Cervical and breast cancer: risk-based screening and management

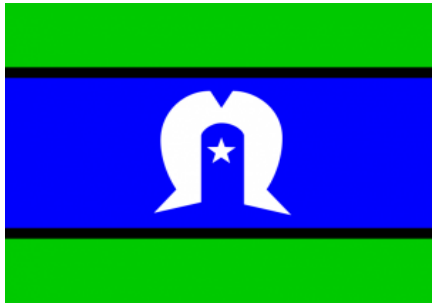
Tuesday 13 August 2024

The content in this session is valid at date of presentation

Acknowledgement of Country

North Western Melbourne Primary Health Network and the Royal Women's Hospital would like to acknowledge the Traditional Custodians of the land on which our work takes place, The Wurundjeri Woi Wurrung People, The Boon Wurrung People and The Wathaurong People.

We pay respects to Elders past, present and emerging as well as pay respects to any Aboriginal and Torres Strait Islander people in the session with us today.



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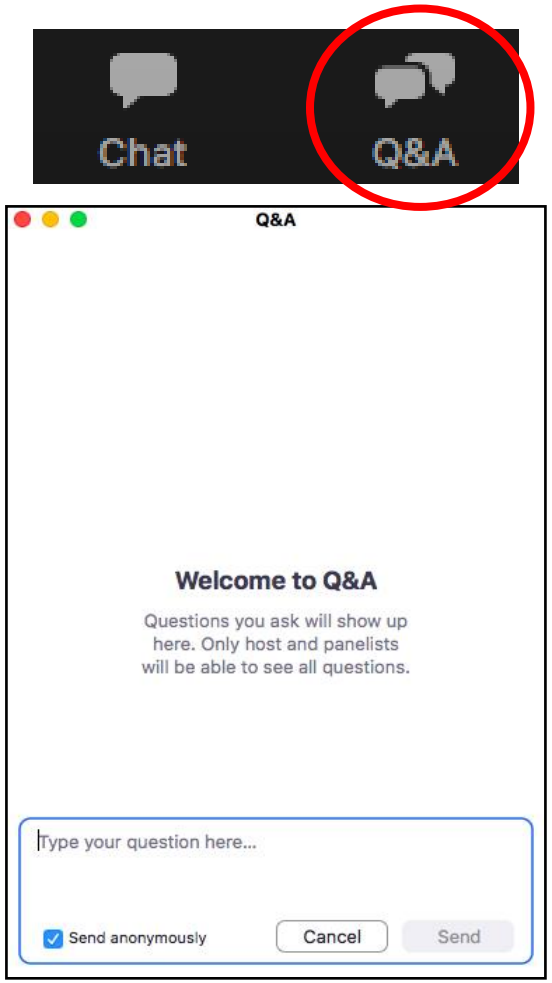

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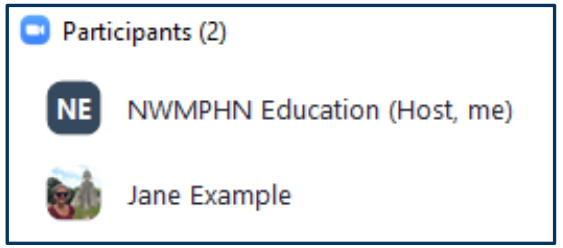

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Speaker

Mr C. David H. Wrede, Royal Women's Hospital

David Wrede is an experienced surgical Gynaecologist, who is a Consultant and Lead for the Dysplasia and Familial Cancer services at The Royal Women's Hospital.

He is also an Honorary Senior Lecturer in the Department of Obstetrics and Gynaecology at the University of Melbourne and Honorary Consultant to the Familial Cancer Clinic at The Royal Melbourne Hospital.

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Speaker

Prof Bruce Mann, Royal Women's Hospital

Bruce Mann is a Specialist Breast Surgeon. He is a Professor of Surgery at the University of Melbourne, Director of the Breast Service for the Royal Melbourne and Royal Women's Hospitals and Director of the Breast Tumour Stream for the Victorian Comprehensive Cancer Centre.

His particular interest is in optimising treatment for those with very early breast cancer.

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Save the date!

Perinatal Mental Health

Tuesday Oct 1st 6.30-8pm online

Hosted by The Women's, PANDA and the Parent-Infant Research Institute

Shared Maternity Care Workshops

Tuesdays Oct 8th & 15th 7-9pm online

Hosted by the Shared Maternity Care Collaborative (The Women's, Mercy Health, Northern Health & Western Health)

Thankyou

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HealthPathways Melbourne

Cervical and breast cancer: risk-based screening and management

13 August 2024

Pathways are written by GP clinical editors with support from local GPs, hospital-based specialists and other subject matter experts

- clear and concise, evidence-based medical advice
- Reduce variation in care
- how to refer to the most appropriate hospital, community health service or allied health provider.
- what services are available to my patients

HealthPathways – Cervical and breast cancer screening

Relevant and related pathways -

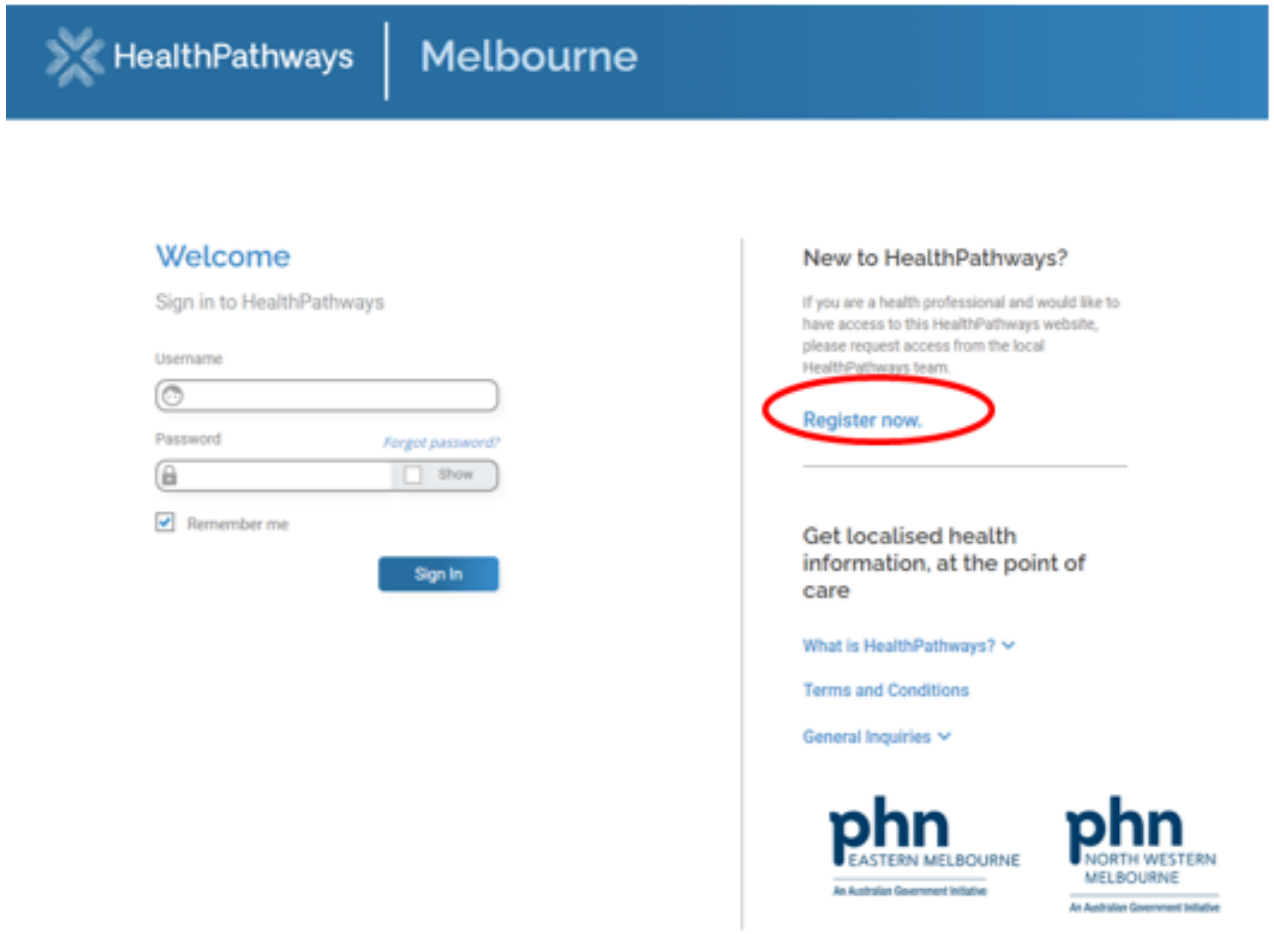
Women's health
Cervical Screening
Cervical Cancer
Benign Breast Lesions
Breast Cancer - Established
Breast Cancer Survivorship
Breast Cancer Screening
Breast Symptoms and Suspected Breast Cancer
Endometrial Cancer
Low-risk Endometrial Cancer – Follow-up
Familial Cancer Syndromes
Familial Breast or Ovarian Cancer Syndromes
Gynaecology

Referrals

Acute Breast Surgery Referral or Admission (Same-day)
Non-acute Breast Surgery Referral (> 24 hours)
Acute Gynaecology Referral or Admission (Same-day)
Non-acute Gynaecology Referral (> 24 hours)
Colposcopy Referral
Fertility Specialised Referral
LGBTIQA+ Referral

CPD Hours for HealthPathways Use

Accessing HealthPathways: Go to melbourne.healthpathways.org.au



Register via QR code

info@healthpathwaysmelbourne.org.au

Breast Cancer Screening

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Breast cancer screening/risk management in 2024

Bruce Mann

Melbourne

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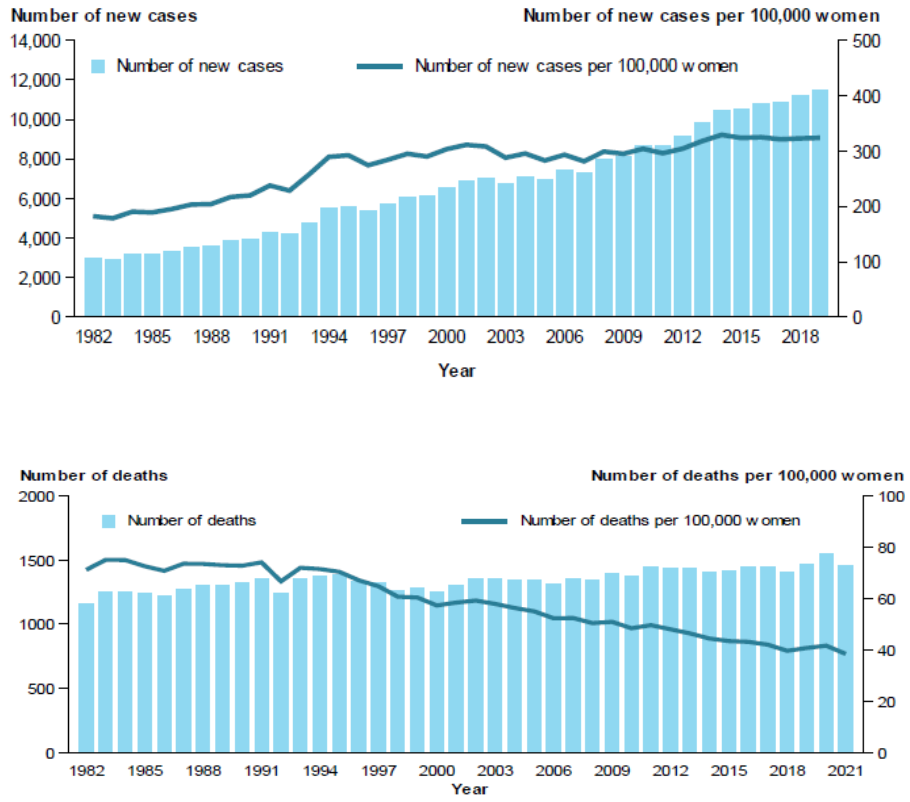
Breast Cancer outcomes is a good-news story



