Government of **Western Australia**
Department of **Health**

Bowel Cancer Overview

Primary Health Tasmania
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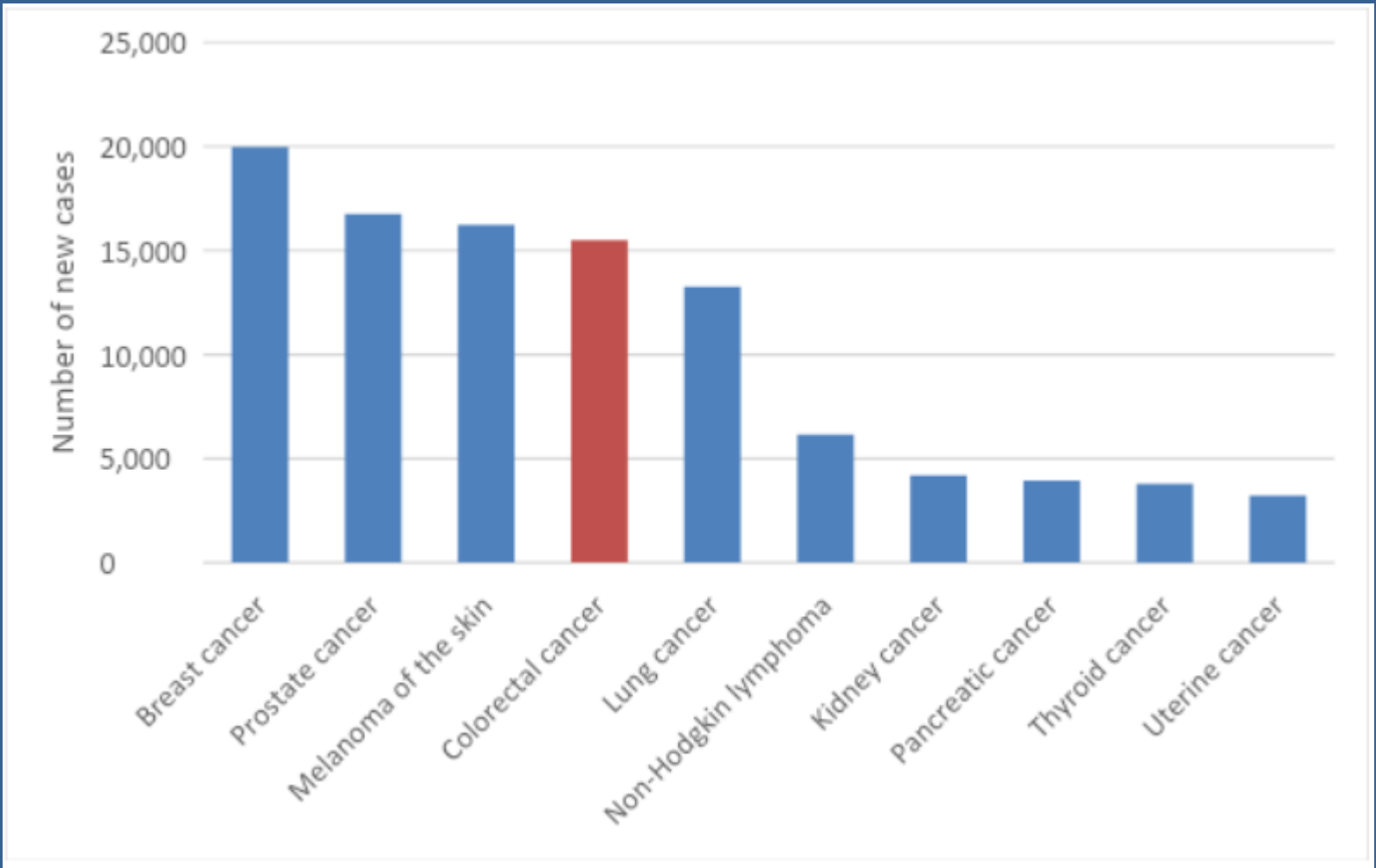
Colorectal (bowel) cancer

