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Gastric metaplasia: What Do We Do?

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Disclosures

Consultant:

- Olympus
- Boston Scientific
- Medtronic
- FujiFilm
- MicroTech
- Lumendi
- Neptune
- EndoRobotics

Objectives

- Demographics of gastric cancer in the US
- Gastric intestinal metaplasia
- Gastric cancer screening

Current Recommendations

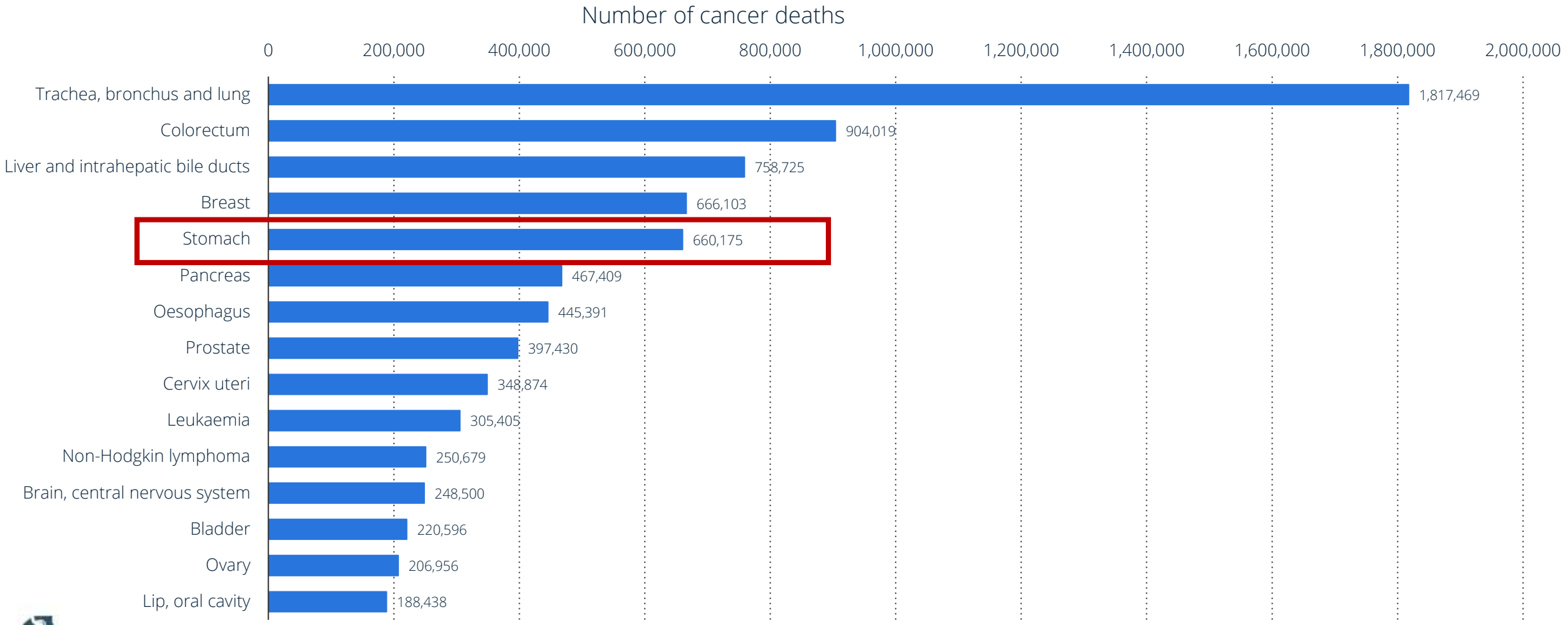
- We suggest screening EGD for gastric cancer in new U.S. immigrants from high-risk regions around the world, such as Korea, Japan, China, Russia, and South America, especially if there is a family history of gastric cancer in a first-degree relative.

Stomach cancer

- 5th leading cause of cancer death worldwide
- 3rd leading cause of cancer death in Japan
- 2nd leading cause of cancer death in Korea
- 17th leading cause of cancer death in the US

Race and ethnicity considerations in GI Endoscopy - GIE 2015

Cancer deaths worldwide 2022



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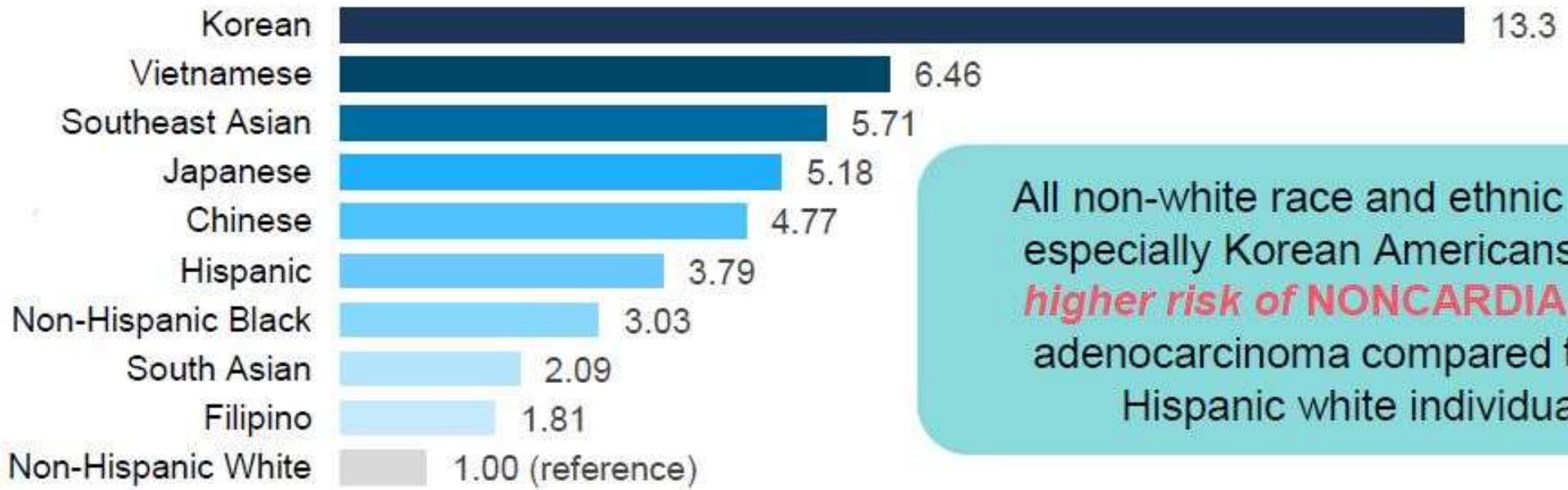
WHO; International Agency for Research on Cancer; ID 288580

