Select 74

Colorectal cancer trends & insurance: Adapting to changing risks

Thursday 20th November
SS Great Britain, Bristol

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Early onset colorectal cancer (EOCRC)

Spreading awareness is Dame Deborah's 'legacy', says her mother

Bowel cancer on the up in England's young adults

Young-onset colorectal cancer rates rising at alarming rate, doctors warn

Claims case studies:

Ellie, 31

Diagnosed with a **T2 tumour**

Jai, 42

Metastatic adenocarcinoma

Kris, 27

Diagnosed with a **T3N2 tumour**

Claims case studies: names have been changed to protect the identities of claimants

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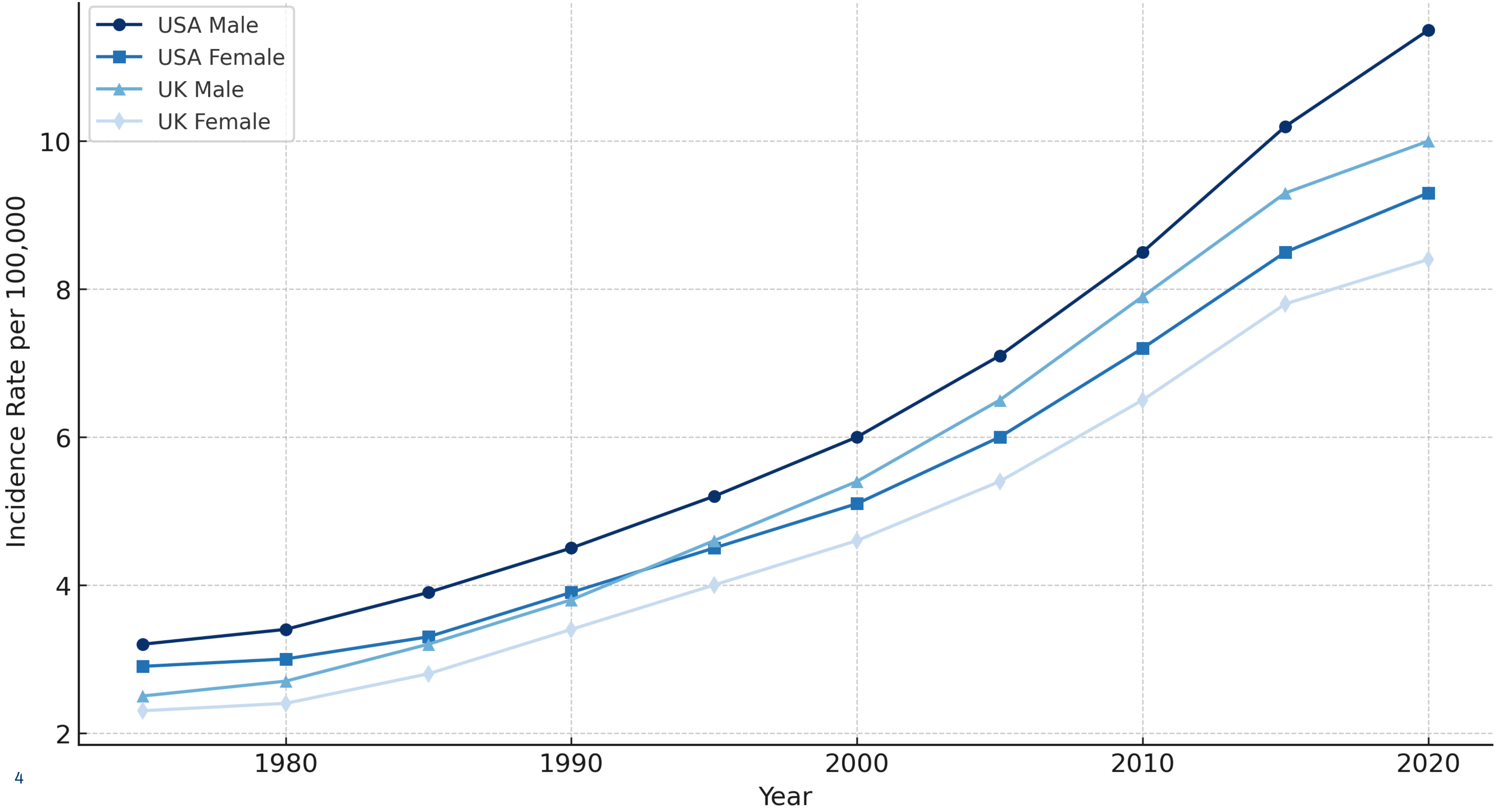
Learning objectives

Identify the key lifestyle, biological, and genetic factors contributing to the rise of early-onset colorectal cancer (CRC)

Understand what we are seeing in underwriting and claims today

Explore theories for the increase in rates, and review screening protocols

Early onset (age <50) CRC incidence trends by sex (1975 – 2020)



