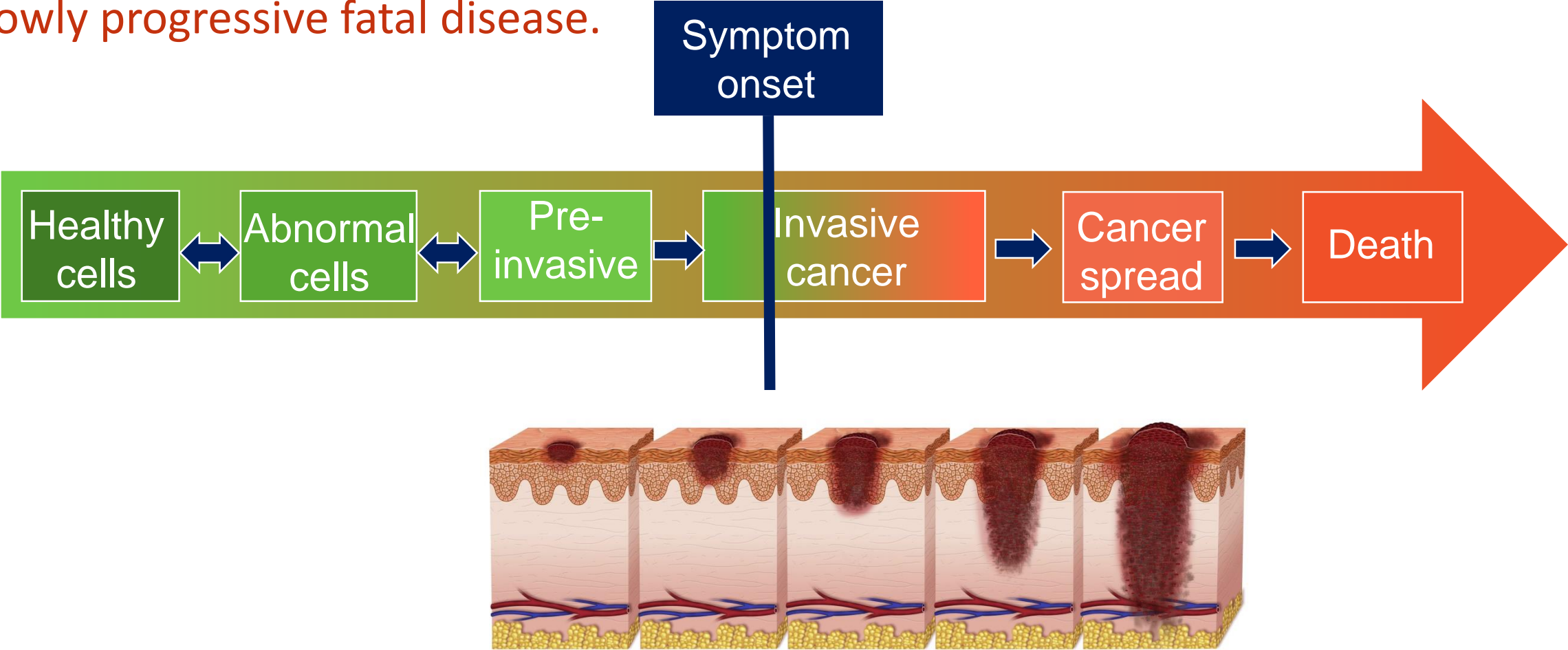


Some history and some evidence from Australia

**Professor Joanne Aitken
Cancer Council Queensland**

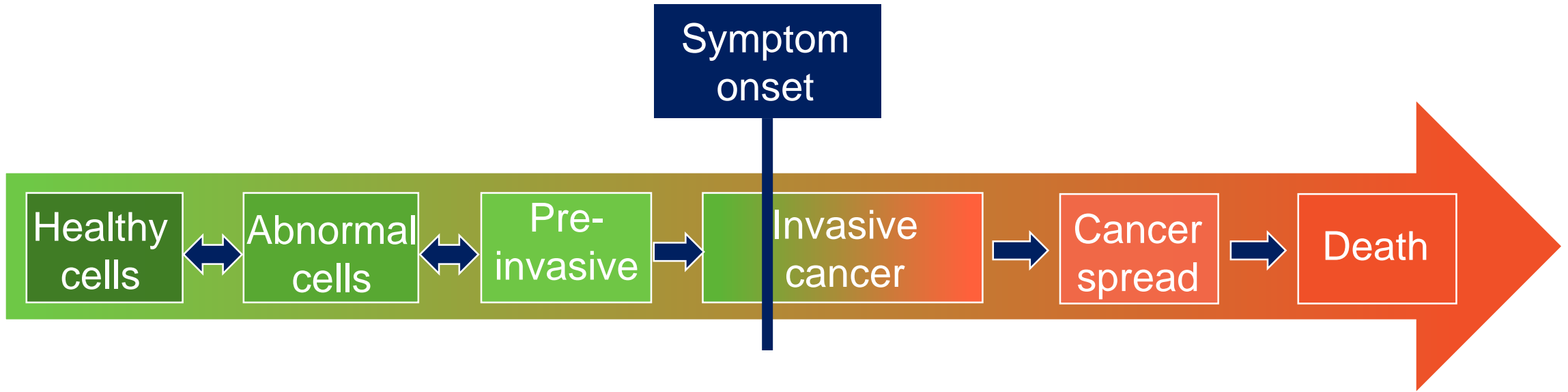


Melanoma, untreated, is a slowly progressive fatal disease.

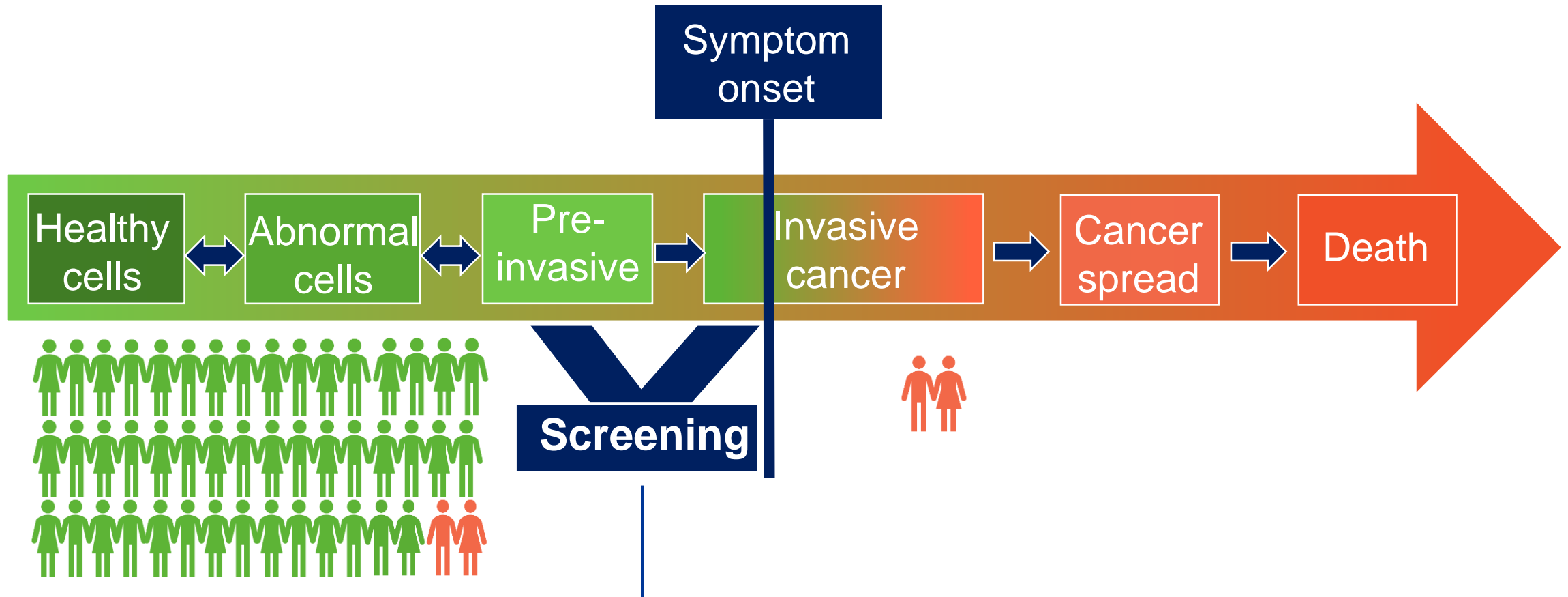


Adapted from : World Health Organisation

<http://www.euro.who.int/en/health-topics/noncommunicable-diseases/cancer/policy/screening-and-early-detection/distinguishing-cancer-screening-from-early-diagnosis>



- For the patient, diagnosis and treatment at an early point in the course of the disease reduces the risk of melanoma metastasis and death.
- For the population, the goal is to reduce mortality from melanoma by reducing the incidence of late stage disease.



early melanomas can be detected here, before symptoms develop

For the population, the goal is to reduce mortality from melanoma by reducing the incidence of late stage disease.

