Bowel Cancer

Prevention, Early Detection, Screening

Rural Health West
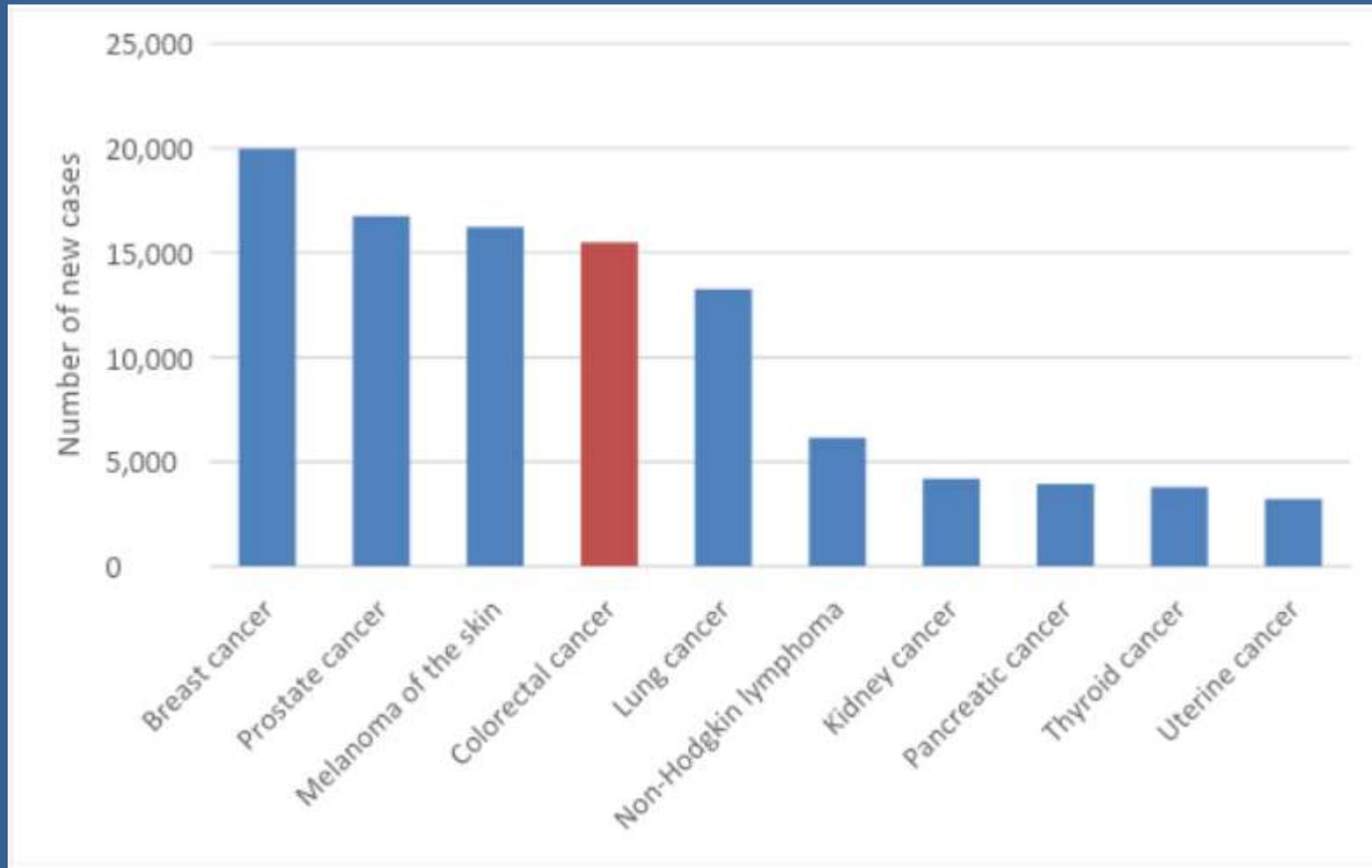2021 Aboriginal Health Conference
20 Nov 2021

Dr. Hooi Ee
Gastroenterologist, Sir Charles Gairdner Hospital
Clinical Professor, University WA