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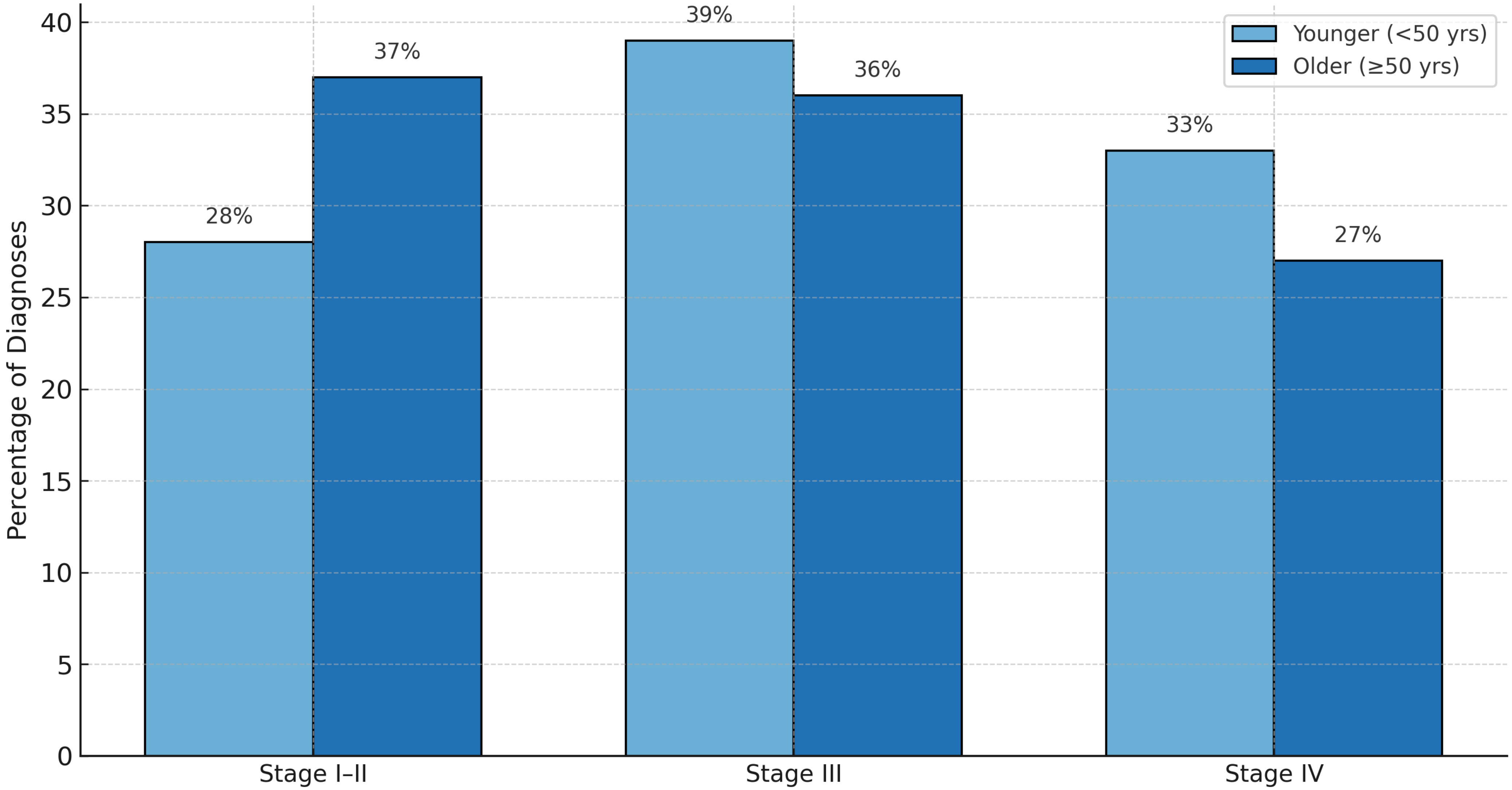
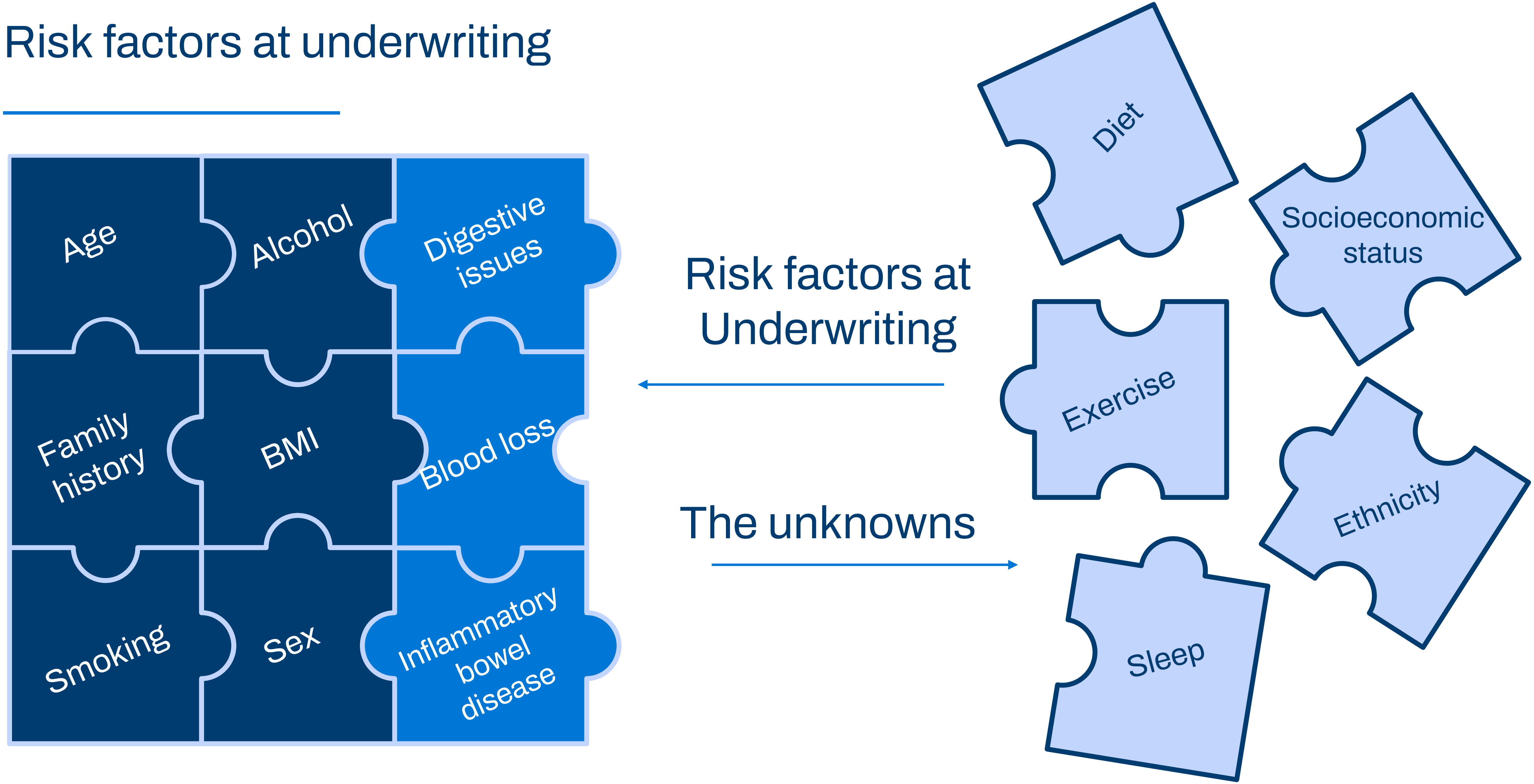
CRC stage at diagnosis: younger vs. older adults



Sources: Chen et al. (2017), Parramore et al. (1998), Chambers et al. (2020)

Risk factors at underwriting



Colo-rectal cancer claims in under-50s

Insights from 100+ CI, TI & Life Claims (2020–2025)