Does population screening for melanoma

- 1. reduce the incidence of late stage disease?**
- 2. reduce melanoma mortality?**

Evidence from two approaches:

- 1. Pilot study of a randomised controlled trial of a population screening program for melanoma.**
- 2. Case-control study of melanoma screening.**

Randomised trial of a population screening program for melanoma

*Ian Ring
Mark Elwood*

44 Queensland towns
560,000 adults ≥ 30 yrs

22 towns - 280,000 adults ≥ 30 yrs

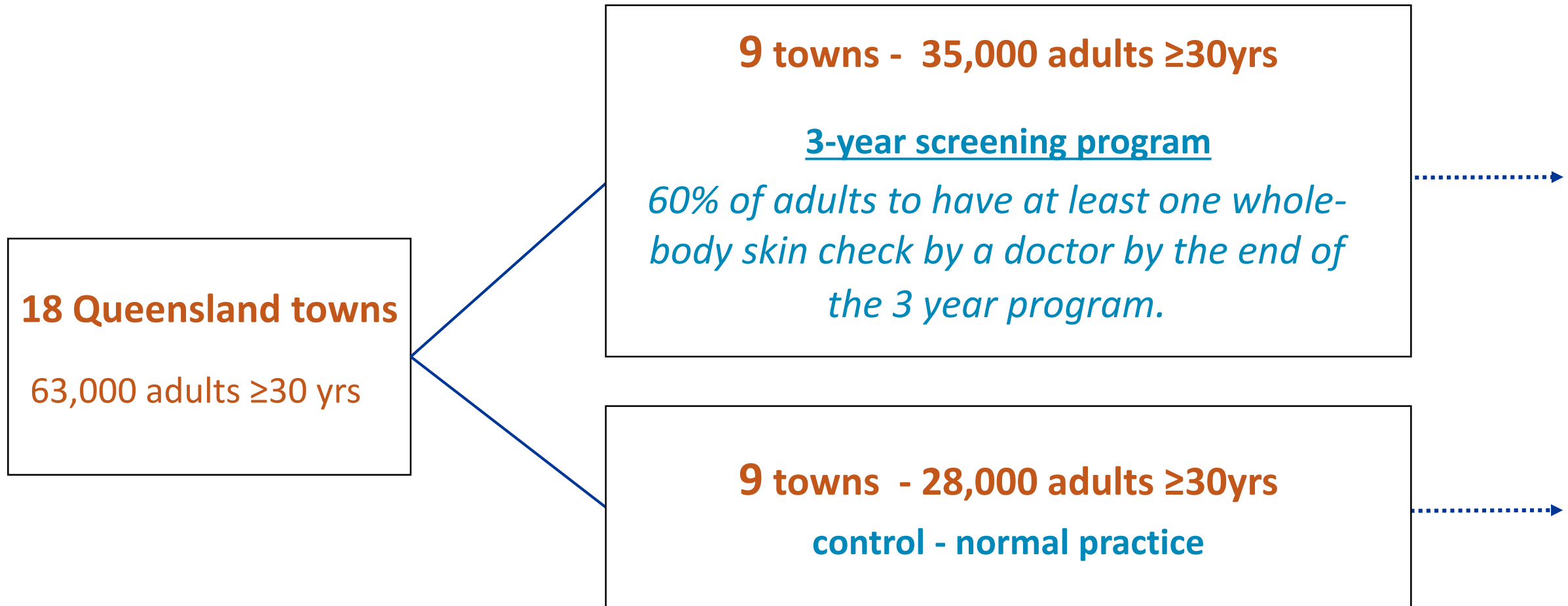
3-year screening program

60% of adults to have at least one whole-body skin check by a doctor by the end of the 3 year program.

22 towns - 280,000 adults ≥ 30 yrs

control – monitoring only

Randomised trial of a population screening program for melanoma – **PILOT STUDY**



3-year screening program



Melanoma Screening Trial

SkinWatch population screening program





3-year population screening program:

- Free, open-access skin screening clinics
- Letters of invitation to all residents 30-79 yrs
- Community awareness program
 - Local volunteer *SkinWatch* champion
 - Community talks
 - News and radio columns/advertisements
 - SkinWatch* community events
- Support program for local GPs
 - Diagnostic decision tree
 - Continuing medical education, clinical audit points
 - SkinWatch* resources for patients

2 June, 1999

Queensland Cancer Fund
SKINWATCH
A COMMUNITY PROJECT

Mr «Given_Names» «Surname»
«STREET_NO» «Street» «Street_Type»
«LOCALITY» «STATE» «PCODE»

Dear Mr «Surname»

I've lived in Queensland for the past 20 years. As a cricketer I've spent a lot of that time outdoors and I've always been aware of the dangers of the Queensland sun. Queensland has the highest number of melanomas in the world and men are most at risk. You wouldn't think that a spot on your skin could kill you but it can if you don't get it treated early.