- Australia (and NZ) has highest global incidence
- One of commonest cancers affecting Australians
- Lifetime risk: Male = 1:11 Female = 1:16
- Second biggest cancer killer in Australia (after lung)
- In 2020
  - 15, 494 estimated cases
  - 5,322 estimated deaths

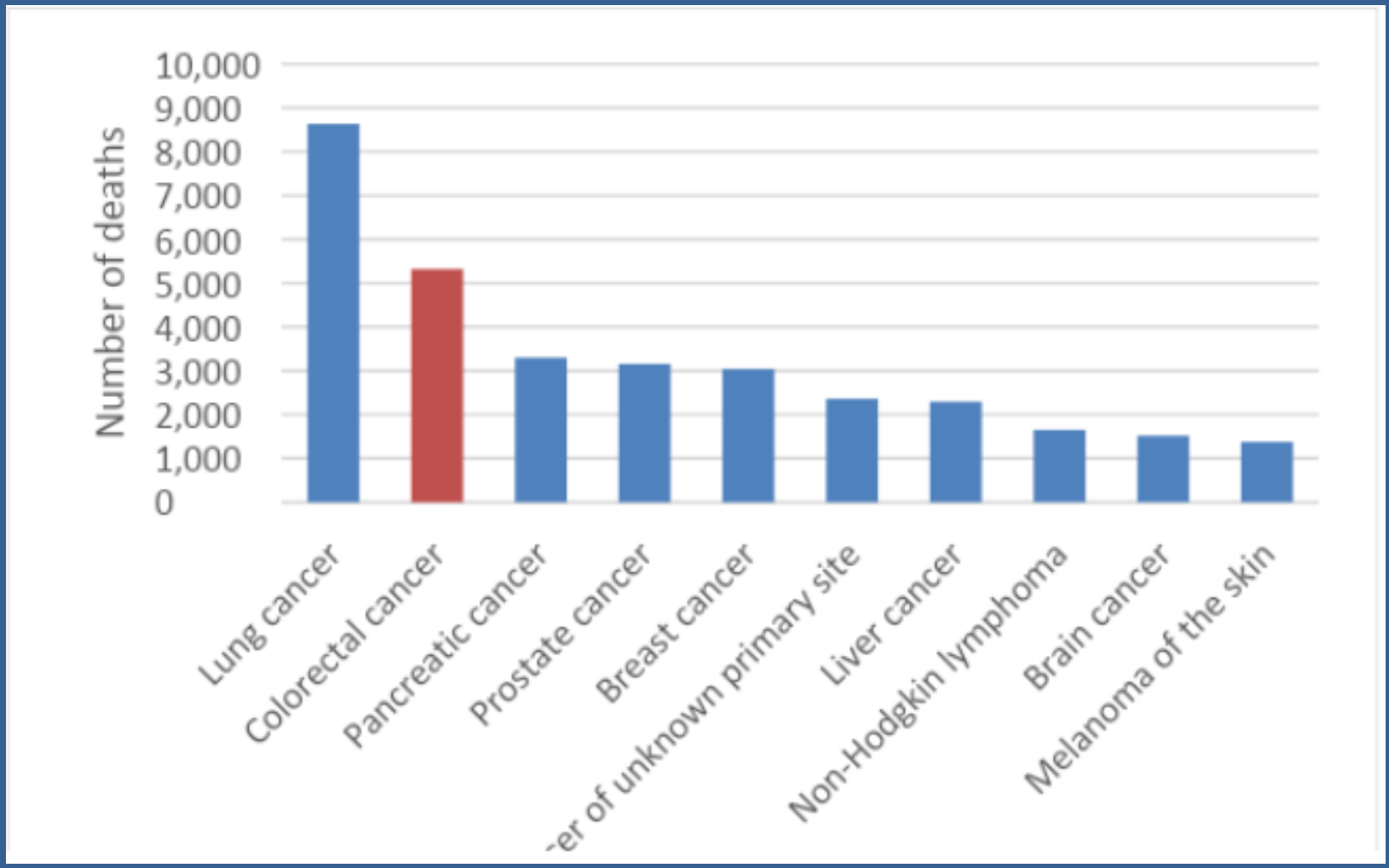
Most common cancers - Australia



Australian Institute of Health and Welfare 2020

https://www.canceraustralia.gov.au/affected-cancer/cancer-types/bowel-cancer/bowel-cancer-colorectal-cancer-australia-statistics