Demographics

63% male

37% female

Habits data inconclusive

Avg. policy in force: 4.8yrs

Observations

Longest plan in force 17 years; earliest for 3 months

80% T3/T4 adenocarcinoma

Frequent lymph node involvement & metastases

Presenting symptoms at claim

loose stools

history of haemorrhoids

constipation

anaemia

weight loss

sickness/ nausea

change in bowel habit

diarrhoea

fatigue

back pain

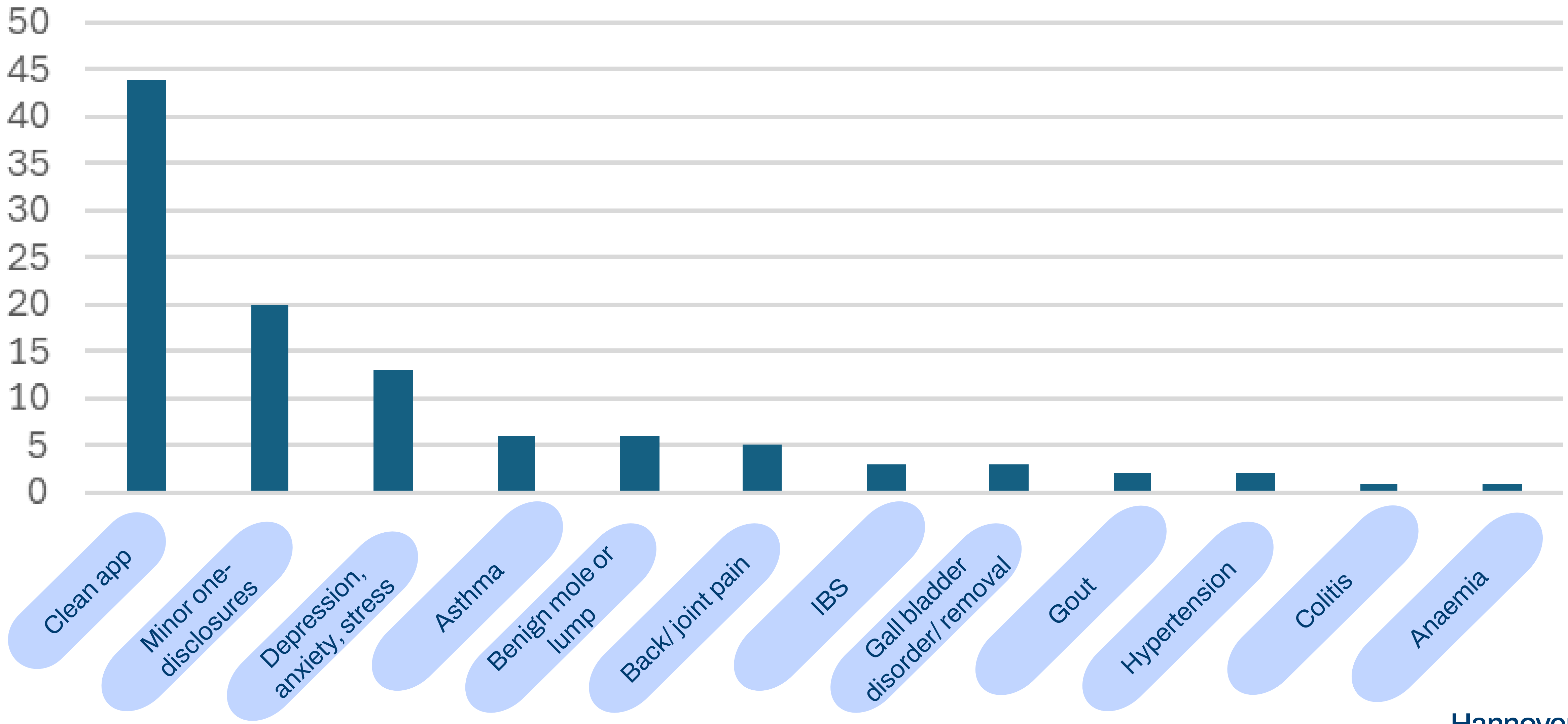
blood in stool

bloating

abdominal pain/ cramping

rectal bleeding

Underwriting disclosures



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Family history

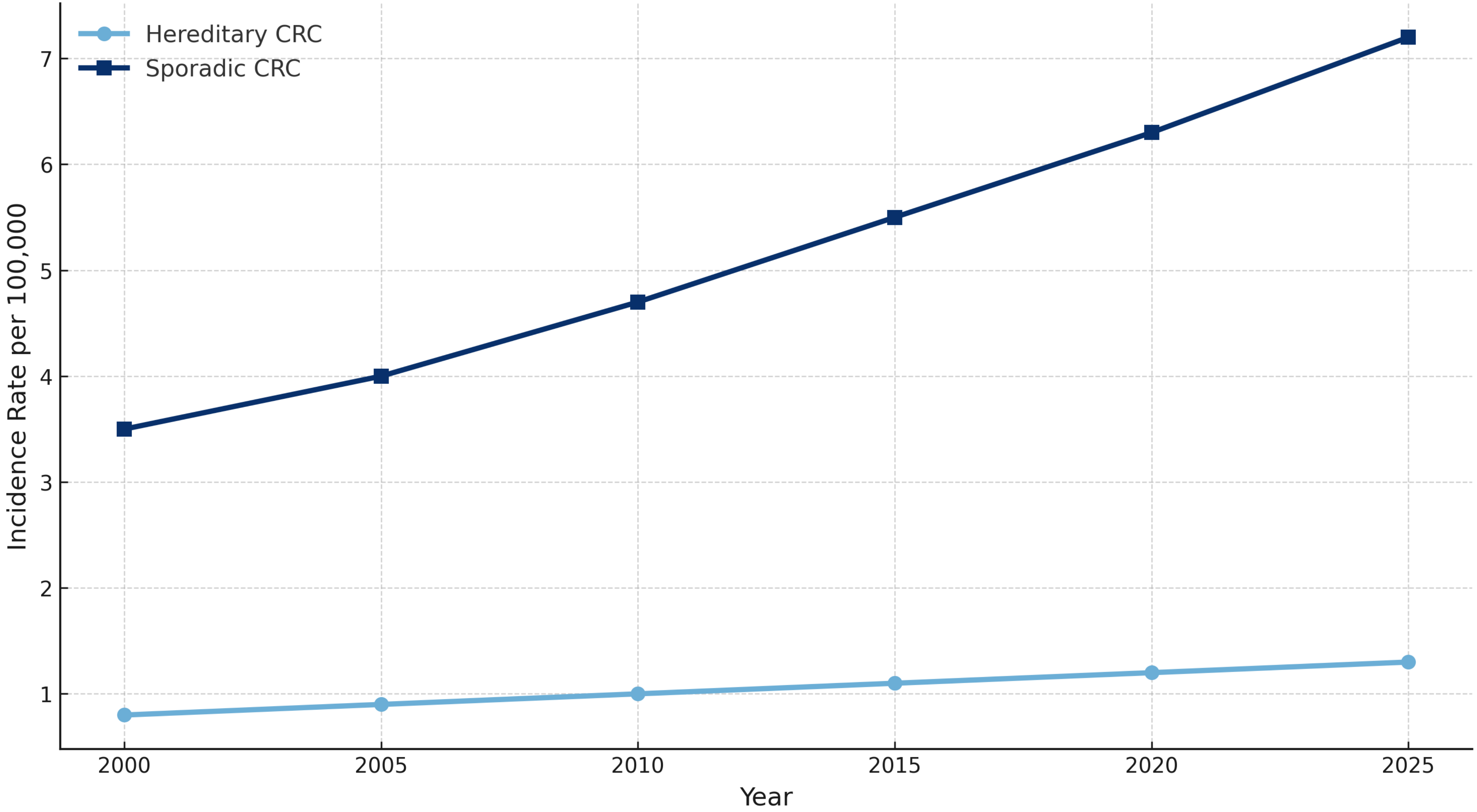
Zero FH CRC at outset

Some post app diagnosis but generally over age 60

Some second degree at claims but minimal numbers

Possible link between FH diabetes and males under 60

Incidence trends of hereditary vs sporadic early onset CRC (2000-2025)