BreastScreen Australia monitoring report 2023

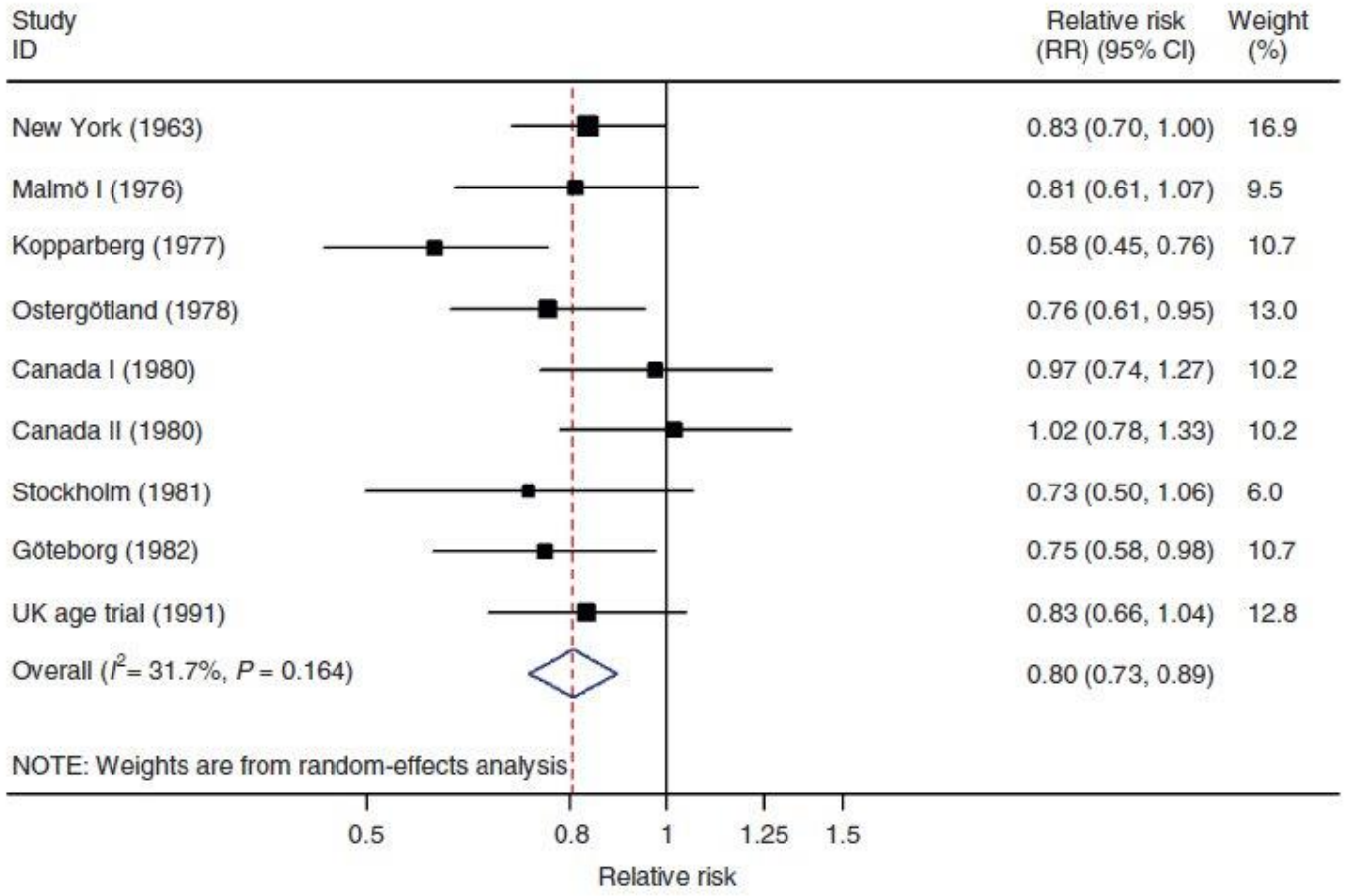
- Improvements have come from:
  - Development and widespread use of systemic therapies
  - Population-based mammographic screening

VALUE OF MAMMOGRAPHY IN REDUCTION OF MORTALITY FROM BREAST CANCER IN MASS SCREENING*

By PHILIP STRAX, M.D.,† LOUIS VENET, M.D.,‡ *and* SAM SHAPIRO, B.S.§
NEW YORK, NEW YORK

THE one-third reduction in mortality rate from breast cancer achieved in the mass screening program of the Health Insurance Plan of Greater New York, under contract with the National Institutes of Health, has persisted in a 5 year follow-up. The important role of mammography in this reduction is pointed out by the fact that of 44 cancers found on mammography alone in this study only 1 woman has died in this period.

RCTs of mammographic population screening



Source: Marmot, MG, et al. BJC, October 2012

Public health

Is screening for breast cancer with mammography justifiable?

Peter C Gøtzsche, Ole Olsen

Interpretation Screening for breast cancer with mammography is unjustified. If the Swedish trials are judged to be unbiased, the data show that for every 1000 women screened biennially throughout 12 years, one breast-cancer death is avoided whereas the total number of deaths is increased by six. If the Swedish trials (apart from the Malmö trial) are judged to be biased, there is no reliable evidence that screening decreases breast-cancer mortality.

Lancet 2000; **355**: 129–34

Public health

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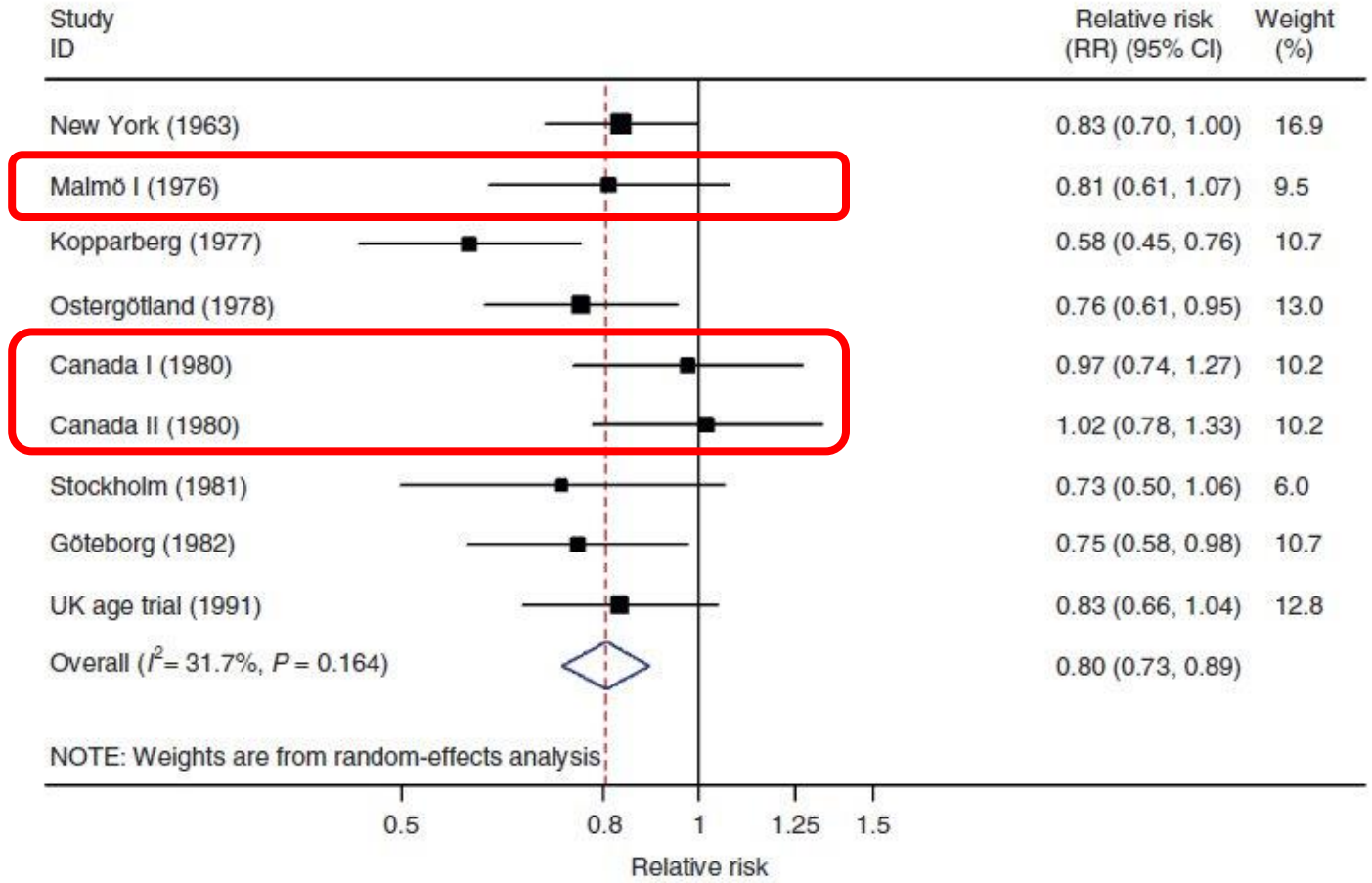


Source: Marmot, MG, et al. BJC, October 2012

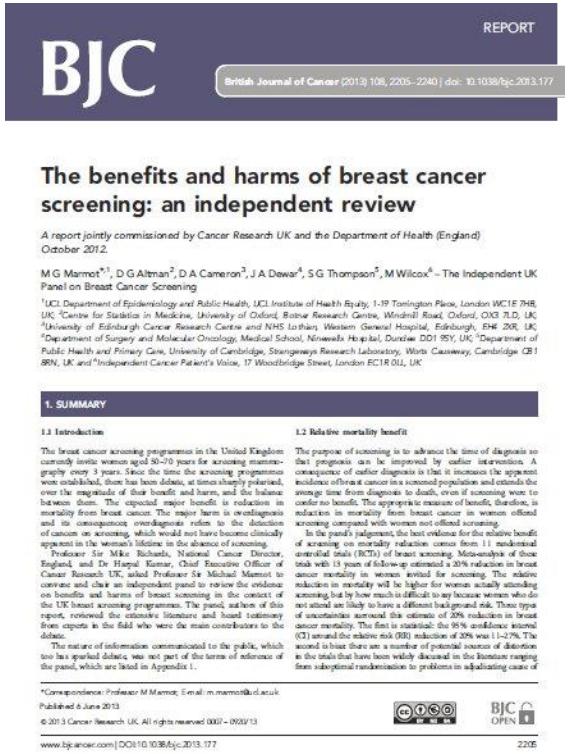
Independent UK review

Sir Michael Marmot - Epidemiologist

- Director of UCL Institute of Health Equity
- Interest in social determinants of health
- No involvement in Screening research

Marmot, JAMA 2013.

UK Independent Review of Breast Cancer Screening—Estimate of Absolute Benefit



BJC REPORT

British Journal of Cancer (2013) 108, 2205–2240 | doi: 10.1038/bjc.2013.177

The benefits and harms of breast cancer screening: an independent review

A report jointly commissioned by Cancer Research UK and the Department of Health (England) October 2012.

M G Marmot*[1], D G Altman[2], D A Cameron[3], J A Dewar[4], S G Thompson[5], M Wilcox[6] – The Independent UK Panel on Breast Cancer Screening

[1]UCL Department of Epidemiology and Public Health, UCL Institute of Health Equity, 1-19 Torrington Place, London WC1E 7HB, UK; [2]Centre for Statistics in Medicine, University of Oxford, Botnar Research Centre, Windmill Road, Oxford, OX3 7LD, UK; [3]University of Edinburgh Cancer Research Centre and NHS Lothian, Western General Hospital, Edinburgh, EH4 2XR, UK; [4]Department of Surgery and Molecular Oncology, Medical School, Ninewells Hospital, Dundee DD1 9SY, UK; [5]Department of Public Health and Primary Care, University of Cambridge, Strangeways Research Laboratory, Worts Causeway, Cambridge CB1 8RN, UK and [6]Independent Cancer Patient's Voice, 17 Woodbridge Street, London EC1R 0LL, UK

1. SUMMARY

1.1 Introduction

The breast cancer screening programmes in the United Kingdom currently invite women aged 50–70 years for screening mammography every 3 years. Since the time the screening programmes were established, there has been debate, at times sharply polarised, over the magnitude of their benefit and harm, and the balance between them. The expected major benefit is reduction in mortality from breast cancer. The major harm is overdiagnosis and its consequences overdiagnosis refers to the detection of cancers on screening, which would not have become clinically apparent in the woman's lifetime in the absence of screening.

