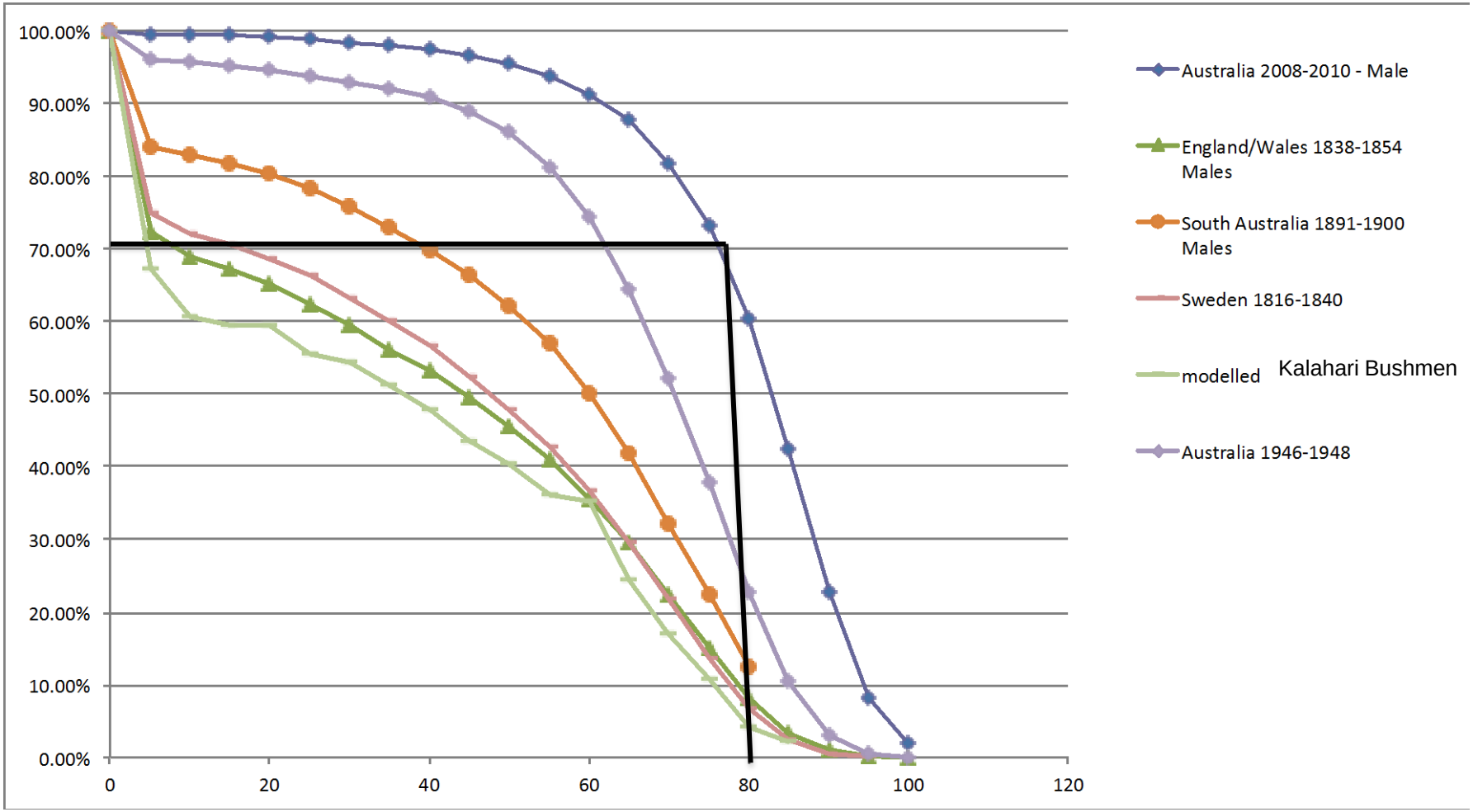
Can GPs predict the death of their older patients using intuition or a predictive tool?

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

Joel Rhee (University of New South Wales)
Geoffrey Mitchell (University of Queensland)
Hugh Senior (University of Queensland)
Josephine Clayton (University of Sydney)
Sharleen Young (University of Queensland)

The silver tsunami



Background

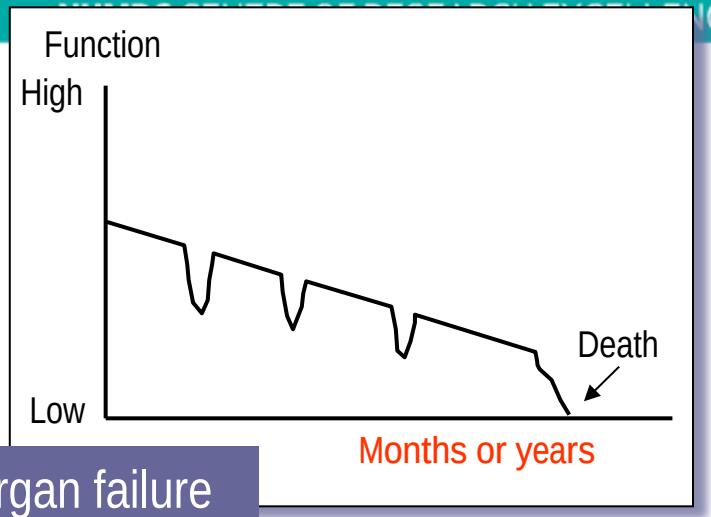
70% of people die with a deteriorating phase amenable to end of life care

About 50% do not have cancer

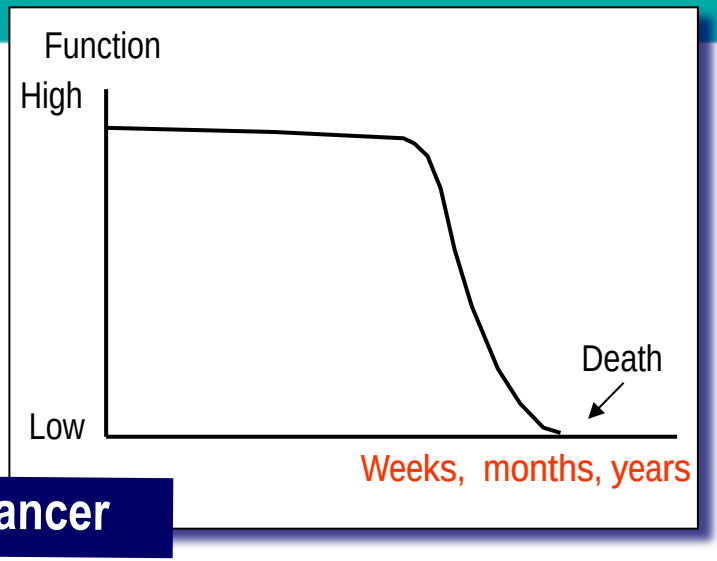
But: 80-90% of people treated in specialist palliative care have cancer

What happens to the rest?