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
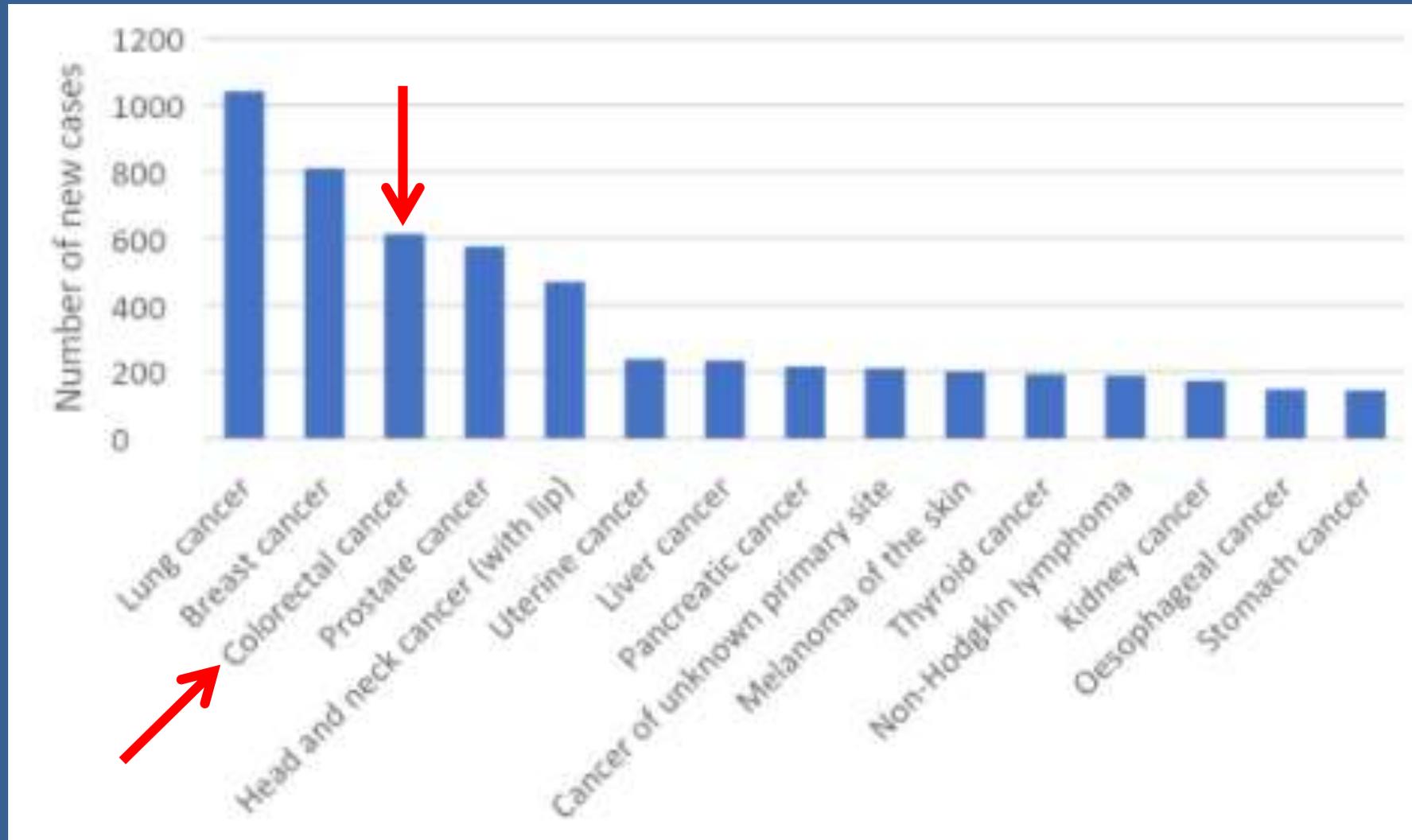 - 15, 494 estimated cases
  - 5,322 estimated deaths