Professor Sir Mike Richards, National Cancer Director, England, and Dr Harpal Kumar, Chief Executive Officer of Cancer Research UK, asked Professor Sir Michael Marmot to convene and chair an independent panel to review the evidence on benefits and harms of breast screening in the context of the UK breast screening programmes. The panel, authors of this report, reviewed the extensive literature and heard testimony from experts in the field who were the main contributors to the debate.

The nature of information communicated to the public, which too has sparked debate, was not part of the terms of reference of the panel, which are listed in Appendix 1.

1.2 Relative mortality benefit

The purpose of screening is to advance the time of diagnosis so that prognosis can be improved by earlier intervention. A consequence of earlier diagnosis is that it increases the apparent incidence of breast cancer in a screened population and extends the average time from diagnosis to death, even if screening were to confer no benefit. The appropriate measure of benefit, therefore, is reduction in mortality from breast cancer in women offered screening compared with women not offered screening.

In the panel's judgement, the best evidence for the relative benefit of screening on mortality reduction comes from 11 randomised controlled trials (RCTs) of breast screening. Meta-analysis of these trials with 13 years of follow-up estimated a 20% reduction in breast cancer mortality in women invited for screening. The relative reduction in mortality will be higher for women actually attending screening, but by how much is difficult to say because women who do not attend are likely to have a different background risk. Three types of uncertainties surround this estimate of 20% reduction in breast cancer mortality. The first is statistical: the 95% confidence interval (CI) around the relative risk (RR) reduction of 20% was 11–27%. The second is bias: there are a number of potential sources of distortion in the trials that have been widely discussed in the literature ranging from suboptimal randomisation to problems in adjudicating cause of

*Correspondence: Professor M Marmot; E-mail: m.marmot@ucl.ac.uk

Published 6 June 2013

BJC OPEN

- Women 50-69yo invited to screen every 3 years
- 20% mortality reduction to the observed breast cancer mortality over ages 55–79 years
- Results:
  - **For every 235 women *invited* to screening, 1 breast cancer death would be prevented**
  - **For every 180 women *screened*, 1 breast cancer death would be prevented**

Marmot, MG, et al. BJC, October 2012

THE CONVERSATION

Academic rigour, journalistic flair

Routine mammograms do not save lives: The research is clear

Published: October 2, 2017 10.09am AEDT

Anne Kearney

Associate Professor of Nursing, Memorial University of Newfoundland

A recent Canadian trial reports breast cancer over-diagnosis rates of up to 55 per cent, from routine screening mammograms.

As breast cancer awareness month kicks off, all women should know something: there is no reliable evidence that routine mammograms for healthy women save lives.

There is good evidence that such mammograms can cause harm.

BMJ

BMJ 2014;348:g366 doi: 10.1136/bmj.g366 (Published 11 February 2014)

Twenty five year follow-up for breast cancer incidence and mortality of the Canadian National Breast Screening Study: randomised screening trial

OPEN ACCESS

Conclusion Annual mammography in women aged 40-59 does not reduce mortality from breast cancer beyond that of physical examination or usual care when adjuvant therapy for breast cancer is freely available.

Table 2| **Comparison of breast cancers detected during screening phase (years 1 to 5) in mammography arm versus control arm. Values are numbers (percentages) unless stated otherwise**

Variables	Control arm (n=524)	Cancers in mammography arm		
		Detected (n=666)	Palpable (n=454)	Non-palpable (n=212)
Mean (range) age at diagnosis (years)	52.6 (40-64)	52.5 (40-64)	52.1 (40-64)	53.3 (46-64)
Died from breast cancer:				
No	353 (67.4)	486 (73.0)	316 (69.6)	170 (80.2)
Yes	171 (32.6)	180 (27.0)	138 (30.4)	42 (19.8)
Mean (range) age at death (years)	60.6 (43-83)	59.9 (43-80)	59.1 (43-80)	62.5 (46-77)
Tumour size (cm)	2.1 (0.2-7.0)	1.9 (0.2-9.0)	2.1 (0.2-9.0)	1.4 (0.2-9.0)
Missing data	58 (11.1)	87 (13.1)	56 (12.3)	31 (14.6)
Lymph node status:				
Negative	303 (57.8)	394 (59.2)	252 (55.5)	142 (67.0)
Positive	170 (32.4)	204 (30.6)	169 (37.2)	35 (16.5)

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Table 3| **Deaths from breast cancer to 31 December 2005, by study arm and year of diagnosis. Values are numbers (percentages) unless stated otherwise**

Study year	Deaths by study arm	
	Mammography (n=44 925)	Control (n=44 910)
Deaths from breast cancers detected in years 1-5 (screening period)*:		
Screen detected, year 1	52 (28.9)	26 (15.2)
Screen detected, years 2-5	63 (35.0)	29 (17.0)
Interval cancers, years 1-5	46 (25.6)	44 (25.7)
Incident cancers, year 5	19 (10.6)	72 (42.1)
Screen period, total	180 (100)	171 (100)

Does breast screening impact outcomes?

- Optimal Care Pathways recommend regular screening
  - DHS study of breast cancer outcomes according to OCP compliance

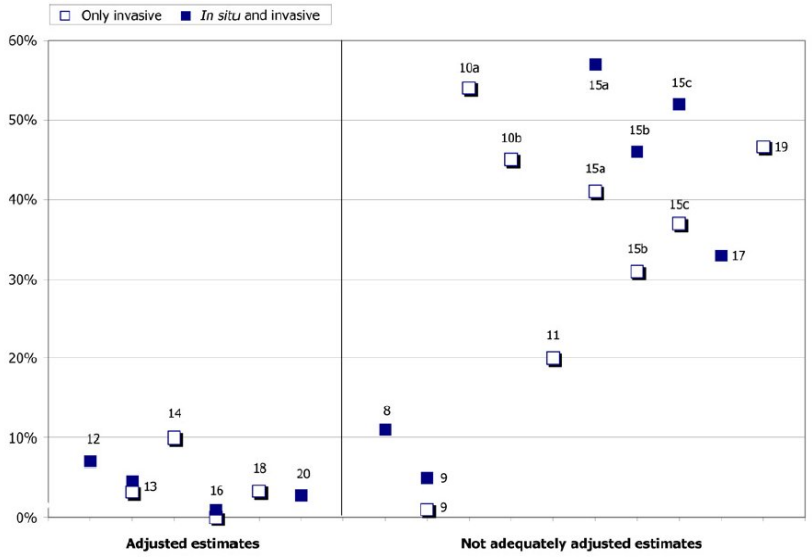
- Those having BreastScreen screening or private mammography :
  - Lower stage at diagnosis
  - Better survival

Norah Finn et al

An issue with screening - Overdiagnosis

Identification of DCIS and cancers that would never have become clinically apparent

Overdiagnosis Estimates - Adjustment for Incidence Trends and Lead-time



Puliti, et al. JMS 2012;19(1)

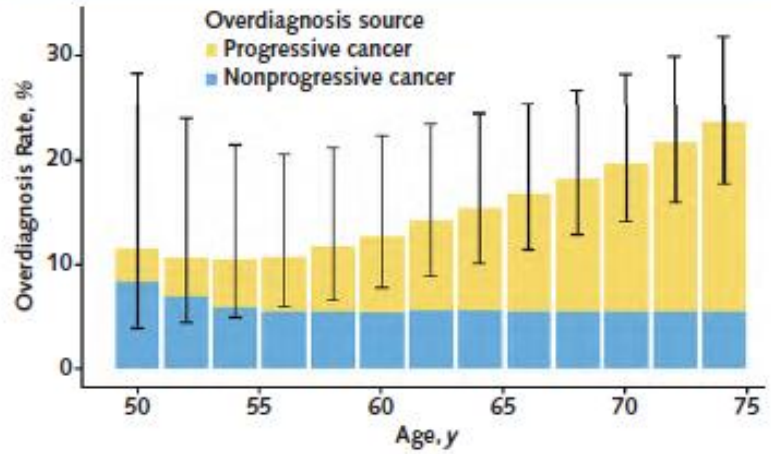
Annals of Internal Medicine

ORIGINAL RESEARCH

Estimation of Breast Cancer Overdiagnosis in a U.S. Breast Screening Cohort

Marc D. Ryser, PhD; Jane Lange, PhD; Lurdes Y.T. Inoue, PhD; Ellen S. O'Meara, PhD; Charlotte Gard, PhD; Diana L. Miglioretti, PhD; Jean-Luc Bulliard, PhD; Andrew F. Brouwer, PhD; E. Shelley Hwang, MD, MPH; and Ruth B. Etzioni, PhD

Figure 3. Overdiagnosis in women undergoing biennial screening, ages 50 to 74 years.



The real issue
Overtreatment of low risk lesions

The same applies to all preventative medicine/early treatment.

"The solution to over-treatment is not under-diagnosis!"

Dr Christiane Kuhl, Aachen, Germany

Treatment of low-risk lesions

- Analysis of data from Breast Quality Audit
  - ~10,200 women diagnosed in 2018
  - ~5200 Screen-detected, ~5000 Non-screen detected
- Screen detected
  - “Possibly overdiagnosed” – Low/Int Grade DCIS, T1a,bN0 ER+HER2-.
  - “Not overdiagnosed” – all others
- Assessed
  - Proportion of “Possibly over-diagnosed”
  - Extent of treatment

Dempsey et al, BMJ Oncology,

Treatment of low-risk lesions

- POD rate was 15.8%.

- Proportion of POD women recommended to receive:
  - chemotherapy = <1%
  - radiotherapy = 9.5%
  - endocrine therapy = 6.4%
  - mastectomy = 2.2%
  - axillary lymph node dissection = 0.5%.

- “Over-diagnosis” rarely leads to extensive treatment

Dempsey et al, BMJ Oncology

Ann Surg Oncol (2018) 25:2563–2572
https://doi.org/10.1245/s10434-018-6469-7

Annals of
SURGICAL ONCOLOGY
OFFICIAL JOURNAL OF THE SOCIETY OF SURGICAL ONCOLOGY

ORIGINAL ARTICLE – BREAST ONCOLOGY

Treatment Intensity Differences After Early-Stage Breast Cancer (ESBC) Diagnosis Depending on Participation in a Screening Program

Kenneth Elder, BEng, MSc, MPhil, BMBS, MRCS[1], Carolyn Nickson, BA, Grad Dip, PhD[2,6], Melinda Pattanasri, MBBS[1], Samuel Cooke, MD, BSc[1], Dorothy Machalek, BSc, MPH, PhD[2], Allison Rose, MBBS, FRANZCR[1], Arlene Mou, MBBS, FRANZCR[1], John Paxton Collins, MBBS, FRACS, FACS[1,3], Allan Park, MN[1], Richard De Boer, MBBS, FRACP[1], Claire Phillips, MBBS, FRANZCR[1], Vicki Pridmore, BA[4], Helen Farrugia, BAppSci HIM[5], and G. Bruce Mann, MBBS, PhD, FRACS[1,3]

- To compare treatment of :
  - Women 50-69yo managed at RMH/Womens
    - Active screeners - Screen-detected cancer & Interval cancers
    - Cancer in those not screened