Unpredictable end of life illness trajectories

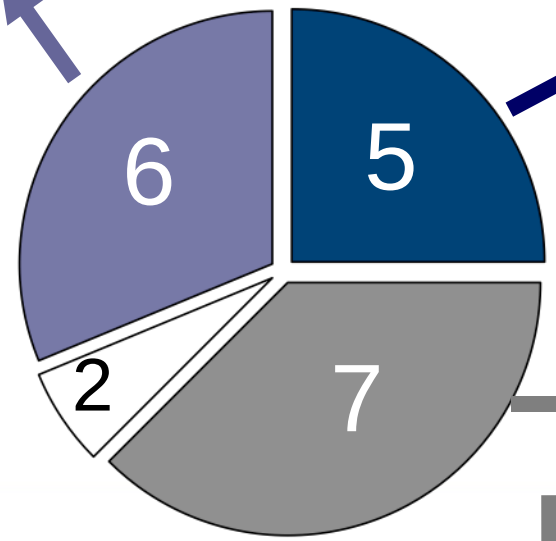


Organ failure

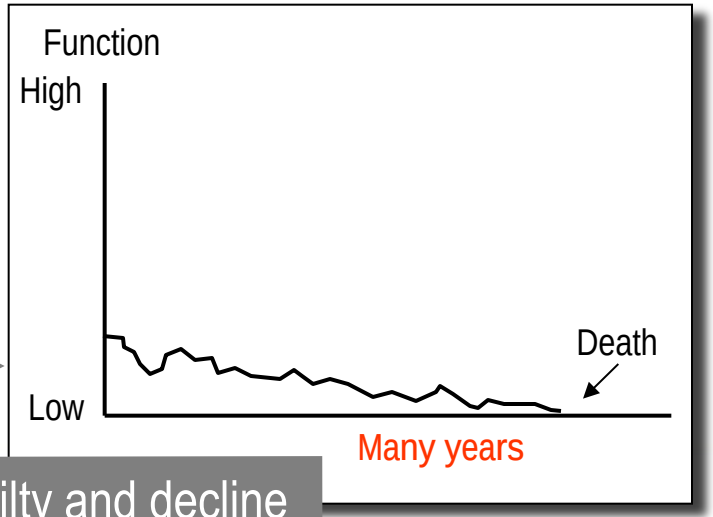


Cancer

GP has 20 deaths per list of 2000 patients per year

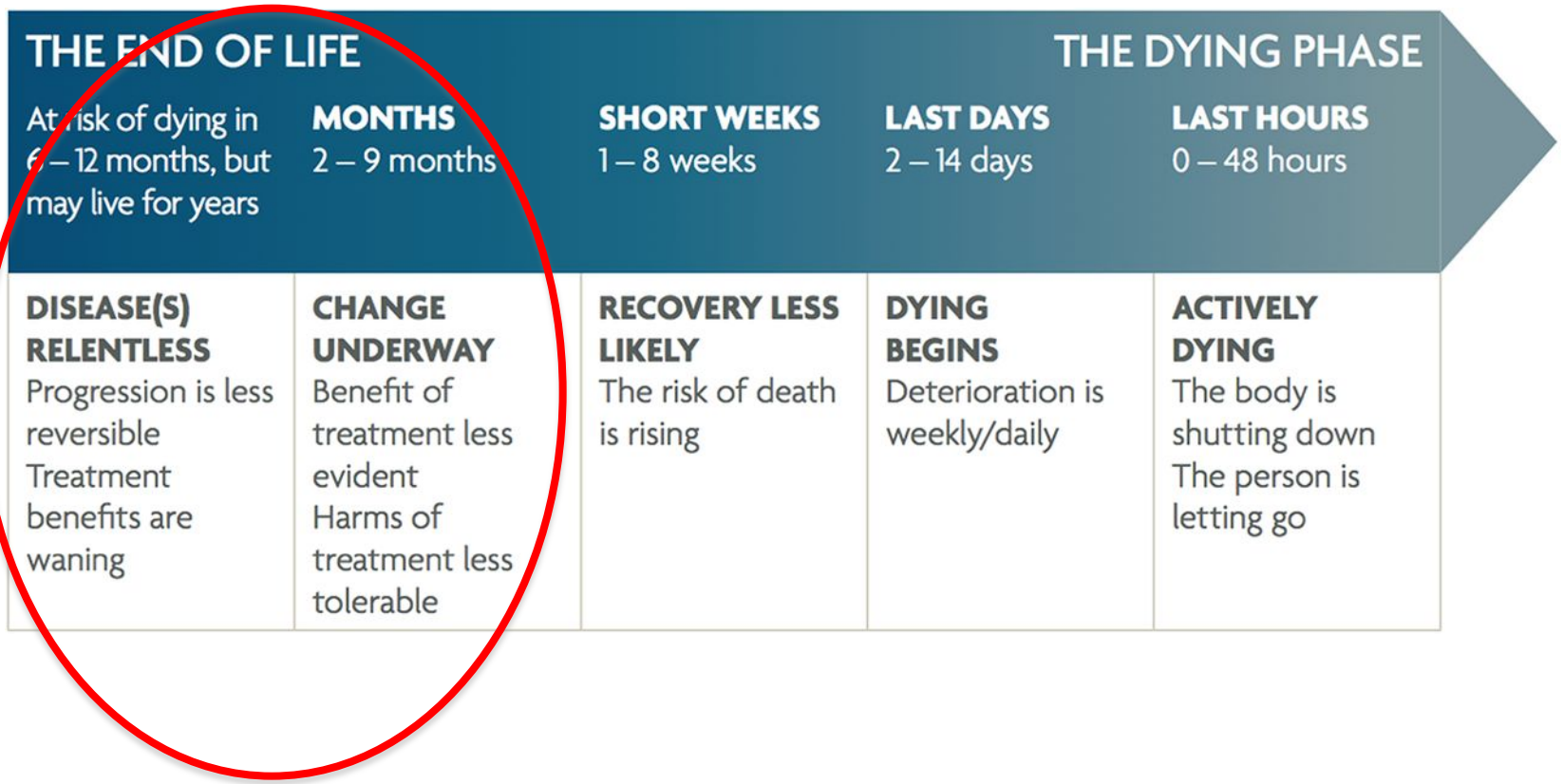


Acute



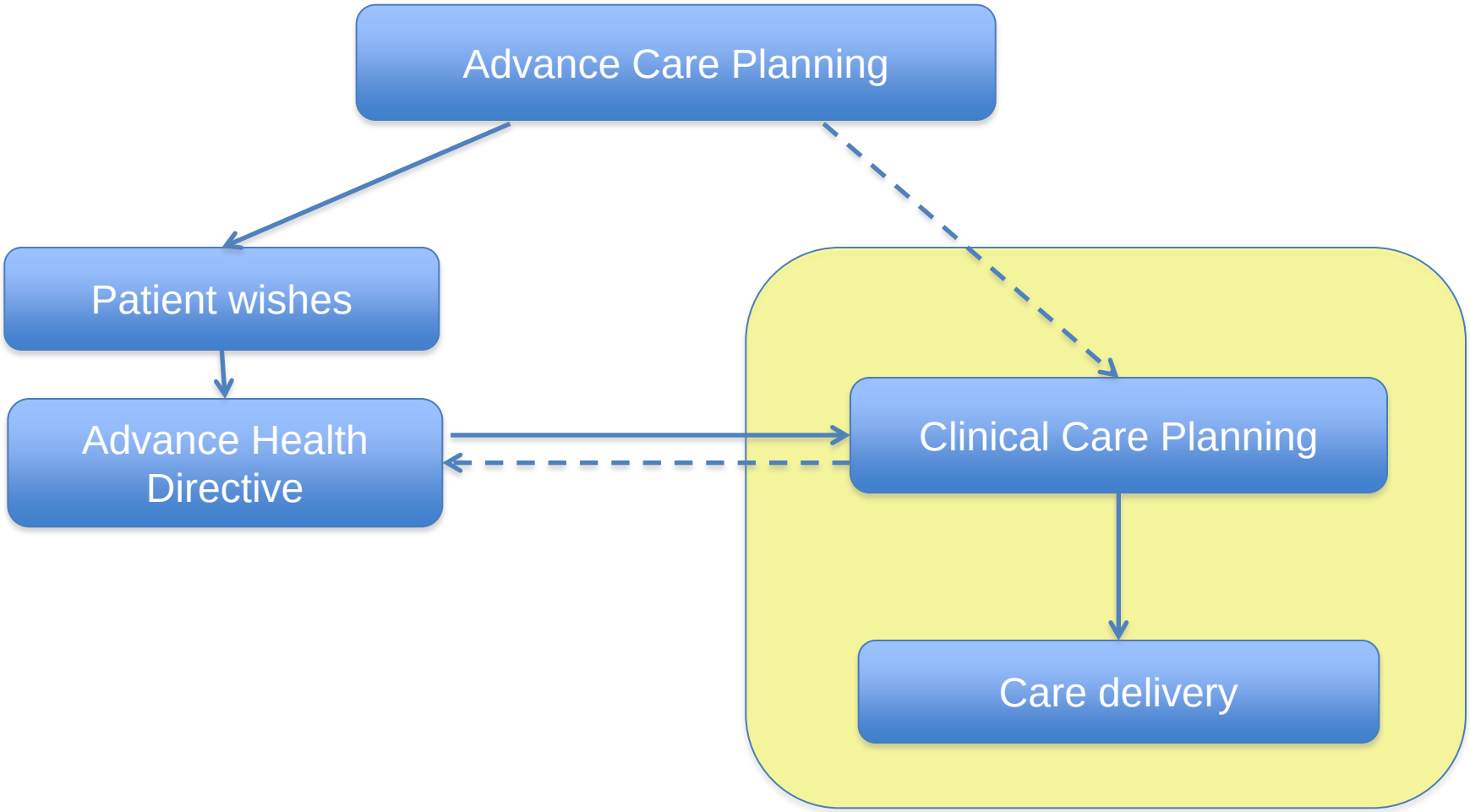
Dementia, frailty and decline

Defining 'end-of-life' phase and 'dying phase'