Cancer deaths - Australia

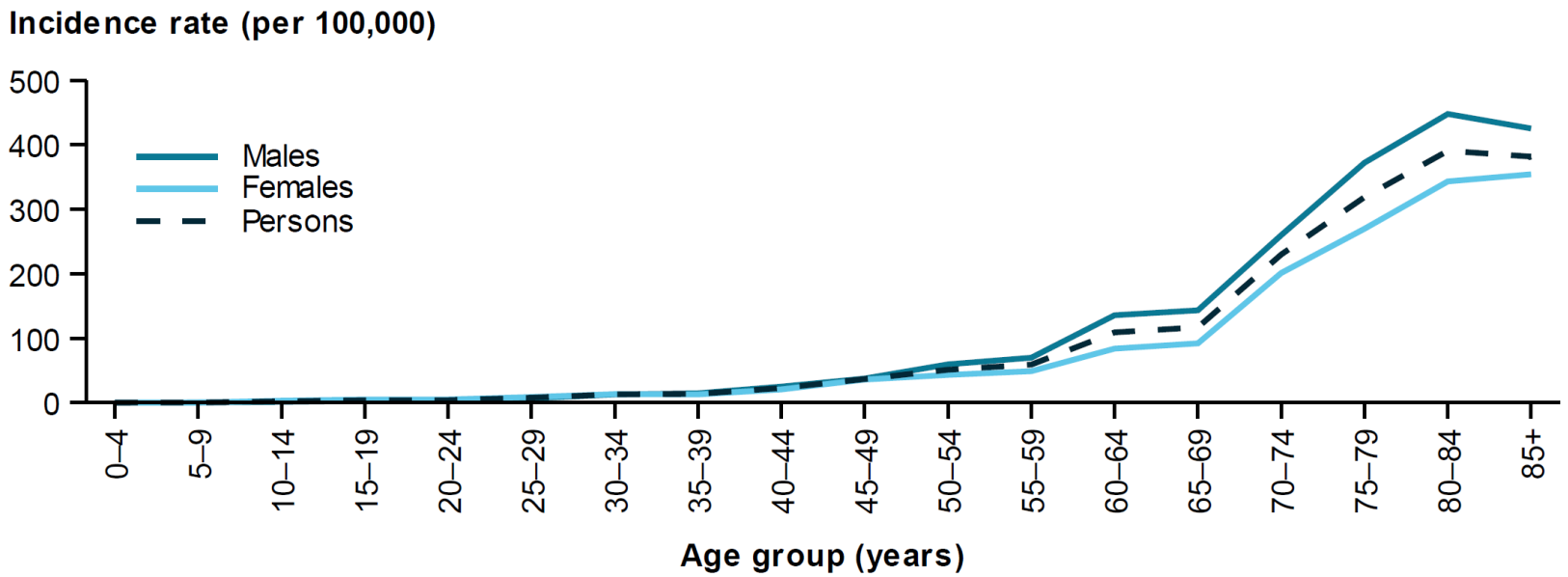


Australian Institute of Health and Welfare 2020

https://www.canceraustralia.gov.au/affected-cancer/cancer-types/bowel-cancer/bowel-cancer-colorectal-cancer-australia-statistics

Bowel cancer incidence by age

Figure 2.1: Age-specific incidence rates of bowel cancer, by sex, Australia, 2020