That's why the Queensland Cancer Fund is running a program in your town called *SkinWatch*. A quick visit to your Doctor or the *SkinWatch* Skin Cancer Clinic for a full body skin check could save your life. This is not a specialised service. It can be performed by any general practitioner.

Make an appointment for a **Full Body Skin Check today** with your Doctor or:
visit the *SkinWatch* Skin Cancer Clinic

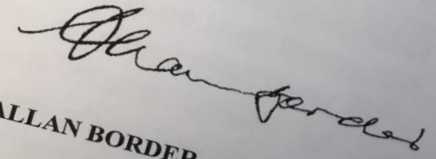
On:

At:

Appointments essential – phone

Don't make excuses. It's quick and painless and could save your life.

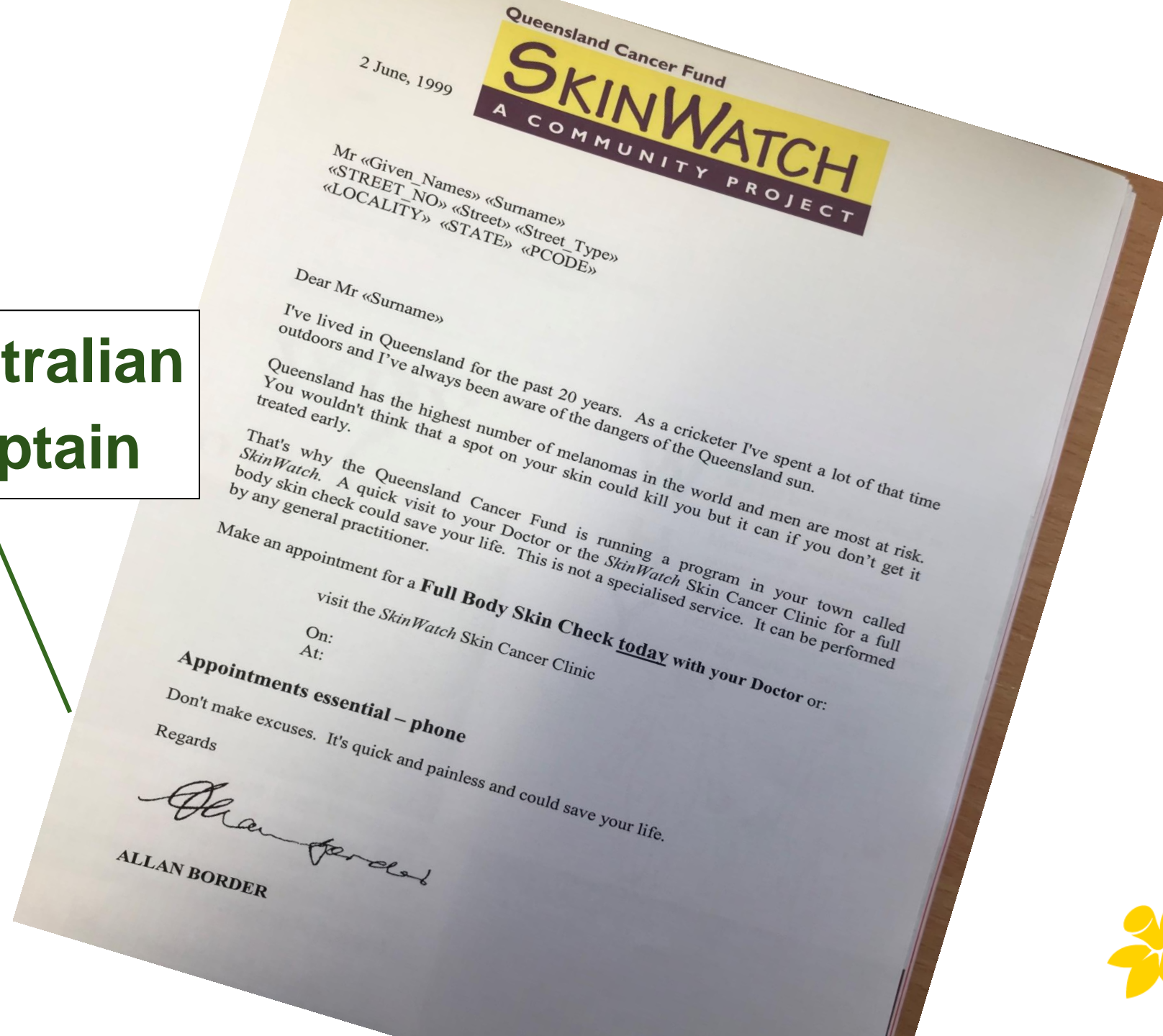
Regards



ALLAN BORDER



Former Australian
cricket Captain



In screening towns, 50% of people aged ≥ 30 years had at least one whole-body skin check by their GP or a *SkinWatch* doctor during the 3 year screening program.

Janda, Lowe et al, *Cancer Causes Control*, 2006

***SkinWatch* clinics**

Screened	16,383		
Referred	2,302 (14%)	4,129 lesions
Attended	1,822	2,982 lesions