- Screening status assessed via BSV & VCR linkage

Ann Surg Oncol (2018) 25:2563–2572
https://doi.org/10.1245/s10434-018-6469-7

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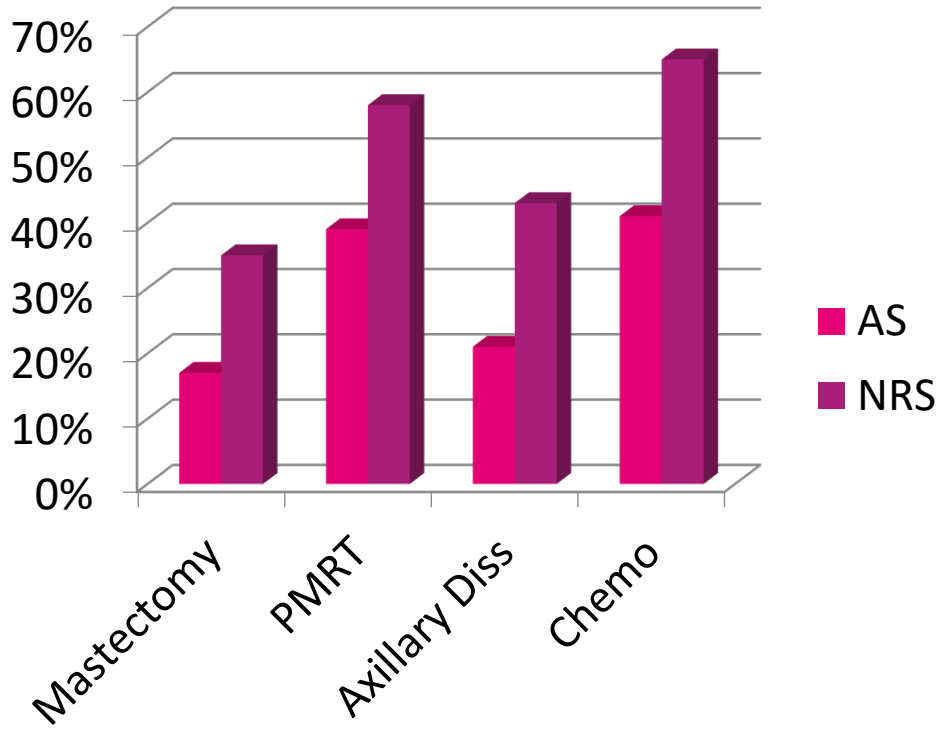
CrossMark

ORIGINAL ARTICLE – BREAST ONCOLOGY

Treatment Intensity Differences After Early-Stage Breast Cancer (ESBC) Diagnosis Depending on Participation in a Screening Program

RMH/Women's patients with invasive cancer. 2007-13

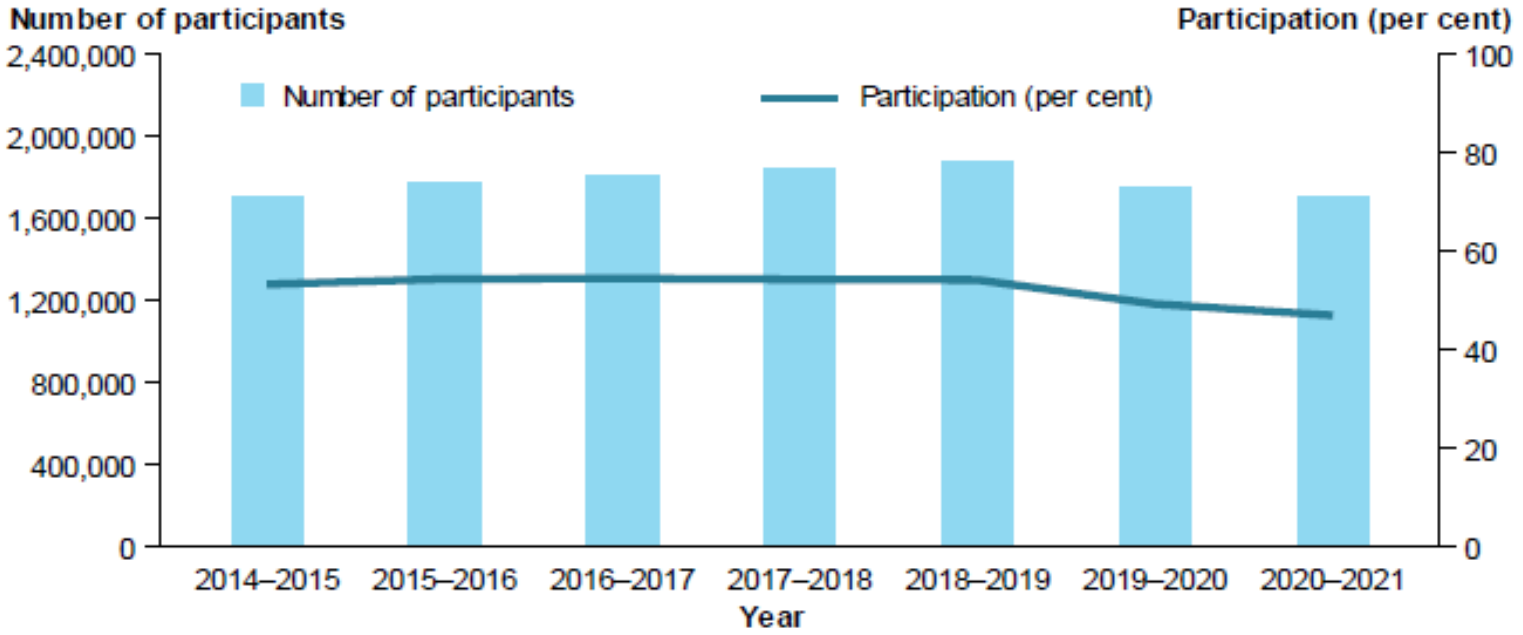
	Active Screeners n = 622	Not Recently Screened n = 169
Pathology		
Mean size (mm)	17	26
Grade 3	31%	52%
LN positive	26%	48%
Treatment (corrected for overdiagnosis of 22%)		
Mastectomy	17%	35%
Axillary dissection	21%	43%
PMRT	39%	58%
Adjuvant chemotherapy	41%	65%



Screening participants undergo less intensive treatment

A real issue with screening – 1
Low participation rate

Figure 3.1.1: Participation in BreastScreen Australia, participants aged 50–74, 2014–2015 to 2020–2021



BreastScreen Australia monitoring report 2023

A real issue with screening – 2 Interval cancers

JAMA Network | Open

Original Investigation | Public Health

Incidence, Characteristics, and Outcomes of Interval Breast Cancers Compared With Screening-Detected Breast Cancers

Saroj Niraula, MD, MSc; Natalie Biswanger, BSc; PingZhao Hu, PhD; Pascal Lambert, MSc; Kathleen Decker, PhD

Manitoba, 2004-2010

23% of cancers in screened population were interval cancers

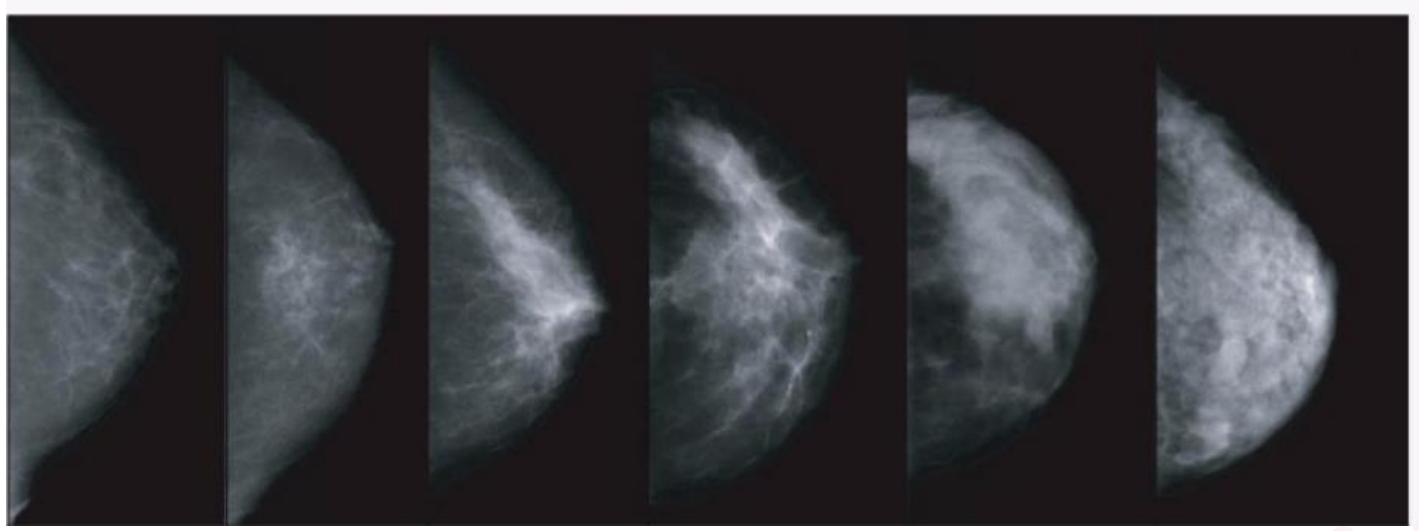
Interval cancers more likely to be Grade 3, ER-ve

Mortality for those with interval cancers was much higher – HR 3.55

A real issue with screening – 2
Interval cancers

- Interval cancers are higher grade, more likely to be lethal

- Mammographic Density reduces sensitivity of mammogram
  - Interval cancer rate is higher



Technology beyond mammography is needed

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 NOVEMBER 28, 2019 VOL. 381 NO. 22

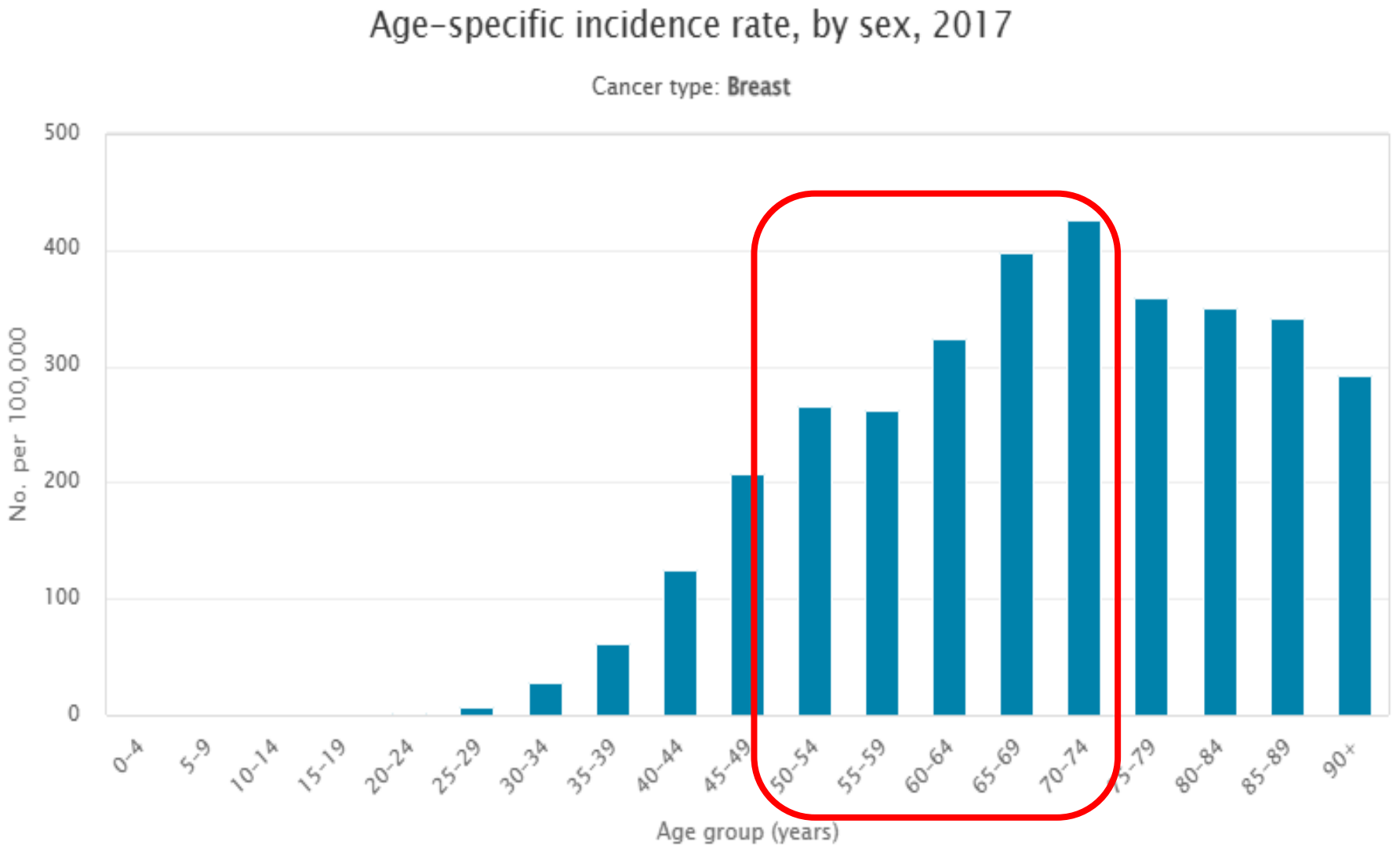
Supplemental MRI Screening for Women with Extremely Dense Breast Tissue