M A Denvir et al. Heart doi:10.1136/heartjnl-2014-306724

Conceptual map of Advance care planning

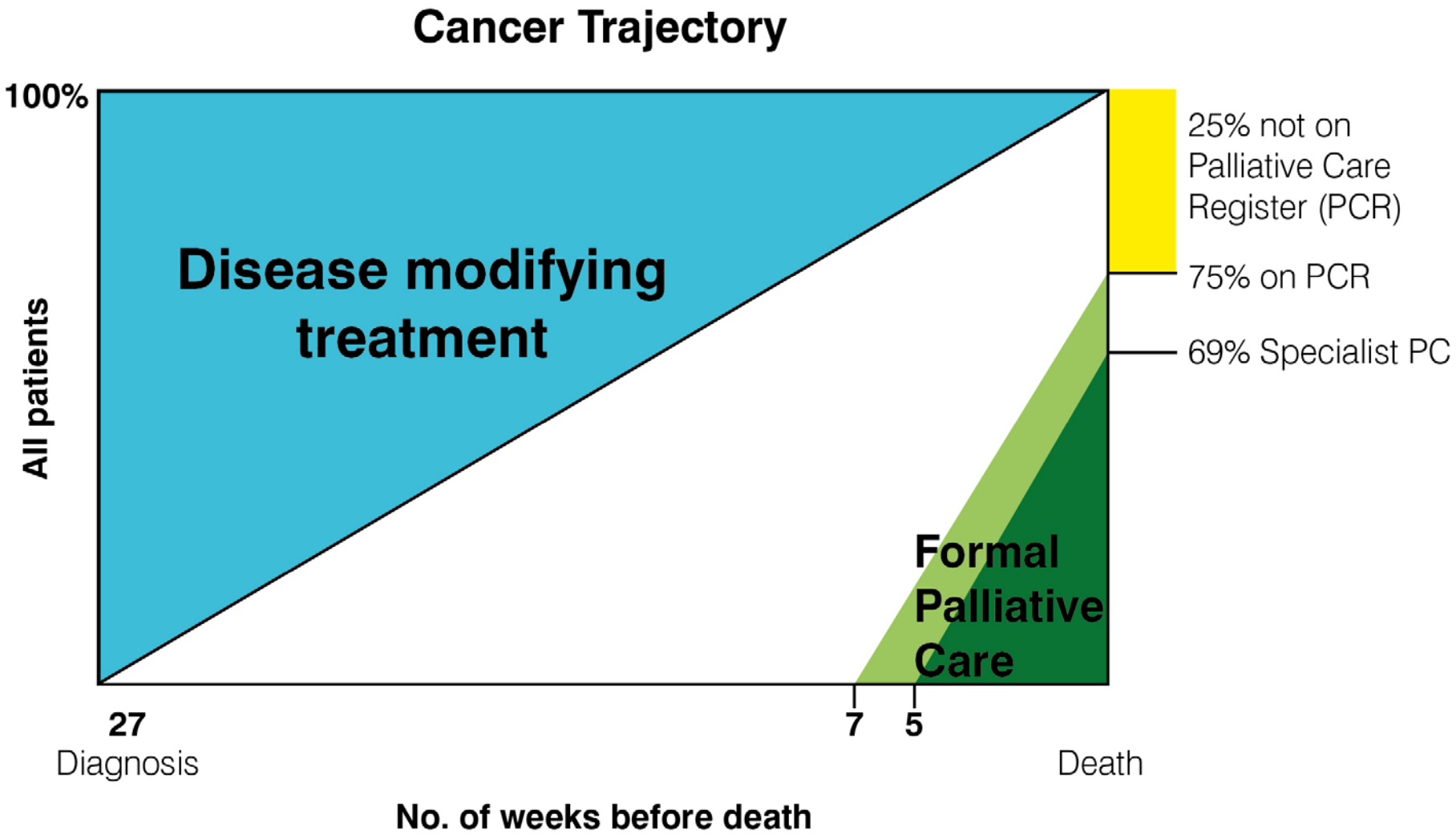


Care planning

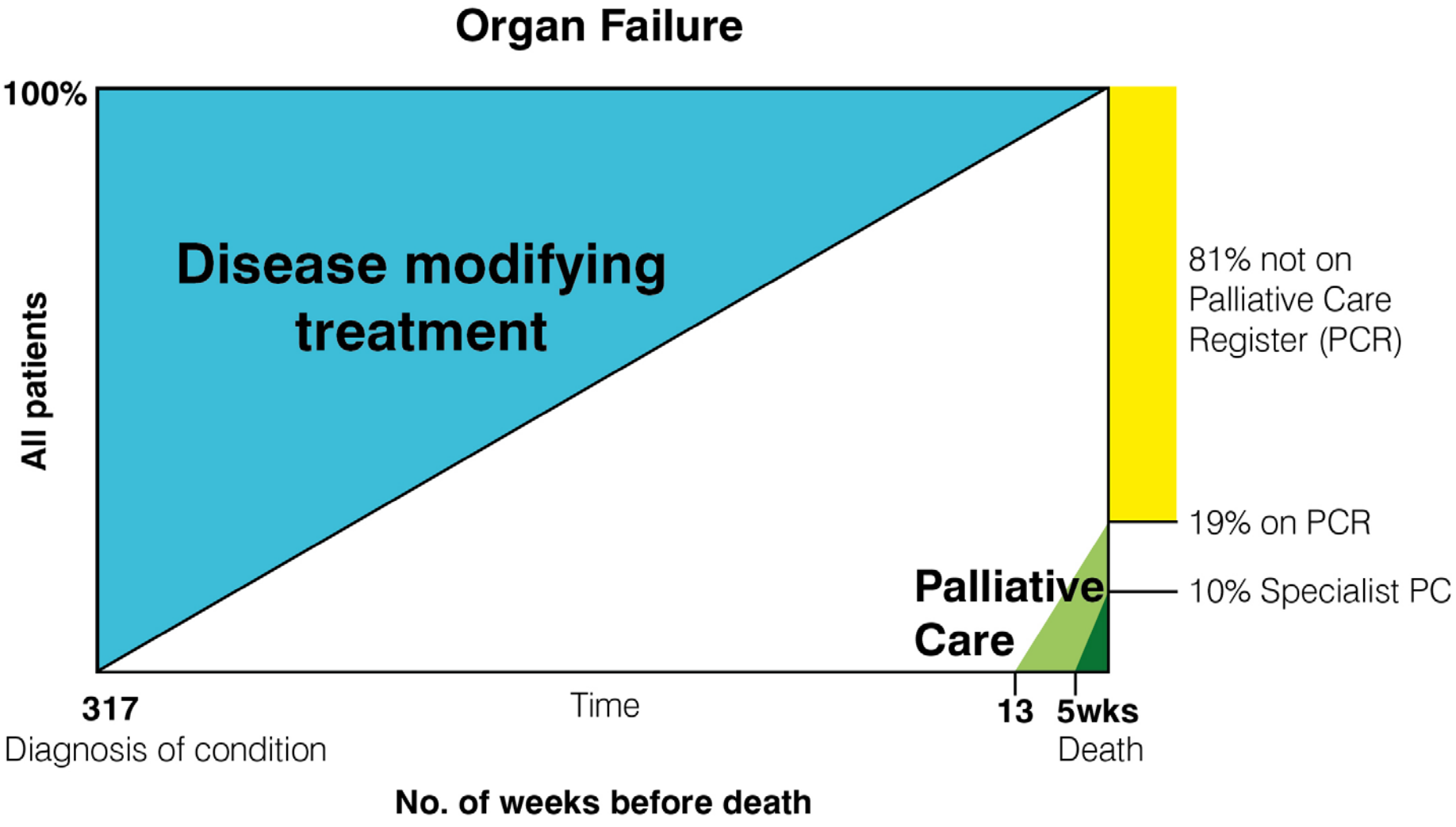
1. Find the patients

1. Develop care plan

1. Enact care plan

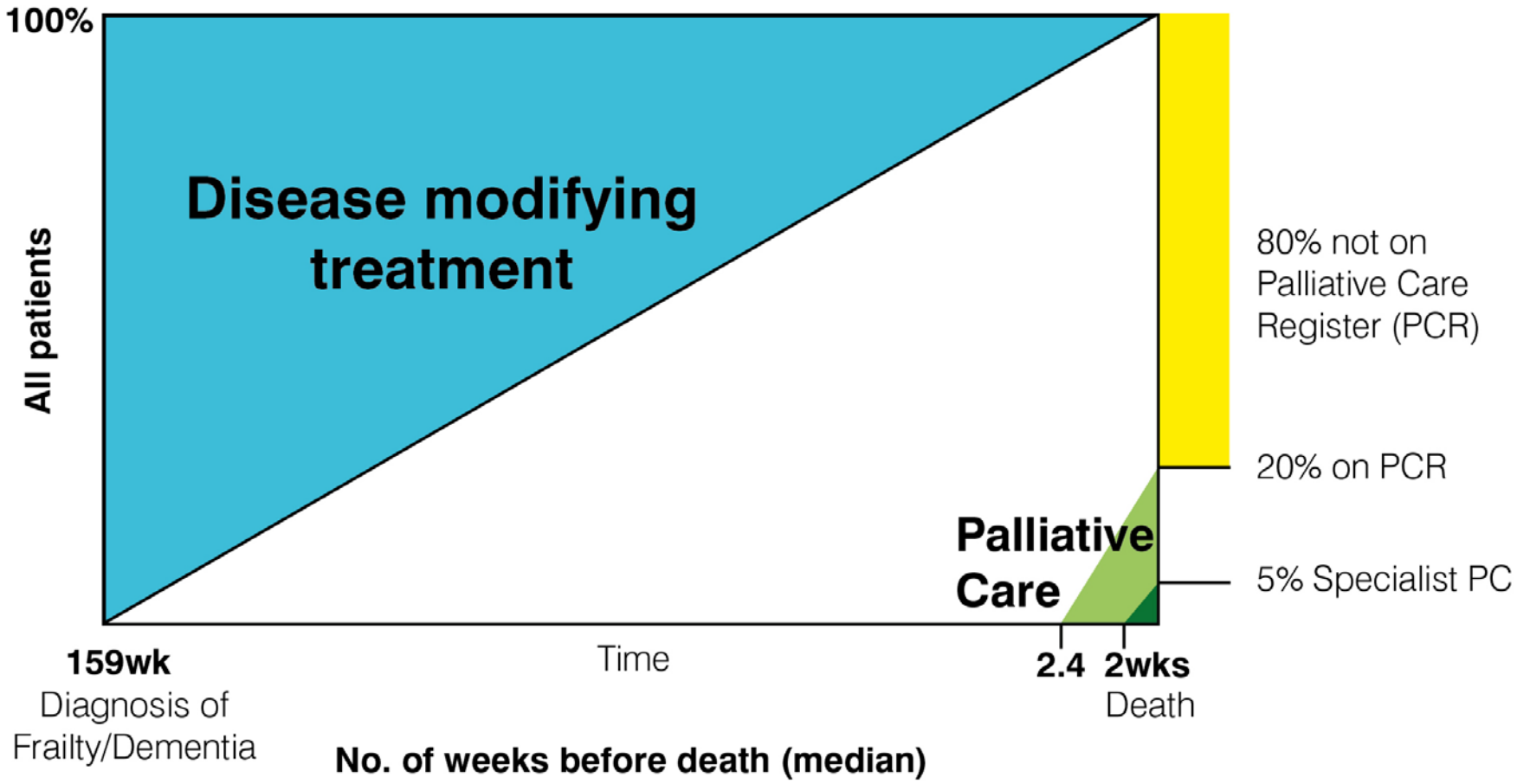


Zheng 2013 – Eur J Palliat Care



Zheng 2013 – Eur J Palliat Care

Frailty Dementia



Zheng 2013 – Eur J Palliat Care

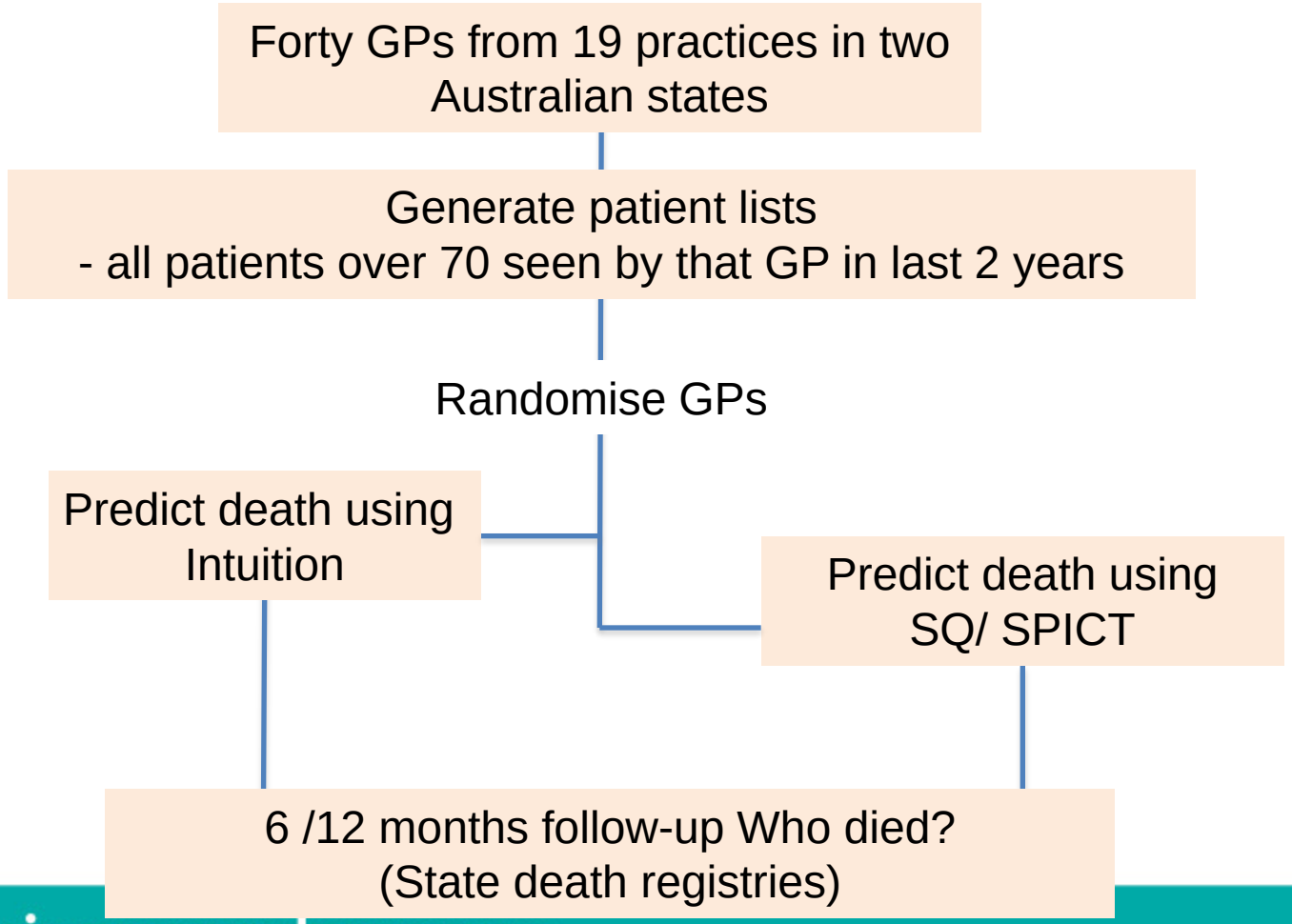
Questions around finding the patients

Can patient death be predicted reliably in the mid-term (Months)?

Is the ability to identify patients at risk of dying enhanced by a predictive tool?

