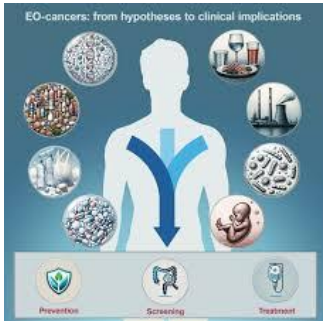
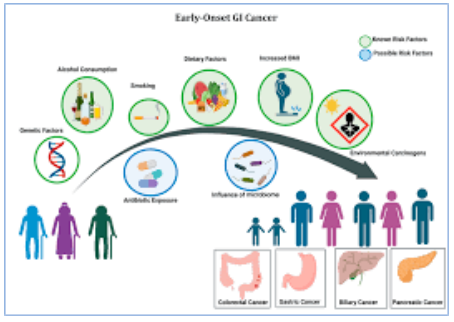
Early-Onset Gastrointestinal Cancers (EOGIC)

الجمعية السورية لأمراض الهضم
Syrian Society of Gastroenterology

المؤتمر العلمي السادس والثلاثين لأمراض الهضم
12 - 14 تشرين الثاني 2025





Early-onset (EO) gastrointestinal (GI) cancer

- Early-onset gastrointestinal (GI) cancer is typically defined as GI cancer diagnosed in individuals younger than 50 years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ORIGINAL ARTICLE
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Global patterns and trends in colorectal cancer
incidence in young adults
Rebecca L Siegel , [1] Lindsey A Torre, [1] Isabelle Soerjomataram, [2] Richard B Hayes, [3]
Freddie Bray, [2] Thomas K Weber, [4,5] Ahmedin Jemal [1]
Cancer
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Check for updates
obal Increasing Incidence of Young-Onset
Colorectal Cancer Across 5 Continents: A
Joinpoint Regression Analysis of 1,922,167 Cases
N. Lui[1], Kelvin K.F. Tso[2,3], Jason M.W. Ho[3], C.M. Lo[3], Felix C.H. Chan[3],
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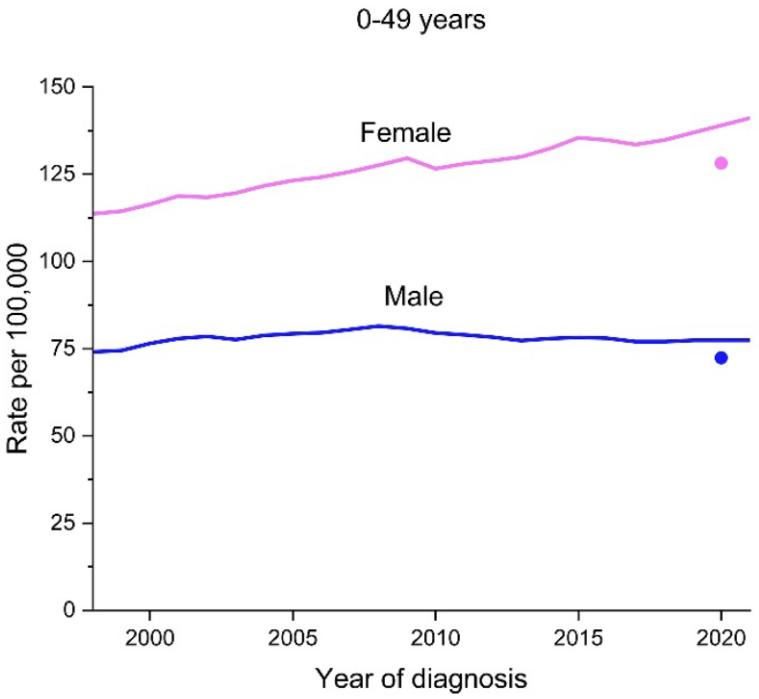
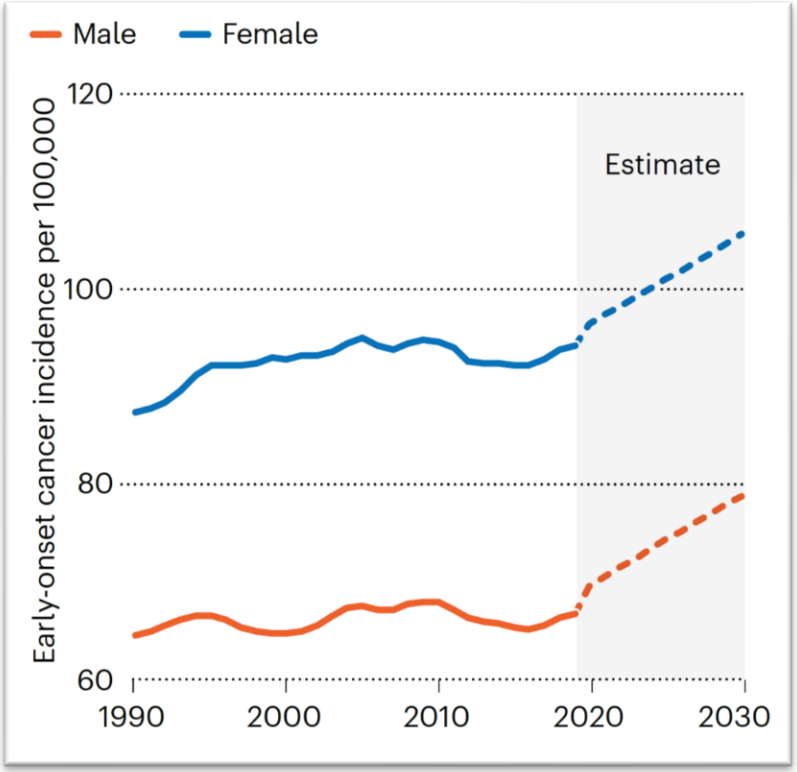
Cancer statistics, 2025



Trends in cancer incidence by age and sex, United States, 1998–2021

CA Cancer J Clin. 2025;75:10–45.

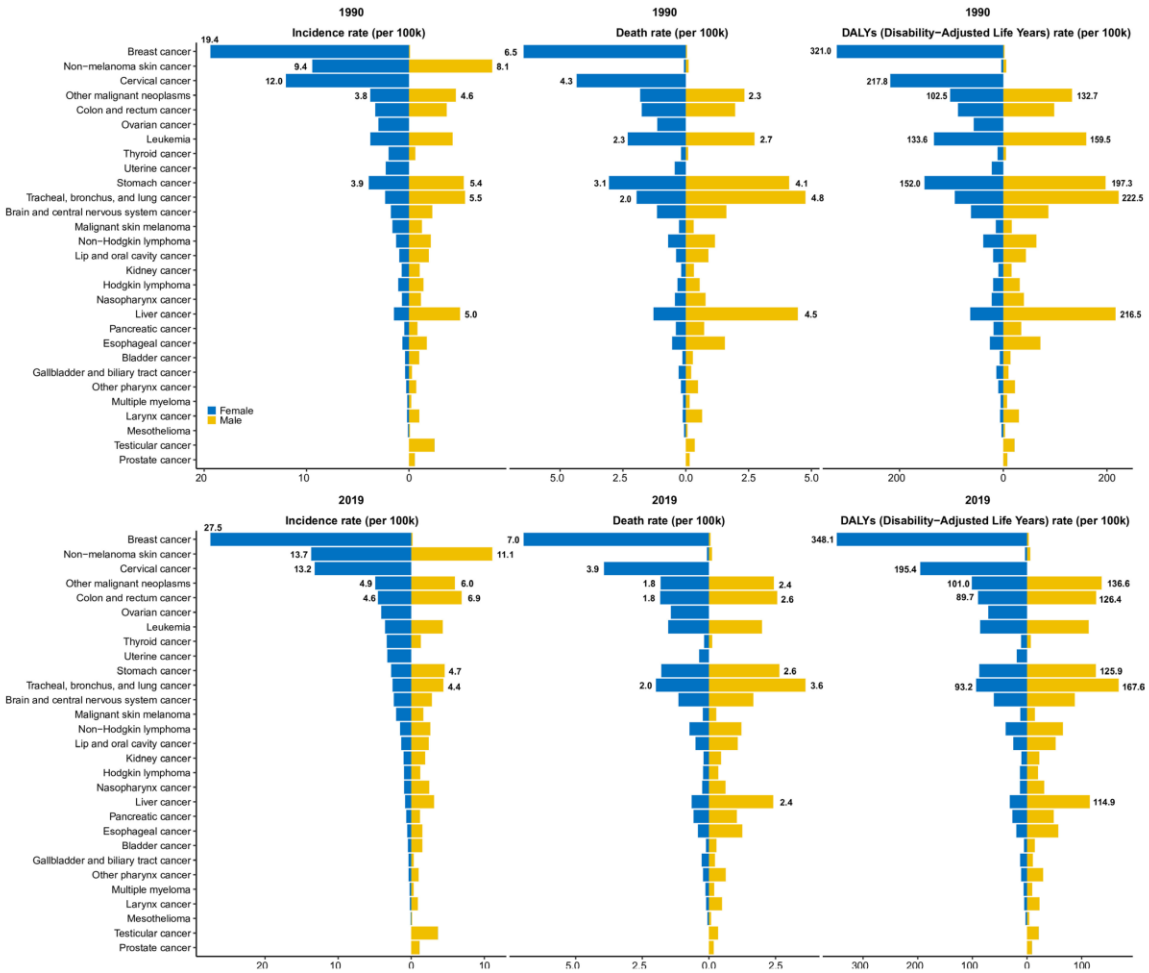
Increased incidence of 29 cancers in young people



Between 1990 and 2019, the incidence of 29 cancers — including breast, lung and colorectal tumours — increased worldwide in people under the age of 50, particularly in women