Most common cancers - Australia

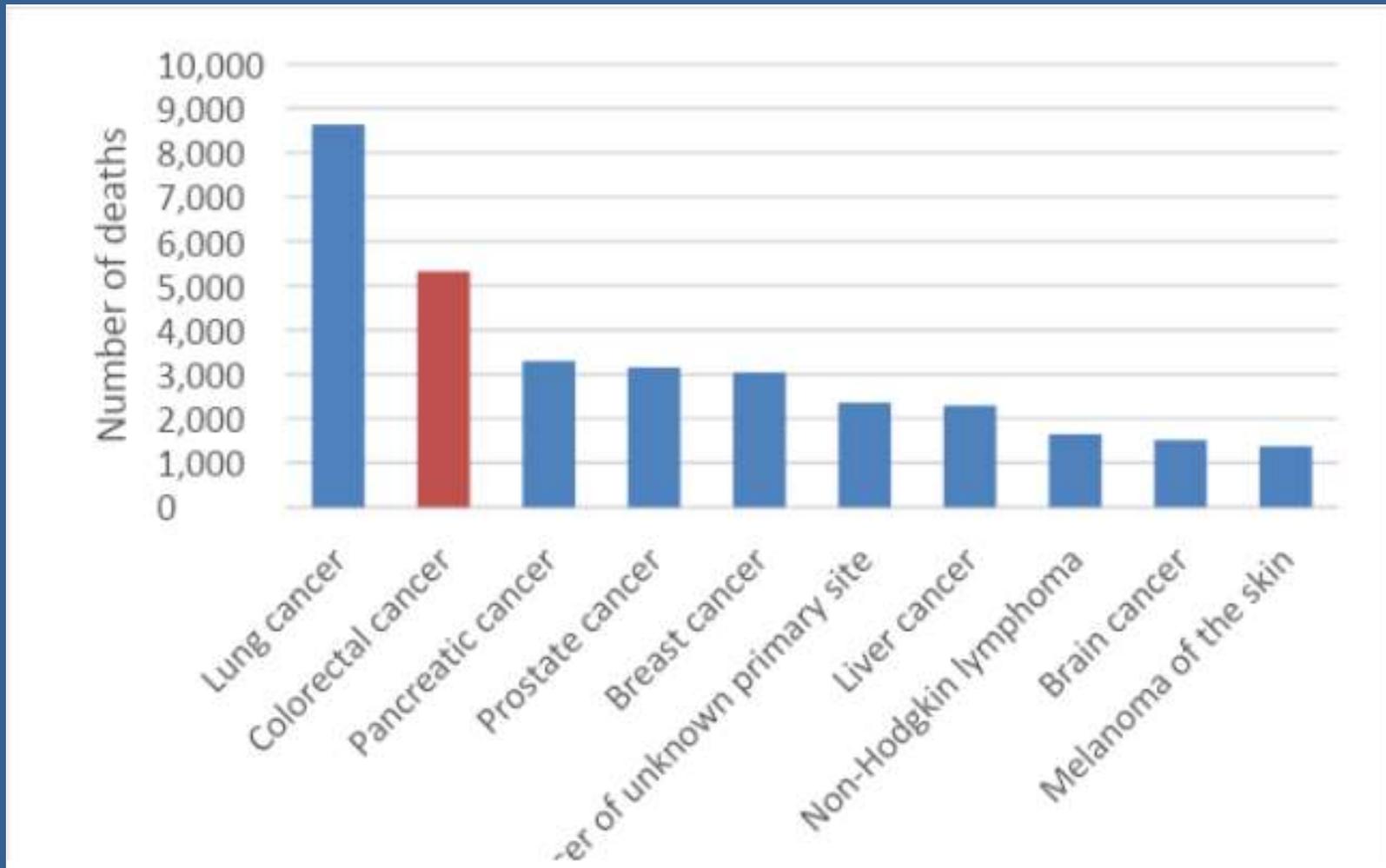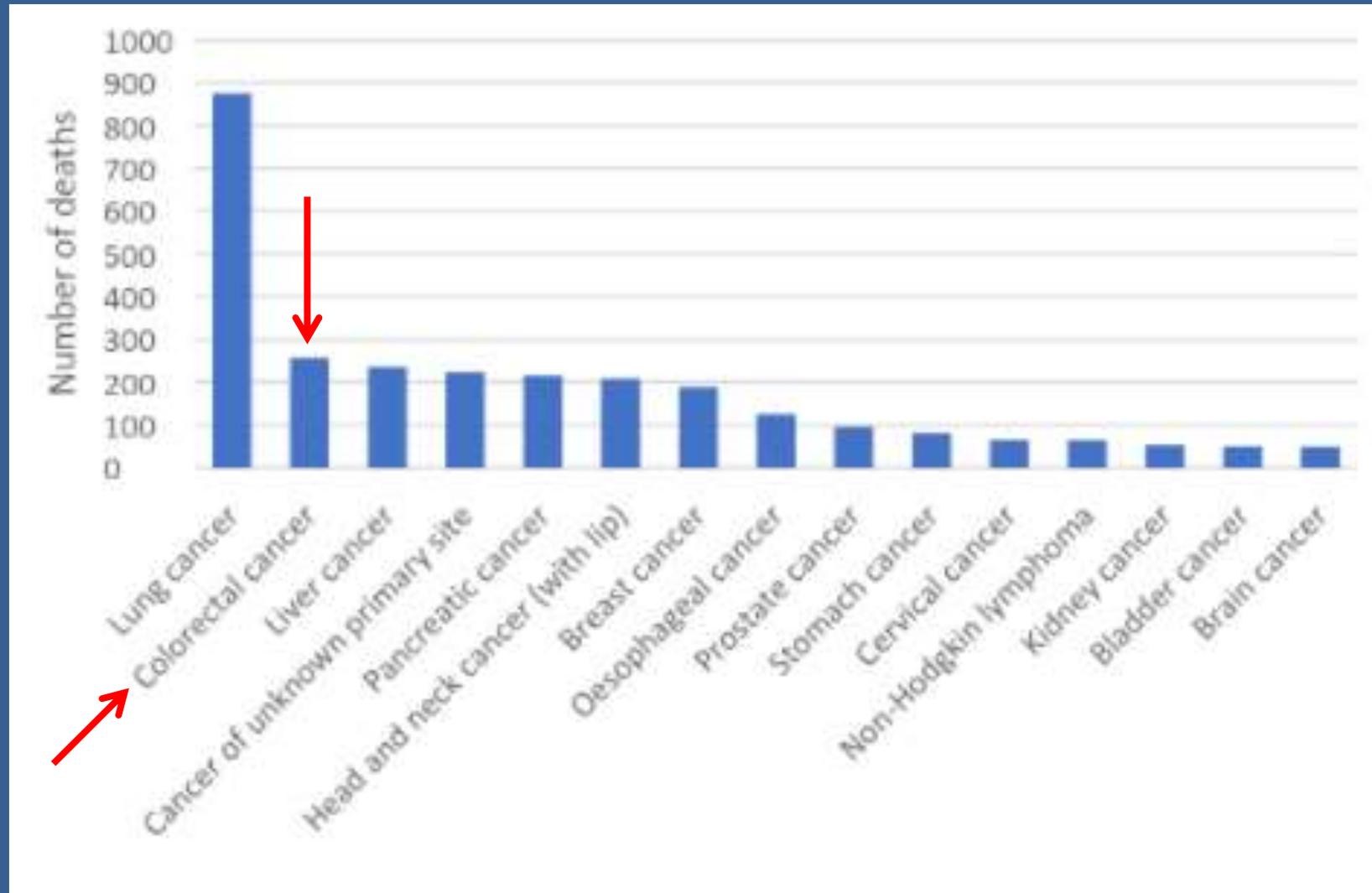# Most common cancers – ATSI 2011-5