M.F. Bakker, S.V. de Lange, R.M. Pijnappel, R.M. Mann, P.H.M. Peeters, E.M. Monninkhof, M.J. Emaus, C.E. Loo, R.H.C. Bisschops, M.B.I. Lobbes, M.D.F. de Jong, K.M. Duvivier, J. Veltman, N. Karssemeijer, H.J. de Koning, P.J. van Diest, W.P.T.M. Mali, M.A.A.J. van den Bosch, W.B. Veldhuis, and C.H. van Gils, for the DENSE Trial Study Group*

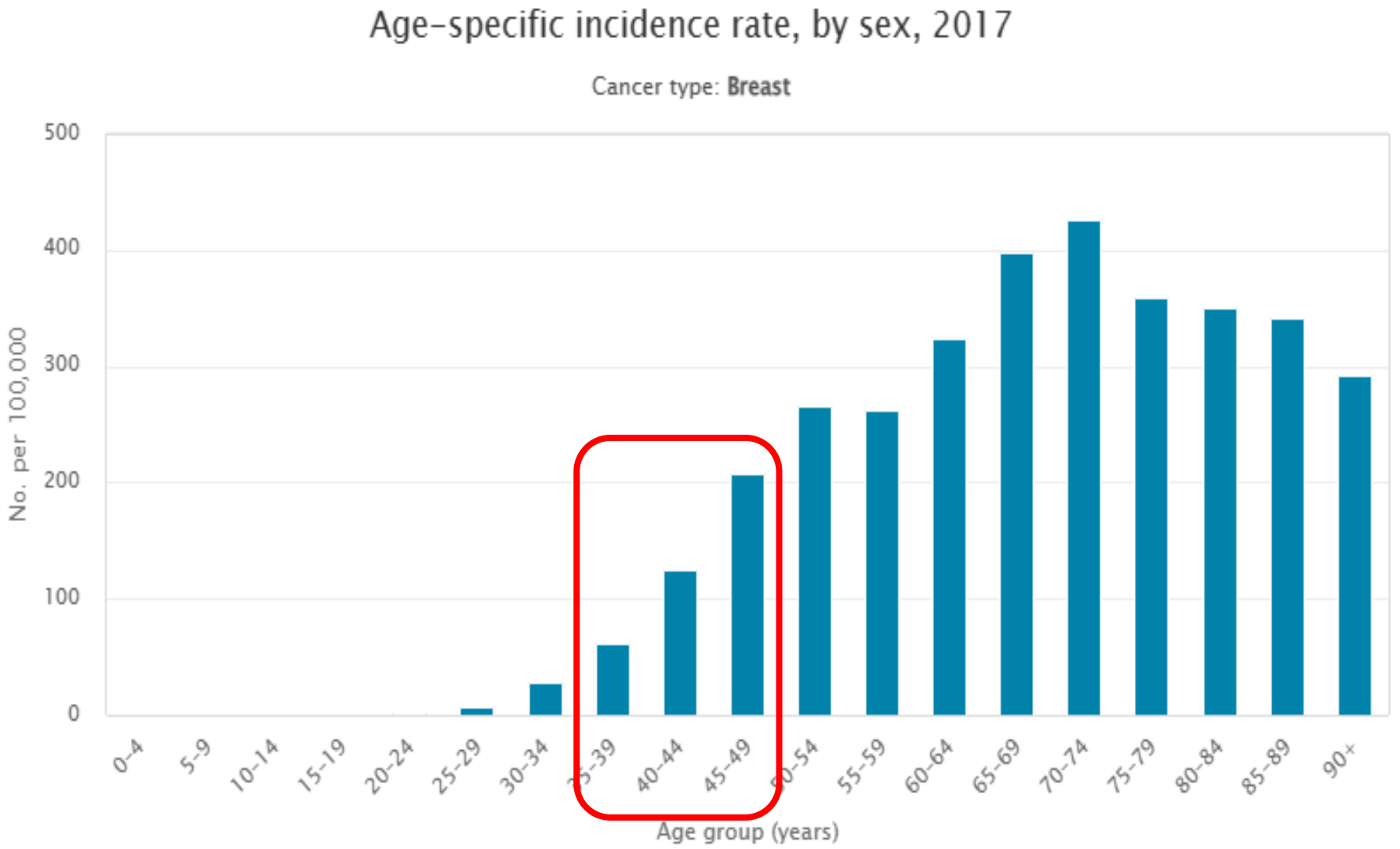
Table 2. Interval-Cancer Rates and Rate Difference between Trial Groups, According to Two Analysis Methods.*

Type of Analysis	MRI-Invitation Group	Mammography-Only Group	Rate Difference (95% CI)
Intention-to-screen analysis			
Women with interval cancer — no./total no.	20/8061	161/32,312	
Interval-cancer rate (95% CI)			
No. per 1000 screenings	2.5 (1.6–3.8	5.0 (4.3–5.8	2.5 (1.0–3.7)
No. per 1000 person-yr	1.3 (0.7–1.8)	2.5 (2.1–2.9)	1.3 (0.6–1.9)
CACE analysis†			4.2 (2.0–6.4)
MRI participants			
Participants with interval cancer — no./total no.	4/4783	—	
Interval-cancer rate per 1000 screenings	0.8	—	

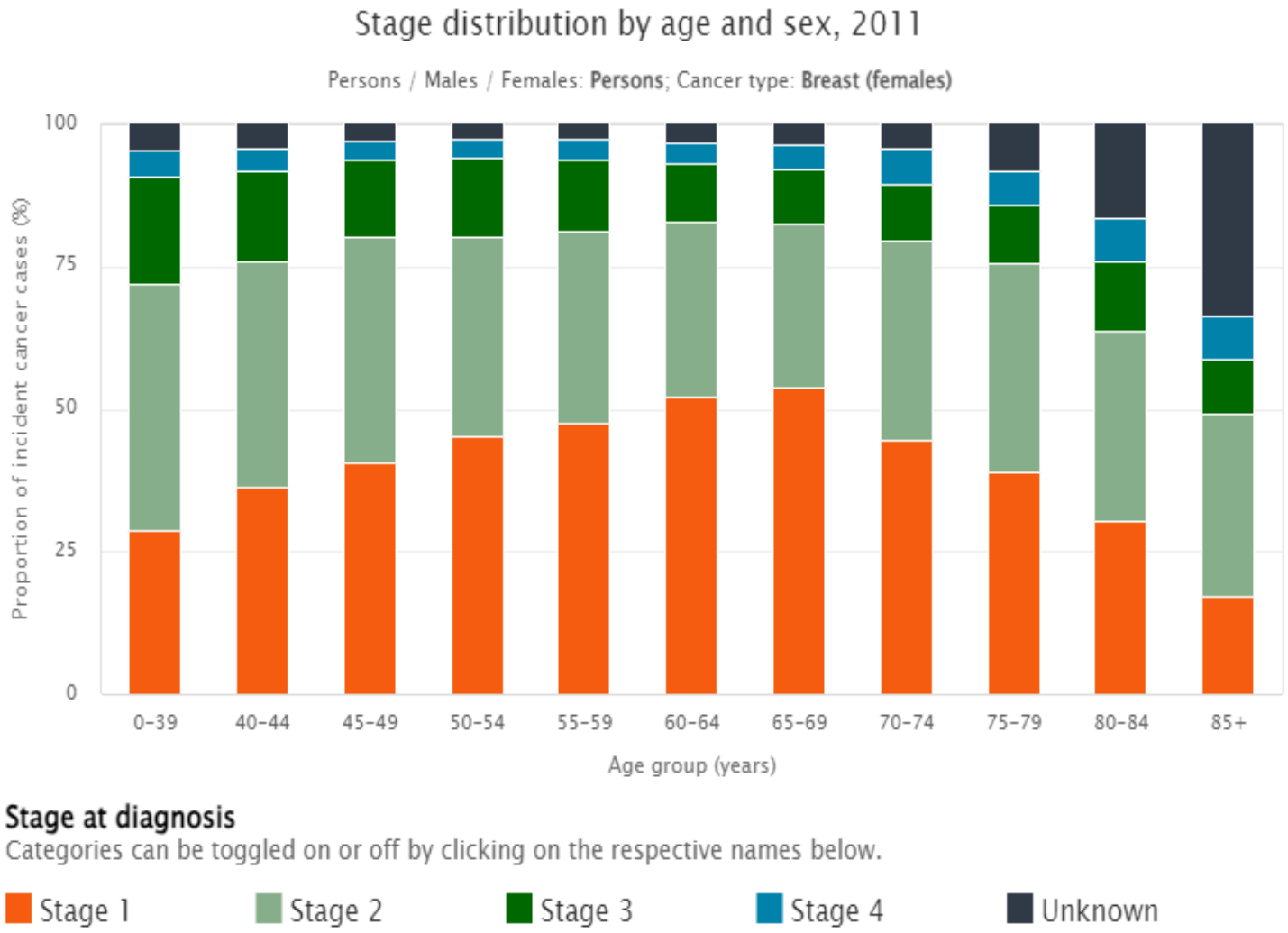
A real issue with screening – 3
Cancers in younger women



A real issue with screening – 3
Cancers in younger women



A real issue with screening – 3
Cancers in younger women



Future

- We must address real and imaginary concerns about screening
  - Population needs confidence, or the national program will struggle.
- Implementation of Risk-adjusted screening
  - Identification of those at higher risk of developing cancer
  - Using better screening technology

- Embrace the promise of Artificial Intelligence
  - Sustainable screening, better Risk assessment

Future

- How do we move from a system based on trials and technology from the 1960s-1980s to one based on improved understanding of risk and newer screening technologies?

ROSA – Breast

Roadmap to Optimising Screening in Australia (ROSA)

Aim

To explore options for more risk-based, personalised approaches to early detection of asymptomatic breast cancer in Australia.