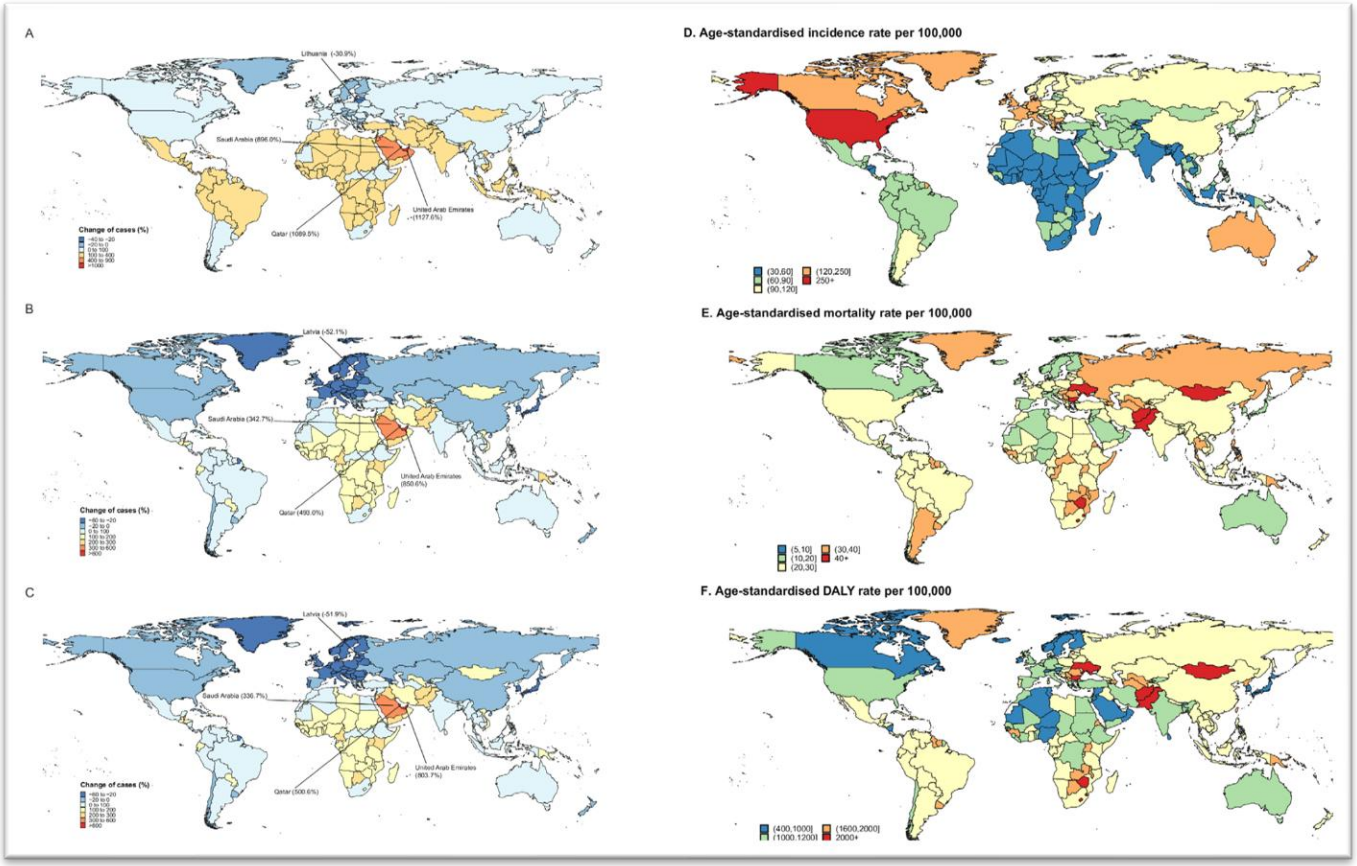
Nature 627, 258-260 (2024)

Global trends in incidence, death, burden and risk factors of early-onset cancer from 1990 to 2019



BMJ Oncology 2023;2:e000049. doi:10.1136/ bmjonc-2023-000049

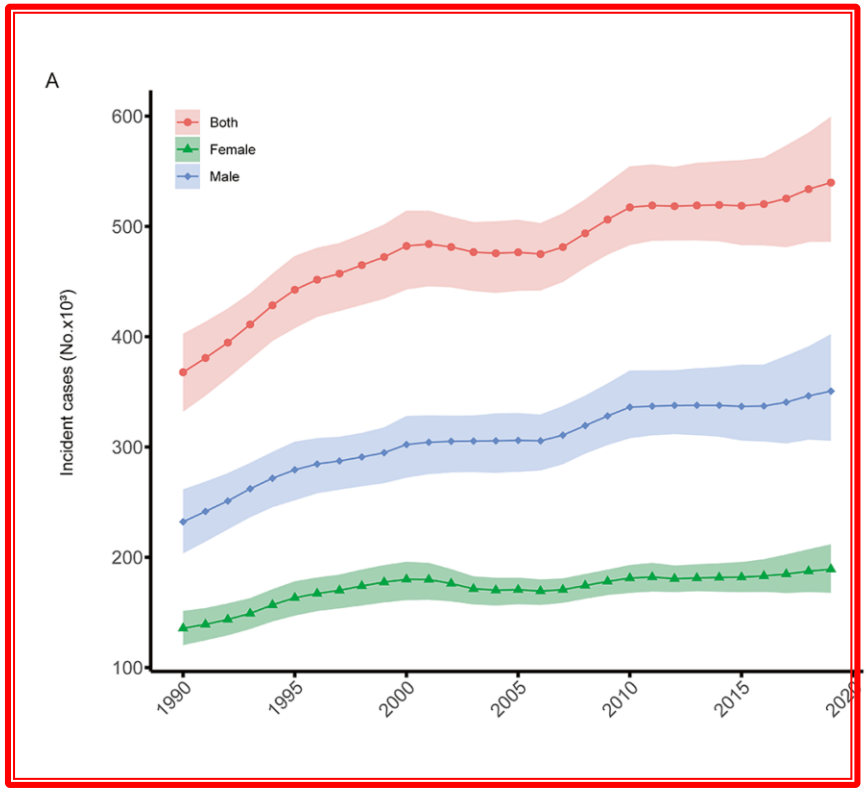
The global incidence, death and DALYs rates of 29 specified early-onset cancers in 1990 and 2019 by sex.

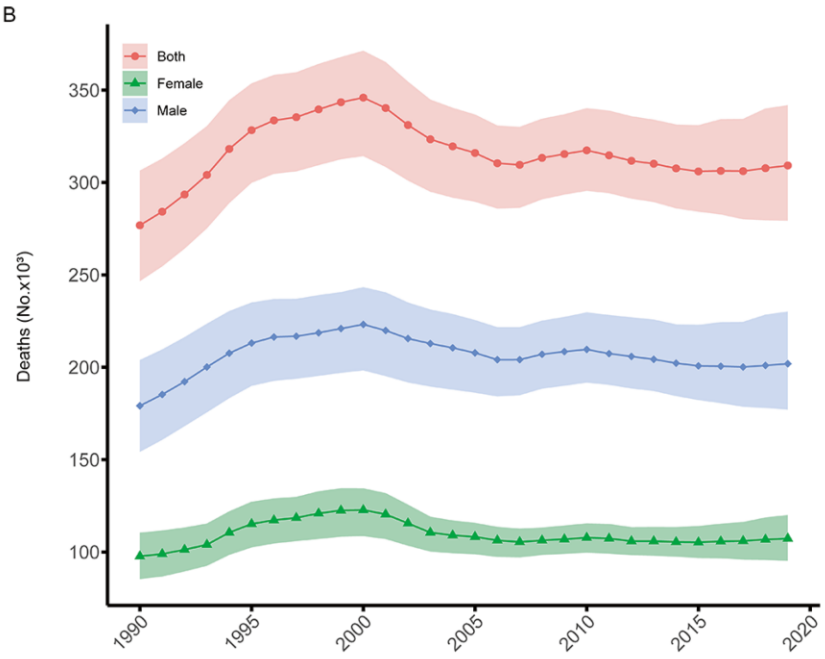


DALYs, disability-adjusted life years.