Can predictive tools be used to screen for risk of dying in general practice?

Method


Forty GPs from 19 practices in two Australian states
Generate patient lists
- all patients over 70 seen by that GP in last 2 years
Randomise GPs
Predict death using Intuition
Predict death using SQ/ SPICT
6 /12 months follow-up Who died?
(State death registries)

Supportive and Palliative Care Indicators Tool (SPICT ™)

Two or more indicators of deteriorating health

At least one clinical indicator of an advanced medical

Cancer

- Functional ability deteriorating due to progressive metastatic cancer.
- Too frail for oncology treatment or treatment is for symptom control.

Dementia/ frailty

- Unable to dress, walk or eat without help.
- Eating less; difficulty maintaining nutrition.
- Urinary and faecal incontinence.
- Unable to communicate meaningfully; little social interaction.
- Fractured femur; multiple falls.
- Recurrent febrile episodes or infections; aspiration pneumonia.

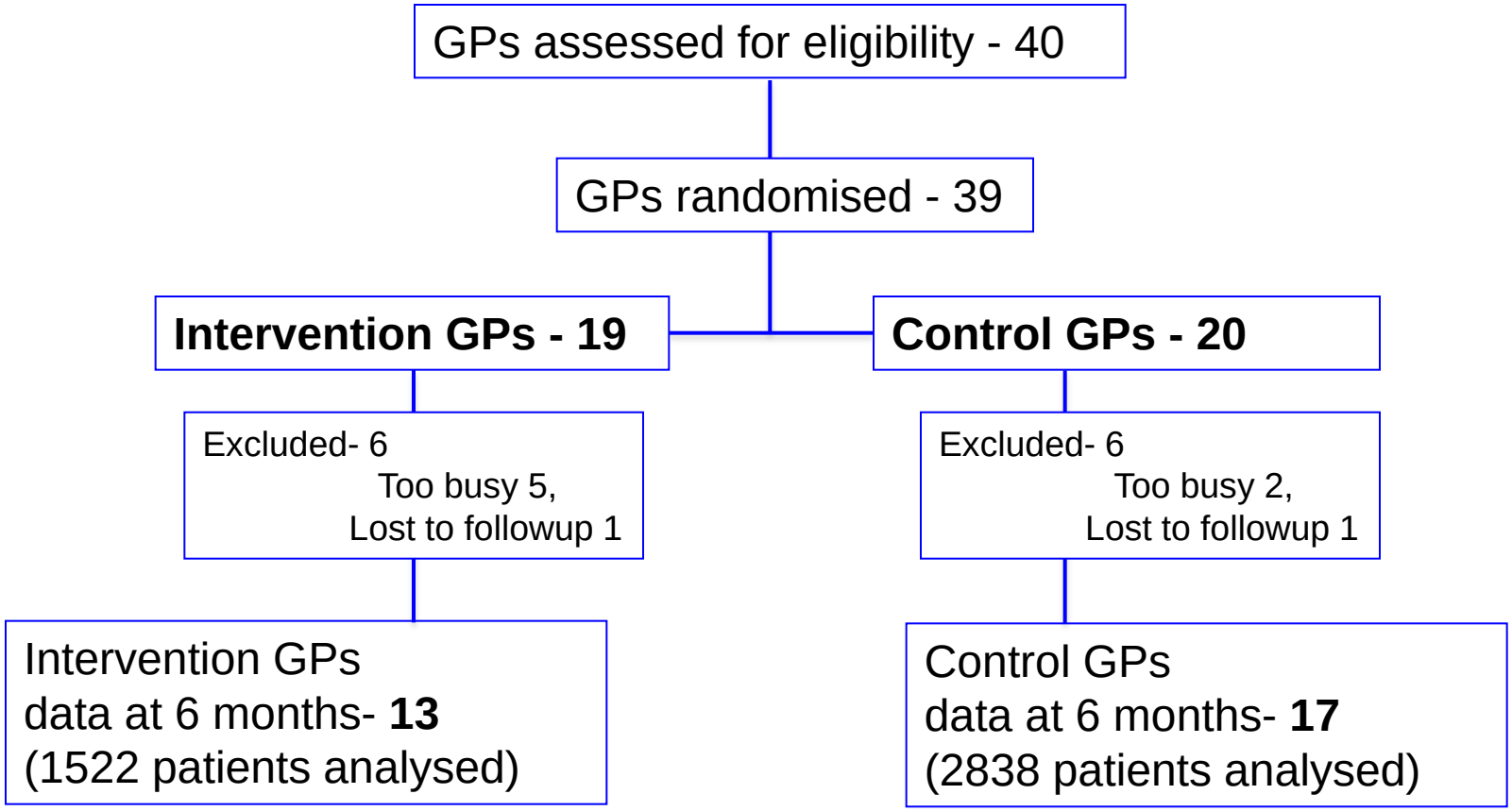
Neurological disease

- Progressive deterioration in physical and/or cognitive function despite optimal therapy.
- Speech problems with increasing difficulty communicating and/or progressive dysphagia.
- Recurrent aspiration pneumonia; breathless or respiratory failure.