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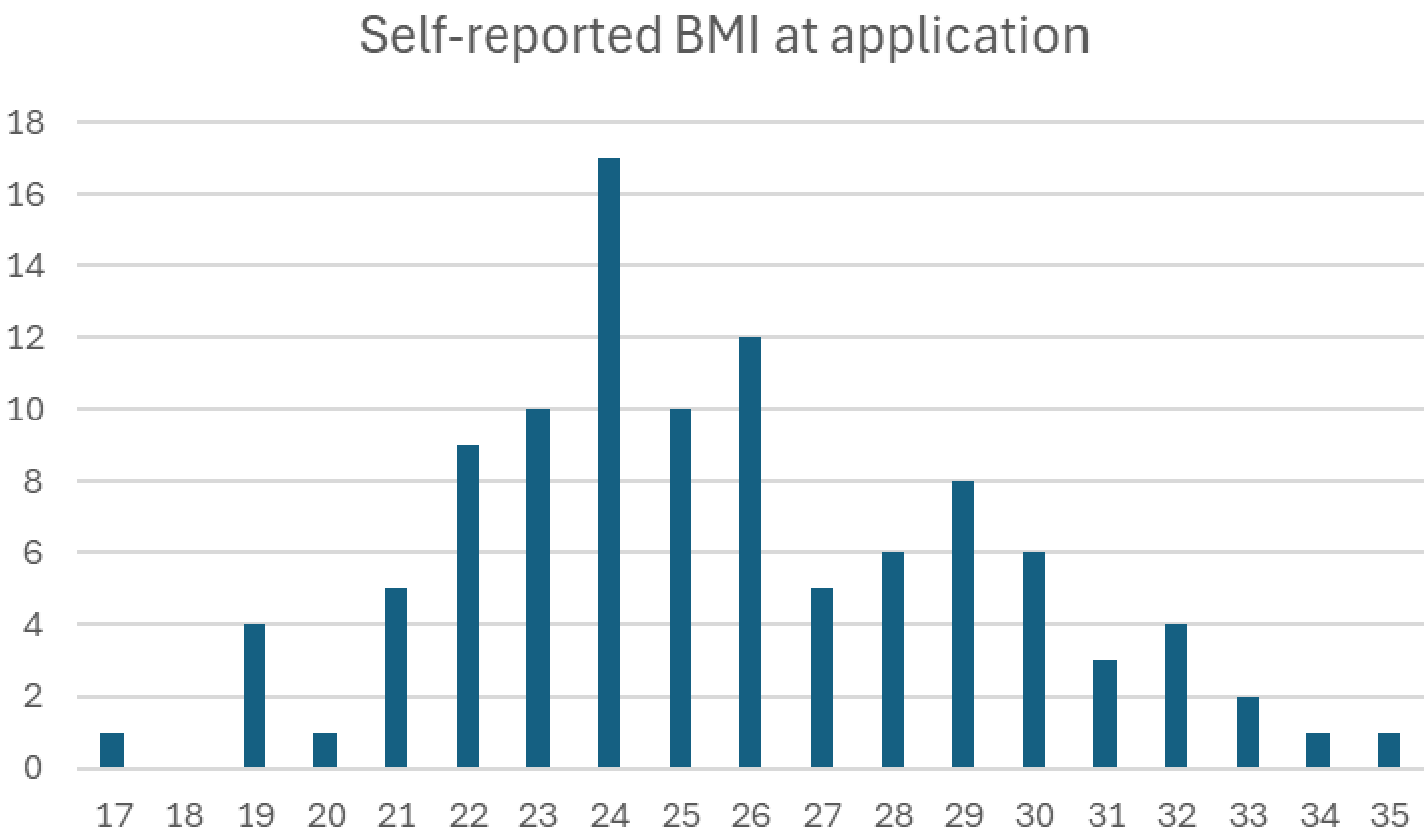
Height & Weight



- Height, weight or BMI was not noted in all cases. If we assume they were unremarkable then the graph would look different.
- **1/3** applicants here fall into the **overweight or obese** category.
- However, the average BMI is **25.9** with many applicants at a **healthy BMI.**

