Feasibility of a Symptomatic Screening Program for Early Detection of Gastric Cancer in Roatan, Honduras: Preliminary Results

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Background

- Gastric cancer (GC) is the third most common cause of cancer mortality worldwide and one of the leading infection-associated cancers.
- It is estimated that stomach cancer is the number one cause of cancer death in Central Latin America and the cancer with the fifth most absolute number of incident cases in the region.
- Early-stage symptoms of gastric cancer are often nonspecific and diagnosis of the disease is typically done during later stages.
- Early detection of stomach cancer is needed to improve outcomes.
- The UK's National Institute for Health and Care Excellence (NICE) has established criteria to determine if a patient is at high risk for stomach cancer and should be evaluated by gastroenterology that has been used in other low resource settings to increase early referral to endoscopy for evaluation of stomach cancer.

Methods

***Primary Objective**: Assess feasibility of patient-reported symptomatic screening questionnaire (National Institute for Health and Care Excellence [NICE]) to identify patients for gastroenterology referral in Roatán, Honduras.*

- We have partnered with Clinica Esperanza, a non-profit medical clinic that provides low-cost healthcare to 28,000 people annually in Roatán and serves as a main primary care clinic on the island.
- Goal of screening 500 patients for the pilot program
- Patients who are determined to be appropriate for referral for endoscopy by NICE criteria were approached for study inclusion.
- *Secondary objective*: *Describe the barriers to endoscopic diagnosis of gastric cancer including: physical resources, personnel resources, and patient related barriers*
  - We are have also designed a questionnaire for providers that will be distributed nationwide

Symptomatic Screening Tool

Abdominal mass consistent with stomach cancer? Yes/No	If yes, the screening is positive.
Dysphagia? Yes/No	If yes, the screening is positive.
Is the patient 55 years or older AND has recent weight loss? Yes/No	If yes, please continue to screen for the following symptoms.
Upper abdominal pain? Acid Reflux? Dyspepsia?	If the patient is 55 years or older AND has recent weight loss with any of these three symptoms, the screening is positive

**Note: this questionnaire is given in Spanish*

Patient Participant Flow

Patient screens positive and agrees to be a part of the study

Initial Interview
- Collecting information on: demographics, symptoms, past medical history, family history, diet, and if the patient has an endoscopy appointment

Follow-up Interviews
- 3 total (typically 1-2 months apart)
- Collecting information on: if patients have received their endoscopy or have an appointment, barriers that patients may face in receiving an endoscopy (cost, difficulty traveling to the facility, lack of knowledge of where to get the procedure, being unsure of whether or not they need the endoscopy)

Preliminary Results

Total number of positive screenings	9
Clinically relevant positive screenings	7
Total number of patients screened	451

**The two patients who screened positive but were deemed clinically irrelevant to stomach cancer were screened positive do to presence of dysphagia due to infection or for an ENT concern.*

Demographics and Risk Factors for Positively Screened Patients, n=7

Sex	57% Female, 43% Male
Average age	48.57 years old
Average years lived in Roatan	29
Symptoms	
Abdominal mass	42.85%
Dysphagia	71.42%
Weight loss	71.42%
Upper abdominal pain	85.71%
Acid reflux	71.42%
Dyspepsia	85.71%
Average length of reported symptoms by time of positive screening	34 weeks
Most commonly reported pre-existing conditions	Hypertension (57.14%), Hyperlipidemia (28.57%)
Family history of cancer	28.57%
Previous H. pylori infection	57.14%
Alcohol consumption	14.29%
Took medication for acid reflux	71.42%
Dietary risk factors	57.14%
Understood why they were referred for endoscopy	42.86%

Patient-reported Barriers to Care

Cost	100%
Difficulty traveling to a facility	28.57%
Lack of knowledge on which facilities did endoscopy	28.57%

1 patient received endoscopy with a medical brigade 6 months after his positive screening, which our care team helped connect them to. They reported transportation as a barrier, having to travel over 42 miles to the facility. They felt relaxed about the test, trusted the results, and received a diagnosis of chronic gastritis and a hiatal hernia.

Discussion/Conclusion

- Diagnosis during the later stages of gastric cancer is a major contributor to mortality. Central America is no exception, with clinical characteristics of GC cases underscoring the reality of advanced disease in the region—one analysis of endoscopy registries in Western Honduras found that 35.2% of GC patients had pyloric obstruction, indicating advanced disease.
- Endoscopy capacity in the region has been reported to be historically limited, as the Honduras Ministry of Health has been unable to finance pathology services and many patients are unable to pay out of pocket for a final diagnosis.
- Our first group of patients was connected to a local medical brigade to have endoscopies done free of charge.
- We have collaborated with a gastroenterologist in Tegucigalpa who has agreed to do the endoscopies for the rest of our patients without charge to them as well.
- Dysphagia may be too nonspecific of a finding to warrant a positive screening.
- Cost was referred to as a barrier by all patients at some point. Endoscopy is offered by one facility on the island for a total of 8100 lempiras (~$327 USD)
- Our preliminary results highlight the need for increased endoscopy capacity in the region and the importance of strong referral networks for speciality procedures

References: Global Burden of Disease 2019 Cancer Collaboration. Cancer Incidence, Mortality, Years of Life Lost, Years Lived With Disability, and Disability-Adjusted Life Years for 29 Cancer Groups From 2010 to 2019: A Systematic Analysis for the Global Burden of Disease Study 2019. *JAMA Oncol.* 2022;8(3):420–444. doi:10.1001/jamaoncol.2021.6987; de Martel C, Georges D, Bray F, Ferlay J, Clifford GM. Global burden of cancer attributable to infections in 2018: a worldwide incidence analysis. *Lancet Glob Health.* 2020;8(2):e180-e190. doi:10.1016/S2214-109X(19)30488-7; https://www.nice.org.uk/guidance/ng12/chapter/Recommendations-organised-by-site-of-cancer#upper-gastrointestinal-tract-cancers; Booyse K, Swart O, Gouws J, Duvenage R. The effect of the introduction of an electronic booking system to appropriately prioritise gastroscopies at a regional hospital in South Africa. *S Afr Med J.* 2020;110(8):807-811. Published 2020 Jul 29. doi:10.7196/SAMJ.2020.v110i8.14444; Dominguez RL, Crockett SD, Lund JL, et al. Gastric cancer incidence estimation in a resource-limited nation: use of endoscopy registry methodology. *Cancer Causes Control.* 2013;24(2):233-239. doi:10.1007/s10552-012-0109-5