Population-Based Analysis of Differences in Gastric Cancer Incidence Among Races and Ethnicities in Individuals Age 50 Years and Older

Shailja C. Shah,[1,2] Meg McKinley,[3,4] Samir Gupta,[5,6,7] Richard M. Peek Jr,[2] Maria Elena Martinez,[6,8] and Scarlett L. Gomez[4,9]



All non-white race and ethnic groups, especially Korean Americans, had a ***higher risk of*** **NONCARDIA** gastric adenocarcinoma compared to non-Hispanic white individuals

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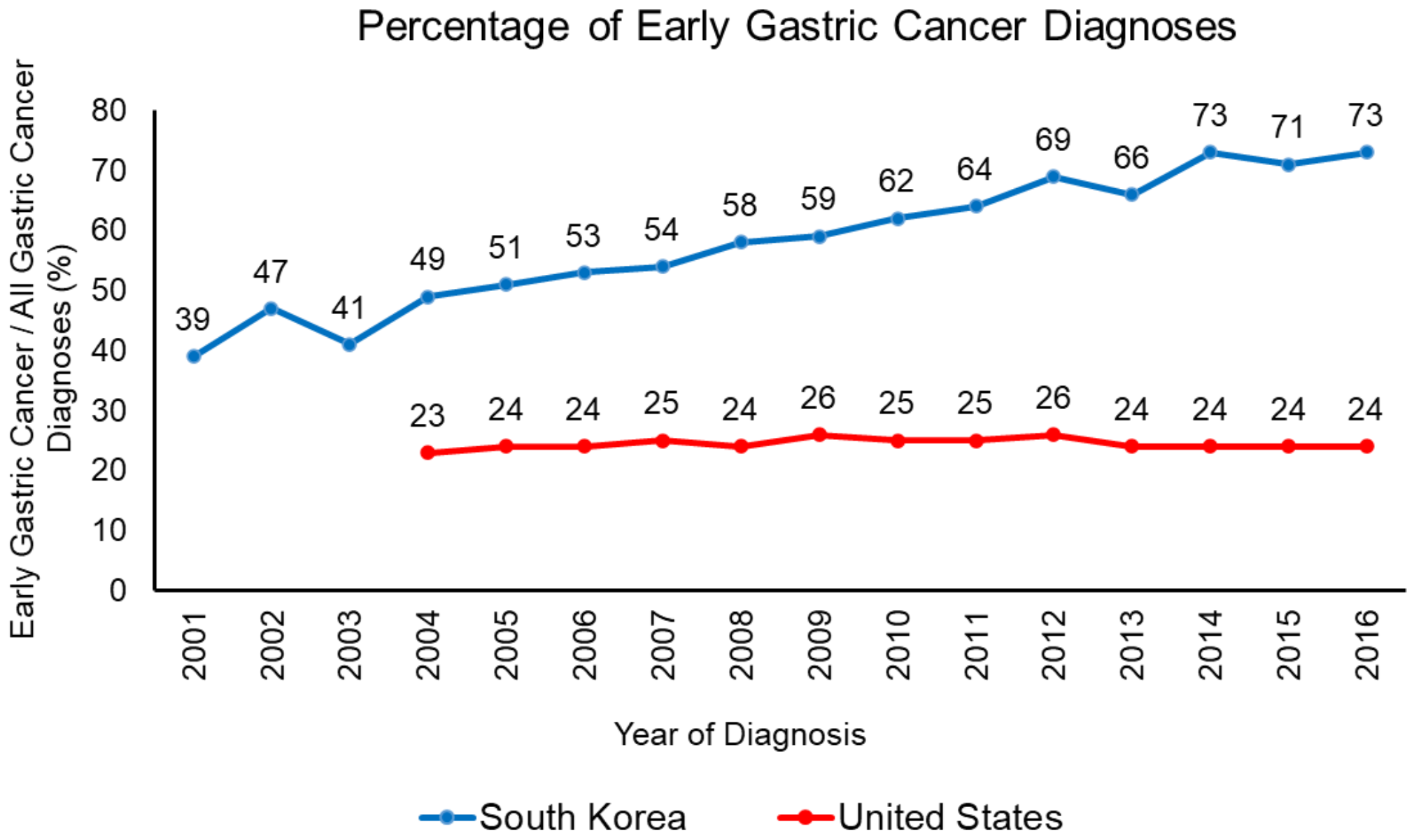
Gastroenterology 2020;159:1705–1714

Table 1: Comparison of Gastric Cancer Stage of Diagnosis and Survival						
Country	South Korea		Japan		United States	
Years	2006-2010		2006-2008		2010-2014	
Screening	Biennial Radiography or Endoscopy		Biennial Radiography or Endoscopy		No screening program	
Stage at diagnosis	Distribution (%)	5-year Survival (%)	Distribution (%)	5-year Survival (%)	Distribution (%)	5-year Survival (%)
Localized	**51**	92.4	**48**	95.9	**28**	70.3
Regional	26	55.7	22	50.0	26	32.0
Distant	12	5.5	16	5.7	37	5.8
Unknown	11	49.2	14	-	9	21.8
All Stages	100	**67.0**	100	**64.6**	100	**32.1**

South Korean data adapted from the Korea National Cancer Incidence Database. Japanese data derived from the Center from the National Cancer Center of Japan. United States data derived from Surveillance, Epidemiology, and End Results Program (SEER) of the National Cancer Institute. 5-year relative survival rates are presented. Summary stages defined by SEER criteria.