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

Cancer deaths – ATSI 2014-8

Bowel cancer incidence by age

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

Incidence rate (per 100,000)

Legend:
— Males
— Females
- - Persons

Age group (years)
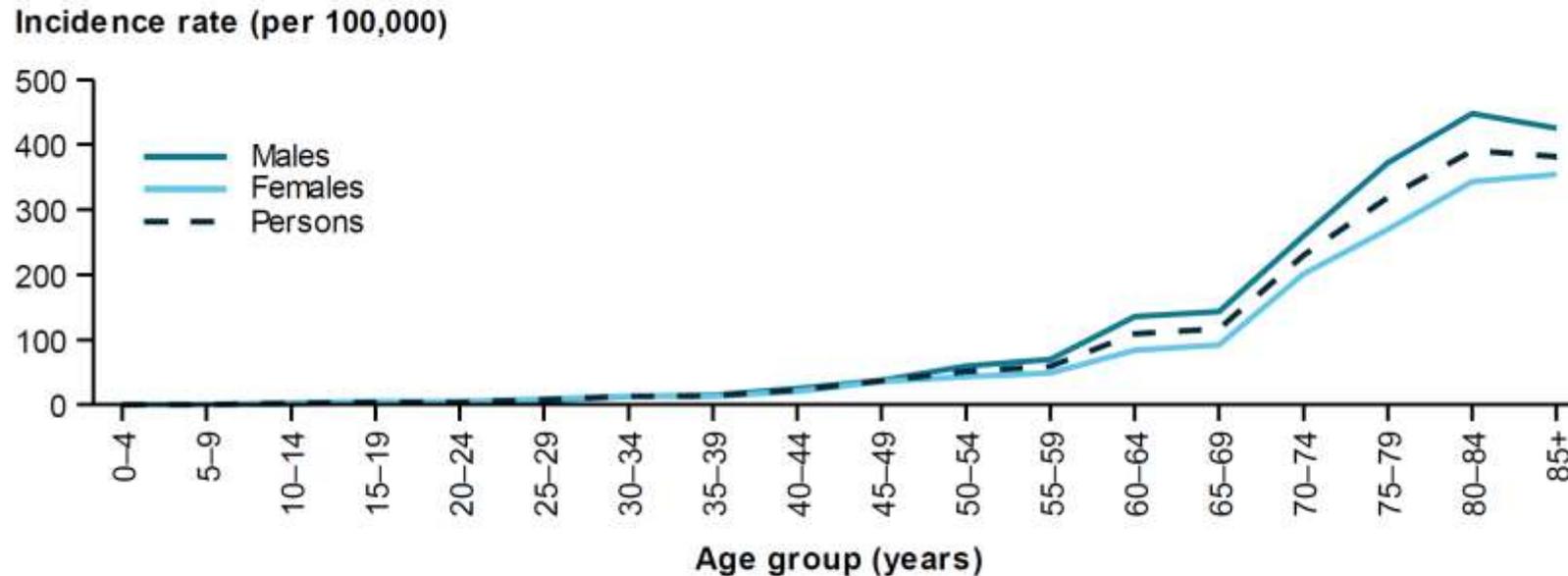
Notes

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.