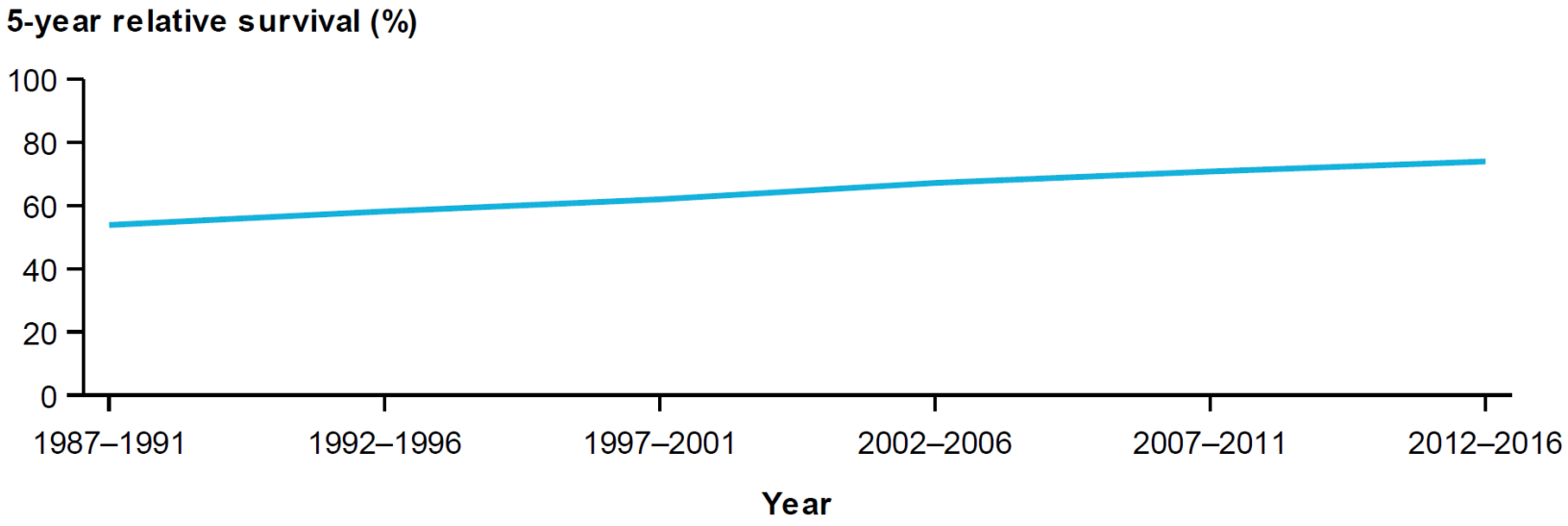
Notes

1. The 2020 estimates are based on 2007–2016 incidence data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people.

Source: Table A3.24.

Improvements in survival

Figure 2.4: Trend in 5-year relative survival from bowel cancer, 50–74 years at diagnosis, Australia, 1987–1991 to 2012–2016



Source: Table A2.2.

AIHW, NBCSP Monitoring Report 2020

Risk factors

Non modifiable	Modifiable
Age	Inadequate dietary fibre
Personal history of bowel cancer/disease	Excessive red meat/processed meat consumption
Family history of bowel cancer/disease	Obesity and physical inactivity
Genetic susceptibility	High alcohol intake
	Smoking

Modifiable risk factors

% of bowel cancer cases attributable to:	
Inadequate fibre consumption	18%
Red meat & processed meat	18%
Alcoholic drinks	9%
Physical inactivity	5%
Body fatness	9%
Smoking	6%

Whiteman et al. 2015

Aspirin reduces risk by 15%

Genetic factors (non-modifiable) 20%

Table 2.2: Bowel cancer burden attributed to selected risk factors (DALY and proportion), 2015