Table courtesy of Il Ju Choi



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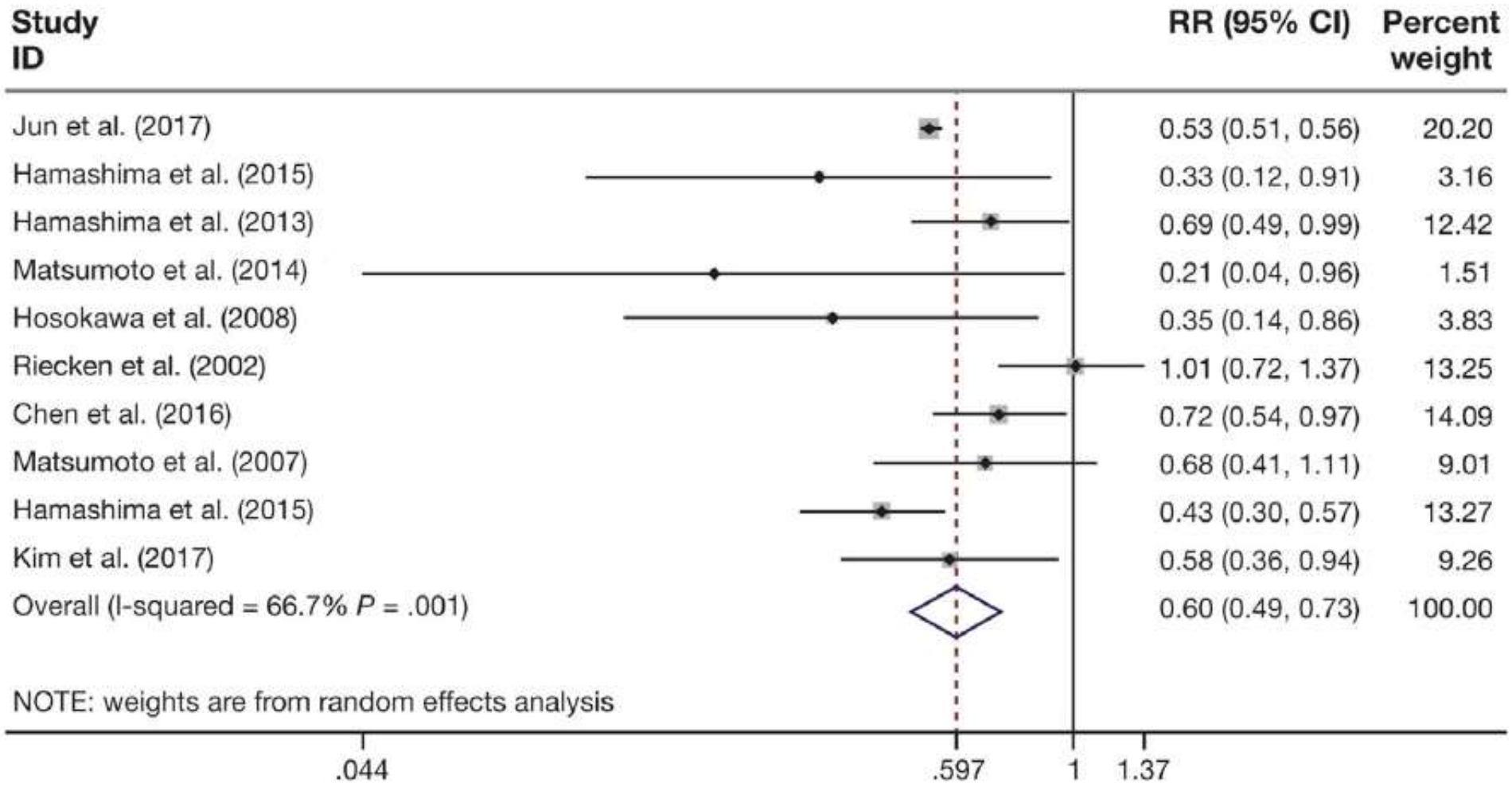
Huang et al. CGH 2022

Reduction in Gastric Cancer Mortality



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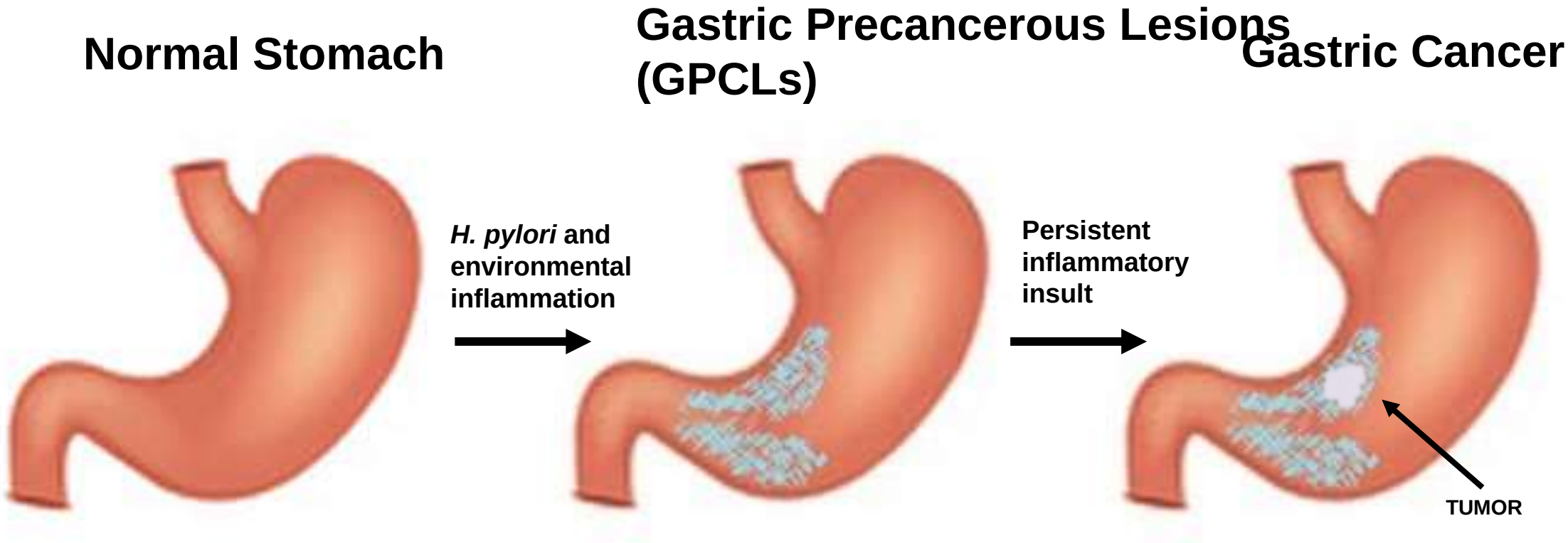
Zhang et al. Gastroenterology 2018

