: Chronic idiopathic constipation (K59.04), Irritable bowel syndrome with predominant constipation (K58.1), Outlet dysfunction constipation (K59.02) or obstructed defecation (K56.41). Current diagnostic and management guidelines call for a careful history and physical examination and limiting laboratory testing, colonoscopy, and imaging to evaluation of selected individuals with red flag concerning features, such as blood in the stool. Management differs based upon accurate diagnosis. The Sitzmarks® Simplified Transit Time Test available for adults and children has the potential to facilitate early diagnosis of chronic constipation. A single capsule with 24 markers is administered on day 1 and followed by single x-ray on day 6 (after 120 hours). Patients can be categorized according to patterns of marker movement: Many patients have normal colonic transit, which should respond to standard treatment. Outlet dysfunction/obstructed defecation constipation can usually be managed with physical therapy including biofeedback. Slow transit constipation (colonic inertia) is rare and calls for evaluation of whole gut motility.

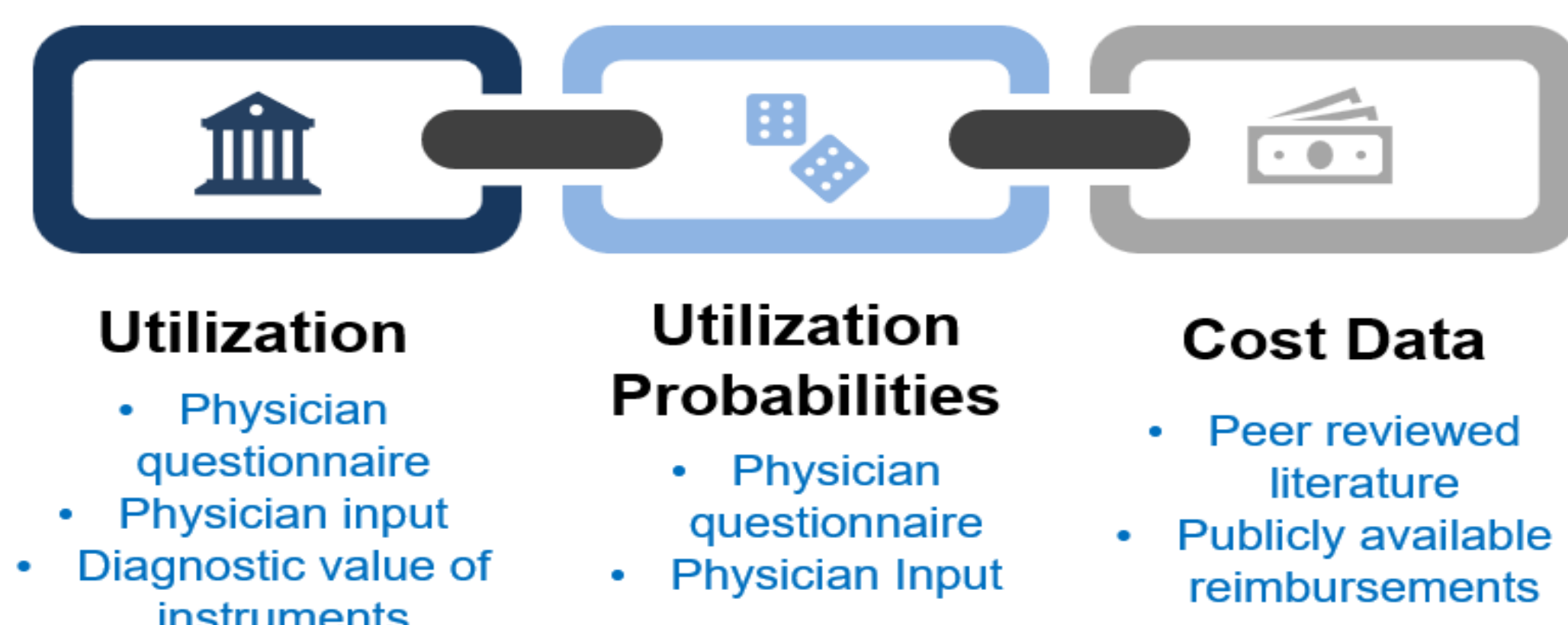
OBJECTIVE

The aim of this decision analytic model was to evaluate cost savings and net benefit of utilizing SITZMARKS® versus other standard of care in the diagnosis of constipation in a hypothetical adult population