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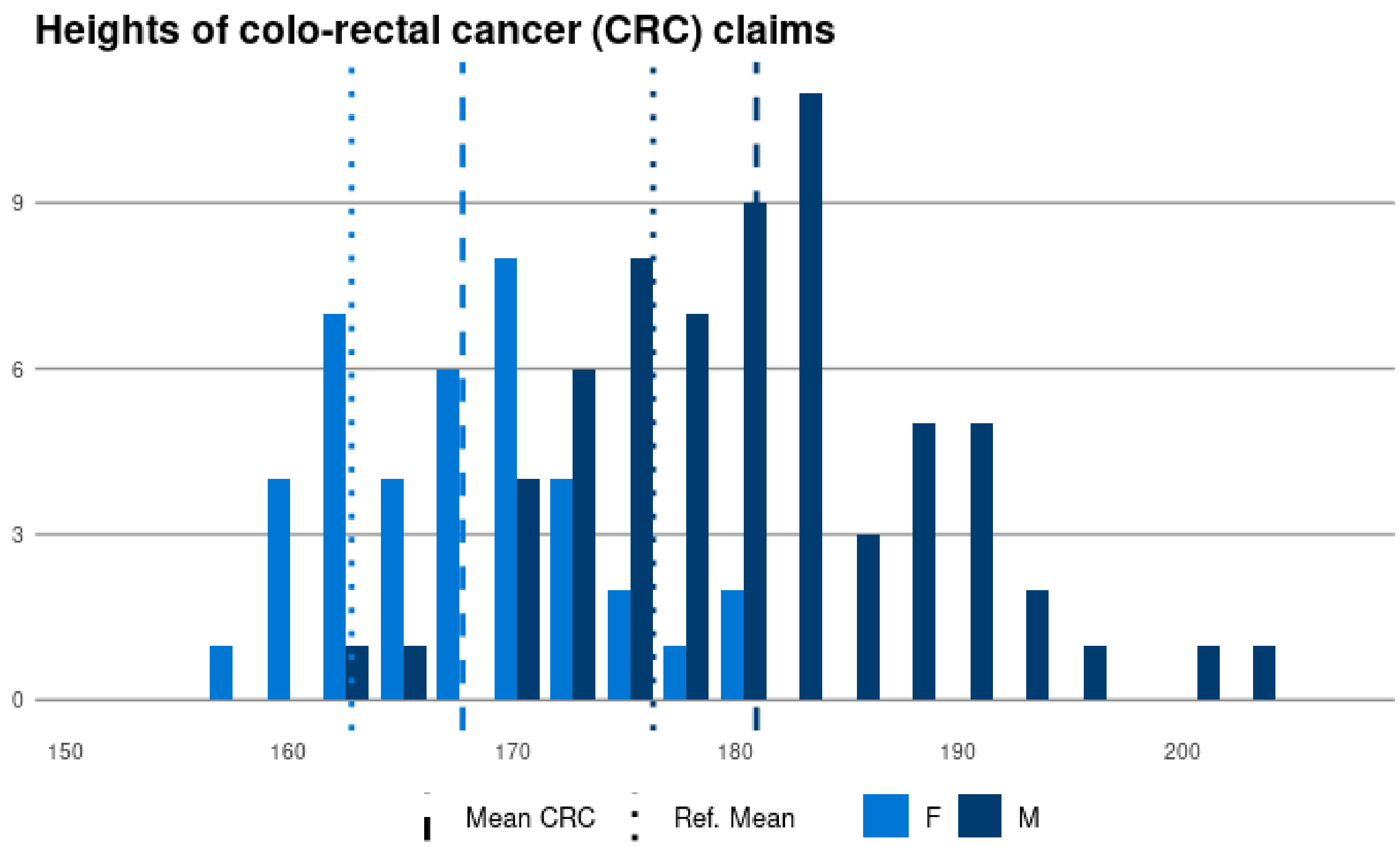
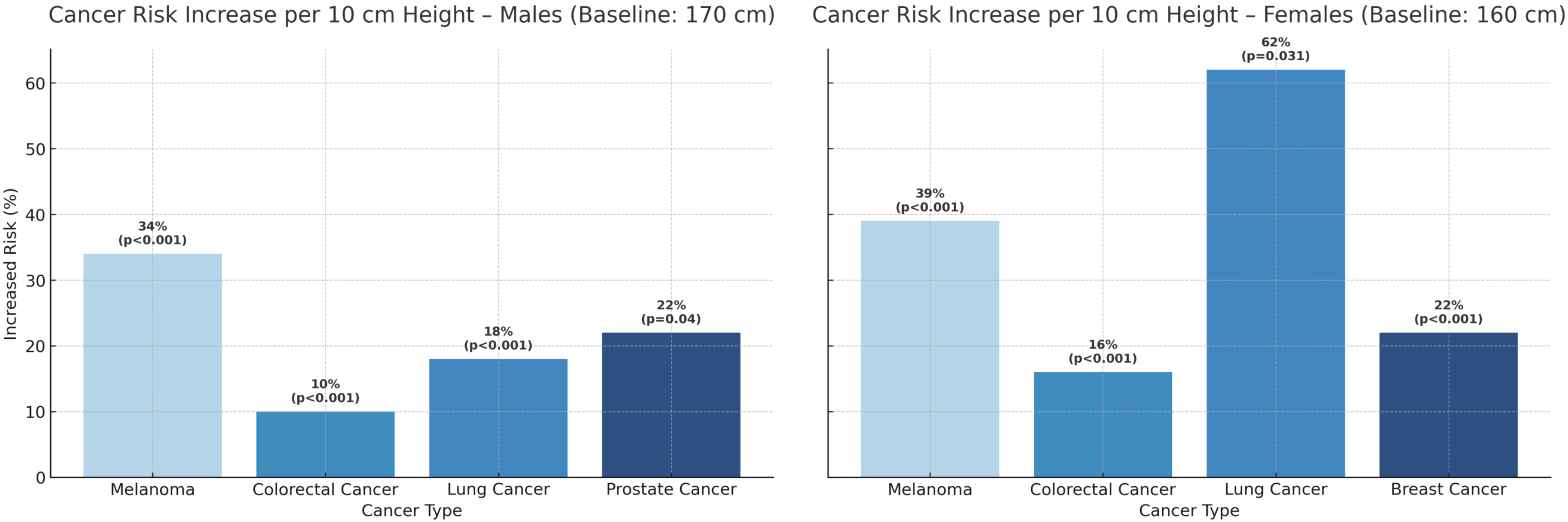
Height



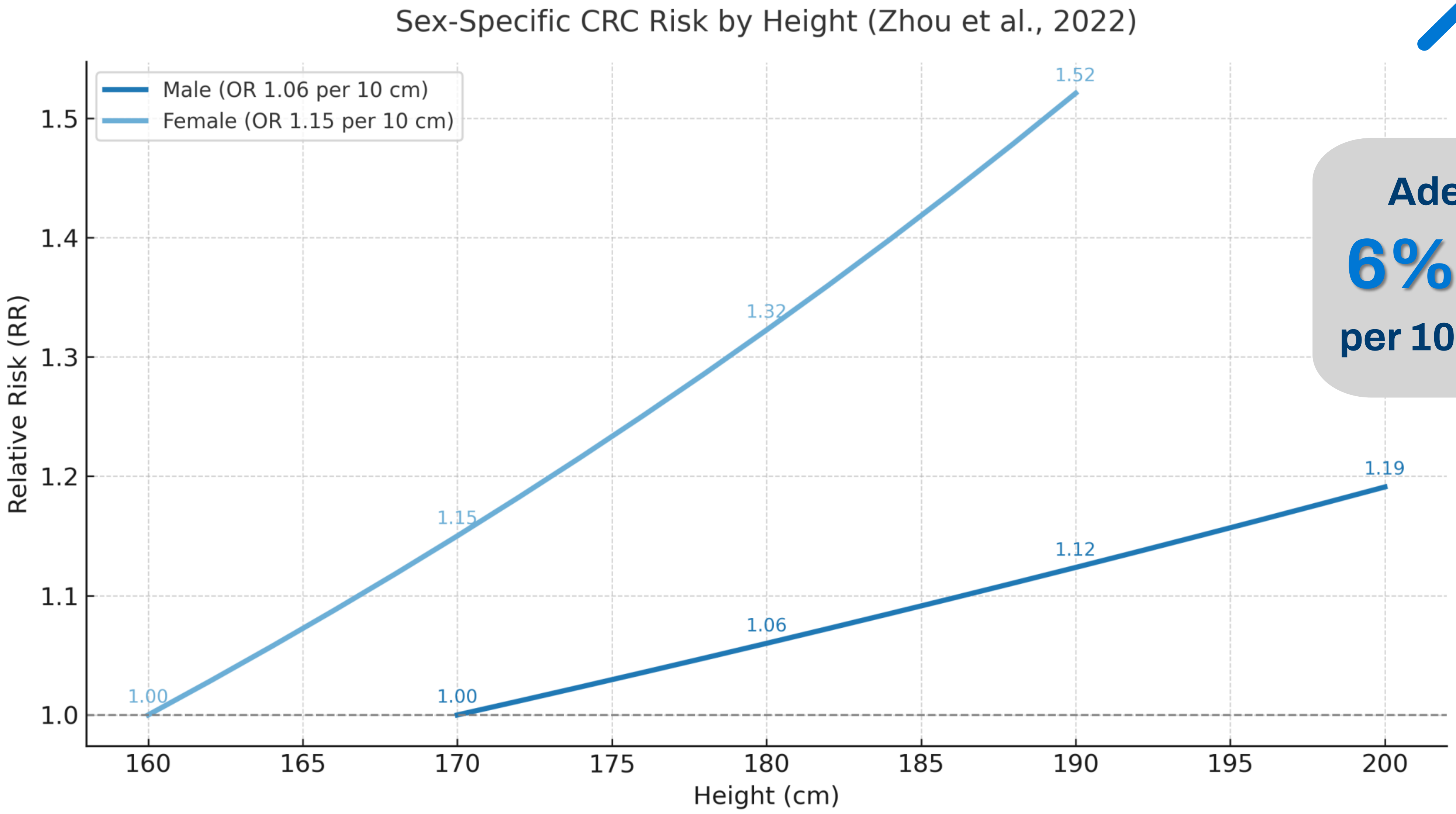
- Average height = **176.3cm** for men and **162.8cm** for women
- Mean heights in the CRC group were **180.9cm** and **167.8cm** respectively
- **2.6%** and **3.1%** increases from the baseline.