Funding

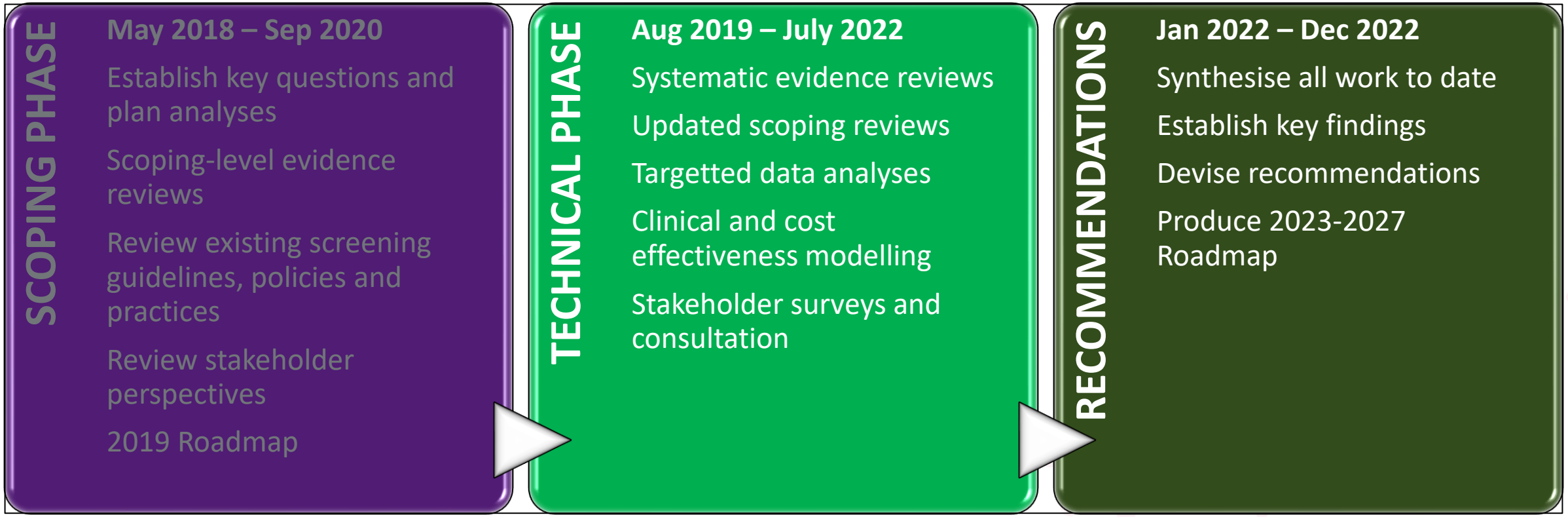
Australian Government Department of Health and Aged Care, May 2018 – Dec 2022

Organisation

The Daffodil Centre (joint venture between Cancer Council NSW & University of Sydney), for Cancer Council Australia

cancer.org.au/go/rosabreast

ROSA project phases



Recommendations – some examples

Activities

- Enhancements to BreastScreen data collection to support future risk-based screening
- Improved management across health services of women at moderately higher risk
- Increased engagement between policy, program and consumers and other key stakeholder groups

Priority evidence gaps to address:

- Ongoing review of emerging evidence
- Consumer attitudes about potential risk-based breast screening

A staged clinical trial program

- Evaluate routine risk assessment and the targeted use of adjunctive screening technologies,
- Clinical studies to support the design of a large-scale trial

The ROSA Roadmap

- A coordinated set of activities over a 5-year timeframe
- Aims to ‘think big’ to facilitate evidence-based transition to risk-based breast cancer screening
- Considers screening principles, benefits versus harms, the need for change and equity, resourcing and governance.

cancer.org.au/go/rosabreast

Home › The Hon Mark Butler MP › Minister Butler's media

Review to improve BreastScreen Australia Program

A review into the BreastScreen Australia Program will ensure Australian women receive the highest quality breast cancer screening and information.

The Hon Mark Butler MP
Minister for Health and Aged Care

Media event date: 27 October 2023

Date published: 27 October 2023

Media type: Media release

Audience: General public

A review into the BreastScreen Australia Program (BSA) will ensure that Australian women receive the highest quality breast cancer screening and information. Around 1.8 million women aged 50-74 were screened through BSA in 2021-22.

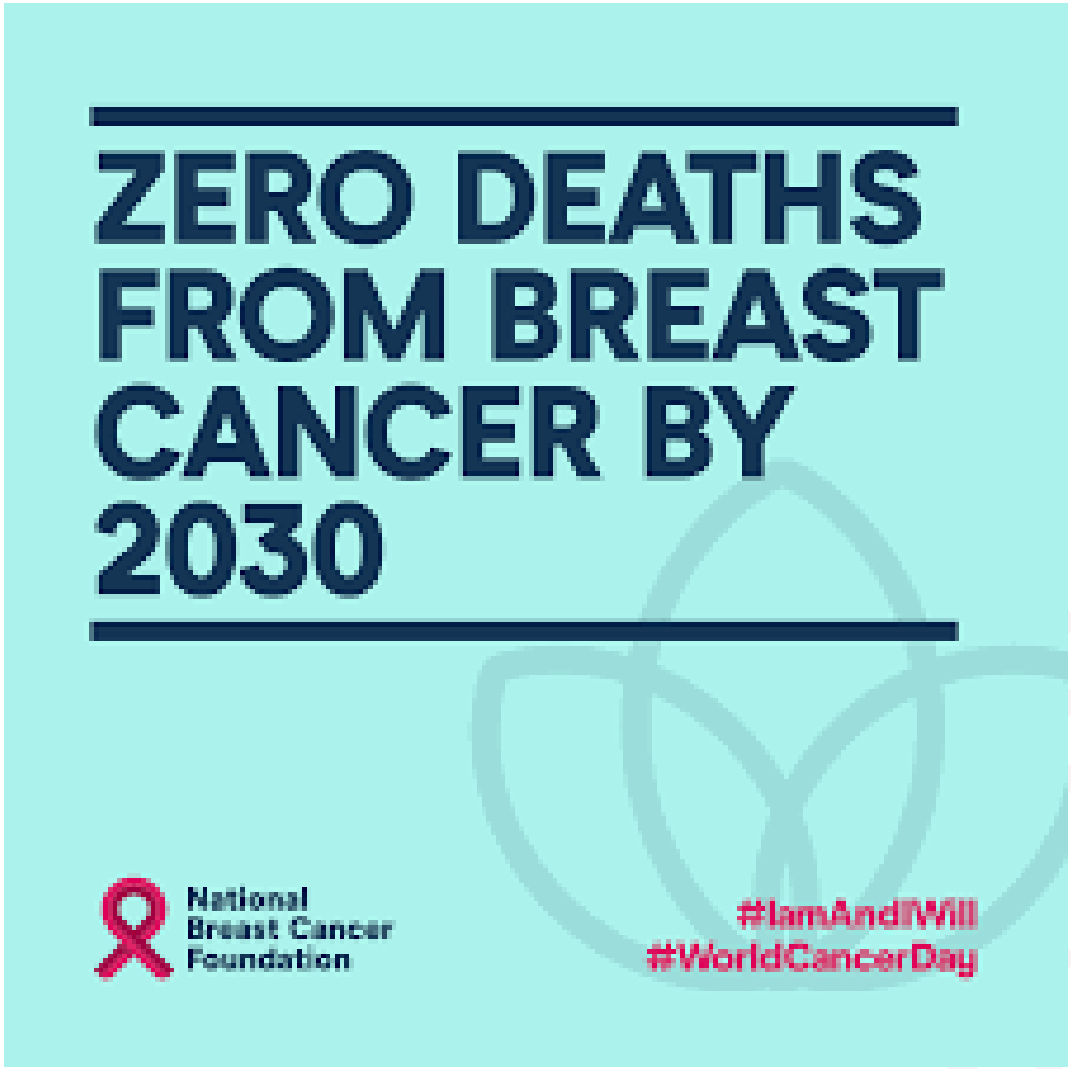
The Australian Government, in partnership with state and territory governments, has announced the review following recommendations from the Roadmap to Optimising Screening in Australia (ROSA) project.

The **BreastScreen Review** is expected to progress some areas of the ROSA Roadmap.

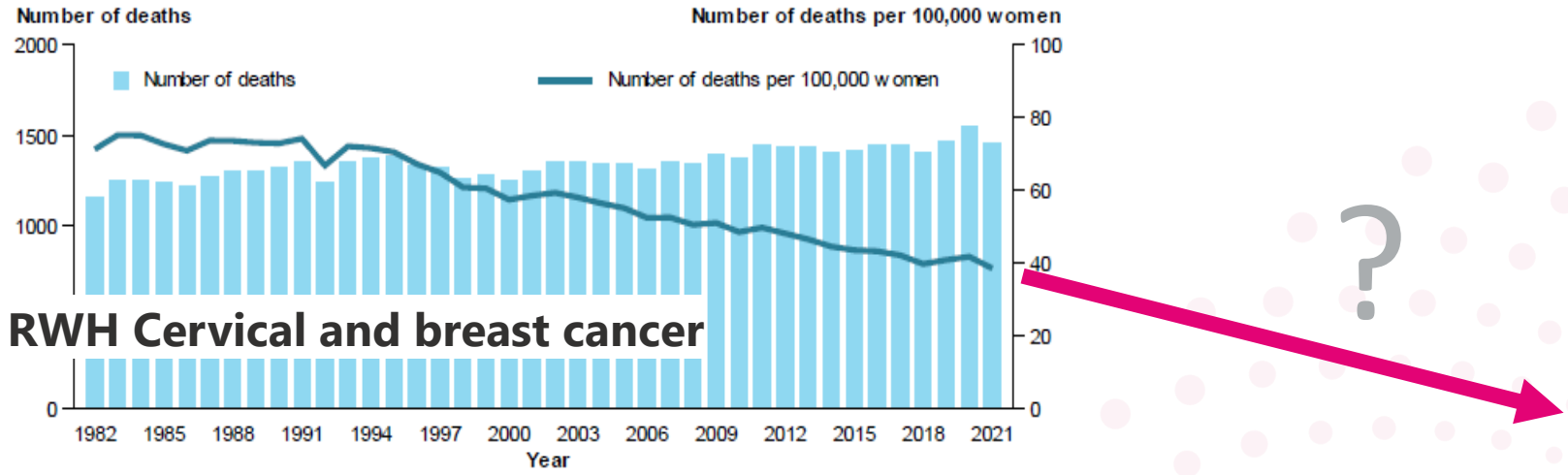
What to do in 2024?

- Encourage breast screening.
  - It is the best thing to do to minimize breast cancer morbidity/mortality
  - No cost to the individual

- Those with strong family history, high mammographic density
    - BIRADS D density or BIRADS C & positive family history
  - Consider adjunctive screening (will be a very small additional detection)
    - 3D mammogram/US has some additional detection, low cost
    - MRI has higher sensitivity, but many false positives, high cost
    - CEM is very promising, but limited capacity


ZERO DEATHS FROM BREAST CANCER BY 2030
National Breast Cancer Foundation
#IamAndIWill
#WorldCancerDay

Can we approach zero mortality?



We can, with:

- Better screening to detect more disease at very early stage
- Better systemic therapies for more advanced disease

Cervical Screening

the women's
the royal women's hospital

The renewed cervical screening program, HPV Testing - lessons learned and looking to the future

Mr. C. David H. Wrede

MA MB BChir(Cantab.) FRCS(Eng.) FRCOG FRANZCOG

Consultant Gynaecologist & Lead for Dysplasia

The Royal Women's Hospital Melbourne

& Department of Obstetrics and Gynaecology, University of Melbourne.

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VICTORIAN COMPREHENSIVE CANCER CENTRE

Declarations of Interest

- Deputy Chair of the Australian Centre for the Prevention of Cervical Cancer (previously VCS Foundation Pty Ltd)
- Member of the Working Party that authored & is reviewing national guidance for Cervical Cancer Screening in Australia (2016 & 2023)
- Member of the Clinical Advisory Group (formerly Quality and Safety Committee) of the Australian National Cervical Screening Program
- Investigator in the **COMPASS**, iPAP, VACCINE, PRINCESS and EXCISE trials, including NHMRC and ANZGOG funding.
- AI to the NHMRC Centre for Research Excellence for the Control of Cervical Cancer (C4)
- Sponsorship & Honoraria from Merck, Biogen & Seqirus

In this presentation

- HPV and Cervical Cancer in Australia
- Cervical Cancer Screening in Australia pre- December 2017
- Challenges to Pap Smear screening
- The New Paradigm
- The Reality
- Issues
  - Volume of Referral and Adjustment
  - Non16/18 Lesions/pHSIL Cytology/ACIS/Older Women
  - Immune-deficiency
- Future Strategies

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HPV and Cervical Cancer

- HPV is the virus that causes more than 90+ per cent of all cervical cancer worldwide.

- HPV is a virus that is a very common cause of infection in humans. There are more than sixty genital HPV types, the vast majority of infections are self-limiting.
  - HPV 6 & 11 cause 90% of genital warts
  - A group of fourteen potentially oncogenic types of HPV cause more than 90% of cervical cancer
  - Of these HPV16 &18 cause 70%+ of Cervical Cancers worldwide.