BMJ Oncology. 2023;2:e000049.
https://doi.org/10.1136/bmjonc-2023-000049

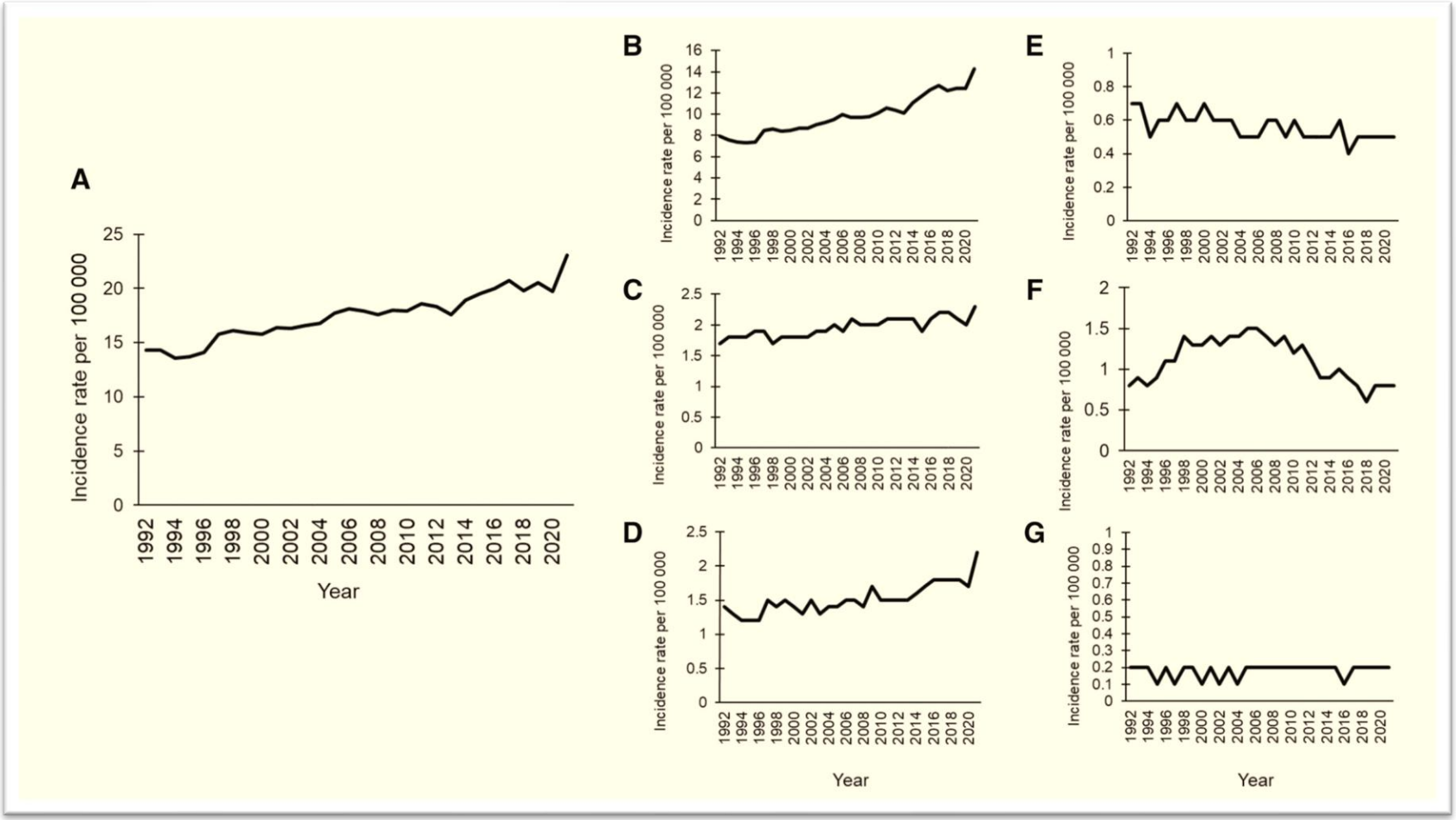
Total EO-GI cancer incidence and mortality absolute counts from 1990 to 2019





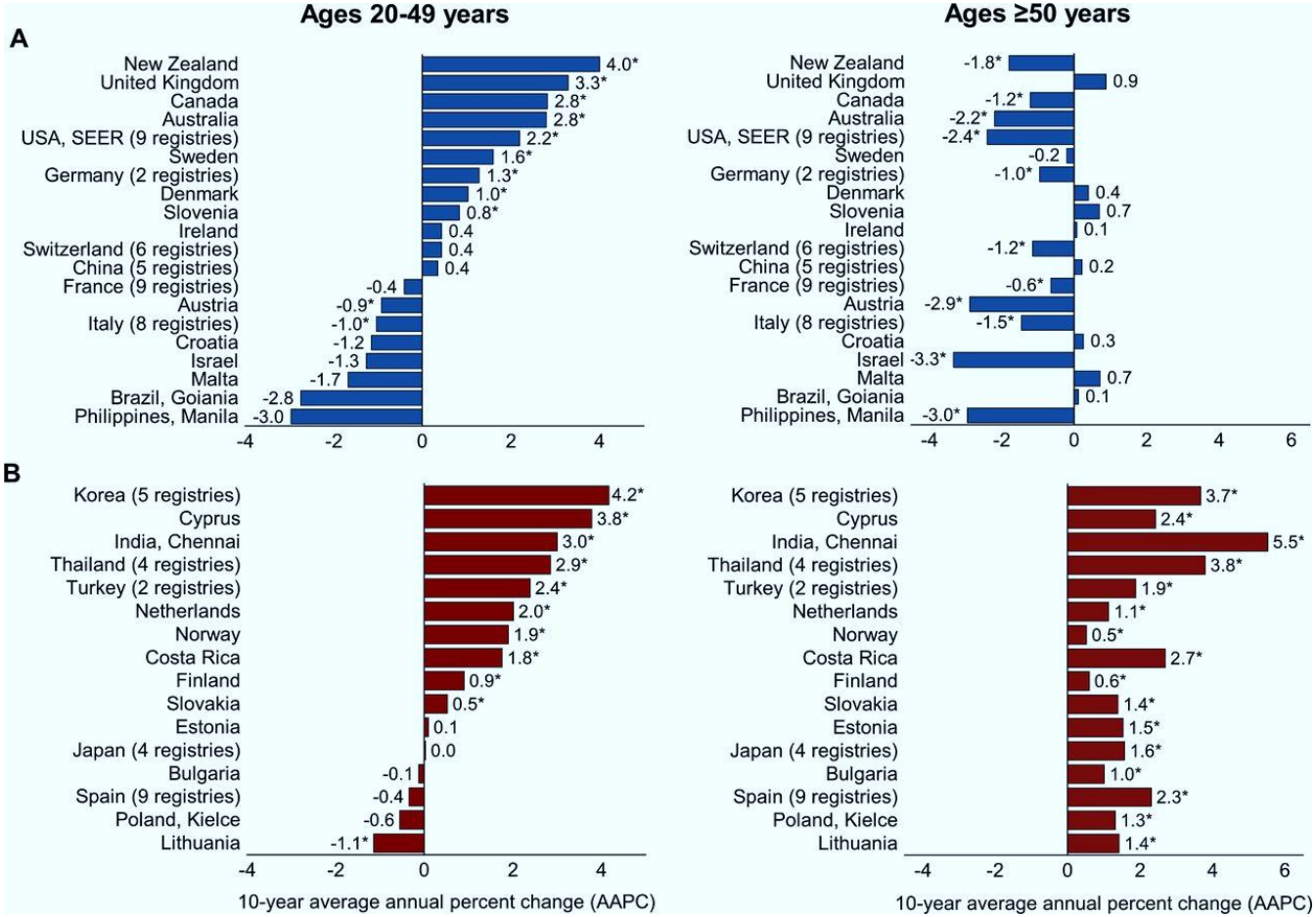
Xia et al. BMC Gastroenterology (2025) 25:424

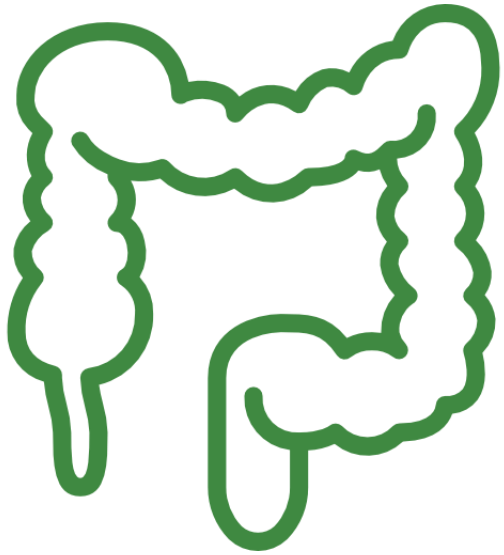
Increase in incidence rates of EOGIC, 1992-2021



JNCI Cancer Spectrum, 2025, 9(1), pkaf002

Average annual per cent change (AAPC) in colorectal cancer incidence by age during the most recent 10 years of available data.

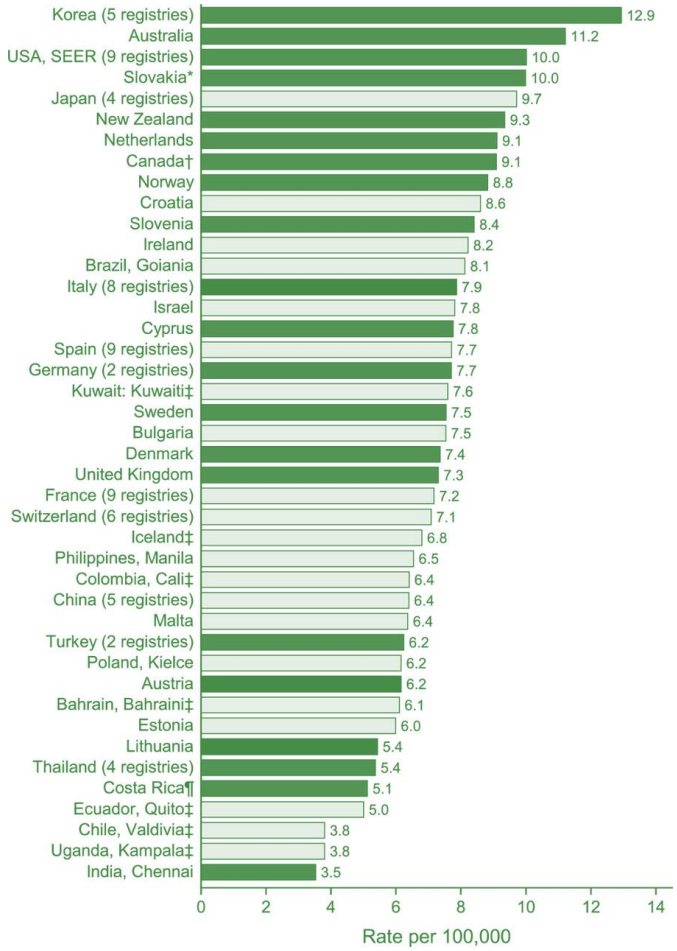


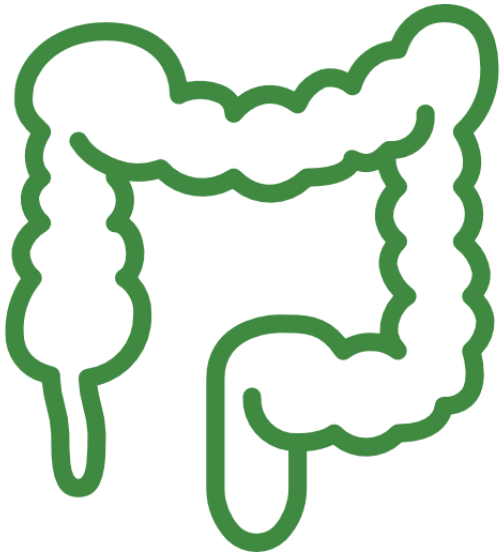


Rebecca L Siegel et al. Gut 2019;68:2179-2185

GUT

Age-standardised incidence rate during 2008–2012 for colorectal cancer among adults ages 20–49 years.