Risk factor	Males		Females		Persons	
	Attributable DALY	Proportion of bowel cancer burden (%)	Attributable DALY	Proportion of bowel cancer burden (%)	Attributable DALY	Proportion of bowel cancer burden (%)
Alcohol use	2,640	4.8	2,706	6.4	5,346	5.5
All dietary risks	12,007	21.9	9,090	21.5	21,097	21.8
Diet high in processed meat	3,238	5.9	2,484	5.9	5,722	5.9
Diet high in red meat	3,666	6.7	2,806	6.6	6,472	6.7
Diet high in sugar sweetened beverages	277	0.5	49	0.1	325	0.3
Diet low in milk	5,821	10.6	4,472	10.6	10,293	10.6
High blood plasma glucose	3,537	6.5	1,966	4.7	5,503	5.7
Occupational exposures & hazards	1,345	2.5	486	1.2	1,831	1.9
Overweight & obesity	9,628	17.6	2,457	5.8	12,085	12.5
Physical inactivity	8,765	16.0	7,257	17.2	16,022	16.5
Tobacco use	3,200	5.8	3,928	9.3	7,128	7.4

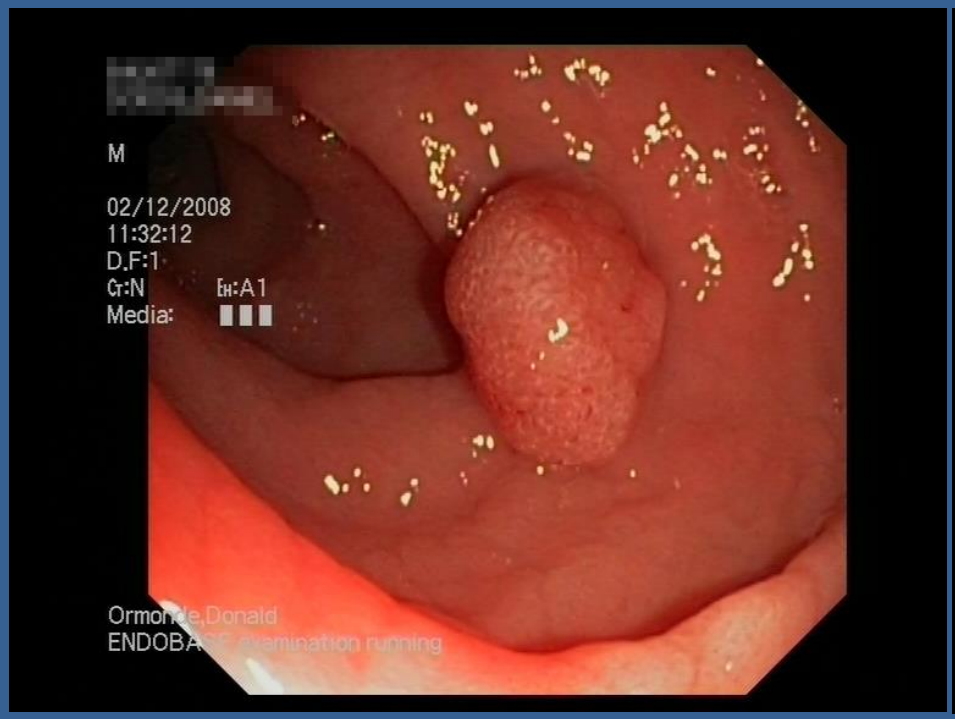
Note: Attributable burden from multiple risk factors cannot be combined or added together due to the complex pathways and interactions between risk factors.