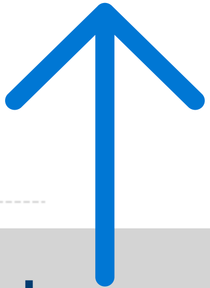
Height – Cancer Risk



References: Benyi et al. (2019), Zhang et al. (2015), Boursi et al. (2014), Wu et al. (2024), Le et al. (2024), Lophatananon et al. (2017)

Height – CRC Risk





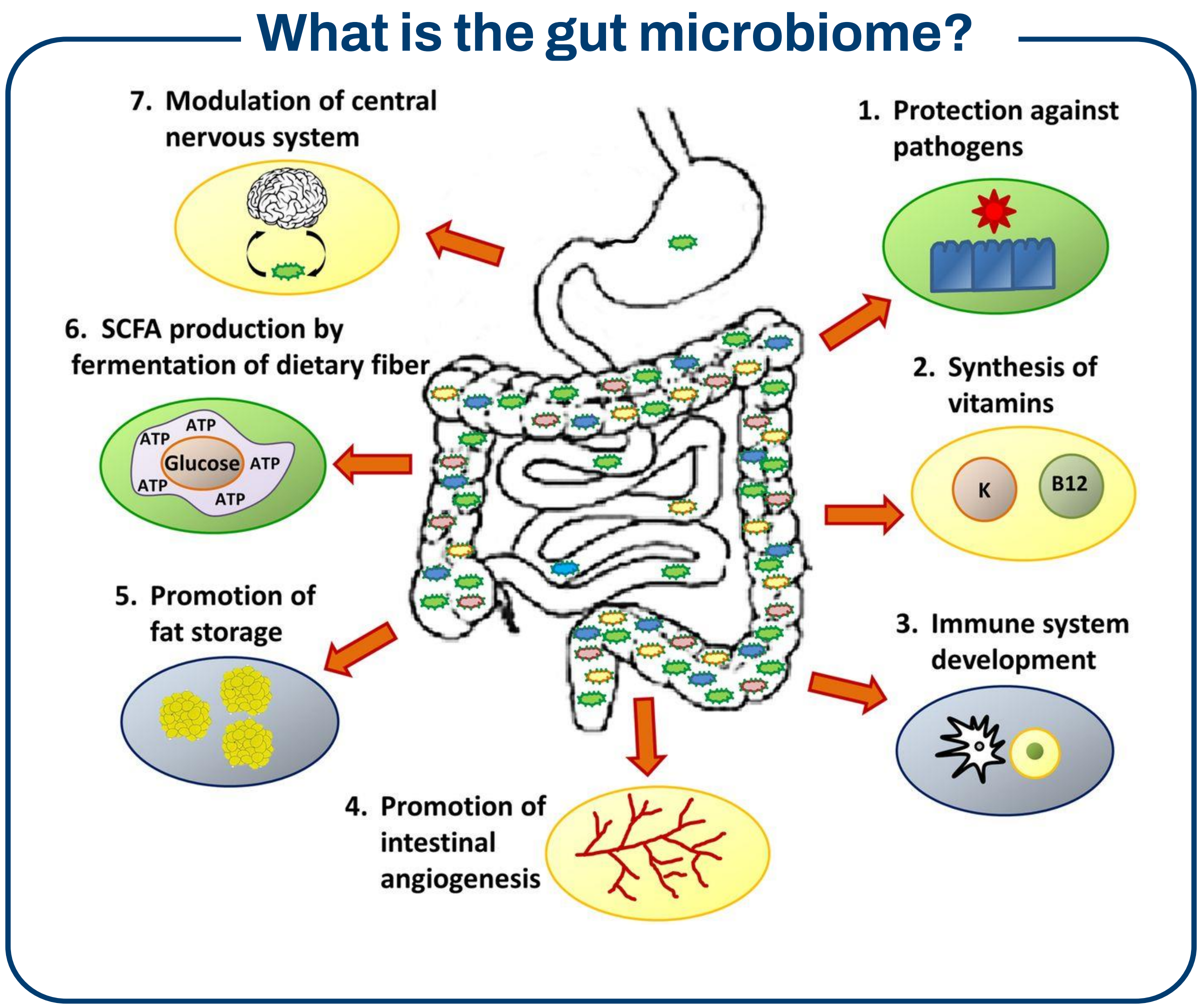
Adenomas

6% increase

per 10cm height

Source: Zhou et al. (2022), Cancer Epidemiol Biomarkers Prev. https://doi.org/10.1158/1055-9965.EPI-21-0398

CRC risk: the gut microbiome



Amon, Protima, and Ian Sanderson. "What is the microbiome?." *Archives of disease in childhood-Education and Practice* 102, no. 5 (2017): 257-260.

- A dynamic population of microorganisms
- Exert a marked influence on homeostasis and disease.
- Diet is one of the main drivers in shaping the gut microbiota across the lifetime.
- **Dysbiosis** associated with the pathogenesis of inflammatory diseases, infections, and **malignancy**.

Factors disrupting the gut microbiome & its role in CRC development

- Western diet (high-fat, low-fibre)
- Processed meats & red meat
- Obesity & metabolic disorders
- Sedentary lifestyle