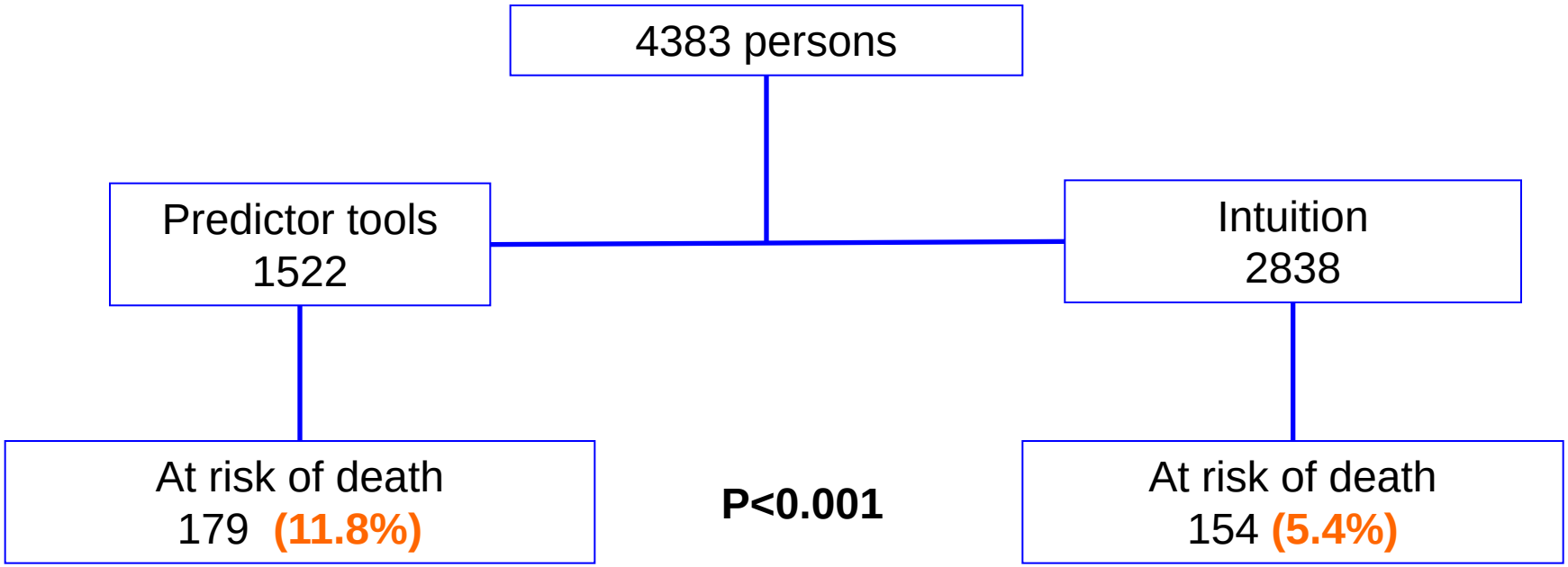
/ plan with the patient and family.

- Plan ahead if the patient is at risk of loss of capacity.
- Handover: care plan, agreed levels of intervention, CPR status.
- Coordinate care using the GP/ primary care register.

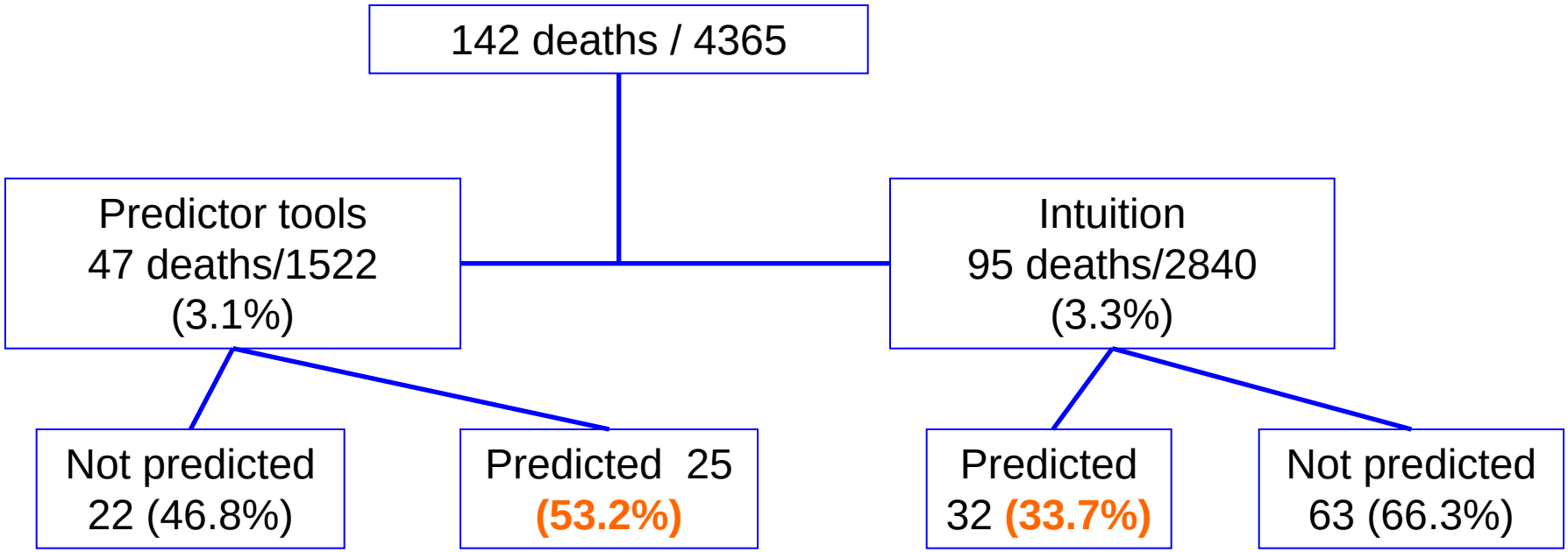
GP recruitment



GP predictions of deaths



Deaths at 12 months
Death records



P=0.026

Test parameters 12 months

	Intuition	SQ+ / SPICT	P
Sensitivity	0.34	0.53	0.008
Specificity	0.95	0.90	<0.001
Positive Predictive Value	0.20	0.14	0.412
Negative Predictive Value	0.98	0.98	0.141