DALY = disability-adjusted life years

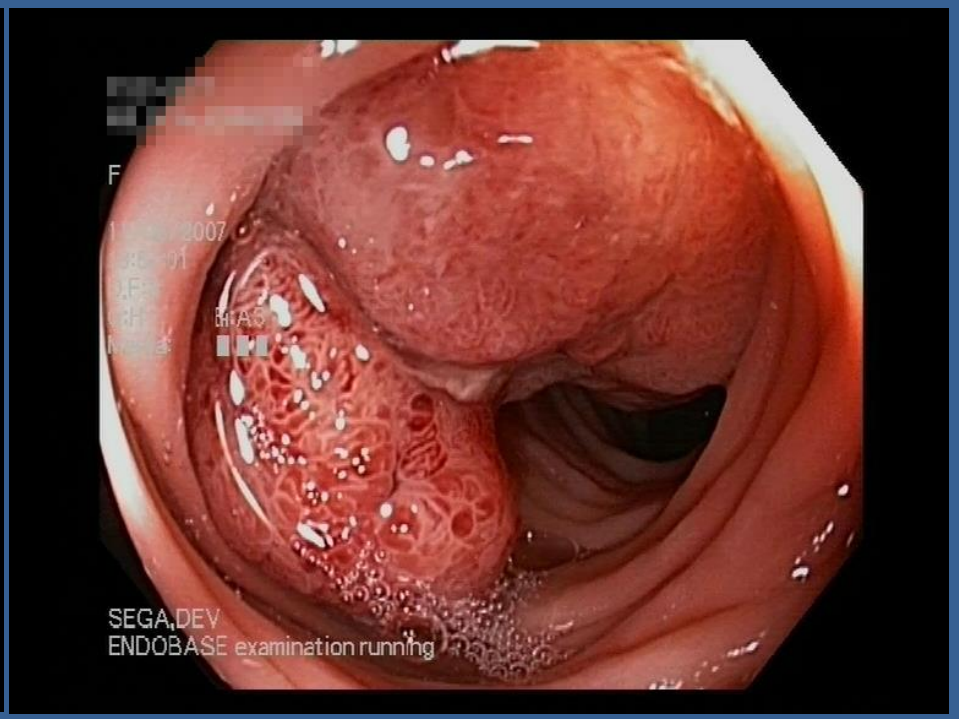
AIHW, NBCSP Monitoring Report 2020

Adenoma to carcinoma sequence

Polyp



Cancer



5 – 15 year sequence

Almost all cancer comes from polyps

Only 5% of polyps become cancer

Signs and symptoms

- Early bowel cancer usually has no symptoms

- Symptoms occur when cancers are larger
  - Rectal bleeding
  - Symptoms of anaemia
  - Change in bowel habit (constipation or diarrhoea)
  - Abdominal pain
  - Weight loss with localising symptoms
  - Abdominal mass

Find Colorectal Cancer Early

Positive predictive value of symptoms

Figure 1: Probability of cancer if clinical features present[1]

Constipation	Diarrhoea	Rectal bleeding	Loss of weight	Abdominal pain	Abdominal tenderness	Abnormal rectal exam	Haemoglobin 10–13 g/dL	Haemoglobin <10 g/dL	PPV= Positive predictive value (%) or probability of cancer
0.42	0.94	2.4	1.2	1.1	1.1	1.5	0.97	2.3	← PPV as a single clinical feature
0.81*	1.1	2.4	3.0	1.5	1.7	2.6	1.2	2.6	Constipation
	1.5*	3.4	3.1	1.9	2.4	11	2.2	2.9	Diarrhoea
		6.8*	4.7	3.1	4.5	8.5	3.6	3.2	Rectal bleeding
			1.4*	3.4	6.4	7.4	1.3	4.7	Loss of weight
				3.0*	1.4	3.3	2.2	6.9	Abdominal pain
					1.7*	5.8	2.7	>10	Abdominal tenderness

Figure 1 shows the probability of colorectal cancer for individual and pairs of clinical features, including second* presentation.

For example, the probability of colorectal cancer for rectal bleeding alone is 2.4%, but rectal bleeding combined with an abnormal rectal exam increases the probability to 8.5%. Two separate episodes of rectal bleeding have a probability of 6.8%.

Probabilities highlighted in red are >5%, and urgent referral should be considered.

- >5% probability of cancer
- 2-5% probability of cancer
- 1-2% probability of cancer
- <1% probability of cancer
- * Second presentation

Low risk symptoms (<1% cancer)
=
Low value colonoscopy

- Young bloaters
- Chronic constipation
- Weak family history
  - not first degree, not young, few members
- Surveillance intervals too early
- Prior colonoscopy in the last 5 years

Symptomatic presentation is late

25% of bowel cancer incurable at presentation

> 95% need surgery

< 5% curable by colonoscopic polypectomy

Can we find bowel cancer earlier?

