

Singer ME, Gross S, Kaul V, Smith MS. Cost-Effectiveness of Adjunctive Wide Area Transepithelial Sampling With Computer-Assisted Analysis in Screening for Barrett's Esophagus: 449. American Journal of Gastroenterology: 2019;114: S262.

INTRODUCTION: Screening for Barrett's Esophagus (BE) in chronic gastroesophageal reflux disease (GERD) using targeted and random forceps biopsy (FB) is recommended by current ACG guidelines. A recent study of 10,412 screening patients showed that Wide Area Transepithelial Sampling with 3D computer-assisted tissue analysis (WATS) increases detection of Barrett's esophagus (BE) when used adjunctively to FB. We analyzed the cost-effectiveness implications of this study's findings.

METHODS: A decision analytic model compared the effectiveness and cost-effectiveness of two alternative screening strategies for BE in chronic GERD patients: FB alone vs. FB combined with WATS. The reference case was a 60 year old male. BE detected by positive FB or WATS was referred for surveillance. False positive WATS+/FB- were confirmed after a second negative surveillance FB. Cost and effectiveness of surveillance were based on published models with ablation for low or high grade dysplasia, available on the National Cancer Institute CISNET website. See Table 1 for an overview of model parameters. Effectiveness was measured in quality-adjusted life years (QALYs). Cost was measured in 2018 US\$ and the incremental cost-effectiveness ratio (ICER) was measured in \$/QALY. Model parameters are outlined in Table 2. We considered 3 values of added yield (213% from the study, half of that, one-third of that) and 3 values of false positives among the added yield (5%, 15%, 25%) and calculated the ICER for all 9 pairwise combinations of those two parameters. We considered two thresholds for cost-effectiveness: \$100K/QALY and \$150K/QALY. Cost and QALYs were discounted at 3% per year.

RESULTS: The ICERs for all 9 combinations of added yield and false positives are in Table 3. Use of FB plus WATS was cost-effective in all 9 combinations at the lower \$100K/QALY threshold. Using the worst case for added yield (1/3 of the value from the study), FB plus WATS was cost-effective at the \$150K/QALY for a false positive rate below 56%. Using the worst case for false positive rate (25%), FB plus WATS was cost-effective at the \$150K/QALY for added yield of over 38%.

CONCLUSION: We demonstrate that WATS, when used adjunctively with FB for screening 60 year old males with chronic GERD, is a cost-effective approach to reducing morbidity and mortality from esophageal cancer.