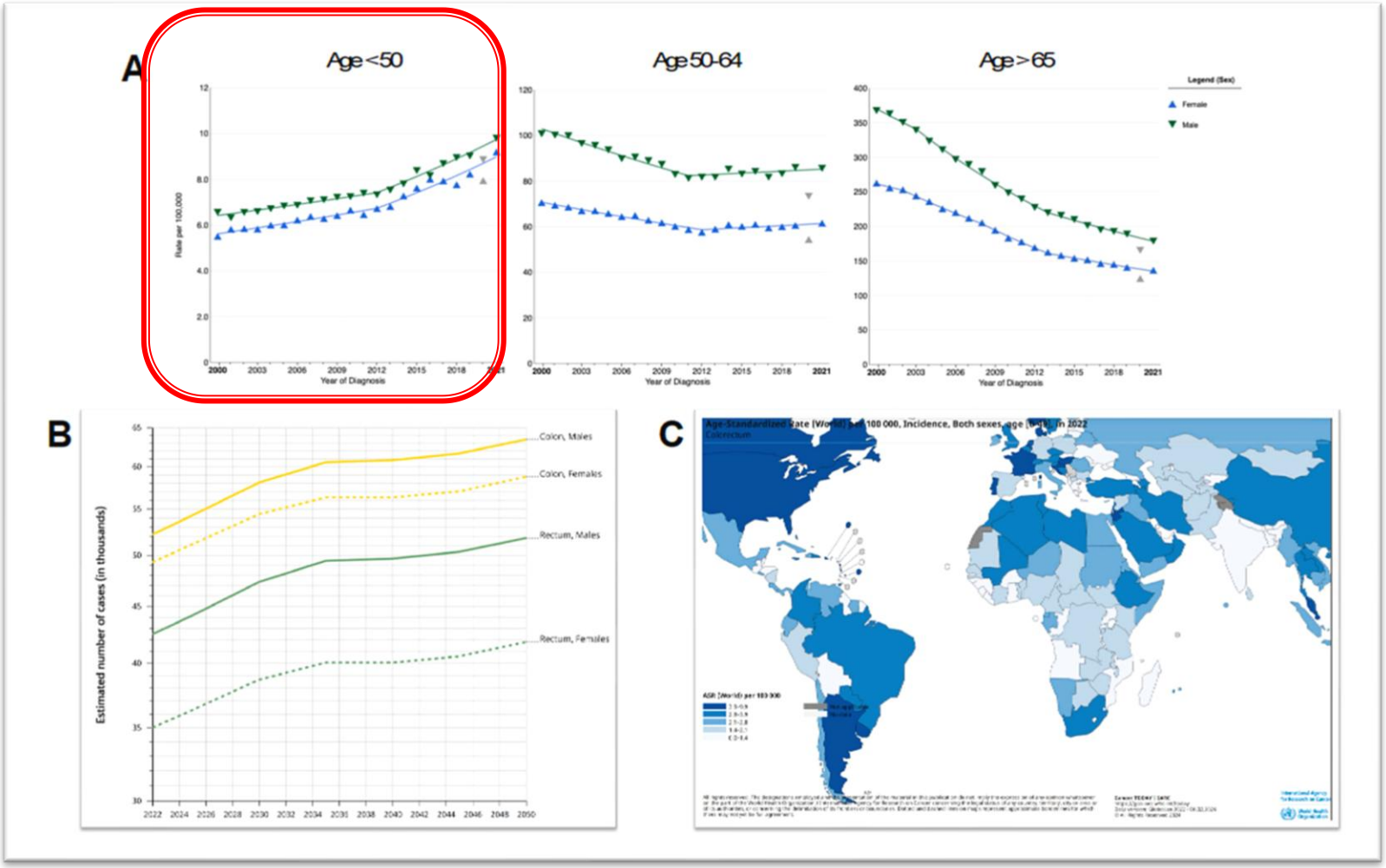


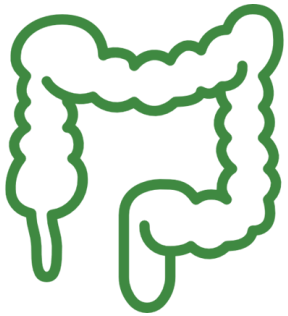


Rebecca L Siegel et al. Gut 2019;68:2179-2185

GUT

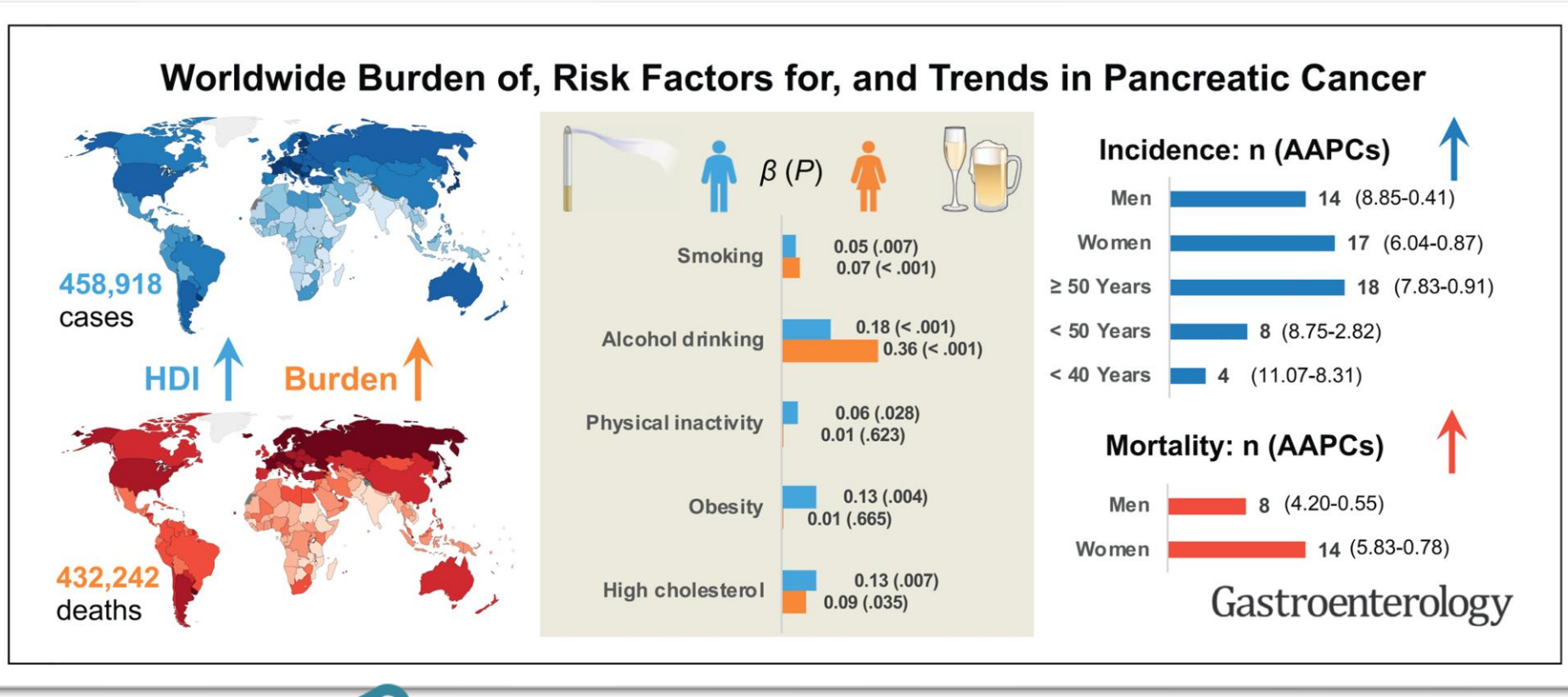
Epidemiology of EOCRC





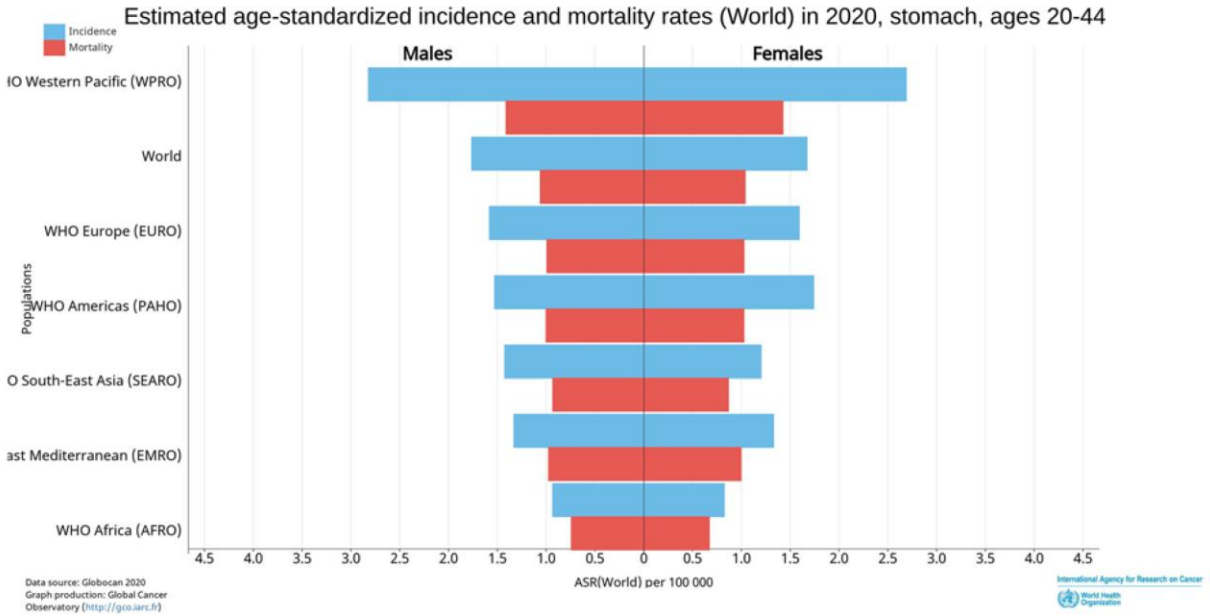
A. Gandini et al. Cancer Treatment Reviews 130 (2024) 102821