Progression to Gastric CA: Corea Cascade

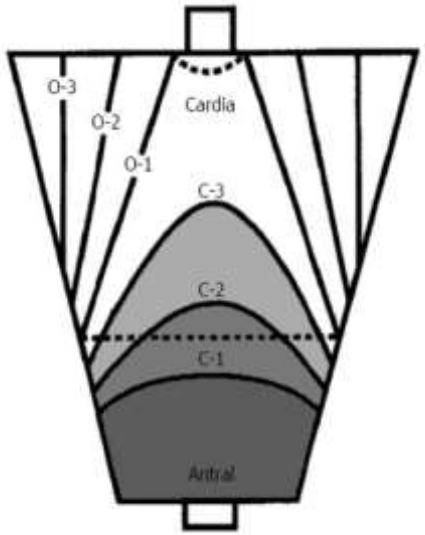


Hypothesized carcinogenic cascade induced by *Helicobacter pylori* infection among other environmental risk factors. Gastric precancerous lesions represent high-risk precursor states.

Gastric intestinal metaplasia

- Precursor lesion for intestinal type gastric cancer
- Patients with GIM have a 6-8 times increased risk of gastric cancer
- Advanced GIM does not regress following *h. pylori* therapy
  - May slow down progression
  - Treat and confirm eradication if *h. pylori* is present
- Additional risk factors:
  - Incomplete-type GIM
  - Involvement of both the antrum and body
  - Involvement of >20% of the gastric mucosa

Kimura-Takemoto classification



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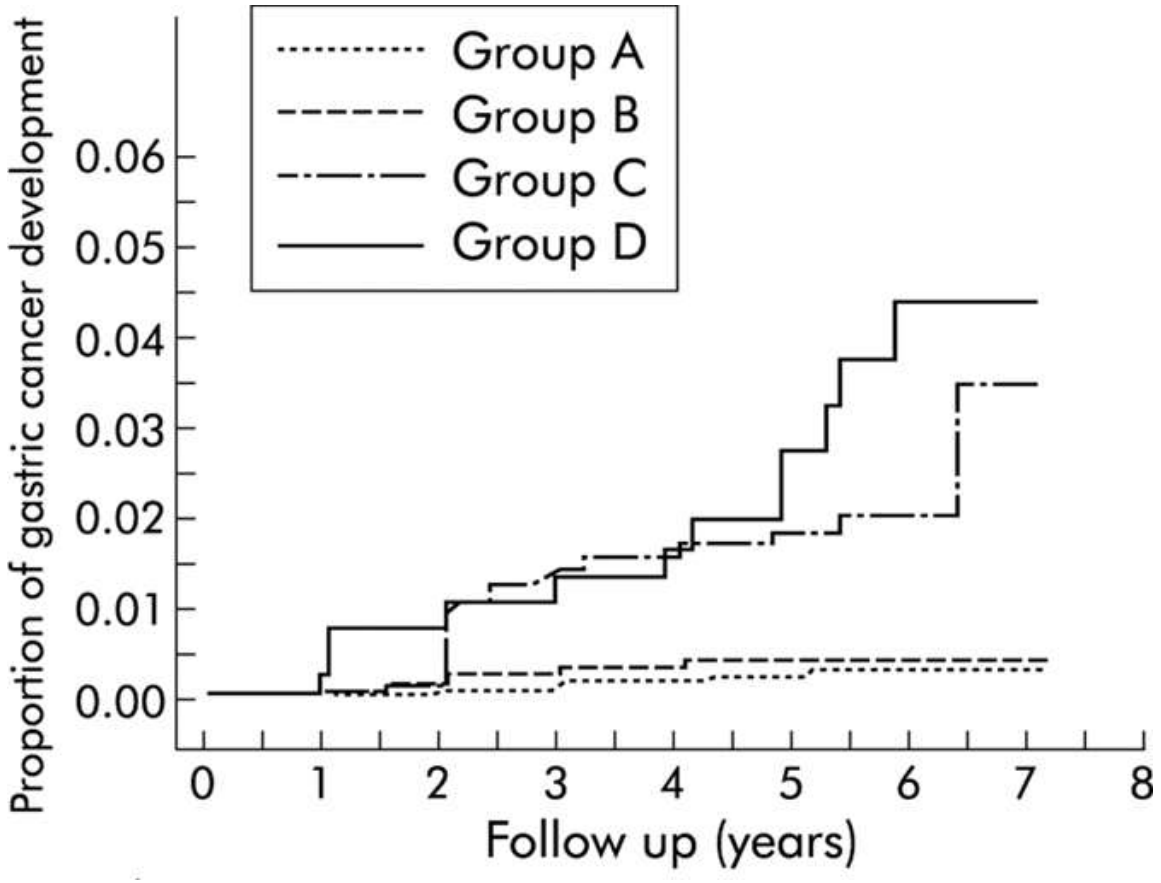
Kimura et al. Scand J Gastroenterol Supp. 1996;214:17-20.

Atrophic Gastritis and H. Pylori

- Current or previous h pylori infection and presence of atrophic gastritis increases risk of gastric by 6-8 fold
- Presence of atrophic gastritis without active hp infection confers greater risk (advanced atrophic gastritis)



Watabe et al. Gut 2005

Endoscopic Examination

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Endosc Int Open. 2016 Oct; 4(10): E1083–E1089.

Surveillance of Gastric Intestinal Metaplasia

Recommendation 2. In patients with GIM the AGA suggests against routine use of endoscopic surveillance. *Conditional recommendation, very low quality of evidence*

Implications	Strong recommendation[a]	Conditional recommendation[b]
For patients	Most individuals in this situation would want the recommended course of action and only a small proportion would not.	The majority of individuals in this situation would want the suggested course of action, but many would not.
For clinicians	Most individuals should receive the intervention. Formal decision aids are not likely to be needed to help individuals make decisions consistent with their values and preferences.	Different choices will be appropriate for individual patients consistent with his or her values and preferences. Use shared decision-making. Decision aids may be useful in helping patients make decisions consistent with their individual risks, values, and preferences.
For policy-makers	The recommendation can be adapted as policy or performance measure in most situations.	Policy-making will require substantial debate and involvement of various stakeholders. Performance measures should assess whether decision-making is appropriate.