AIHW, NBCSP Monitoring Report 2020

Improvements in survival: still a gap

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

5-year relative survival (%)

Overall **74%**

ATSI **47%**
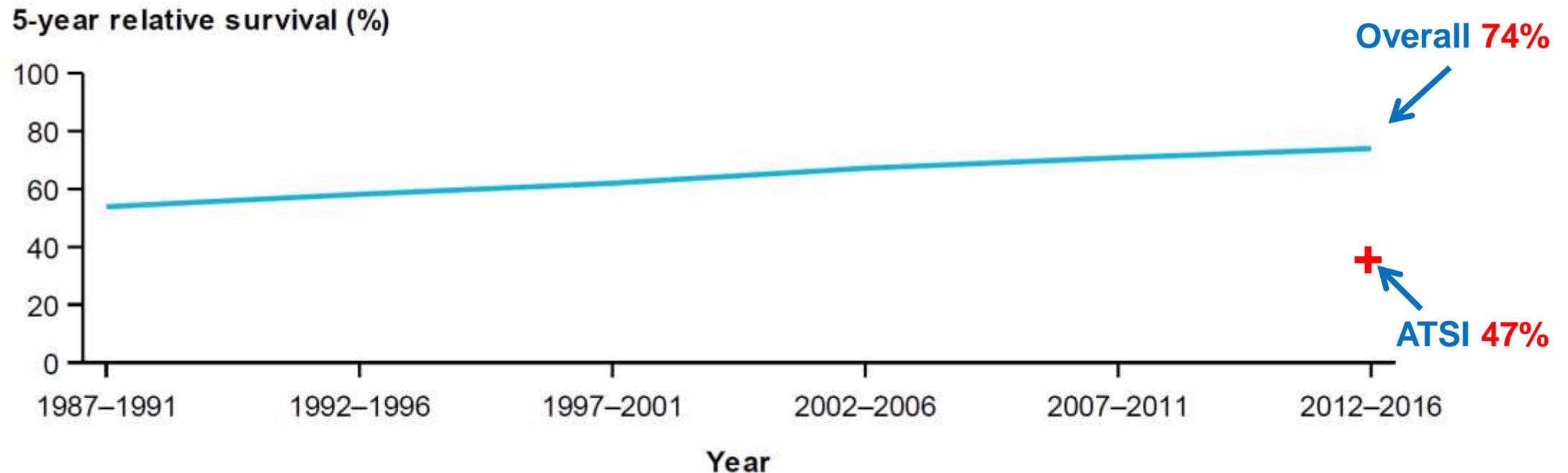
Source: Table A2.2.

Very remote vs Major cities

Table 5.2: Summary of performance indicators for Very remote and Major cities areas