Worldwide Burden of Pancreatic Cancer



Gastroenterology 2021;160:744–754

Global incidence and mortality trends of gastric cancer and predicted mortality of gastric cancer by 2035



In the past decade, the incidence and mortality of gastric cancer have shown a decreasing trend; however, there are still some countries showing an increasing trend, especially among populations younger than 45 years

Lin et al. BMC Public Health (2024) 24:1763

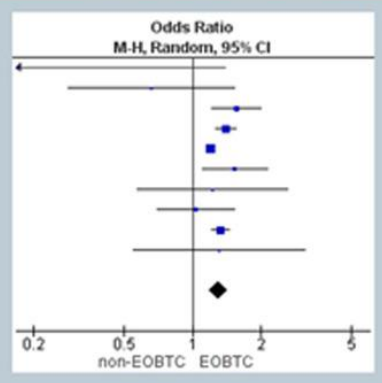
Early-Onset Biliary Tract Cancer

Early-Onset Biliary Tract Cancer (EO-BTC)

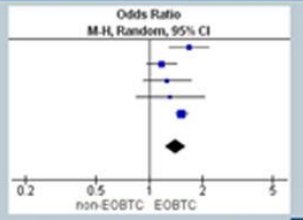
Epidemiology and Risk Factors

- EO-BTC: Definition remains heterogeneous across studies
- Epidemiologic trends suggest an increasing incidence of EO-iCCA
- Risk factors vary by anatomical subtype of EO-BTC

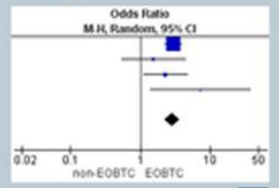
Clinicopathological and Molecular Features



Advanced stage at diagnosis ↑

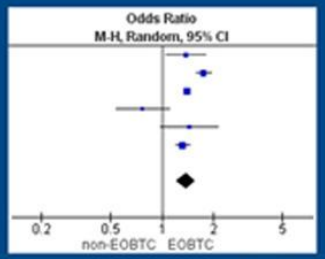


Intrahepatic location ↑

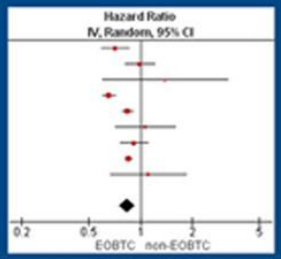


FGFR2 fusions ↑

Treatment and Prognosis



More surgery ↑



Better overall survival

EO-BTC is a clinically and molecularly distinct subset within BTCs.

Prospective and age-stratified studies are needed to guide age-adapted detection and therapeutic strategies.

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

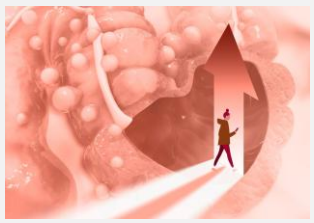
Precision BTC Network

JHEP Reports 2025

Early-Onset Gastrointestinal Cancers

Varies from country to country and cancer to cancer

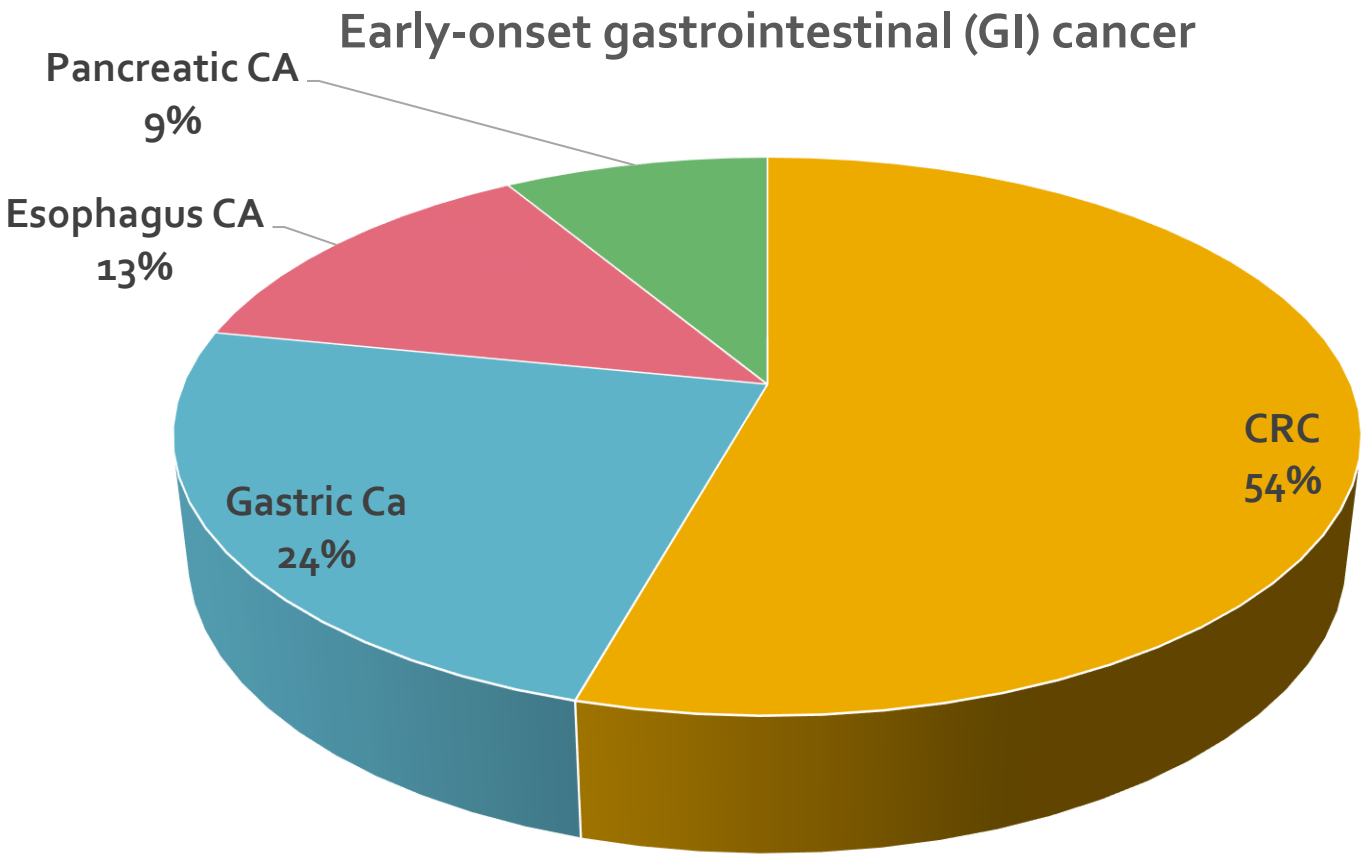
The incidence is increasing at an alarming rate globally



