

The Waitemata Abdominal Aortic Aneurysm Screening Pilot

Māori
men
55-74

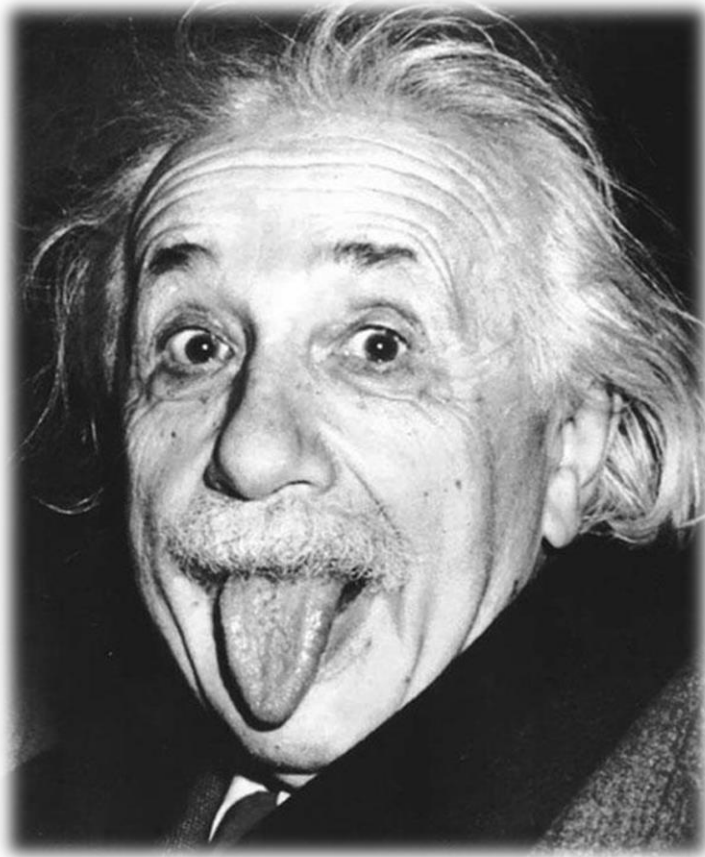
Māori
women
60-74

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Deaths that could have been prevented?



Albert Einstein, 1879-1955



Professor Ken Newell 1925-1990



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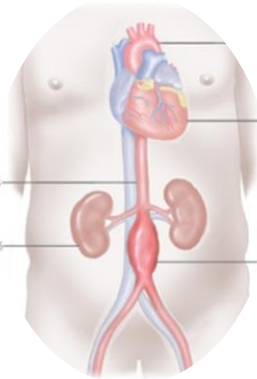
Abdominal Aortic Aneurysm is a killer