METHODS

- Sitzmarks® cost impact compared to SOC was evaluated using TreeAge 2021 software in a hypothetical population of pediatric patients who presented with chronic constipation in an outpatient setting in the United States.
- SITZMARKS® capsule is a safe, non-invasive tool used to detect blockage or colonic inertia in pediatric or adult patients with constipation⁴. Sitzmark®'s cost impact compared to current standard of care (SOC) was evaluated using TreeAge 2021 software in a hypothetical population of pediatric patients who presented with inadequate colonic motility in an outpatient setting in the US.
- A two-stage approach was employed to build the model. First stage consisted of concept elicitation of answers from pediatric physician/ provider response to questionnaire regarding diagnosis of pediatric functional constipation. Furthermore, the second stage consisted of development of a patient simulation model using the findings from the physician/ provider survey and peer reviewed literature.

Figure 1. Three Main Inputs Utilized For the Model

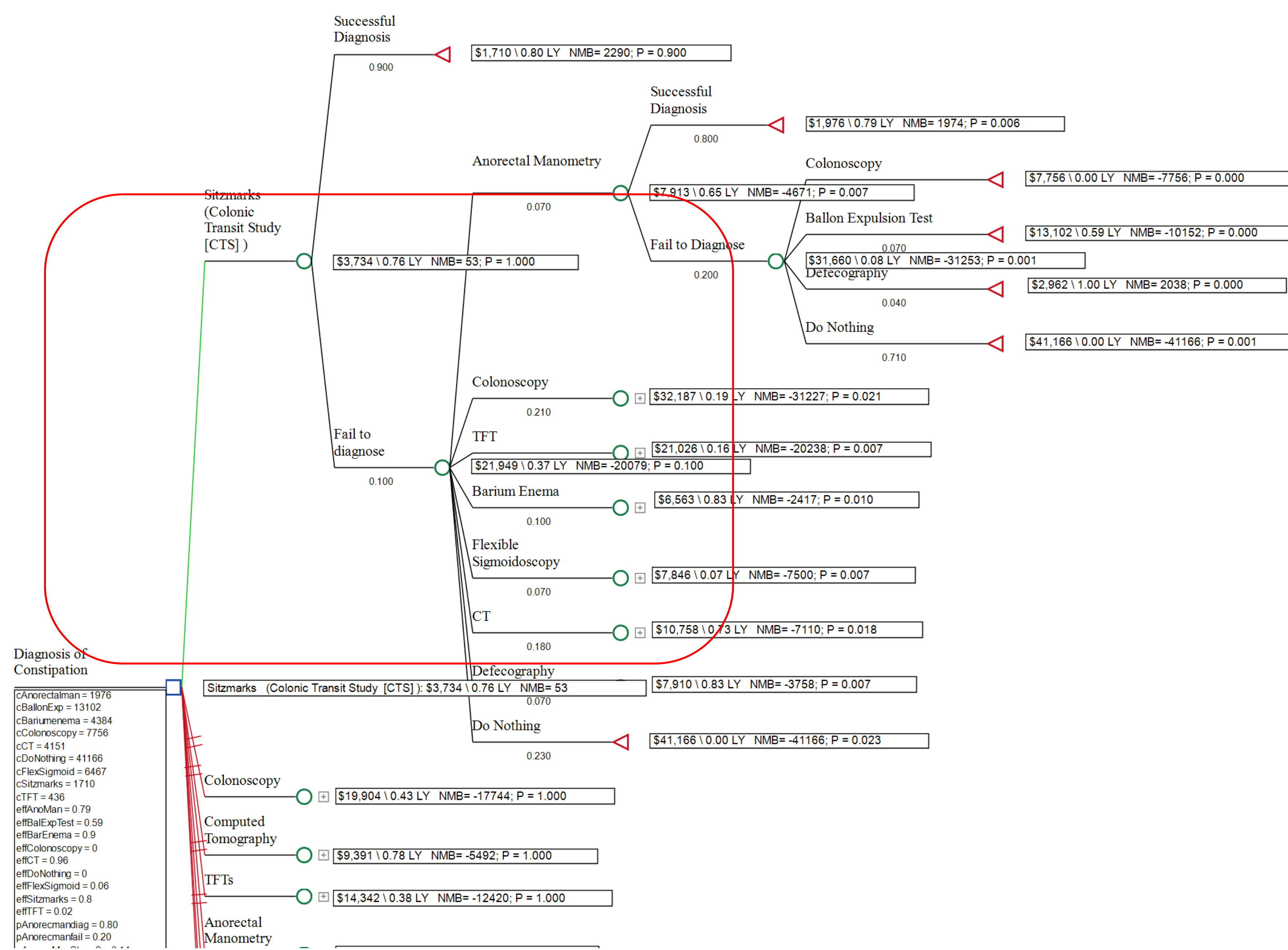


- Model inputs were from a United States (US) payer perspective over a 1-year time horizon. Costs for procedures were derived from estimated private payer reimbursements and adjusted to 2021 dollars. Base case costs, sensitivity analysis and incremental cost effectiveness (ICE) were evaluated. The price of 10 capsules of Sitzmarks® is \$849.

RESULTS

- A total of 28 physicians responded to the survey and of those, 25 responses were used in the development of the model (3 were deleted due to incomplete data).
- According to the responses, the use of Sitzmarks® ranked 11th, 6th, and 2nd for use in first, second, and third line, respectively, for the diagnosis of adult constipation despite 80% diagnostic yield reported.
- The use of Sitzmarks® dominated all standard of care with an expected value of US\$3,734 (assuming an 80% test sensitivity). (Figure 2).
- Sensitivity analysis results showed that Sitzmarks® remained the least expensive option at 60% diagnostic yield.
- Untreated constipation was the most expensive option with an incremental cost of \$31,775 followed by colonoscopy with an expected value of \$19,904.