Women and in specific racial and ethnic groups

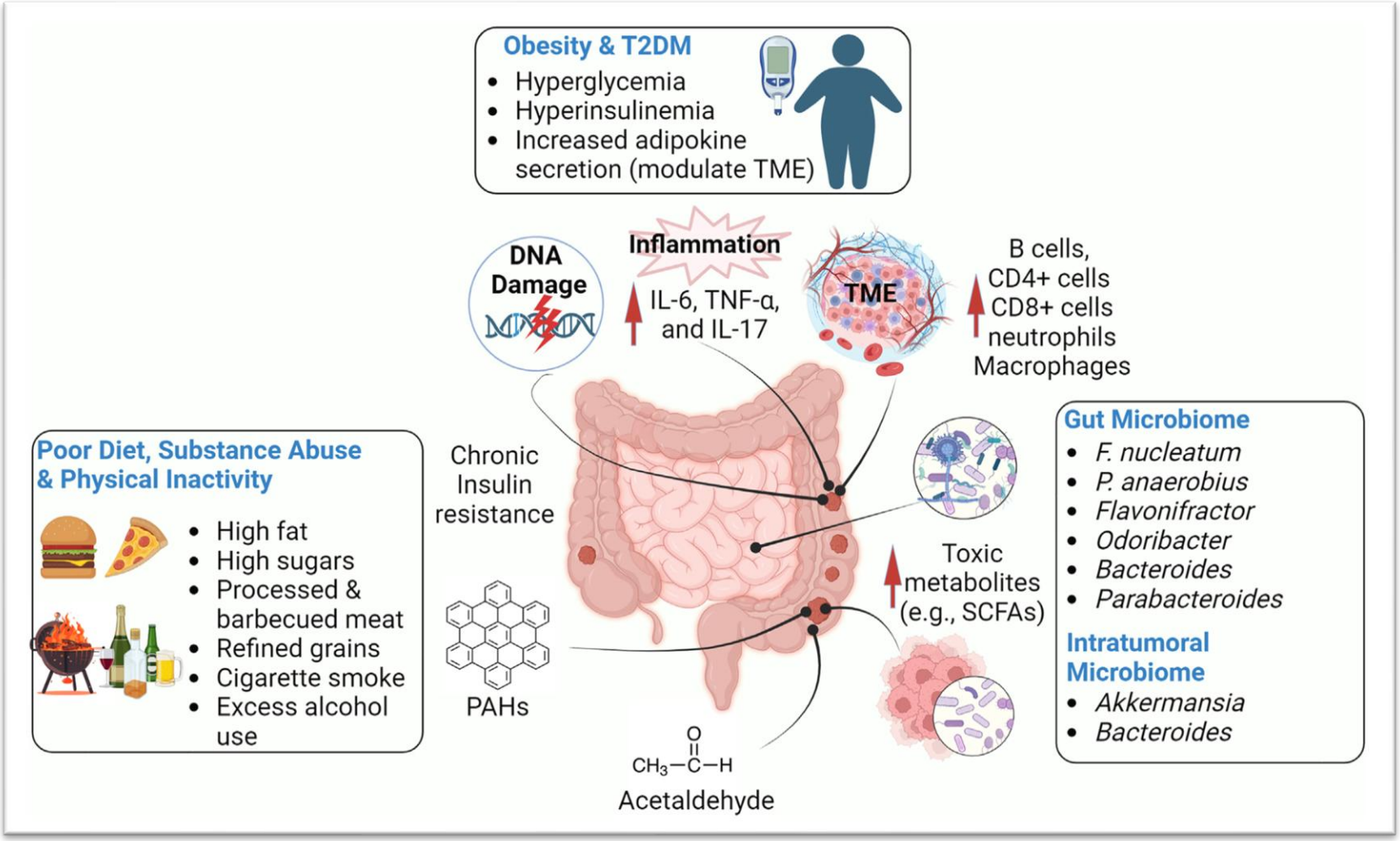
Birth cohort effect

Worldwide early-onset GI cancers reported in 2022



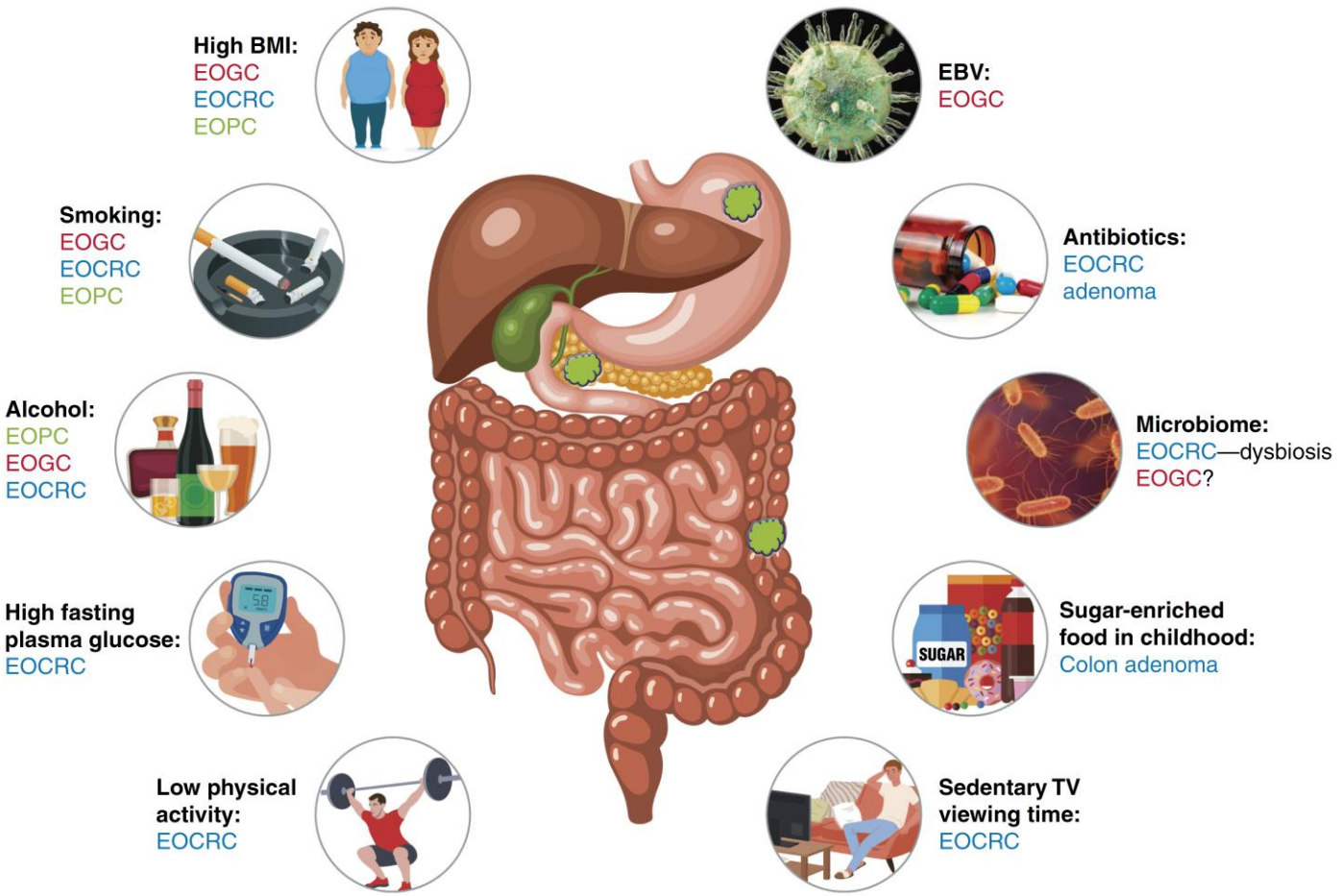
The incidence of early-onset GI cancer is rising globally, and early-onset GI cancers represent the most rapidly increasing early-onset cancer in the US.

Aetiology and Risk Factors



Cell Mol Gastroenterol Hepatol 2025;19:101425

Risk Factors for EOGIC



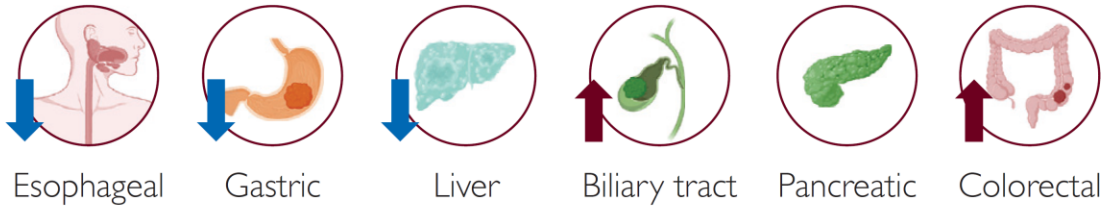
Modifiable risk factors

- Most early-onset GI cancers are associated with **modifiable risk factors** including:
  - Obesity,
  - Poor-quality diet (eg, sugar-sweetened beverages, ultraprocessed foods)
  - Sedentary lifestyle
  - Cigarette smoking
  - Alcohol consumption

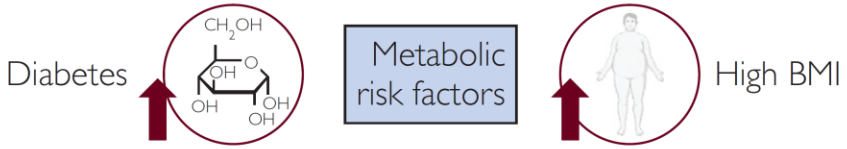
Metabolic Risk Factors

Increased incidence of early-onset gastrointestinal cancer and mortality from metabolic risk factors

Quantifying 6 types of early-onset (15-49 years) GI cancer using the global burden of disease study 2021



- 499,800 new cases, 285,900 deaths, and 14.01 million disability adjusted life years from early-onset GI cancer in 2021
- Early-onset GI cancer accounted for 9.51% of the overall GI cancer incidence
- From 2000 to 2021, early-onset colorectal and biliary tract cancer increased in incidence rates



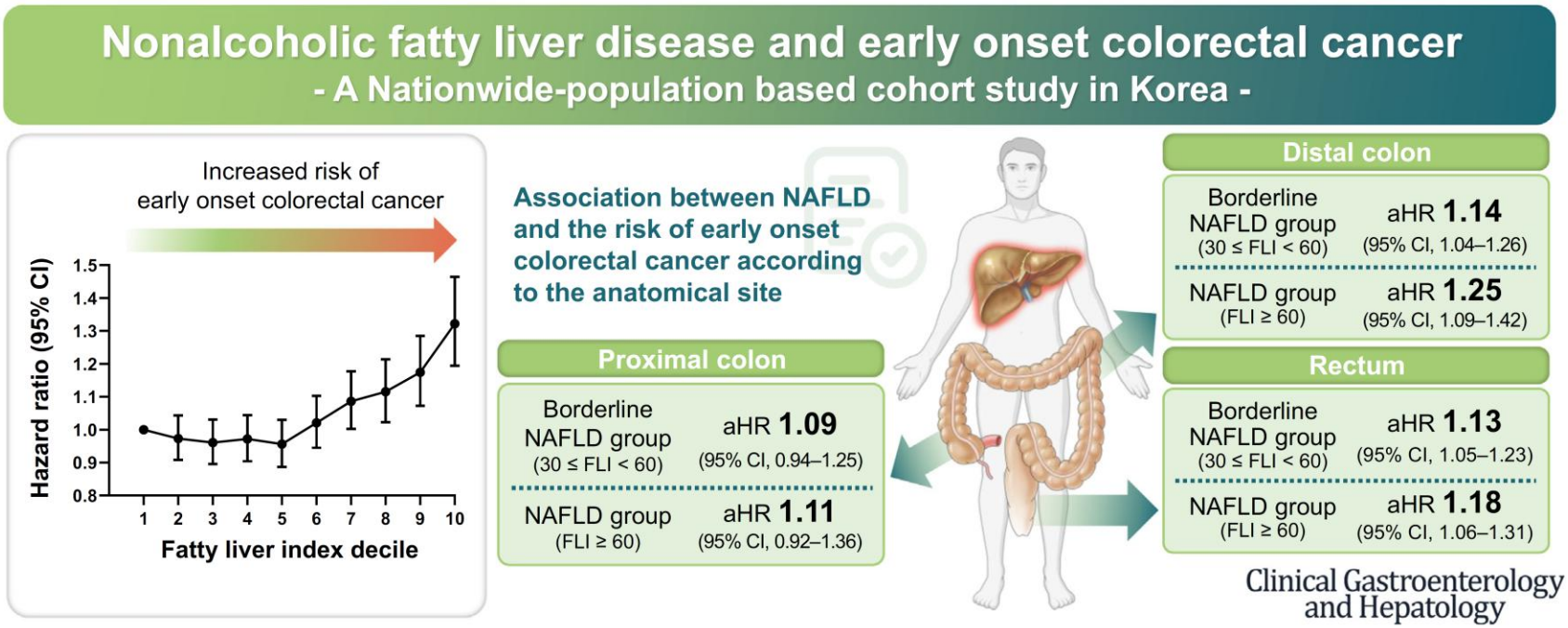
Death and disability-adjusted life year rate of early-onset cancer attributable to metabolic risk factors increased in all types