AAA = dilation of the main artery in the abdomen

Normal diameter 2cm
An aneurysm $\geq 3\text{cm}$

Growth rate accelerates as they get larger

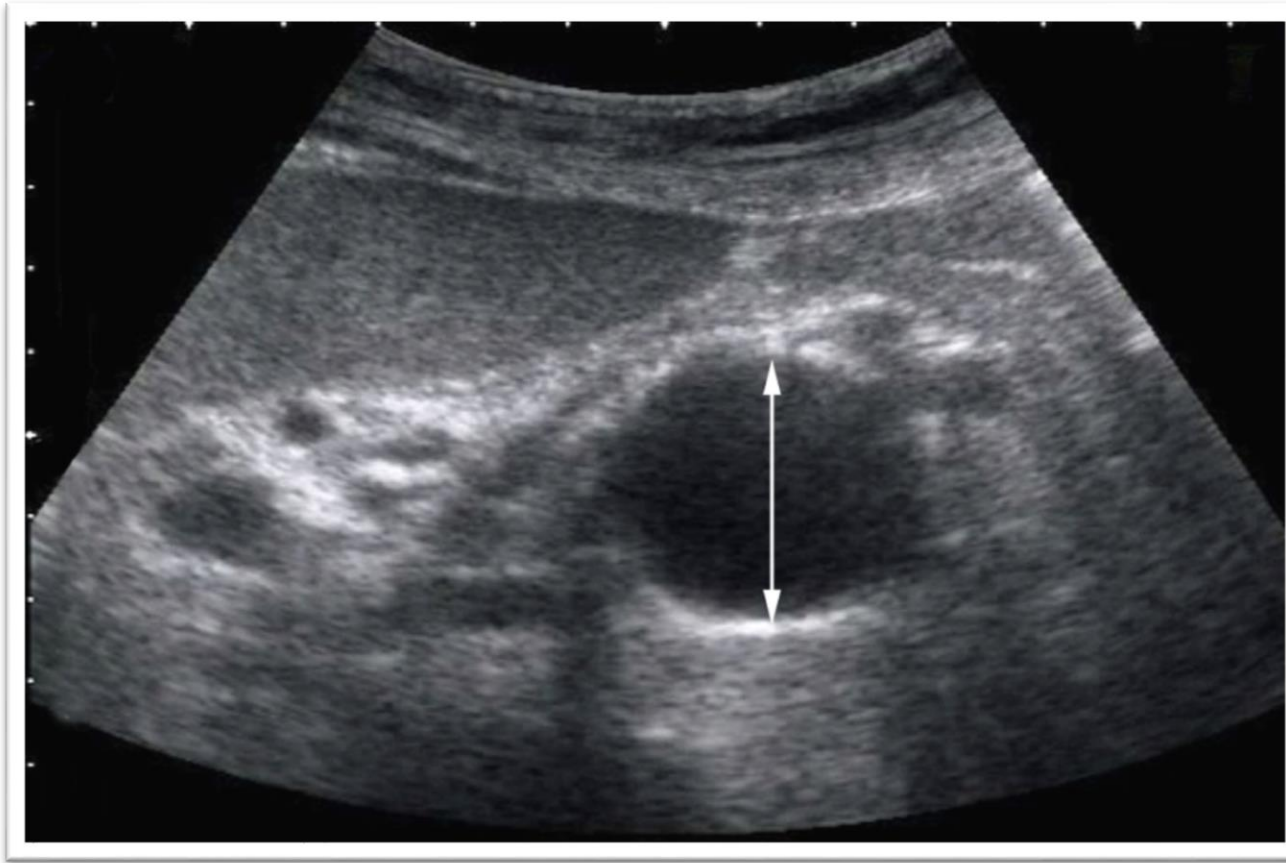
A ruptured aneurysm is usually fatal



At 3.5 cm risk of rupture is $<0.1\%$
At 7cm it rises to 20%

Around 240 people die a year in NZ from AAA

Screening test available? Abdominal Ultrasound



- ✓ Quick
- ✓ Painless
- ✓ Non invasive
- ✓ Results immediately available

Screening programmes exist in US, UK, Sweden.
Mostly for men at 65 years