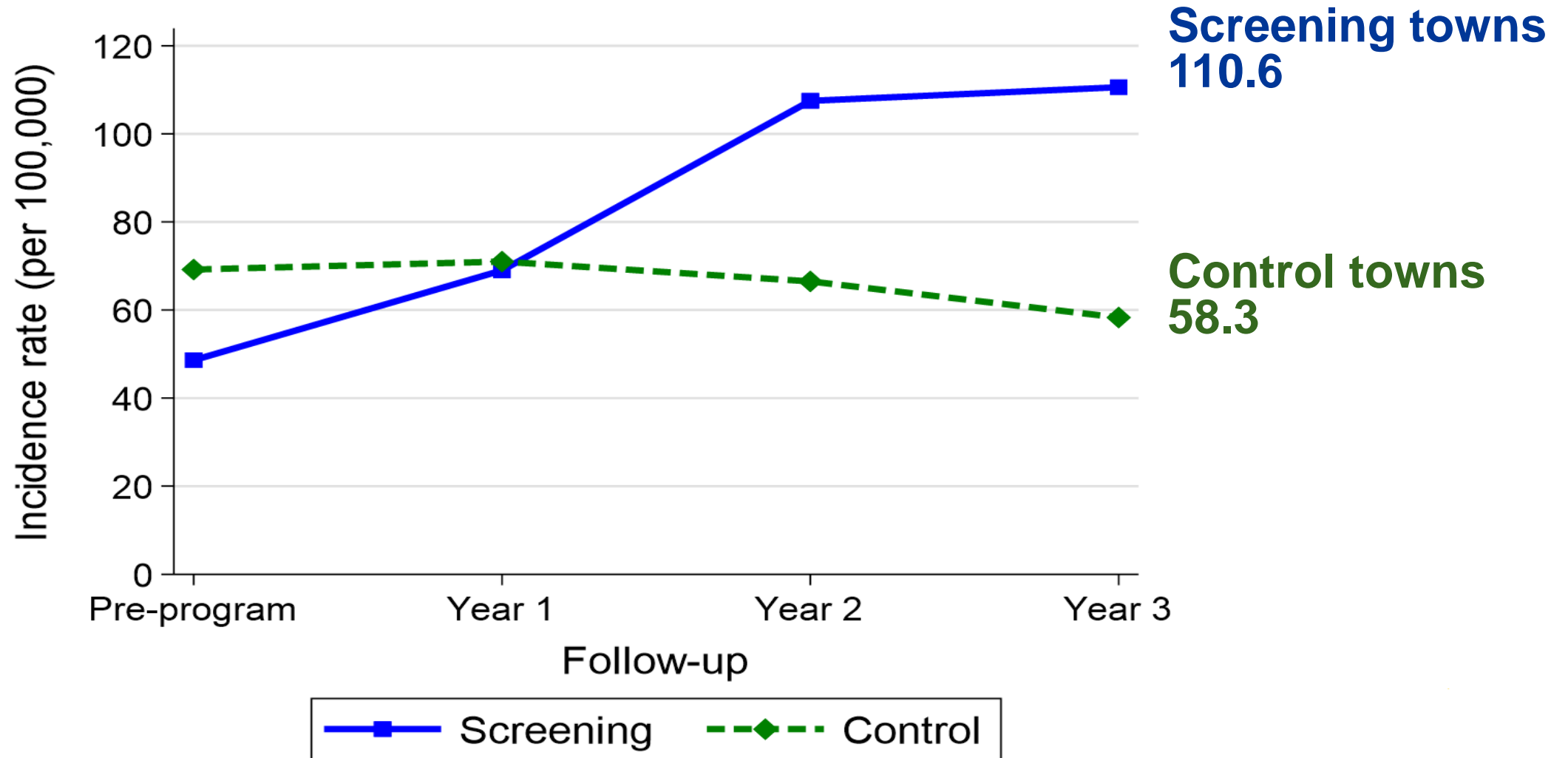
33 melanomas

13	in situ
18	<1.0mm
2	≥ 1.0 mm