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Recent ACG/ASGE Guidelines

Frequency of photodocumentation of the esophagus, gastroesophageal junction, gastric cardia/ fundus, corpus, incisura, antrum/pylorus, second portion of duodenum, and detected lesions in patients undergoing EGD	>90	Process	3
Frequency of systematic biopsy sampling of the gastric corpus, antrum, and incisura in patients with known GPMCs, patients at high-risk for gastric cancer, or patients with an endoscopic appearance concerning for GPMCs	>90	Process	2C
Frequency with which high-definition white-light endoscopy and virtual chromoendoscopy is used in patients with known GPMCs, patients at high-risk for gastric cancer, or patients with an endoscopic appearance concerning for GPMCs	>90	Process	2C

Endoscopic surveillance: 3-year interval for high-risk GIM:

- High-risk GIM histology:
  - Incomplete GIM histological subtype, versus complete subtype
  - Corpus-extension, GIM of corpus and antrum/incisura
- Any GIM histology with one of the following high-risk factors:
  - Family history of gastric cancer in a first-degree relative
  - Foreign-born, with emigration from a high incidence nation.
  - High-risk race or ethnicity (East Asian, Hispanic, Black, AI/AN)

Quality Indicators for Upper GI Endoscopy. ACG/ASGE. GIE 2024 (in press).
ACG Clinical Guidelines on the Diagnosis and Management of Gastric Premalignant Conditions. AJG 2024 (in press)

AGA Clinical Practice Update on Screening and Surveillance in Individuals at Increased Risk for Gastric Cancer in the United States: Expert Review

Shailja Shaw, Andrew Yang, Michael Wallace, and Joo Ha Hwang

Gastroenterology 2024 (in press)

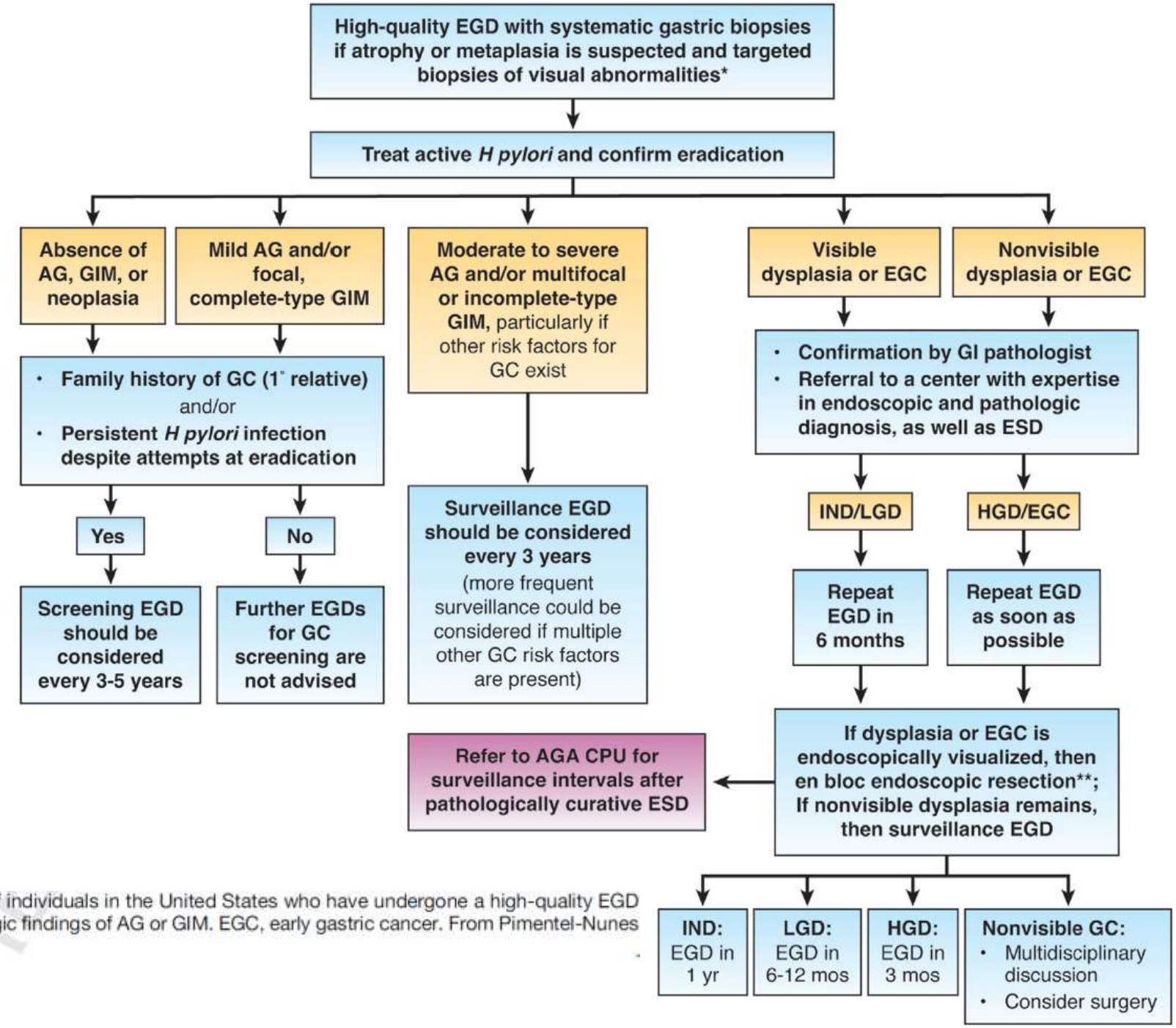
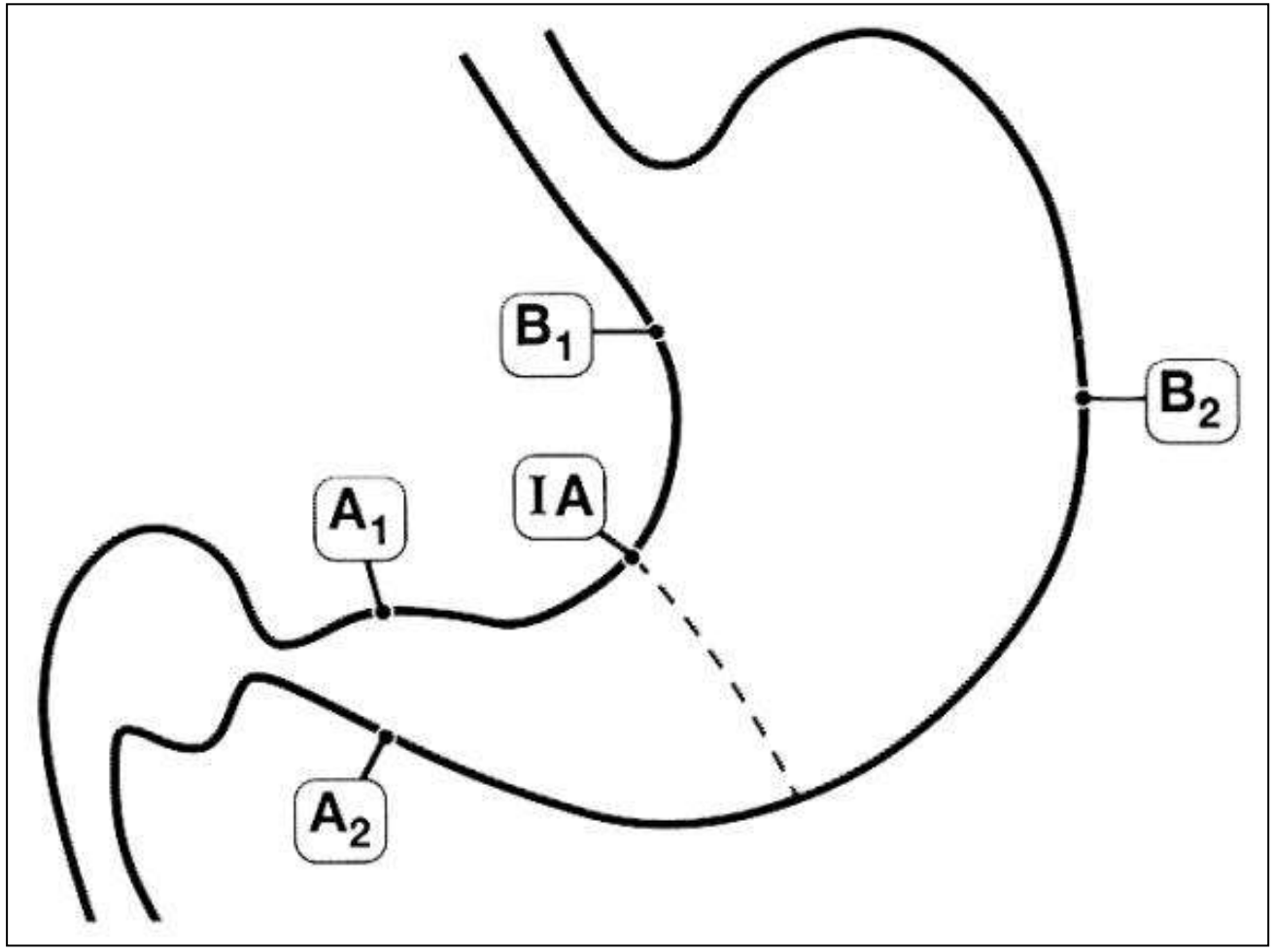