Inequalities at Multiple Levels Lead to Worse AAA Outcomes for Māori

Social deprivation

Smoking

Hypertension

Dyslipidaemias

Poor access to health services

Late diagnosis

Inadequate surveillance

Weak management of CVD risks

Insufficient support for smoking cessation

→ Disease onset *8 years* earlier

→ 56% higher incidence in women

→ Men 26% more likely to present with a ruptured AAA

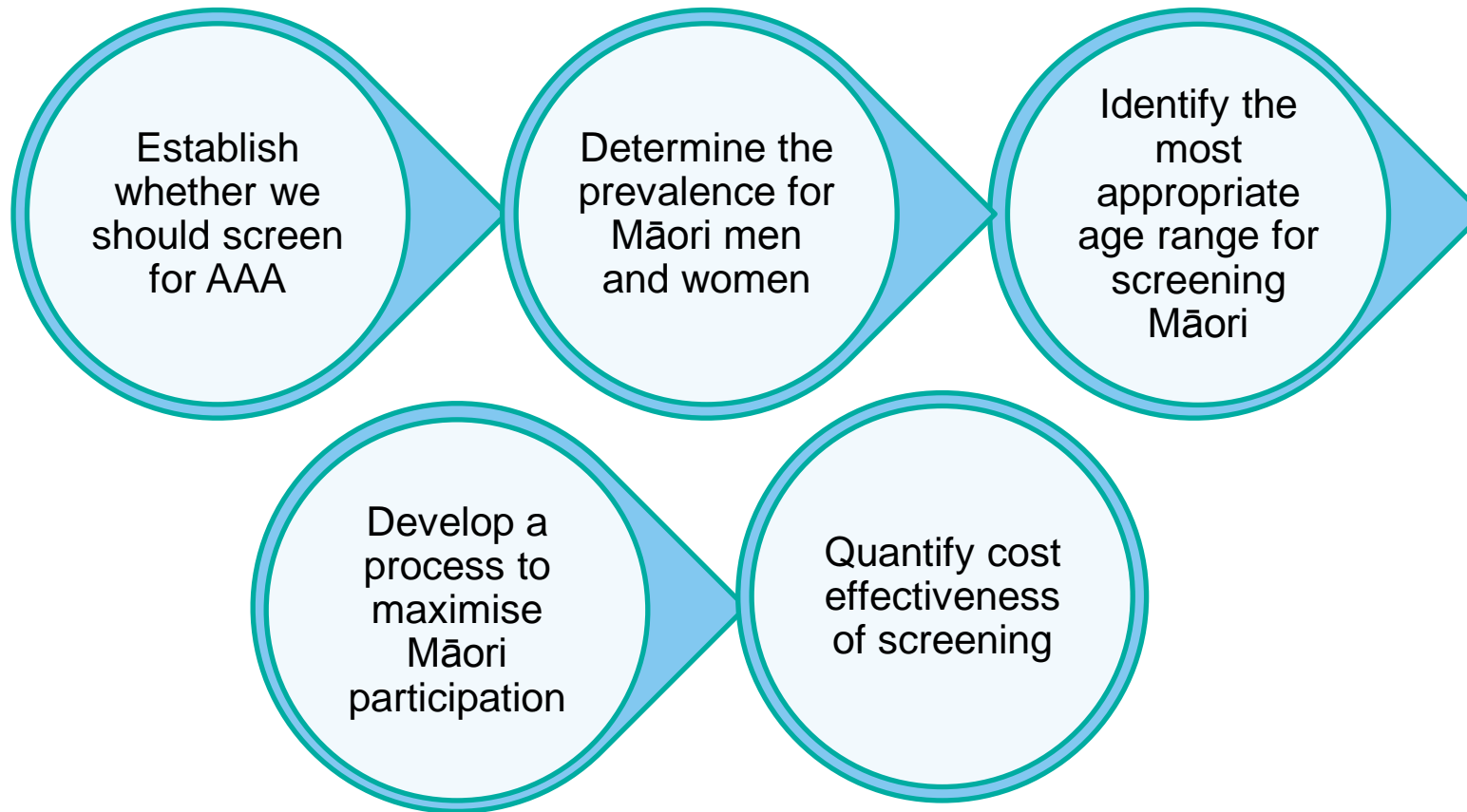
→ Higher proportion of repairs in men performed acutely

→ Higher mortality rates (30% higher in men; 166% in women)