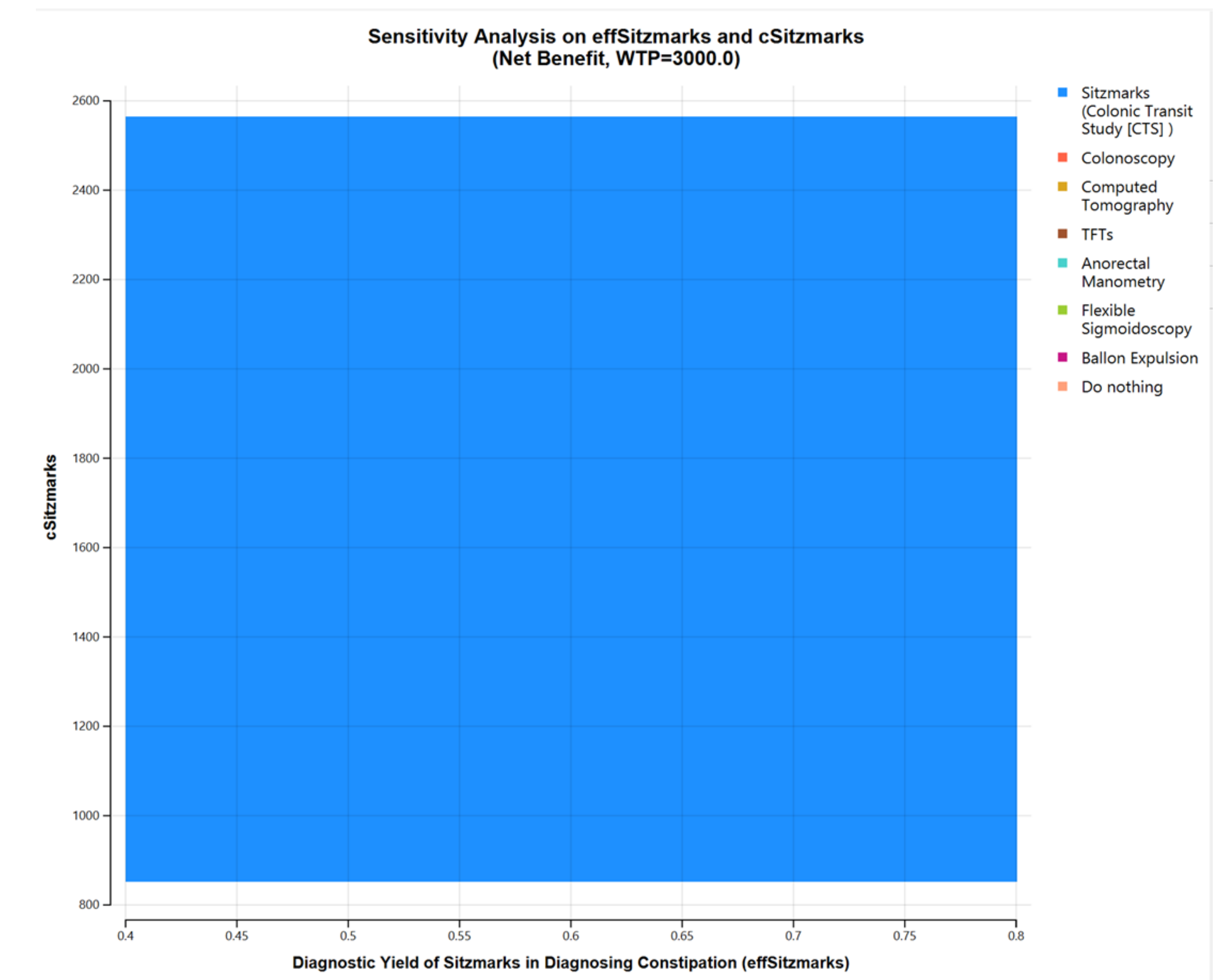
Figure 2. The Use of Sitzmarks® as First Line Provides Cost Savings



- Results of two-way sensitivity analysis that varied the total cost of Sitzmarks® (~800 to ~2600) and the diagnostic yield (40% to 80%) of Sitzmarks® showed that Sitzmarks® dominated all other standard of care (Figure 3).

RESULTS (Continued)

Figure 3. Two Way Sensitivity Analysis



CONCLUSIONS

Constipation exacts a significant economic and humanistic burden on the US population, thus the use of SITZMARKS® may improve diagnostic accuracy and consequently reduce the need for further testing which could result in significant cost savings.

REFERENCES

- Nag A, Martin SA, Mladi D, Olayinka-Amao O, Purser M, Vekaria RM. The Humanistic and Economic Burden of Chronic Idiopathic Constipation in the USA: A Systematic Literature Review. Clin Exp Gastroenterol. 2020 Jul 16;13:255-265. doi: 10.2147/CEG.S239205. PMID: 32765039; PMCID: PMC7371558.
- Doshi JA, Cai Q, Buono JL, Spalding WM, Sarocco P, Tan H, Stephenson JJ, Carson RT. Economic burden of irritable bowel syndrome with constipation: a retrospective analysis of health care costs in a commercially insured population. J Manag Care Spec Pharm. 2014 Apr;20(4):382-90. doi: 10.18553/jmcp.2014.20.4.382. PMID: 24684643.
- Bharucha AE, Lacy BE. Mechanisms, Evaluation, and Management of Chronic Constipation. Gastroenterology. 2020 Apr;158(5):1232-1249.e3. doi: 10.1053/j.gastro.2019.12.034. Epub 2020 Jan 13. PMID: 31945360; PMCID: PMC7573977.

DISCLOSURES

No funding was provided for development of this presentation. Konsyl provided funding for development of the economic model and analysis.

Scan the QR Code to download a copy of the poster.