- Antibiotic overuse
- Alcohol
- Smoking
- Chronic inflammation

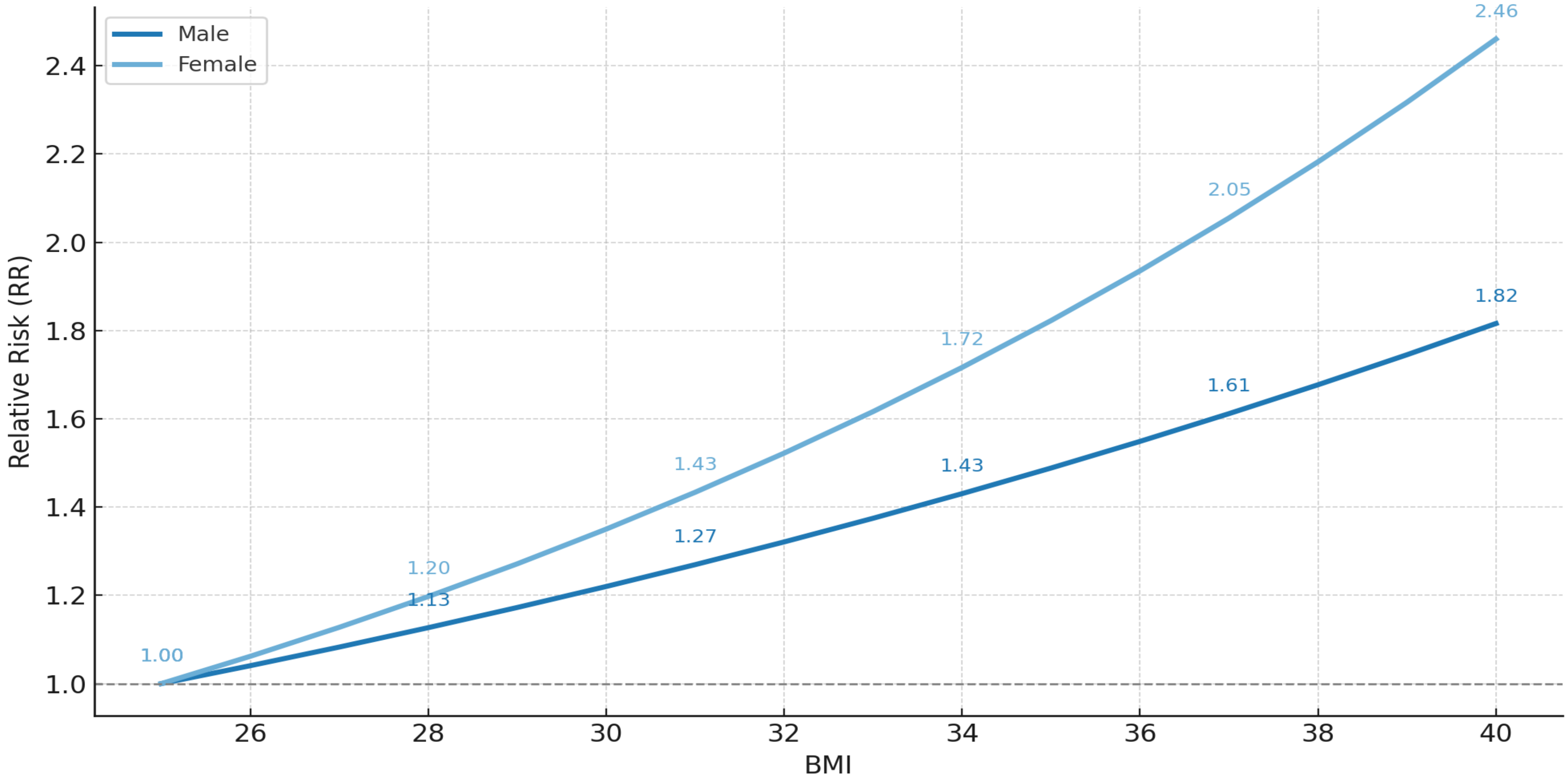
Mechanisms Leading to CRC:

- **Dysbiosis** → Loss of beneficial bacteria, overgrowth of pathogenic microbes.
- **Chronic inflammation** → Persistent immune activation, increasing tumor-promoting cytokines (e.g., IL-6, TNF-α).
- **DNA damage & mutations** → Bacterial toxins (colibactin, hydrogen sulfide) damage DNA, increasing cancer risk.
- **Carcinogenic metabolites (TMAO, bile acids)** → Altered microbial metabolism promotes oxidative stress.
- **Tumor growth & progression** → Altered gut environment supports CRC development.

CRC risk: overweight, obese BMI individuals

Mechanism relating to gut dysbiosis	Impact on CRC risk
1. Insulin resistance	Greater insulin resistance with raised IGF-1 – cell proliferation, and reduced apoptosis
2. Adipose driven inflammation	Greater immune activation increases cytokines (IL-6, TNF-α), supporting tumor progression.
3. Adipokines	↑ Leptin, ↓ Adiponectin promotes cell proliferation
4. Visceral Fat	Inflammatory cytokines and free fatty acids
5. Microbiome Dysbiosis	Short chain fatty acids, secondary bile acids, Trimethylamine-N-oxide

CRC relative risk by BMI & Sex (Baseline BMI = 25)



Bull, C.J., et al. (2020), Thrift, A.P., et al. (2015), Huyghe, J.R., et al. (2020).

CRC risk: normal BMI individuals

Genetics

Lifestyle

Smoking and alcohol

Physical inactivity

Metabolic dysfunction

Epigenetic changes

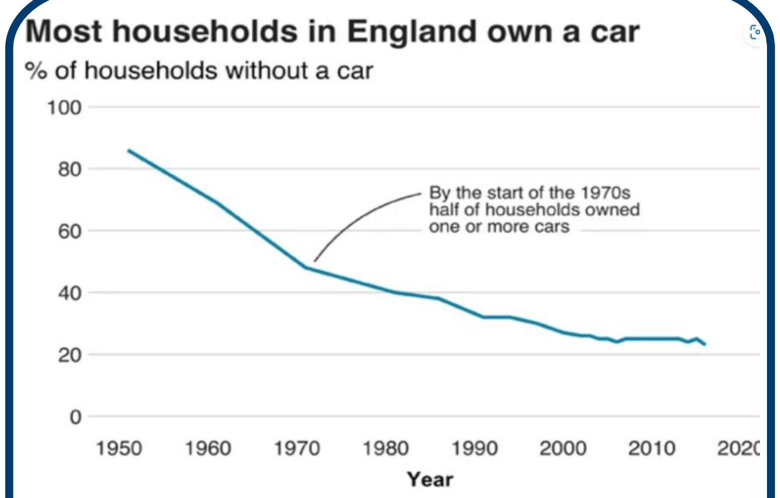
CRC risk: physical activity

Mechanism	Impact on CRC risk
1. Gut Transit	↑ bowel motility, ↓ exposure of colonic cells to carcinogens.
2. Metabolic Health	↓ Glucose, ↓ insulin resistance ↓ insulin-like growth factor-1 (IGF-1)
3. Inflammation	↓ pro-inflammatory cytokines (IL-6, TNF-α, CRP) that promote tumor growth.
4. Microbiome	↑ microbiome diversity, ↓ pathogenic bacteria associated with CRC.
5. DNA	↓ oxidative stress and DNA damage, ↑ DNA repair enzymes
6. Immune System	Enhances natural killer and T cell activity to eliminate pre-cancerous cells.

Is the exposome contributing to cancer rates?

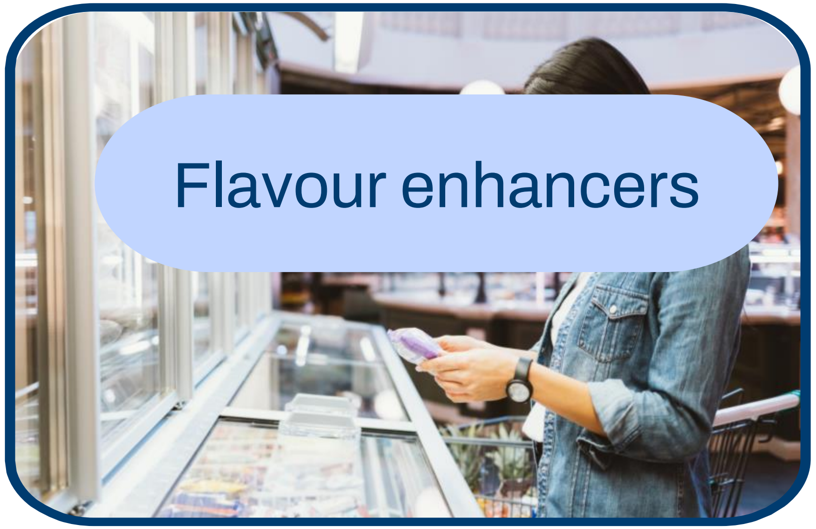
Single use plastics

Ultra-processed foods



Sedentary lifestyle = Vitamin D deficiency

Anti-biotic use



Flavour enhancers

Source: Department for Transport

Does it begin in utero?