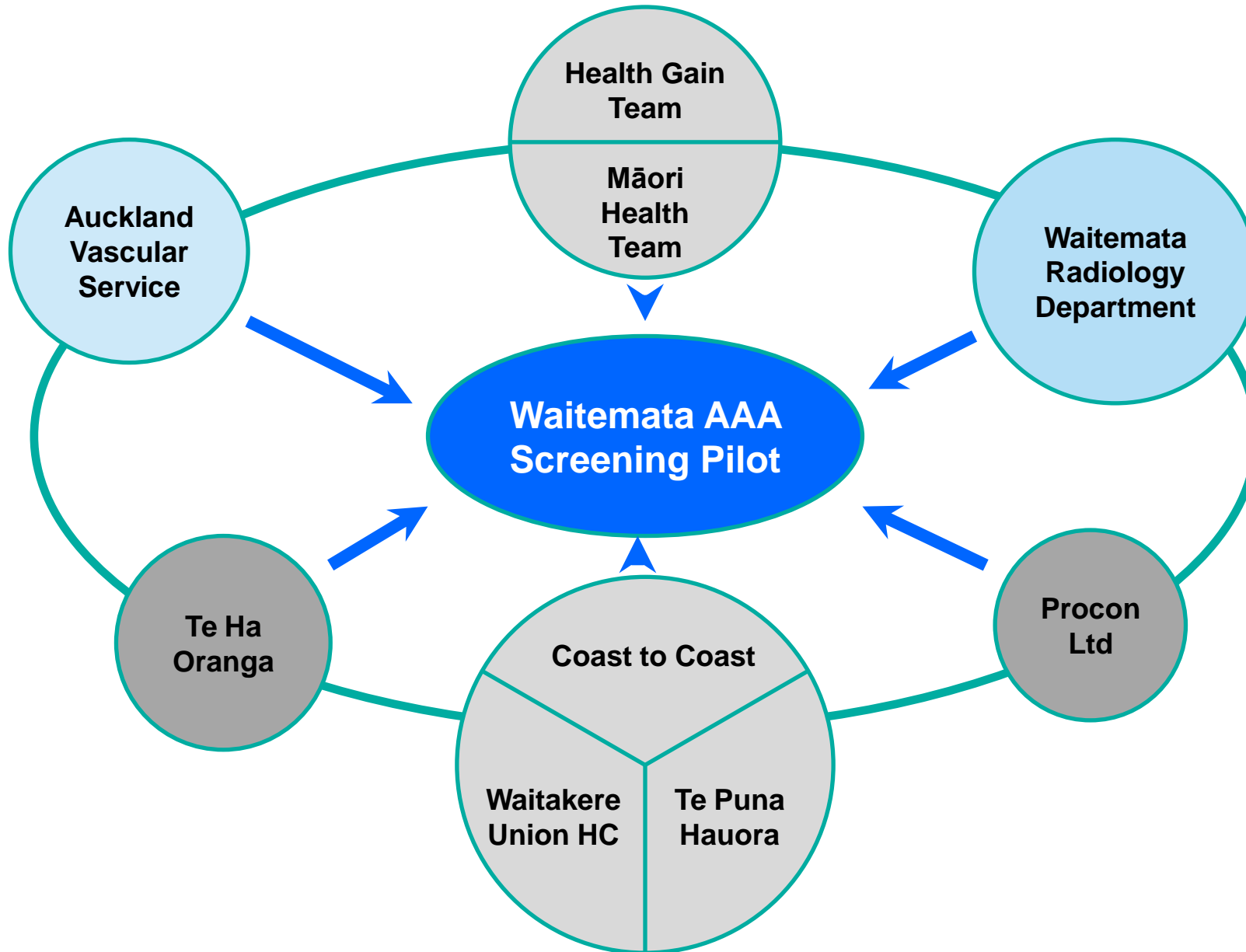
→ Lower survival at one year from first AAA hospital diagnosis

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Aims



The Players



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Target population

Māori
registered
with a
practice in
Waitemata

Men aged
55-74

Women
aged 60-74

Excluding:

- Pre-existing AAA
- Recent radiological investigation that should have excluded AAA
- Pre-existing co-morbidities that would eliminate benefit e.g. terminal cancer