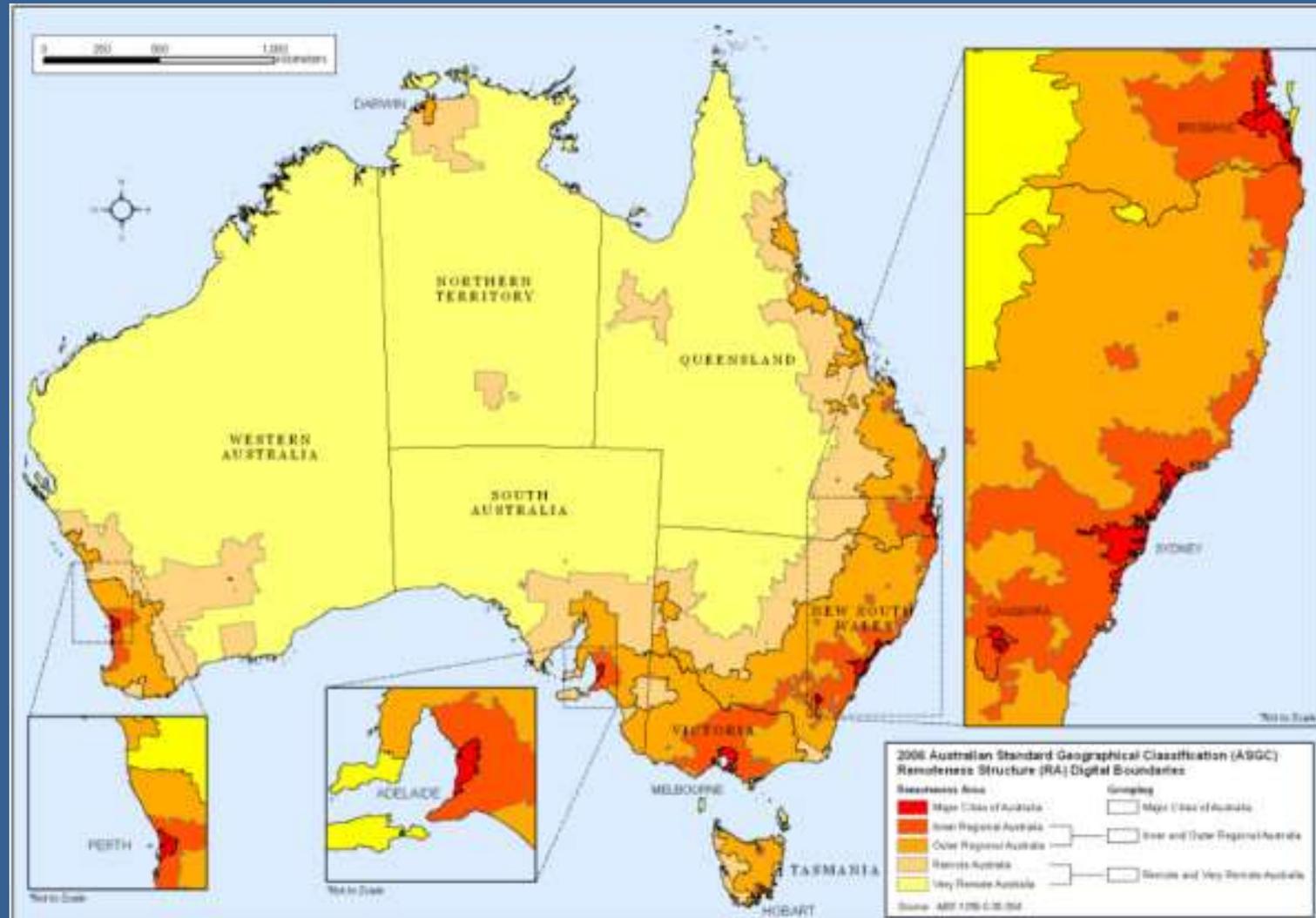| Indicator		Summary of performance indicators for Very remote areas compared with Major cities	Very remote	Major cities
PI 1	Participation rate	Lower participation rate	27%	42%
PI 2	Screening positivity rate	Higher screening positivity rate	8%	6%
PI 3[a]	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	43%	70%
PI 4[a]	Time between positive screen and diagnostic assessment	Longer median time	66 days	50 days
PI 9	Adverse events—hospital admission	Comparison not published	n.p.	n.p.
PI 10	Bowel cancer incidence rate	Lower age-standardised incidence rate	115 per 100,000	123 per 100,000
PI 11	Bowel cancer mortality rate	Higher age-standardised mortality rate	35 per 100,000	29 per 100,000

AIHW, NBCSP Monitoring Report 2020

Australian Remoteness Structure

ABS Australian Standard Geographical Classification remoteness structure

Indigenous vs Non-indigenous

Table 5.3: Summary of performance indicators for Indigenous and non-Indigenous Australians

Indicator		Summary of performance indicators for Indigenous Australians compared with non-Indigenous Australians	Indigenous	Non-Indigenous
PI 1	Participation rate[a]	Lower participation rate	22.9%	44.7%
PI 2	Screening positivity rate	Higher screening positivity rate	10%	7%
PI 3[b]	Diagnostic assessment rate	Lower diagnostic assessment follow-up rate	48%	66%
PI 4[b]	Time between positive screen and diagnostic assessment	Longer median time	69 days	51 days
PI 9	Adverse events—hospital admission	Comparison not published	n.p.	n.p.
PI 10	Bowel cancer incidence rate[c][d]	Lower age-standardised incidence rate[d]	117 per 100,000	121 per 100,000
PI 11	Bowel cancer mortality rate[d][e]	Higher age-standardised mortality rate	37 per 100,000	31 per 100,000

Risk factors for Bowel Cancer

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	Inadequate milk intake
Genetic susceptibility	Obesity and physical inactivity
	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%

BOWEL CANCER How to reduce your risk

Your diet and lifestyle choices, as well as screening and surveillance, can influence your risk of getting bowel cancer. Doing these things can help you stay healthy and reduce your risk.