Maternal

Obesity/ malnutrition/ smoking/ alcohol/ illicit drugs

Increased risk of obesity/ smoking/ alcohol

Stressors on the epigenome

Stressors on the epigenome

Lifestyle factors

Early-onset cancer

Genetic factors

Paternal (through effects on sperm)

Obesity/ smoking/ alcohol* (murine models)

Grand cancer challenges

Team PROSPECT

Investigating the global rise of early-onset colorectal cancer in younger adults.

Team OPTIMISTICC

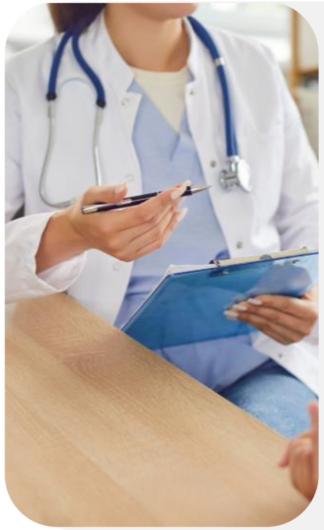
Comprehensively map the CRC microbiome and to develop, test, and implement microbiome-targeted therapeutic approaches.

CRC screening

Goals

Early detection: Identify disease at a stage when treatment is more effective

Risk factor identification: Recognise risk factors to prevent or reduce disease by modifying them.



Disease

Must be a significant public health problem (common, with high morbidity and mortality).

Must have treatments with a potential cure, especially with early detection.

Test:

Must **detect a high proportion** of disease in its preclinical state.

Safe, cost-effective, and capable of leading to **improved health outcomes**

Must be **widely available** with accessible follow-up interventions

CRC is rising in adults under 50, but has decreased in older populations due to screening.

CRC screening in average-risk adults aged 50-75 is substantially beneficial.

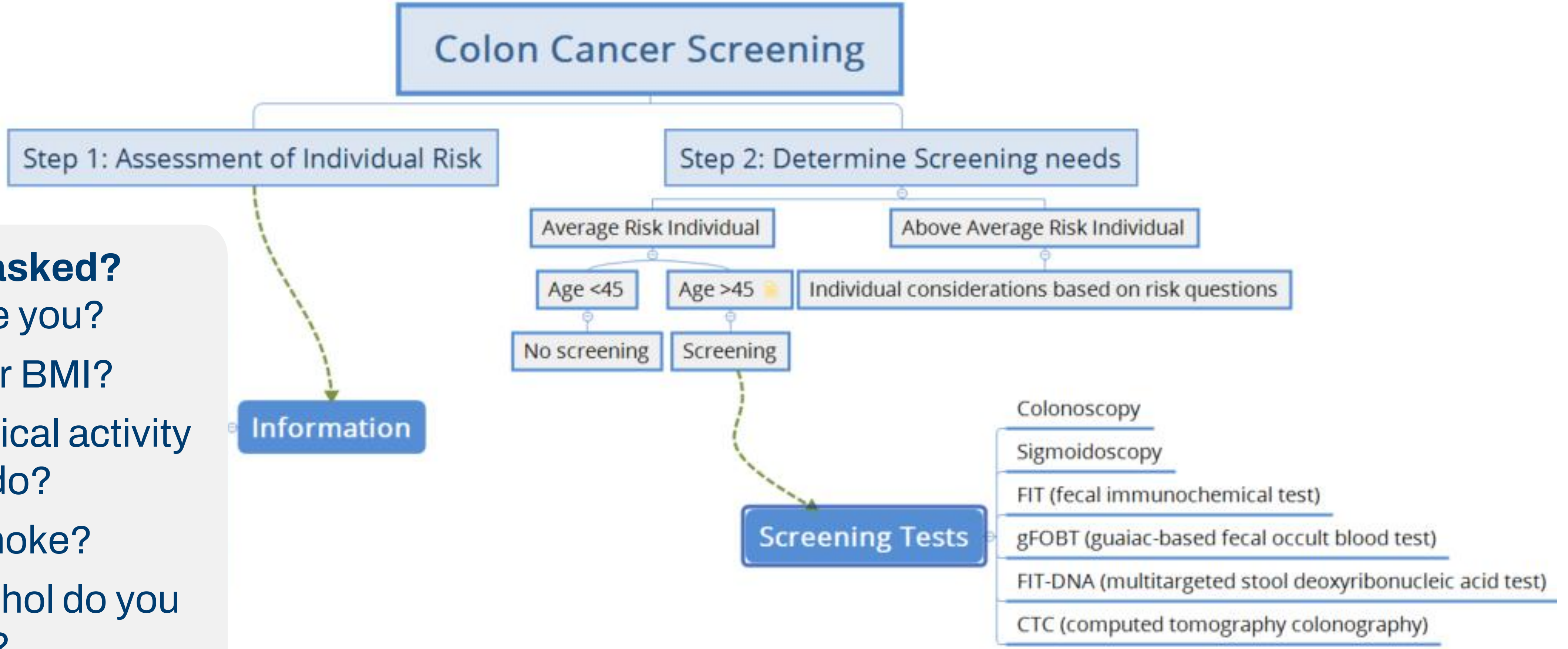
Multiple effective screening strategies exist, each with varying evidence and benefits.

Impacts

Screening approaches by geographies for average risk individuals

Region/Country	Start Age	End Age	Primary Screening Method(s)	Interval
United States	45	75	Colonoscopy, FIT, gFOBT, stool DNA, CT colonography	Varies by method
France	50	74	FIT	Every 2 years
Germany	55	75	Colonoscopy or FIT	10 years / Annual
United Kingdom	**50-60**	**74**	**FIT**	Every 2 years
England	56 (moving to 50)	74	Gradual rollout to age 50 by 2025	
Scotland	50	74	FIT offered from age 50	
Wales	55 (moving to 50)	74	Start age being lowered in phases	
Northern Ireland	60	74	FIT introduced in 2021 to replace gFOBT	

CRC Screening



What isn't asked?

How tall are you?

What is your BMI?

How much physical activity do you do?

Do you smoke?

How much alcohol do you drink?

Is your diet high in fat, low in fibre?

From LUCID to Select 74

Webinar & publication

Bowel cancer big bang theory

Global collaboration

Working with partners

Jess's rule introduced

Maggie's fundraiser

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