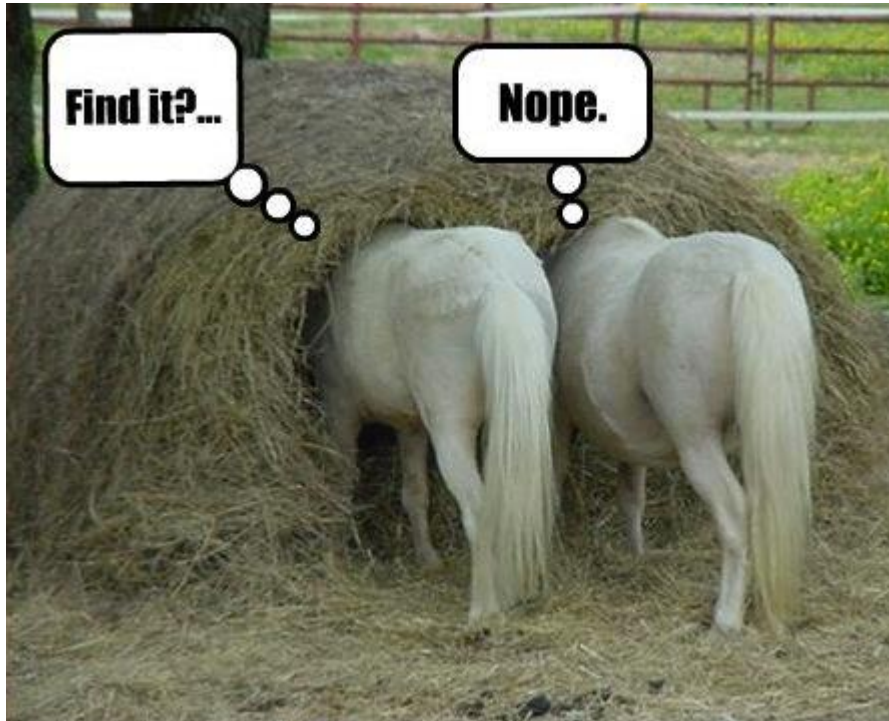
We selected the 3 practices with the largest eligible populations

Practice	Total Enrolled Population	Māori	Eligible population
Coast to Coast Wellsford	14,200	2,500	300
Waitakere Union Health	6,000	1,600	140
Te Puna Hauora	10,800	3,000	200