Danpanichkul et al

Mayo Clin Proc. July 2025;100(7):1159-1171

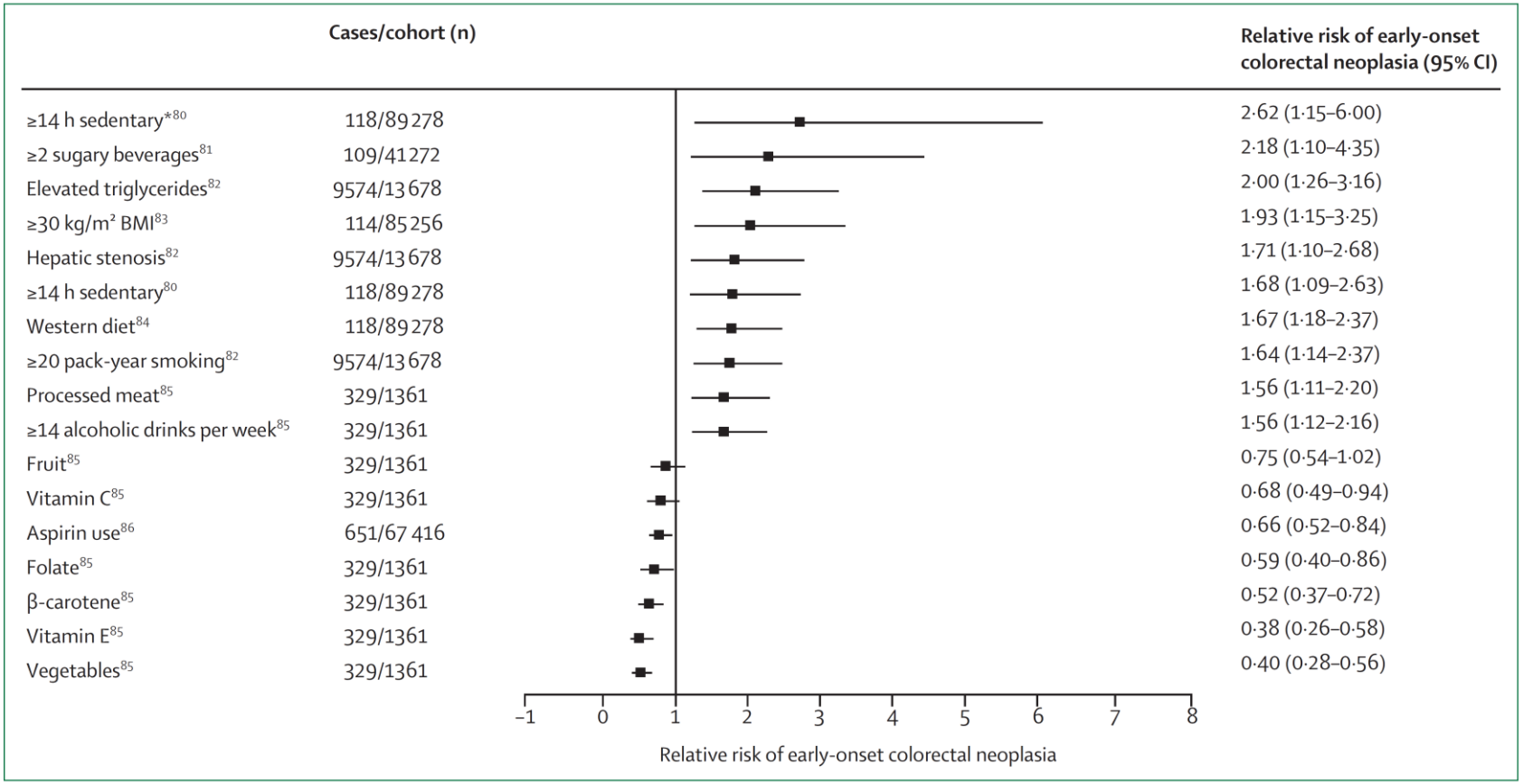
Association Between Nonalcoholic Fatty Liver Disease and Risk of Early-onset Colorectal Cancer

NAFLD, including borderline cases, is significantly associated with an increased risk of early-onset CRC, particularly in the distal colon and rectum



Clinical Gastroenterology and Hepatology 2025

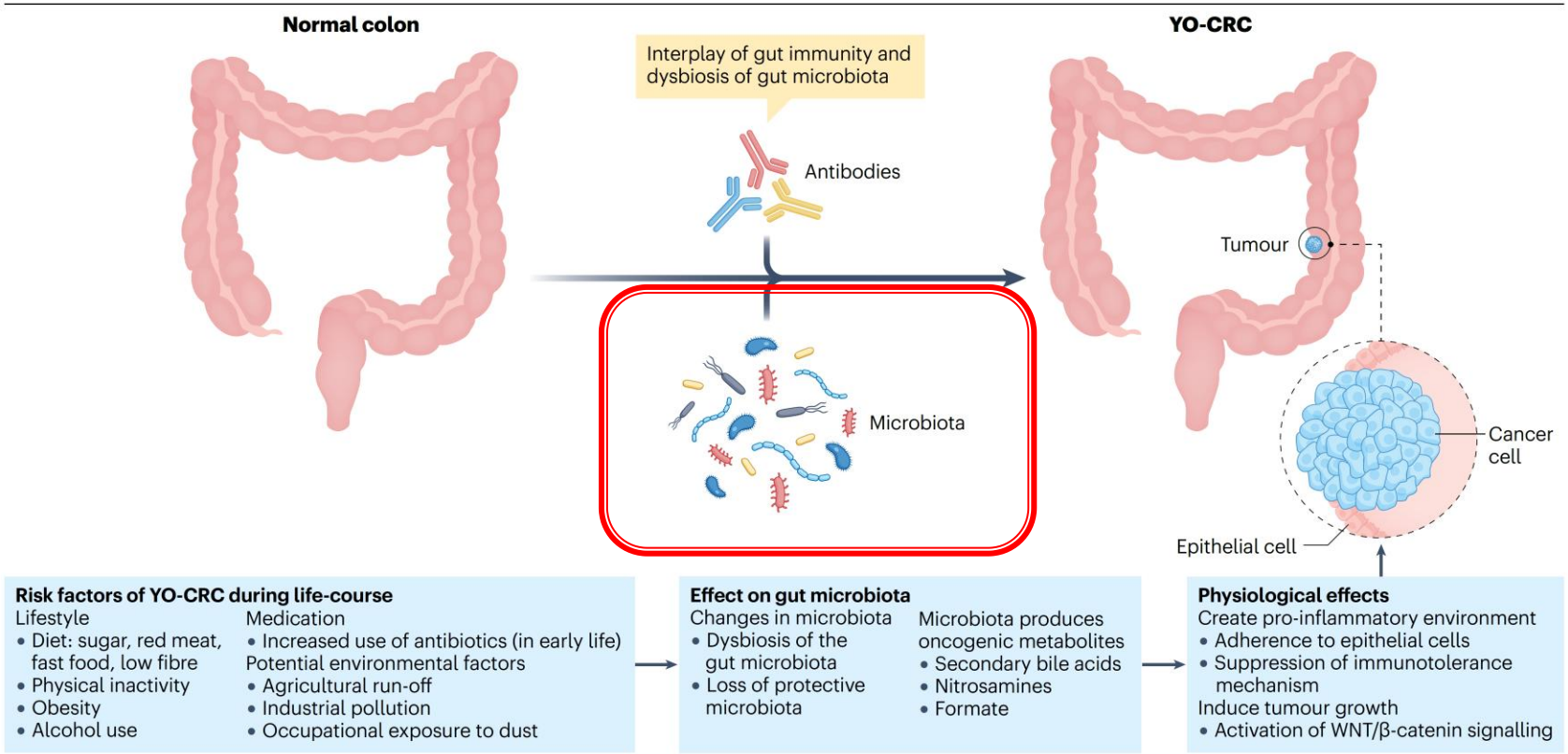
Diet and lifestyle factors associated with early-onset colorectal cancer or neoplasia



BMI=body-mass index. Western diet=diet high in ultra-processed foods. *Rectal cancer