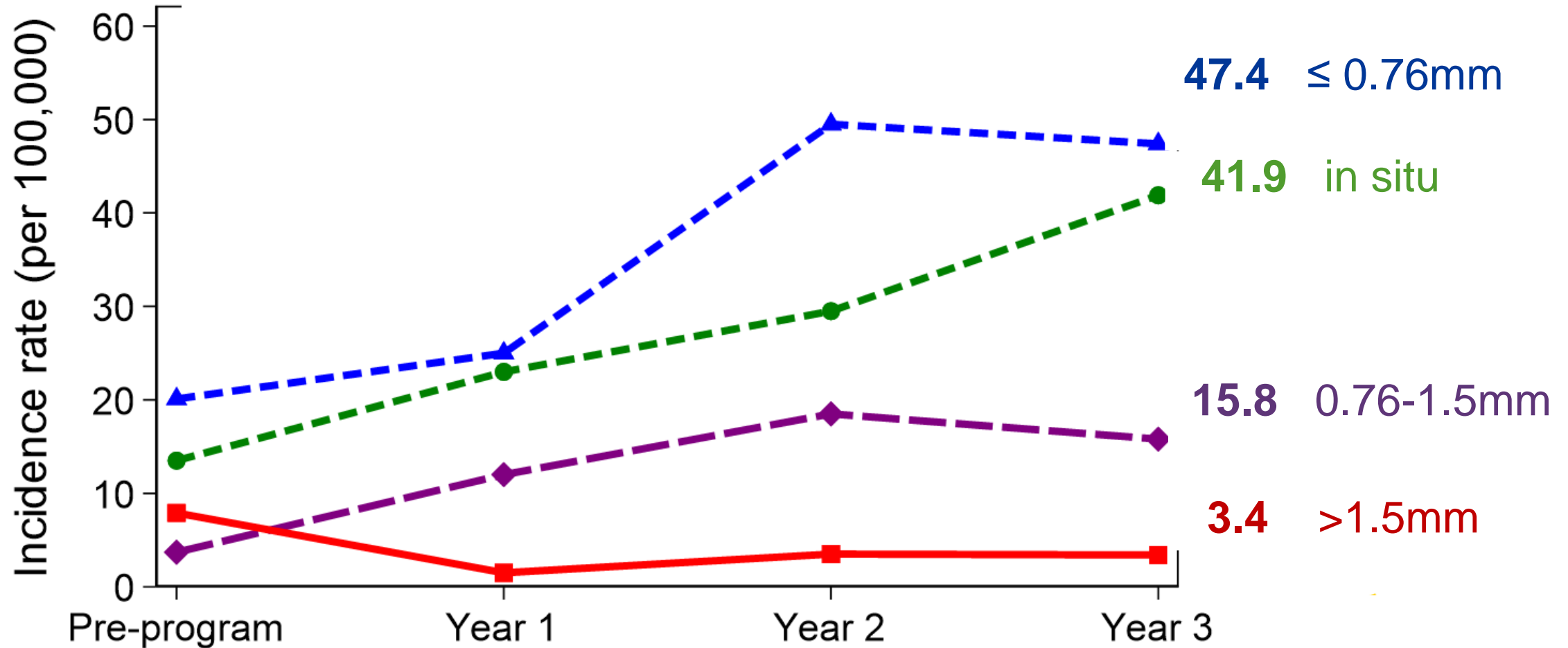
**Number needed
to screen to diagnose one
melanoma ~ 465**