Figure 1. Clinical pathway suggested for the care of individuals in the United States who have undergone a high-quality EGD to screen for GC or who have endoscopic or histologic findings of AG or GIM. EGC, early gastric cancer. From Pimentel-Nunes et al,[43] adapted with permission.

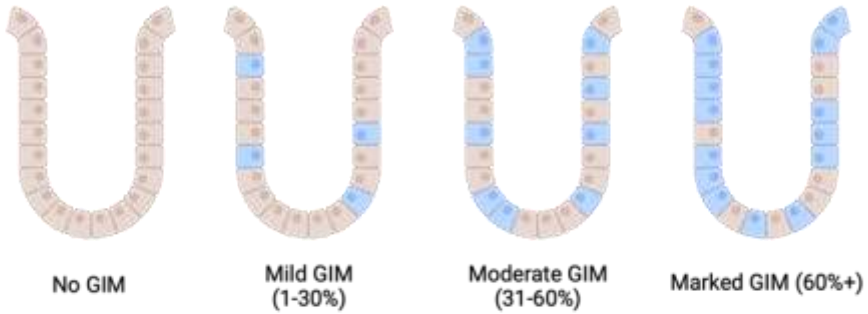
Sydney Protocol Biopsies



- Targeted biopsies of areas suspicious for GIM (by region)
- Non-targeted biopsies from regions without areas suspicious for GIM to complete mapping
- Place biopsies in separate bottles OR separate into Antrum (A1, A1, and IA) and Body (B1, B2)

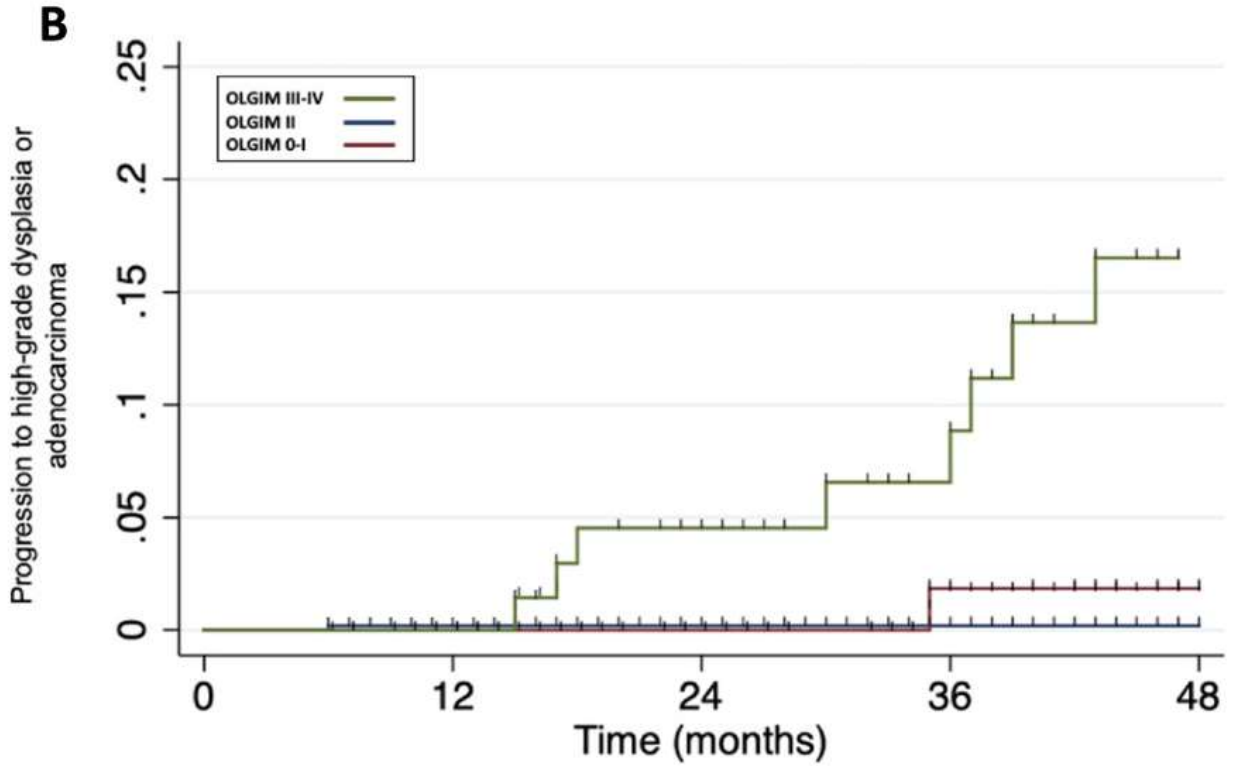
Classification and Grading of Gastritis: The Updated Sydney System.
Dixon, Michael; Genta, Robert; Yardley, John; Correa, Pelayo; the Participants in the International Workshop on the Histopathology of Gastritis, Houston
American Journal of Surgical Pathology. 20(10):1161-1181, October 1996.