Get enough fibre

Eat three servings (a total of 90 grams) of wholegrains such as brown rice and wholemeal bread daily. Fill two-thirds or more of your plate with wholegrains, vegetables, fruits, beans and nuts.

Maintain a healthy weight

Stay within a healthy weight range and avoid weight gain around the waist.

Avoid smoking

Quit smoking and avoid exposure to tobacco smoke.
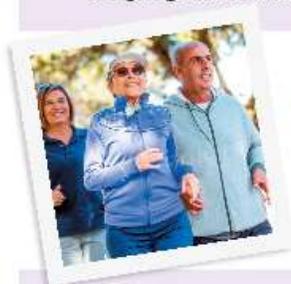
Be active

Include 30 minutes or more of daily physical activity such as walking, running and swimming, and avoid sitting for long periods.

Have dairy or calcium supplements

Include dairy products in your daily diet or speak with your GP or nutritionist about calcium supplements.

Limit alcohol

Limit your intake of alcoholic drinks to less than two per day.

Talk to your GP about aspirin

Talk to your GP about taking aspirin to reduce your risk of bowel cancer.

Limit red and processed meat

Limit red meat (less than 500 grams cooked per week) and processed meats.

Get screened

If you are over 50, take part in bowel cancer screening programs like the National Bowel Cancer Screening Program. This can help to identify the early signs of bowel cancer and polyps.

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

Risk factor	Males Attributable DALY	Males Proportion of bowel cancer burden (%)	Females Attributable DALY	Females Proportion of bowel cancer burden (%)	Persons Attributable DALY	Persons 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.
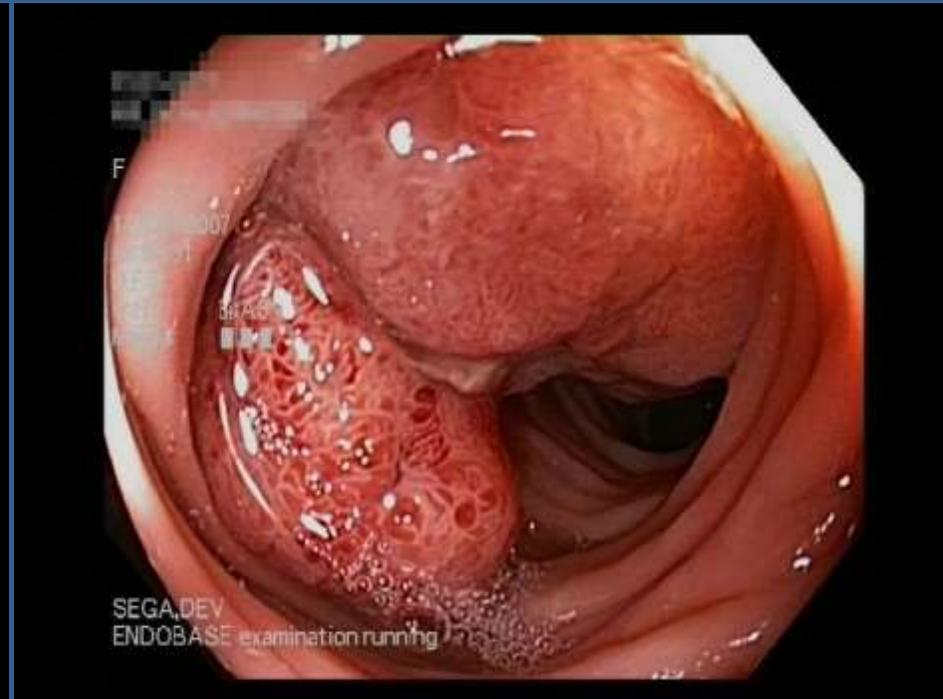
DALY = disability-adjusted life years

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

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 patients with bloating
- 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 <u>incurable</u> 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

Faecal Occult Blood Test (iFOBT)