Bowel cancer is ideal for screening

- Common serious disease
- No symptoms during early phases
- Early detection simplifies treatment
- Early detection improves outcome
- Screening proven to saves lives

National Bowel Cancer Screening Program

Aims to reduce incidence, morbidity and mortality of bowel cancer by earlier detection of cancers and pre-cancerous lesions

Faecal Occult Blood Test (iFOBT)

- Sensitivity (with disease and positive test):
  - 83% for cancer
  - regular testing increases sensitivity
- Specificity 90%
- Positive predictive value: 5% for cancer
- Negative predictive value: 99% for cancer

- iFOBT(+) 60x more likely than iFOBT(-) to find cancer
  - efficient colonoscopy use

National Bowel Cancer Screening Program

iFOBT kits:

2-yearly screening for 50-74 y.o.

44% participation

7% of participants are iFOBT (+)

3% of positives have cancer

30% have polyps

NBCSP Colonoscopy Access

- (+) iFOBT: recommend colonoscopy
- Recommended time to colonoscopy: ASAP!
- Usual care pathway: problematic ++
- Up to 120 days: no effect on outcome
- Colonoscopy rate for (+)
  - Tasmania: 70% (Aus: 66%)
- Median wait time
  - Tasmania: 58 days (Aus: 51)

NBCSP saves lives

- Cancers detected at earlier stages
  - Participants: Stage I: 40%, Stage IV: 3%
  - Non-participants: Stage I: 20%, Stage IV: 12%

- Mortality reduction
  - 15% after correcting for lead time bias
- Increasing participation is high priority

Bowel cancer in under 50s

- Colon cancer increase: 9% p.a. since 2000s
- Rectal cancer increase: 7% p.a. since 1990s

Possible causes:

- Obesity (RR 1.5)
- Hyperlipidaemia (RR 1.6)
- Alcohol consumption (RR 1.7)
- Diet, smoking, sedentary, metabolic syndrome

Should under 50s be screened?

- Not as a population program
- Less efficient use of resources
- Better to increase participation of 50-74 yo

- BUT at individual level:
- From 45-50 years of age: iFOBT every 2 years

Case Study 1

- 65 yo woman, active lifestyle
- 6 weeks: blood with bowel motions
- Seen on stool and on wiping
- No change in bowel habits
- Otherwise well, no co-morbidities
- Recommend: colonoscopy (overt bleeding)
- NOT iFOBT

Case Study 2

- 50 yo woman, receives NBCSP, asymptomatic
- Mother had bowel cancer last year (78 yo)
- Does she need colonoscopy?
- Answer: No
- Her risk of bowel cancer is slightly higher, but colonoscopy only if mother's cancer <55yo
- Recommendation: do the NBCSP kit

Case Study 3

- 70 yo man, 30 pack year smoking
- Severe emphysema, home oxygen
- Limited mobility, breathless
- Receives NBCSP kit
- Recommend: best not to participate
- Respiratory prognosis poor
- Bowel preparation, colonoscopy: risky
- High surgical mortality

Case Study 4

- 48 yo woman, attends for anxiety meds
- Slightly overweight, 10 cigs/d
- On TV: bowel cancer happening younger
- What to recommend?
- Answer: iFOBT available from pharmacies
- NBCSP currently not available for <50 yo
- Colonoscopy screening not appropriate

Case Study 5

- 64 yo man, NBCSP: 2/2 positive
- Uninsured, colonoscopy in 2 months
- Patient gets very anxious, angry
- Reassure, 3-4% risk of cancer
- 120 day delay does not change outcome
- Suggest: write to Minister(s)!

Bowel Cancer Summary

- Bowel cancer is a very common cancer
- Mainly affects middle and older ages
- Much of it is preventable
- Investigate high risk symptoms
- Avoid over-investigating low risk symptoms
- Early diagnosis improves outcome
- NBCSP participation should be encouraged