- HPV is transmitted through sexual activity. HPV infections are very common in young people in the early years of sexual activity with 80%+ having been infected by age 30

- 10% of persistent infections with potentially oncogenic types will develop high-grade dysplasia. Of these 1% pa progress to Cancer (total <40% of all CIN2/3)

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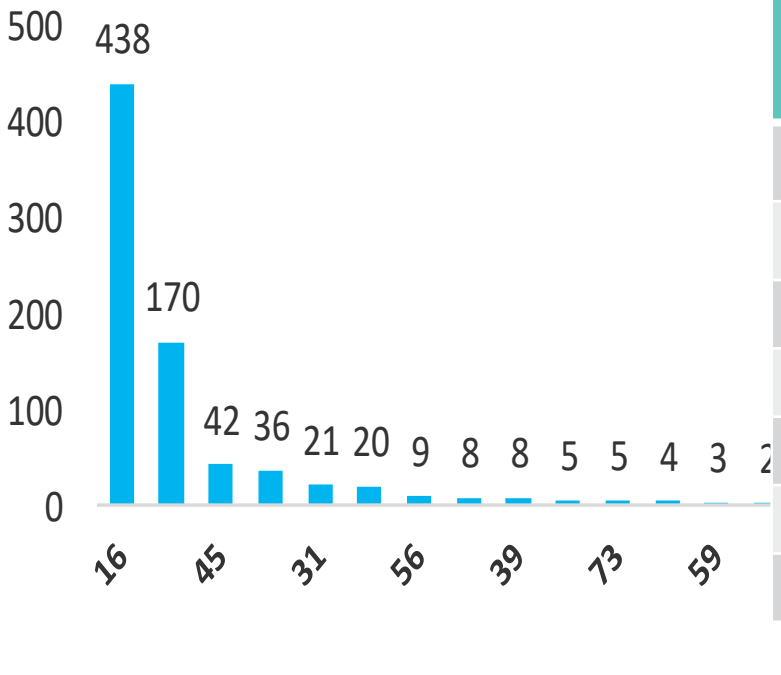
VICTORIAN COMPREHENSIVE CANCER CENTRE

Type distribution in 851 cancers



HPV type	Prevalence (95%CI)	Saraiya* USA (2015)
16	51.9% (48.5-55.3%)	50.8%
18	20.3% (17.7–23.2%)	17.6%
31	2.5% (1.5-3.7%)	2.4%
33	4.2% (3.0-5.8%)	4.6%
45	5.1% (3.7-6.5%)	6.4%
52	2.4% (1.4-3.6%)	2.7%
58	0.6% (0.2-1.4%)	2.6%

*n=777 cancers. 90.6% HPV positive.
Saraiya et al. JNCI 2015;107(6):djv086

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Cervical Cancer Estimates (AIWH 2021)

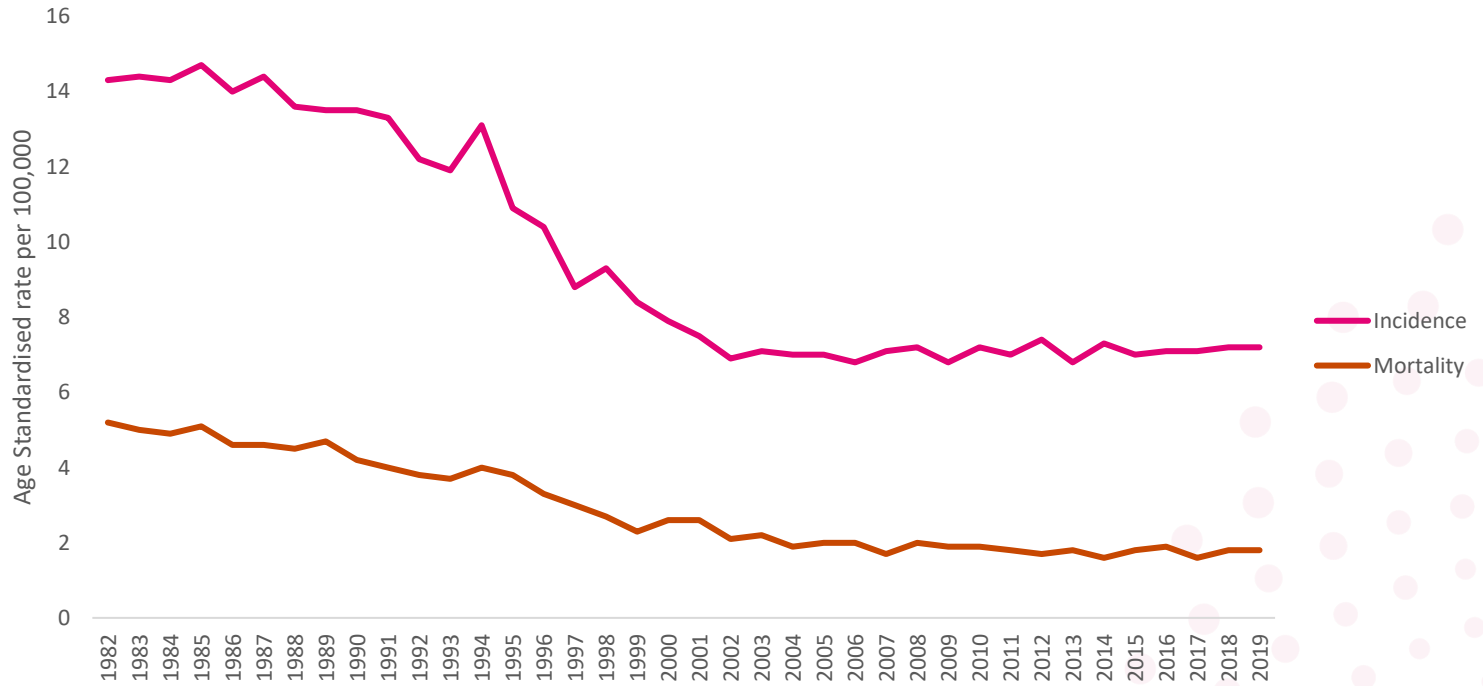
- In 2019;
- 913 (6.8 ASR – 13th) women diagnosed with cervical cancer
- 237 (1.6 ASR – 19th) deaths from the disease.
- 16221 with CIN2+ abnormality = 0.9% of those screened

- 5 year survival approx 73% (for 20013-18)

- Between 1991 and 2010, the number of new cases of cervical cancer in women aged 20-24 years was approximately 10 per year (range 4 to 18). There have been 0 to 2 deaths per year in women aged 20-24 years over this same period.

- In Australia, 70+% of women with cervical cancer have not been screened or have not had regular screening tests.

Australia: Age standardised incidence and mortality rates for all types of cervical cancer, 1982-2019*



*Created using AIHW 2019 data, *data 2015-2019 is estimated*

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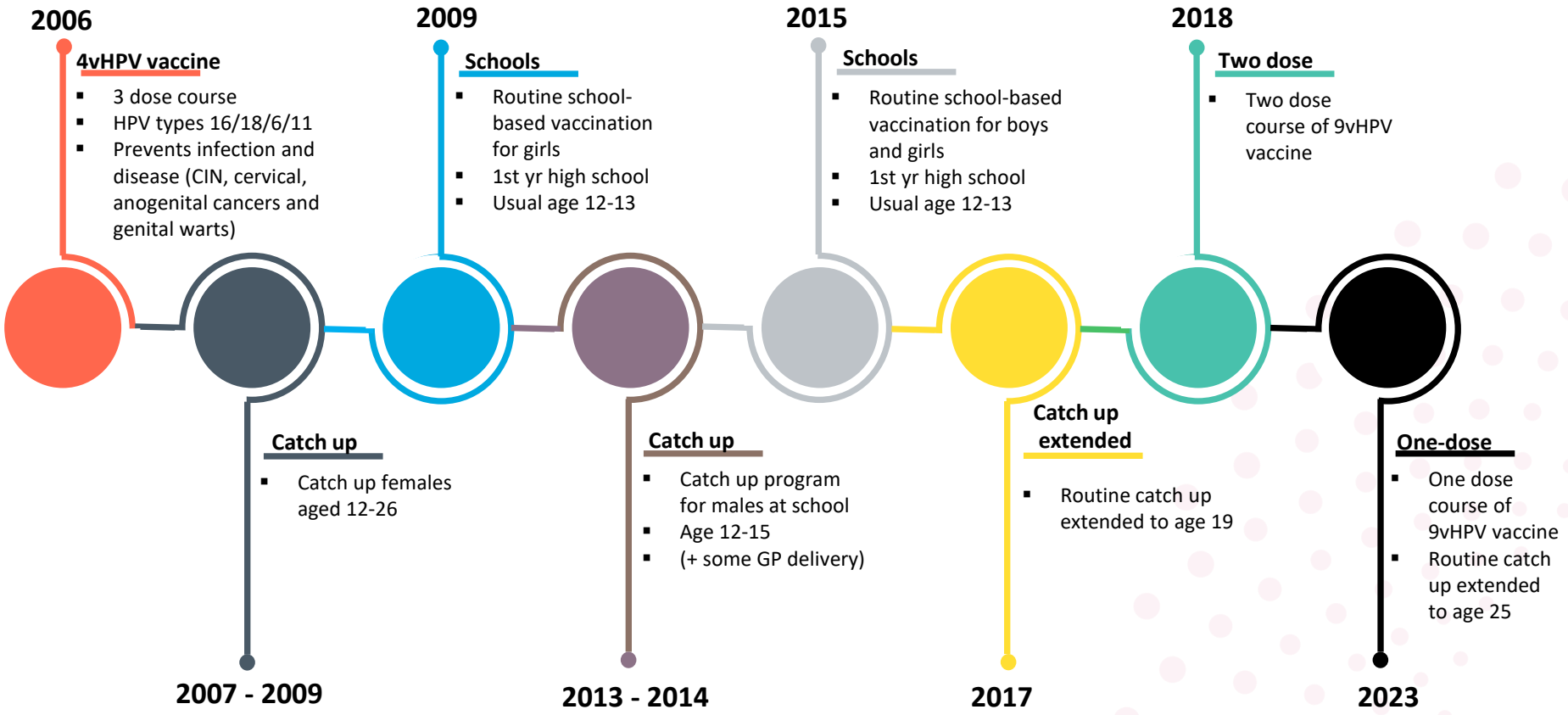
National HPV Vaccination Program



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VICTORIAN COMPREHENSIVE CANCER CENTRE

Evidence Based Recommendations – Accepted by MSAC (2014), Fully Funded 2015

- **A new Cervical Screening Test (CST)**
- HPV test (14 oncogenic types) with partial genotyping (HPV types16/18)
  - Reflex Liquid Based Cytology (LBC) triage
- Five yearly screening interval
- Start at age 25 years
- Exit at 70–74 years
- All sexually active women whether HPV vaccinated or not
- Self collection: never-screened and under-screened
- National Cancer Screening Register
  - Invitation & reminders to screen
- It is anticipated that these changes will prevent an additional 200+ cervical cancers each year.