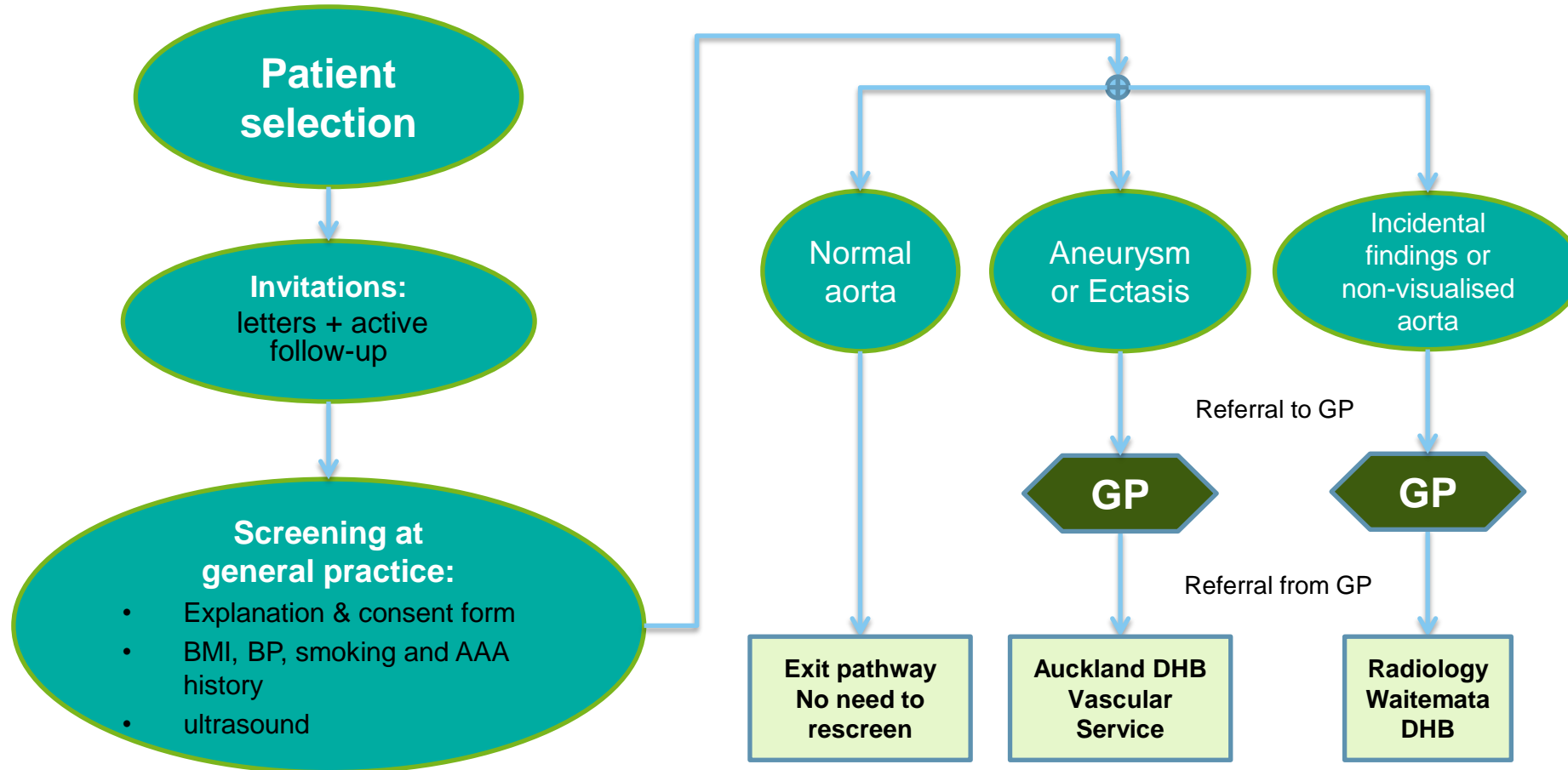
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Resourcing a sonographer was like finding a needle in a haystack



So we trained our own AAA ultrasound technician

The Pilot Screening Pathway



Māori implementation science framework



He Pikinga Waiora Implementation Framework
Healthier Lives National Science Challenge

Participation results

OVERALL

General Practice	Eligible pop after exclusions	People screened
Coast to Coast Wellsford	283	214 (76%)
Waitakere Union Health	146	122 (84%)
Te Puna Hauora	179	132 (74%)

Eligible: 608
Screened: 468
Screening uptake: 77%
Vascular referral: 14
Radiology referral: 2
Declined: 53 (8%)



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Prevalence Results

Group	AAA ($\geq 30\text{mm } \emptyset$)			Ectasis (26-29mm \emptyset)		
	No.	%	95% C.I. ¹	No.	%	95% C.I.
Men 55-74	4/249	1.6%	0.8% - 4.4%	8/249	3.2%	1.6% - 6.4%
Men 60-74	4/162	2.5%	0.6% - 4.9%	8/162	4.9%	1.9% - 8.6%
Men 65-74	3/98	3.1%	0.0% - 7.1%	6/98	6.1%	2.0% - 11.2%
Women 60-74	2/193	1.0%	0.5% - 4.7%	5/193	2.6%	0.5-5.2%
Women 65-74	1/102	1.0%	0.0% - 2.9%	5/102	4.9%	1.0% - 8.8%