Aitken, Janda et al, *J Am Acad Dermatol*, 2006

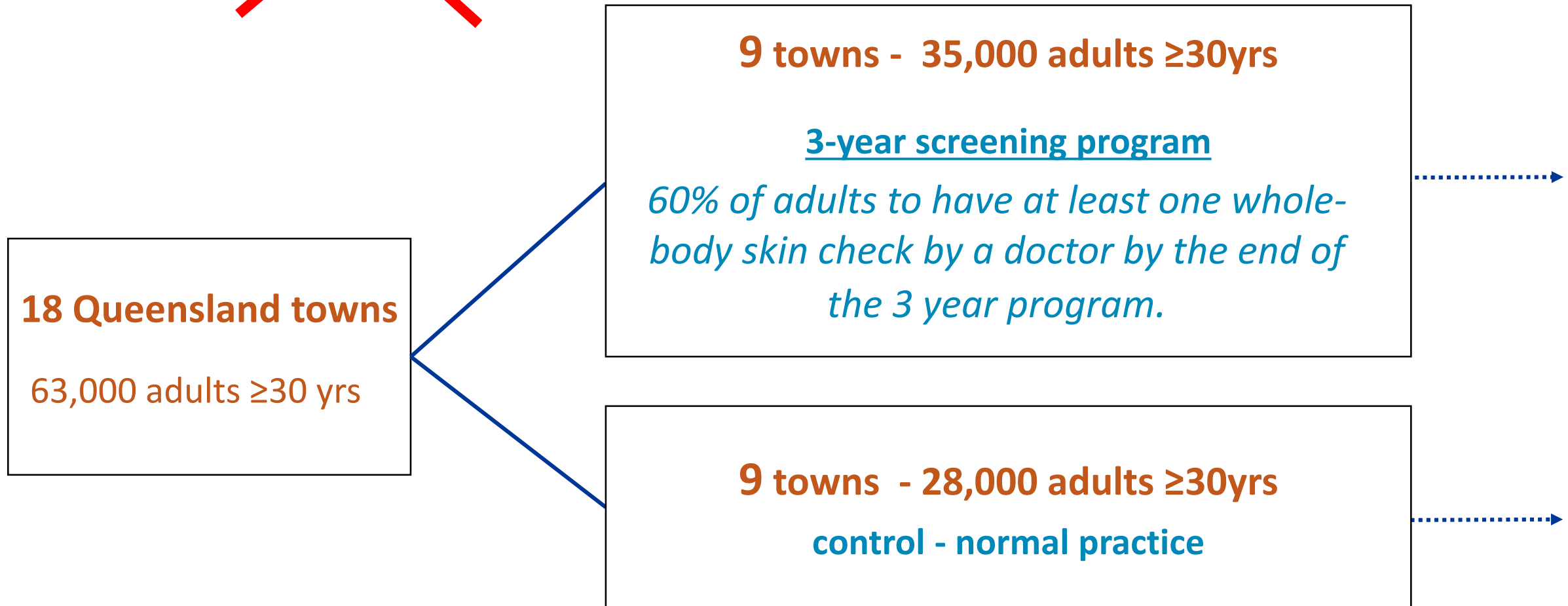
Melanoma incidence (in situ + invasive) in 9 screening and 9 control towns