OLGIM Staging



		Corpus			
	IM Score	No IM	Mild IM	Mod IM	Severe IM
Antrum (including incisura)	No IM	0	I	II	II
	Mild IM	I	I	II	III
	Mod IM	II	II	III	IV
	Severe IM	III	III	IV	IV

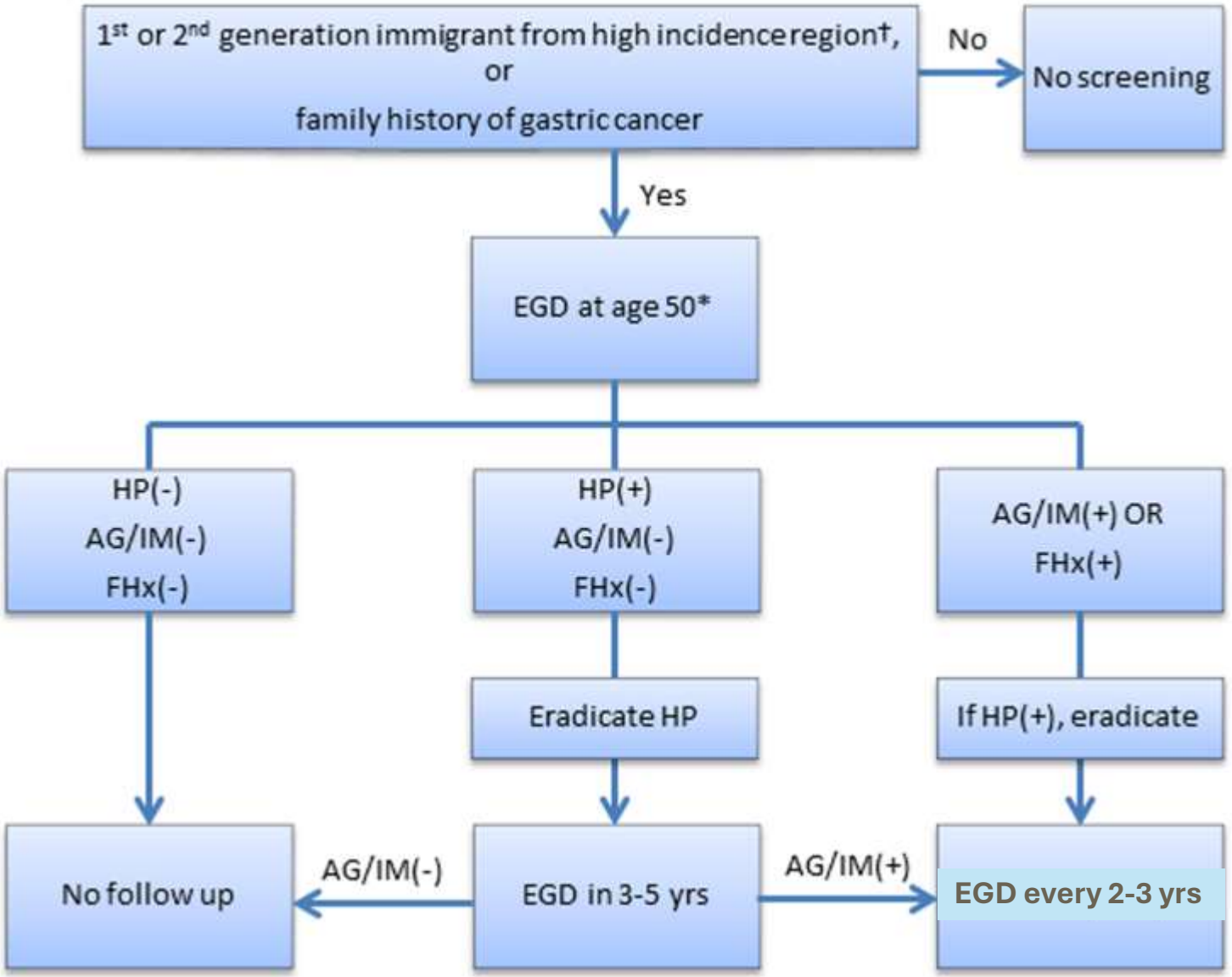
Zhou et al. World J Gastroenterol 2016;22:3670-3678.