^{1/} Bootstrap bias corrected and accelerated confidence limits

Prevalence of 1.12% in UK Screening Programme 2015/16



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Prevalence Results

Women's aorta ruptures at a smaller size

Age group	Aneurysm defined at $\geq 27\text{mm } \varnothing$		
	Number	%	95% CI ¹
Women 60-74	5/193	2.59%	0.0% - 5.2%
Women 65-74	4/98	3.92%	1.0%-7.8%

^{1/} Bootstrap bias corrected and accelerated confidence limits

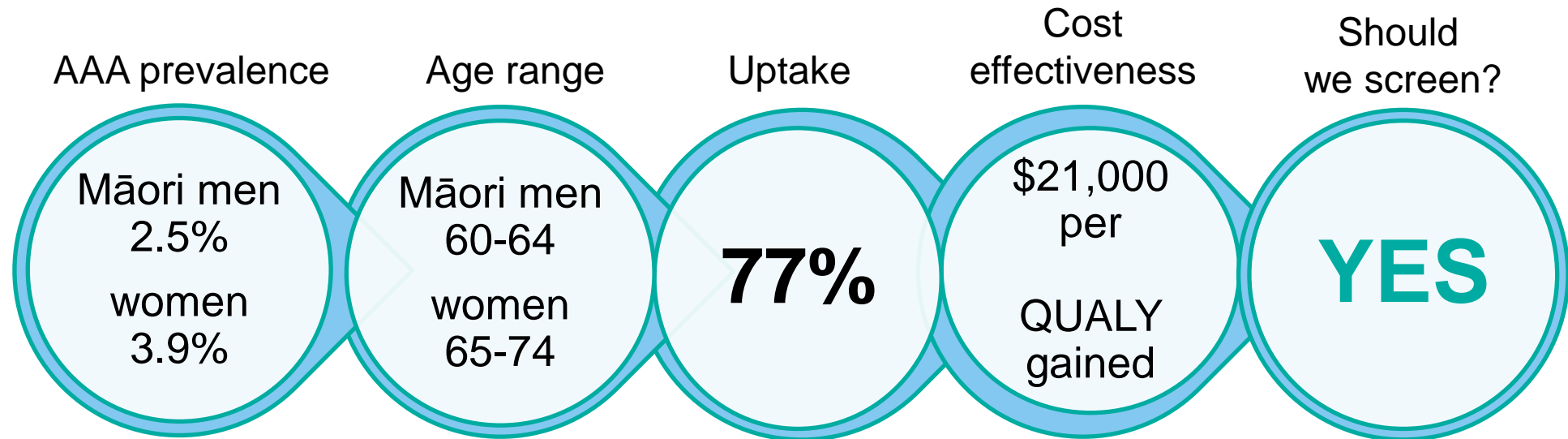
Prevalence of 1.12% in UK Screening Programme 2015/16



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Aims achieved?



Waitemata and Auckland DHB are already screening
New Zealand should consider it too

Quantifying health benefits of regional AAA screening for Māori (3000 in ADHB and WDHB)

78

- Previously undiagnosed AAA detected

7

- AAA-related deaths averted

2.5-3%

- Reduction in all-cause mortality among those screened

35

- QALYs gained

\$362,780

- Cost of screening programme (for a ~10 year cohort)

\$21,000

- Cost per QALY gained

Our achievements

Highly original

- First population-based AAA screening in New Zealand
- We are getting it right for Māori first
- Web-based system integrating with NGO, primary and secondary care

Evidence-based

- Based on sound RCT evidence for effectiveness and cost-effectiveness

Equity-focused

- Quantifiable health-gains for Māori at a reasonable cost

Excellent value for money

- Cost per QALY well below our willingness to pay threshold

Influencing national level policy change

- National screening unit are considering introducing a national AAA screening programme based on this project and work by others

We, the authors, would like to acknowledge the valuable contributions to this work from:

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**Coast to
Coast**

**Waitakere
Union
Health**

**Te Puna
Hauora**



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