- Very simple, relatively cheap

- Easy to distribute

- Not as accurate as colonoscopy

  - Positive test means 3-5% chance of cancer

  - Negative test means <1% chance of cancer

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

  – efficient colonoscopy use

- Overall, the most appropriate population screening test

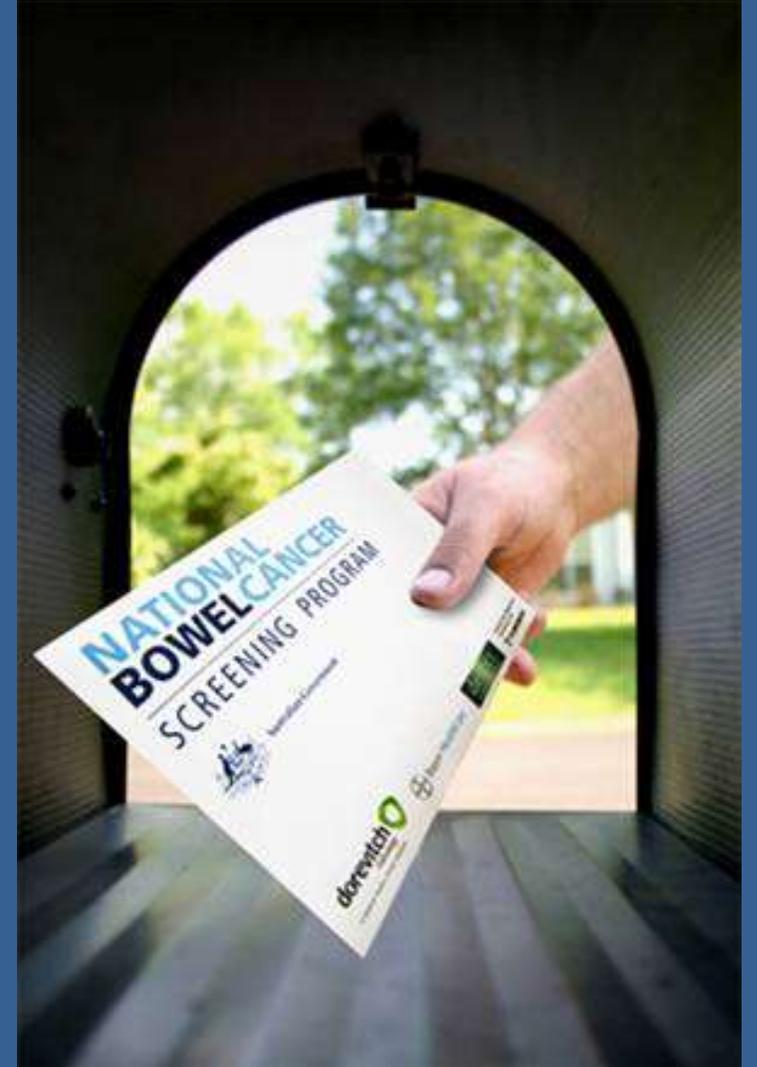# National Bowel Cancer Screening Program

iFOBT kits:

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

42% participation

7% of participants are iFOBT (+)

3% of positives have cancer

30% have polyps

Low NBCSP participation groups

- National average 42%

- Very remote: 27%

- Indigenous 23%

- Low participation means fewer people benefit

- If 70% participation, >20,000 more lives saved over next 20 years

National Indigenous Bowel Screening Project (NIBSP)

- Menzies School of Public Health - 36 sites nationally; 7 WA sites
- Kits handed to eligible person with personalised information and discussion on how to complete the kit; staff training; feedback to the National Register
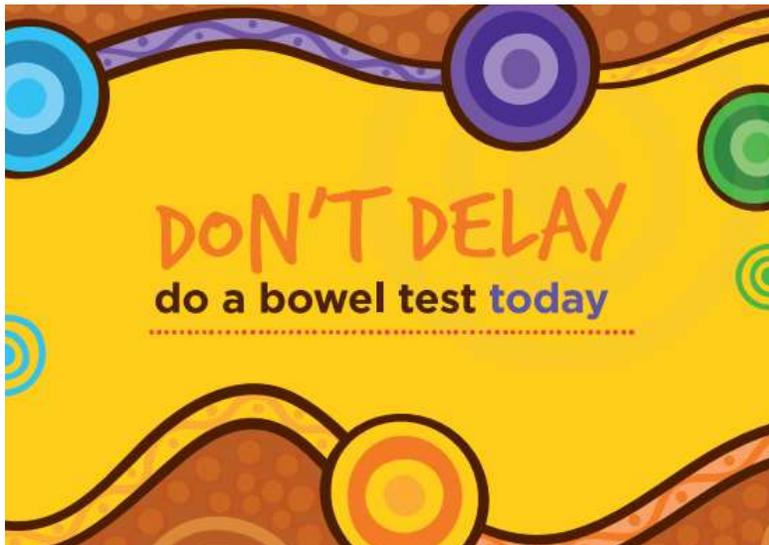
NBCSP Performance

- 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

Bowel Cancer Summary

- Bowel cancer is a very common cancer

- Mainly affects middle and older ages

- Much of it is preventable

- Higher mortality in Aboriginal Australians

- Higher mortality in Very Remote population

- Early diagnosis improves outcome

- NBCSP participation should be encouraged