Latorre et al. GUT 2024;73:e18

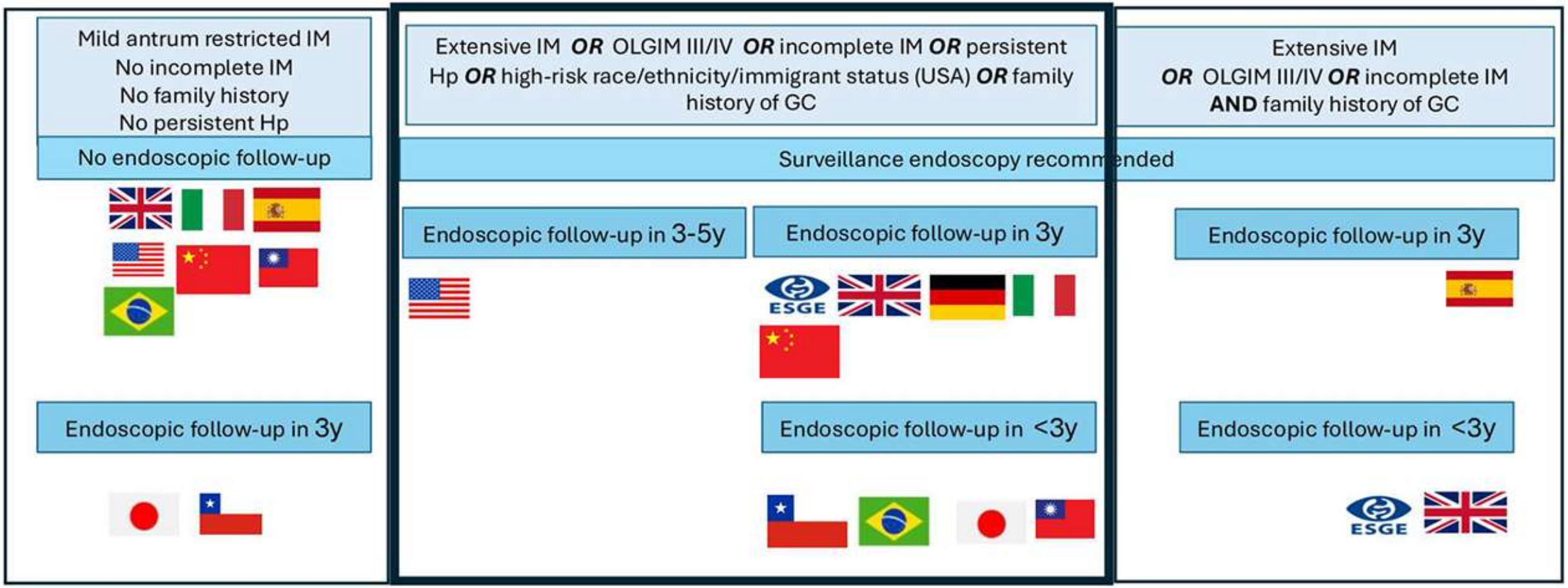
What is missing?

- Prospective data evaluating the effectiveness of screening high-risk populations in the US.
- Additional risk stratification:
  - Which patients with gastric intestinal metaplasia are at risk of progressing to gastric cancer?
  - OLGIM staging by US pathologists
  - Determination of screening intervals



Kim, Liang, Bang and Hwang, Screening and Surveillance for Gastric cancer in the United States: Is it needed? GIE 2016

Global Approaches to GIM



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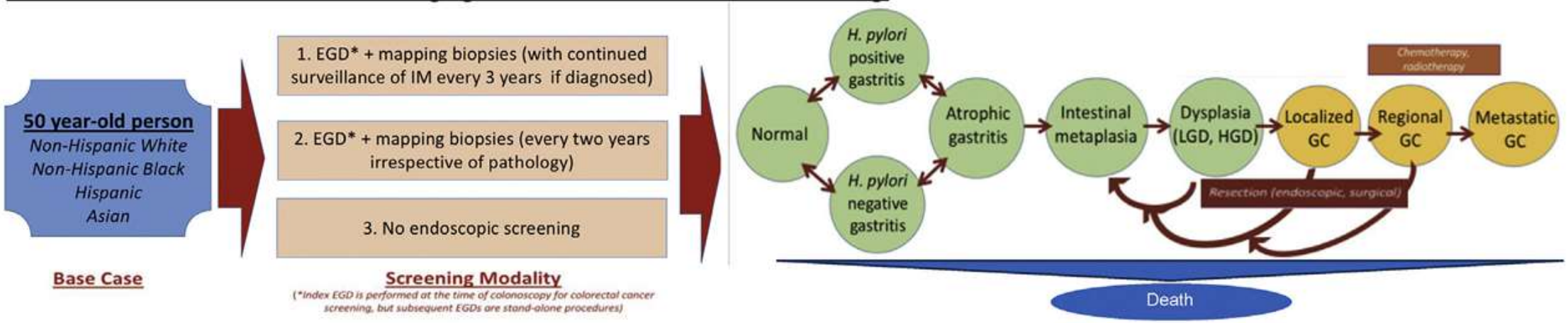
Dinis-Ribeiro M, *et al*. *Gut* 2024;**73**:1607–1617. doi:10.1136/gutjnl-2024-333029

Cost Effectiveness of Gastric Cancer Screening According to Race and Ethnicity

Monica Saumoy,[1] Yecheskel Schneider,[1] Nicole Shen,[1] Michel Kahaleh,[2] Reem Z. Sharaiha,[1] and Shailja C. Shah[3,4]

Markov model simulating gastric cancer screening



Gastric cancer screening with EGD + mapping biopsies (+/- surveillance) might be cost effective for Asians, Hispanics, and non-Hispanic Blacks compared to a no screening strategy

Asian:	$ 71,451 / QALY
Hispanic:	$ 76,070 / QALY
Non-Hispanic Black:	$ 80,278 / QALY
Non-Hispanic White:	$ 122,428 / QALY

Gastroenterology

Gastroenterology 2018;155:648–660

Who’s at risk?

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Summary – Why look for GIM and what to do for GIM?

- Gastric intestinal metaplasia is the precursor lesion to gastric cancer
  - GIM is an independent risk factor for developing gastric cancer (independent of race)
  - Need better risk stratification for patients with GIM
- Current outcomes for gastric cancer in the US are poor
  - 5-year overall survival of ~35% vs. ~65-70% in Japan and Korea
- Populations at high-risk for gastric cancer in the US are known
  - Immigrants from high-incidence regions (East Asians, Hispanics, Eastern Europeans)
  - Patients with a family history
- Screening with EGD has been demonstrated to decrease gastric cancer related mortality in high-risk populations
  - Japan and Korea
- Surveillance of GIM should be based on extent of GIM, severity of GIM (OLGIM), and other risk factors (incomplete GIM, family history, ethnicity, patient preference)
- High-grade dysplasia and early gastric cancer can be managed (and cured) endoscopically without the need for surgery.

Thank you!

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