Chance of dying at 12 months:

when SQ found positive - 14%

Using intuition with no prompts- 20%

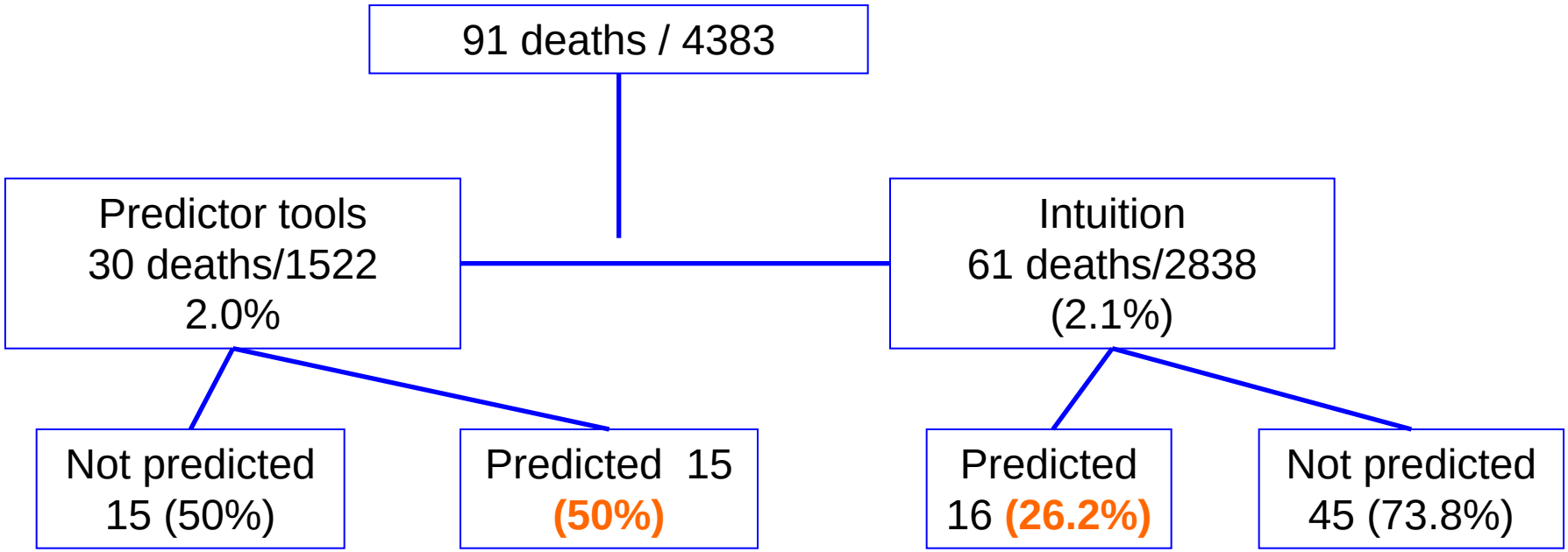
P=0.412

12 month False positives and negatives

	Intuition	SQ screening	
False Positives	128/162	154/179	
	80%	**86.0%**	p 0.412
False Negatives	63/2686	22/1343	
	2.3%	1.6%	p 0.141

Two step screening

Deaths at 6 months
Death records



P=0.024

Refining the search

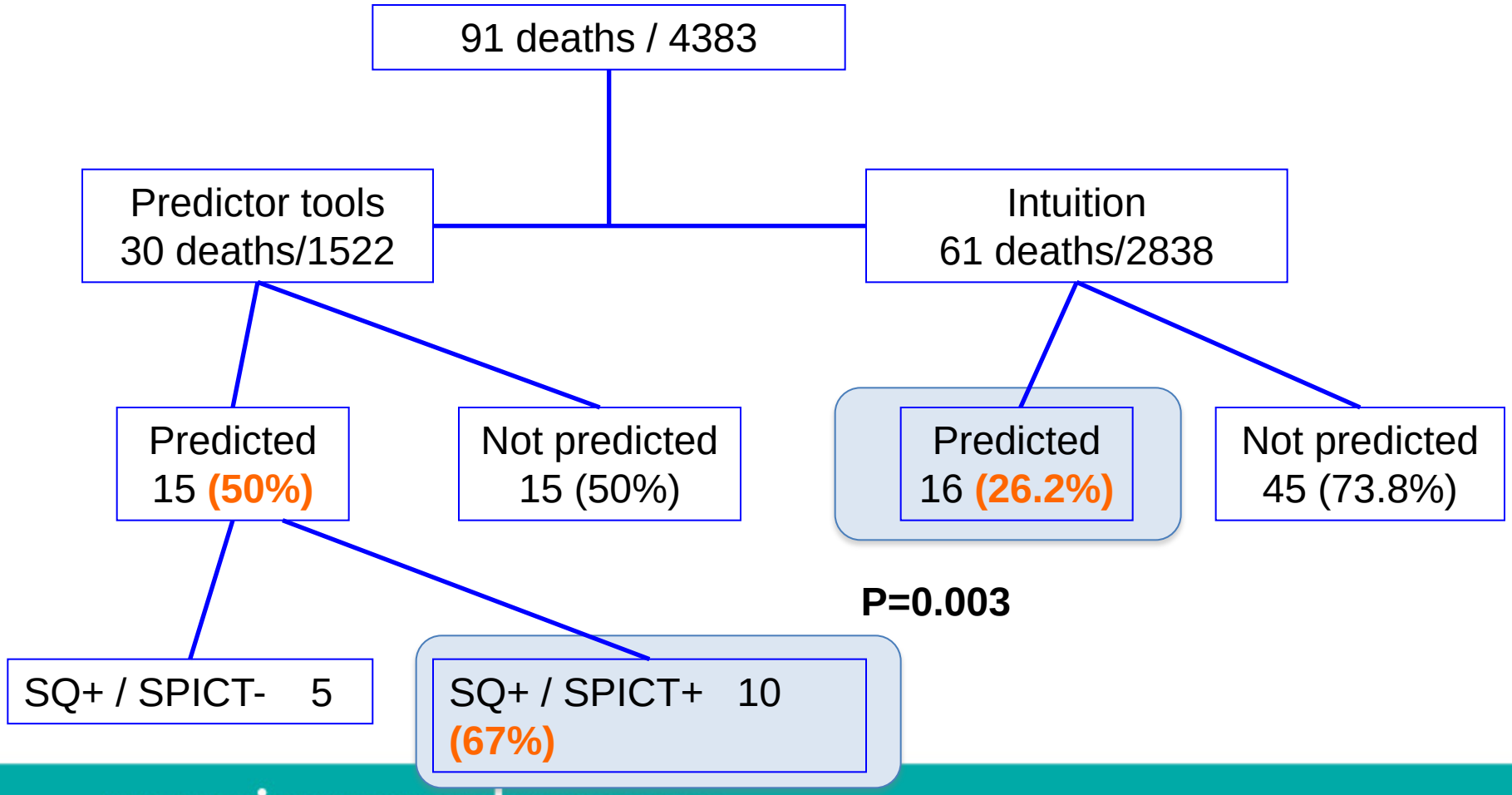
SQ +
screening prediction
179 /1522
11.8%

↓

SQ+ / SPICT +
78/1522
5.1%

SQ+ then applying the SPICT to that group
is twice as discriminating
as SQ+ alone

Deaths at 6 months
Death records



Test parameters SQ/SIPICT vs Control 6 months

	Intuition	SQ+ / SPICT	P
Sensitivity	0.262	0.667	0.024
Specificity	0.950	0.997	<0.001
Positive Predictive Value	0.104	0.128	0.529
Negative Predictive Value	0.983	0.997	0.168