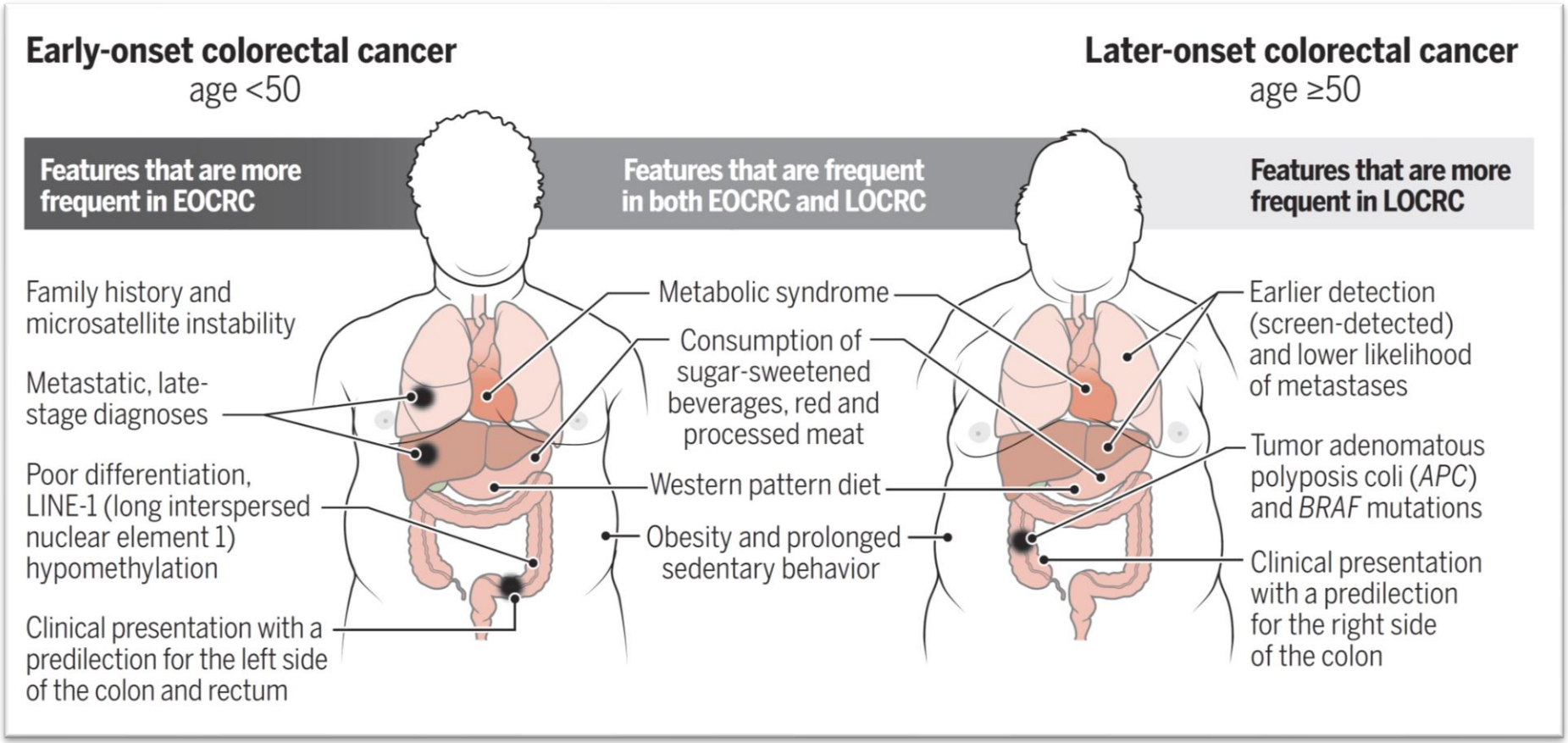
Lancet Gastroenterol Hepatol 2022; 7: 262–74

Pathogenetic mechanism of sporadic EO-CRC

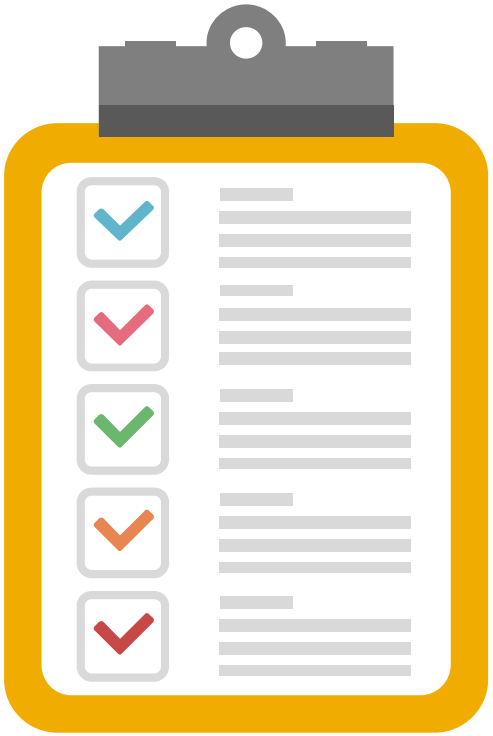


Spaander, M.C.W et al. Nat Rev Dis Primers 9, 21 (2023). https://doi.org/10.1038/s41572-023-00432-7

Early-onset vs. Late-onset cancers



Unique Clinical and Molecular Characteristics

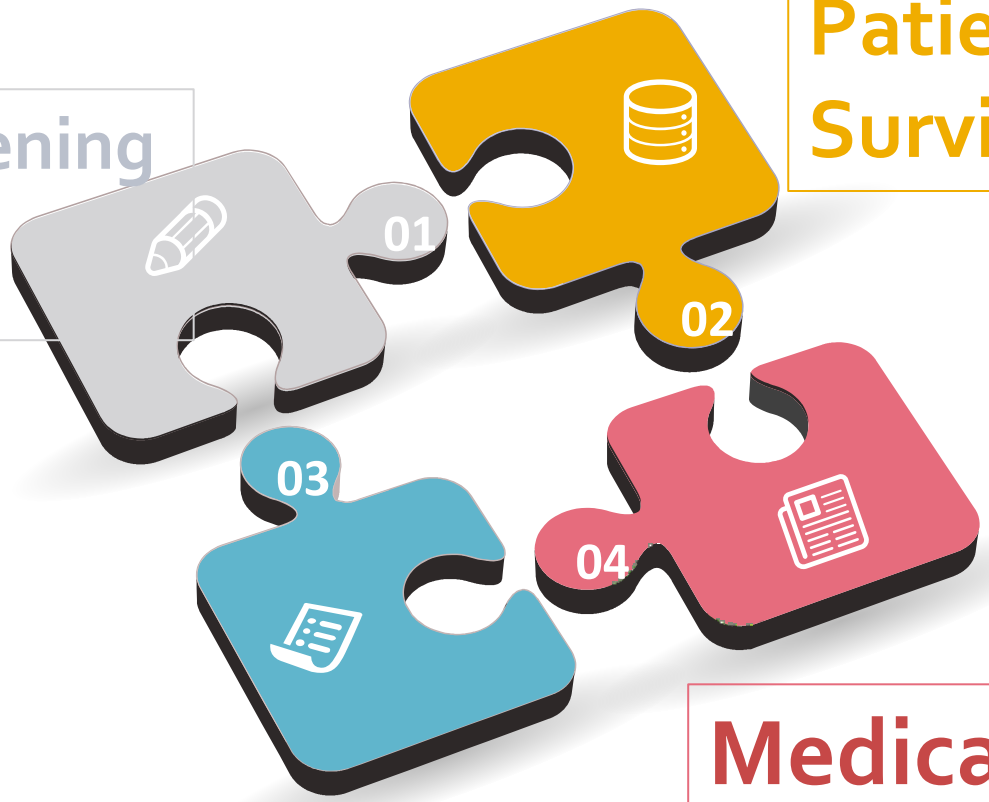


1. Aggressive Presentation
2. Distinct Molecular Profiles
3. Aggressive Treatment
4. Inconsistent Survival
5. Disparities

Implications of Early-onset GI Cancers

Cancer Screening Policies

Patient Care and Survivorship



Medical Research

Clinical Practice and Diagnosis

1. Implication for Clinical Practice and Diagnosis

Increased clinical suspicion of GI cancer in younger patients.

Healthcare providers must be more vigilant and consider GI cancer in their differential diagnosis for younger symptomatic patients

2. Implication for Cancer Screening Policies

Further adjustments to screening strategies

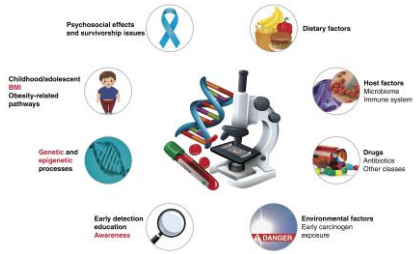
Developing effective, non-invasive screening tools.

3. Implication for Medical Research

Significant knowledge gap

Large-scale research

Understanding the unique molecular characteristics



4. Implication for Patient Care and Survivorship

Holistic

Multidisciplinary

Extending beyond medical treatment to include:

- **Fertility Preservation**
- **Psychosocial and Financial Support**
- **Genetic Counseling**

Future Directions

Roadmap of strategies to reduce the public health burden of early- onset CRC

Theme	Strategy
Education	Educate physicians, other health-care workers and the general public in order to raise awareness of early-onset colorectal cancer
Screening	▪ Expand the use of genetic testing among individuals with a family history Conduct research to create and refine prediction models ▪ Evaluate the available evidence and screening guidelines ▪ Develop personalized screening strategies
Aetiological research	Utilize existing resources to study the aetiologies of early-onset CRC; design additional studies
Clinical care and research	Set up specialized centres, units and/or clinics focused on early-onset CRC in order to deliver optimal care; conduct clinical trials

Akimoto, N et al. Nat Rev Clin Oncol 18, 230–243 (2021).