Melanoma incidence by thickness in 9 screening towns

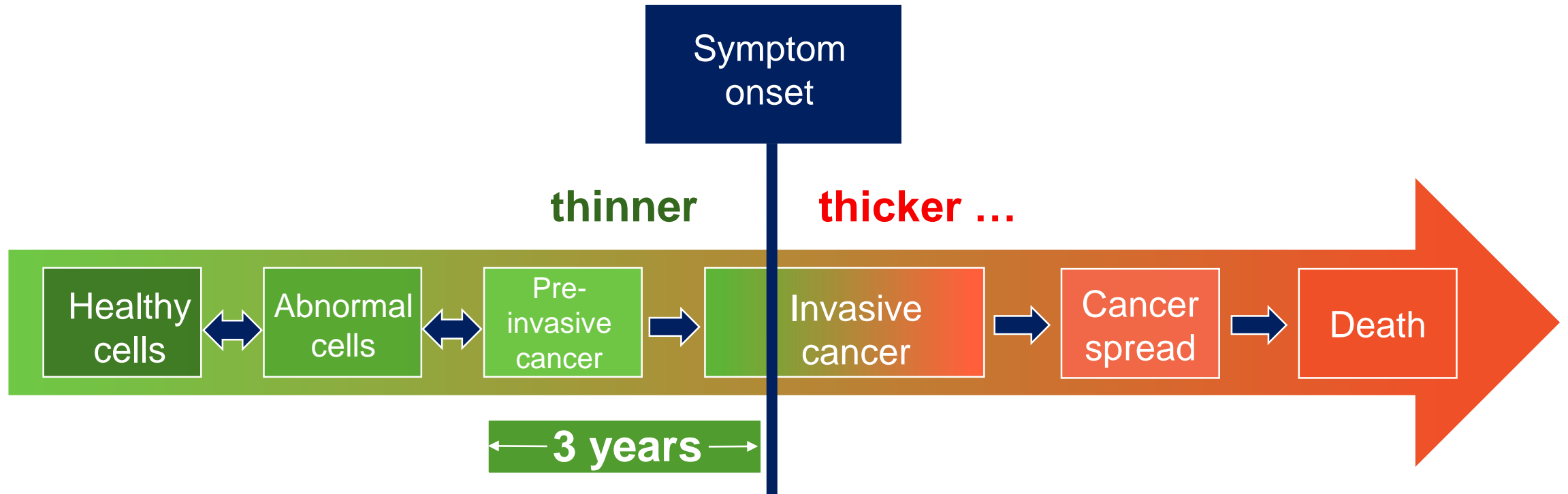


~~Randomised trial of a population-based screening program for melanoma – PILOT STUDY~~



Evidence from two approaches:

- 1. Pilot study of a randomised controlled trial of a population screening program for melanoma.**
- 2. Case-control study of melanoma screening.**



Hypotheses

- people with thicker tumours are LESS LIKELY to have been diagnosed by screening, or to have had a skin screening exam in the 3yrs before symptoms.
- people with thinner tumours are MORE LIKELY to have been diagnosed by screening, or to have had a skin screening exam in the 3yrs before symptoms.

What is the association between tumour thickness and screening history?

Case-control study of melanoma screening

Melanoma thickness at diagnosis	Sample	Diagnosed on screening, or had a full-body skin screening exam by a doctor in the 3 years before symptoms
Controls	3,824	
≤0.75mm	2,049	
0.76-1.49mm	1,017	
1.50-2.99mm	443	
≥3.00mm	253	

Case-control study of melanoma screening

Melanoma thickness at diagnosis	Sample	Diagnosed on screening, or had a full-body skin screening exam by a doctor in the 3 years before symptoms
Controls	3,824	28.3%
≤0.75mm	2,049	38.7%
≥3.00mm	253	22.5%

Melanoma thickness at diagnosis	Sample	Adjusted odds ratio	For people screened in the 3-year 'screening window', the likelihood of diagnosis in this thickness category was
Controls	3,824	<u>1.00</u>	
≤0.75mm	2,049	1.38 (1.22,1.56)	38% more likely
≥3.00mm	253	0.60 (0.43,0.83)	40% less likely

Adjusted for age, sex, education, employment status, marital status, hair colour, eye colour, skin type, number of moles on back, family history of melanoma, family history of other skin cancer, lifetime sun exposure, ethnic status.

Melanoma thickness at diagnosis	Sample	Adjusted odds ratio	For people screened in the 3-year 'screening window', the likelihood of diagnosis in this thickness category was
Controls	3,824	<u>1.00</u>	
≤0.75mm	2,049	1.38 (1.22,1.56)	38% more likely
0.76-1.49mm	1,017	0.93 (0.79,1.10)	7% less likely
1.50-2.99mm	443	0.84 (0.67,1.07)	16% less likely
≥3.00mm	253	0.60 (0.43,0.83)	40% less likely

Adjusted for age, sex, education, employment status, marital status, hair colour, eye colour, skin type, number of moles on back, family history of melanoma, family history of other skin cancer, lifetime sun exposure, ethnic status.

Aitken, Elwood et al, *Int J Cancer*, 2009

Symptom onset

38% more likely

7% ... 16% ... 40% less likely

Healthy cells

Abnormal cells

Pre-invasive cancer

Invasive cancer

Cancer spread

Death

3 years

**Does population screening for melanoma
reduce the incidence of late stage disease?**

YES. Screening reduces the incidence of thick melanomas.

**Does population screening for melanoma
reduce the incidence of late stage disease?**

YES. Screening reduces the incidence of thick melanomas.

AND increases the incidence of thin melanomas because of:

- (i) *earlier diagnosis* of melanomas that would otherwise have been diagnosed at a more advanced stage
- (ii) *over-diagnosis* of lesions that would otherwise have not been detected, would not have progressed and would have had no impact on the patient's life.

Does population screening for melanoma reduce melanoma mortality?

No direct evidence.

If screening reduces the incidence of thick melanomas, then YES.

By how much? By enough to justify the cost?

- cost-effectiveness depends on the prevalence of melanoma in the target population; the cost, specificity and sensitivity of the screening exam; the cost of treating non-melanoma skin cancers; the cost of treating late stage melanoma...

Does population screening for melanoma reduce melanoma mortality?

No direct evidence.

If screening reduces the incidence of thick melanomas, then YES.

By how much? By enough to justify the cost?

What reduction in melanoma mortality do we think is worthwhile?

Thank you