SQ+ / SPICT+ 6 months

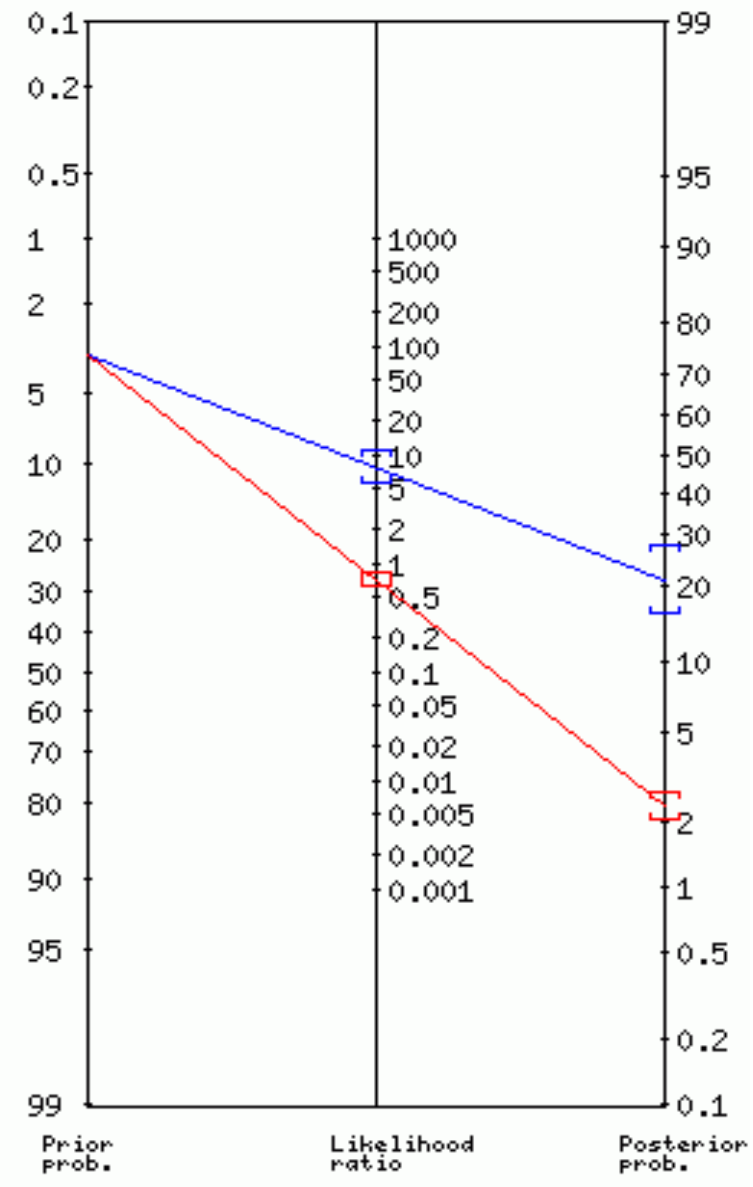
SQ+ / SPICT + n= 10/30 deaths

There is a 13% chance of a person identified as at risk of deterioration to death actually dying within 6 months

Intuition with no prompts- 10%

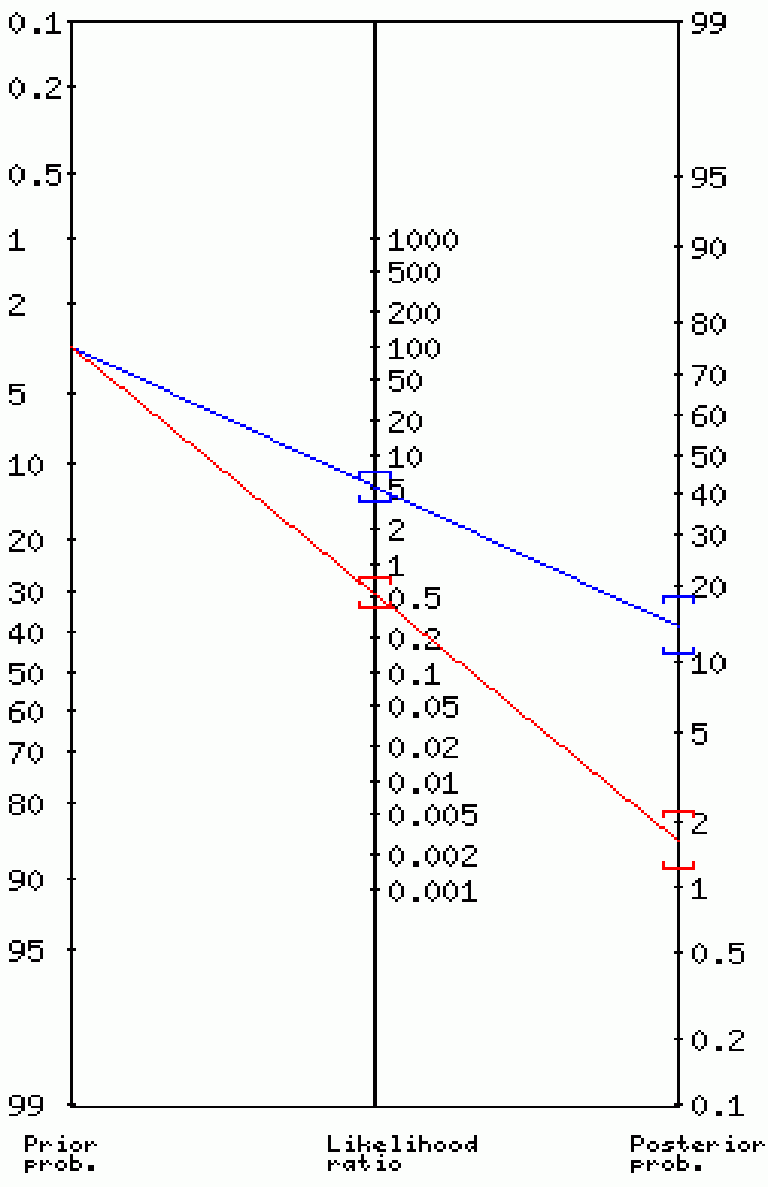
Doing anything is better than nothing

Impact of screening using any method



Intuition

Systematic screening



Conclusions

Can patient death be predicted reliably in the mid term (months)?

Doing anything to identify deterioration is much better than doing nothing.

But

Identifying people at risk of deterioration to death is still difficult.

Is the ability to identify patients at risk of dying enhanced by a predictive tool?

SQ screening good at identifying people at risk of deterioration to death but only modestly good at predicting death itself

SPICT is marginally better.

Can predictive tools be used to screen for risk of dying in general practice?

Many false positive predictions of actual death, no matter what process used.

Challenge is managing the planning process for large numbers of identified patients.

Is predicting death the right approach?

Is **predicting death** the right approach?

Or is **perceived risk** a call to action?

What is the right response?

Sliding Scale of action to counter low PPV?

Is it possible to refine potential predictors of dying?

The last word…

If your GP says you are not going to die in next 12 months, you probably won't!

Acknowledgements

Funding

- RACGP Family Medicine Research Fund
- PC4 – Primary Care Cancer Clinical Trials Group

The participating GPs and practice staff

Advice from Dr Kirsty Boyd and Prof Scott Murray