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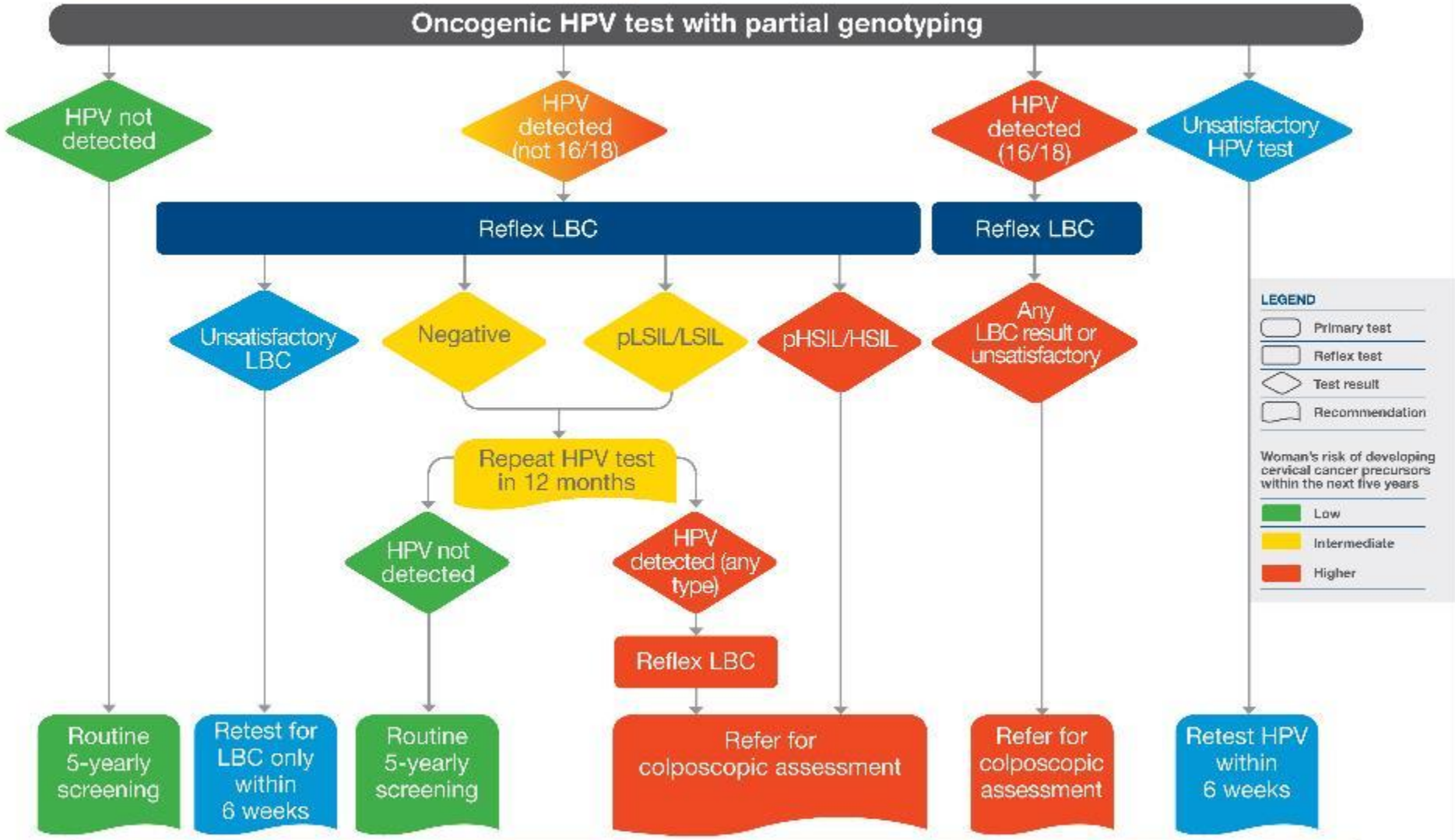
CERVICAL SCREENING PATHWAY



Suggested citation: Cancer Council Australia Cervical Cancer Screening Guidelines Party. Clinical pathway: Cervical screening pathway. National Cervical Screening Program: Guidelines for the management of screen-detected abnormalities, screening in specific populations and investigation of abnormal vaginal bleeding; 2018.

NATIONAL CERVICAL SCREENING PROGRAM
A joint Australian, State and Territory Government Program

Australian Government
Department of Health

Cancer Council Australia

The Liquid Based Test– HOW TO DO IT

Liquid Based Cervical Tests (Clinician collected)

- Directly targeted cervical sample through speculum
  - Taken with sampling device
    - Broom (clockwise rotation)
    - +/- Endo-brush
  - Rinsed/mashed in fluid in liquid media jar
  - Close accurately and tightly – align markers on lip and lid
  - Special Request Form
    - Full clinical information and **type of test** requested
    - i. **Cervical Screening Test** (HPV with partial genotyping and reflex cytology)
    - ii. **Cytology only** (at Colposcopy)
    - iii. **Co-test** (HPV and Cytology)
      - a. Diagnostic – woman with new symptoms/perceived at high risk
      - b. Test of Cure
  - Labelled, dated, cross check with form – signed plus PN and patient signature to allocate medicare rebate
  - Securely package vial with form and send to Lab

Cervical Sampling Devices

Cervex Brooms

Endocervical Brush

Cervical Screening Test (CST)

Collection Guide

Collection Using Cervical Sampler Plus Endocervical Brush

During pregnancy, do not use an endocervical brush or any implement designed to specifically sample the endocervical canal. Use the cervical sampler only (see over).

Indications for adding an endocervical brush include:

- Post-menopausal women with non-visible transformation zone
- Post-treatment (loop or cone biopsy) with non-visible transformation zone

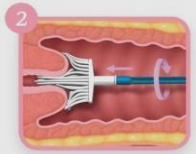
Lubricant

The chemical composition of some lubricants can interfere with cervical cytology and HPV testing. If lubrication of the speculum is required, please use warm water. If additional lubrication is necessary, use only a small amount of water-soluble lubricant (available through DHM Stores), avoiding the tip of the speculum.

1

Label the ThinPrep® vial with the patient's given name, surname and date of birth.
Record patient details and clinical history on the pathology request form.

2



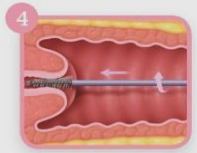
Obtain an adequate sample from the ectocervix by rotating the cervical sampler 3–5 times in the os, keeping in close contact with the cervical surface.

3

Vigorously rinse the sampler immediately in the vial. The sampler should hit the base of the vial 5–10 times, splaying the bristles open.

DO NOT LEAVE THE HEAD OF THE SAMPLER IN THE VIAL.

4



Obtain a sample from the endocervix by gently inserting the endocervical brush into the endocervical canal. Rotate the brush **1–2 times only**.

5

Vigorously rinse the endocervical brush in the same ThinPrep® vial, pushing it against the wall of the vial to release the material.

DO NOT BREAK THE HEAD OF THE BRUSH INTO THE VIAL.

6

Tighten the cap of the vial. Place the vial and the request form in a specimen bag for transportation to the laboratory

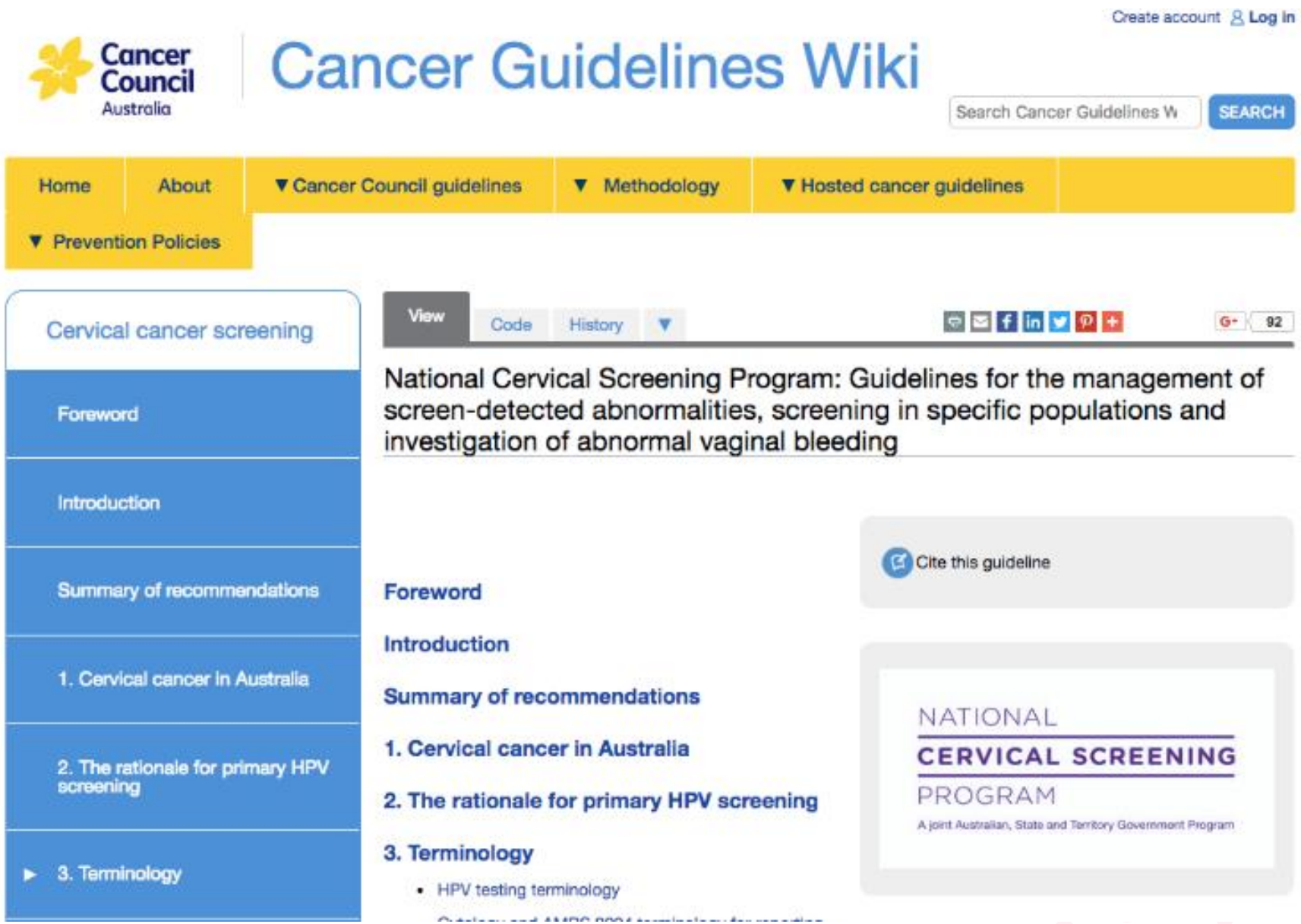
For further information, please contact a member of the GynaePath team on (02) 9855 6200.

GYNAEPATH a division of DOUGLASS HANLY MOIR PATHOLOGY PTY LIMITED · ABN 80 003 332 858
A subsidiary of SONIC HEALTHCARE LIMITED · ABN 24 004 196 909

14 GIFFNOCK AVENUE · MACQUARIE PARK · NSW 2113 · AUSTRALIA
P (02) 9855 6222 · TOLL FREE 1800 222 365 · F (02) 9855 6169

GynaePath-CSTCG-V3-2017-D000008

https://wiki.cancer.org.au/australia/Guidelines:Cervical_cancer/Screening



Impact on Colposcopy Services

Year	Referrals	First Visit	Total Colps	Treatments
2016/7	2440	1502	3300	552
2017/8	3069	1682	3402	487
2018/19	4114	2221	3864	664

Thanks to A/Prof Orla McNally (Head of the Oncology and Dysplasia Unit) and Estefania Vicario (Data Manager), RWH

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Colposcopy in the renewed NCSP

- RWH data 1/12/17 – 30/6/2020
  - 4,458 women referred with HPV+ve screening tests
  - HPV type 16 and/or 18 positive (42.2% of total)
    - 16.6% with reflex cytology pHSIL or worse
    - 24.8% of these had confirmed CIN2+
    - 10.2% histological CIN2+ (including 6 cancers) when reflex cytology **negative**
    - 87.7% histological CIN2+ when reflex histology high-grade
  - HPV non-16/18 positive
    - 60.2% histological CIN2+ when reflex cytology pHSIL/dHSIL
    - **10.2% histological CIN2+ (no cancers) when reflex cytology LSIL or better**
    -
  - Of women with type 3 transformation zone and no evidence of HSIL on reflex cytology or at colposcopy - CIN2+ in only 2.5%
  - Colposcopy PPV 69.9%
  - Follow up after treatment – annual co-tests until two consecutive negative for HPV with normal cells.
    - Poor FTA/DNA rates have resulted

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VICTORIAN COMPREHENSIVE CANCER CENTRE

National Review of NCSP
1/12/2017- 31/12/2019

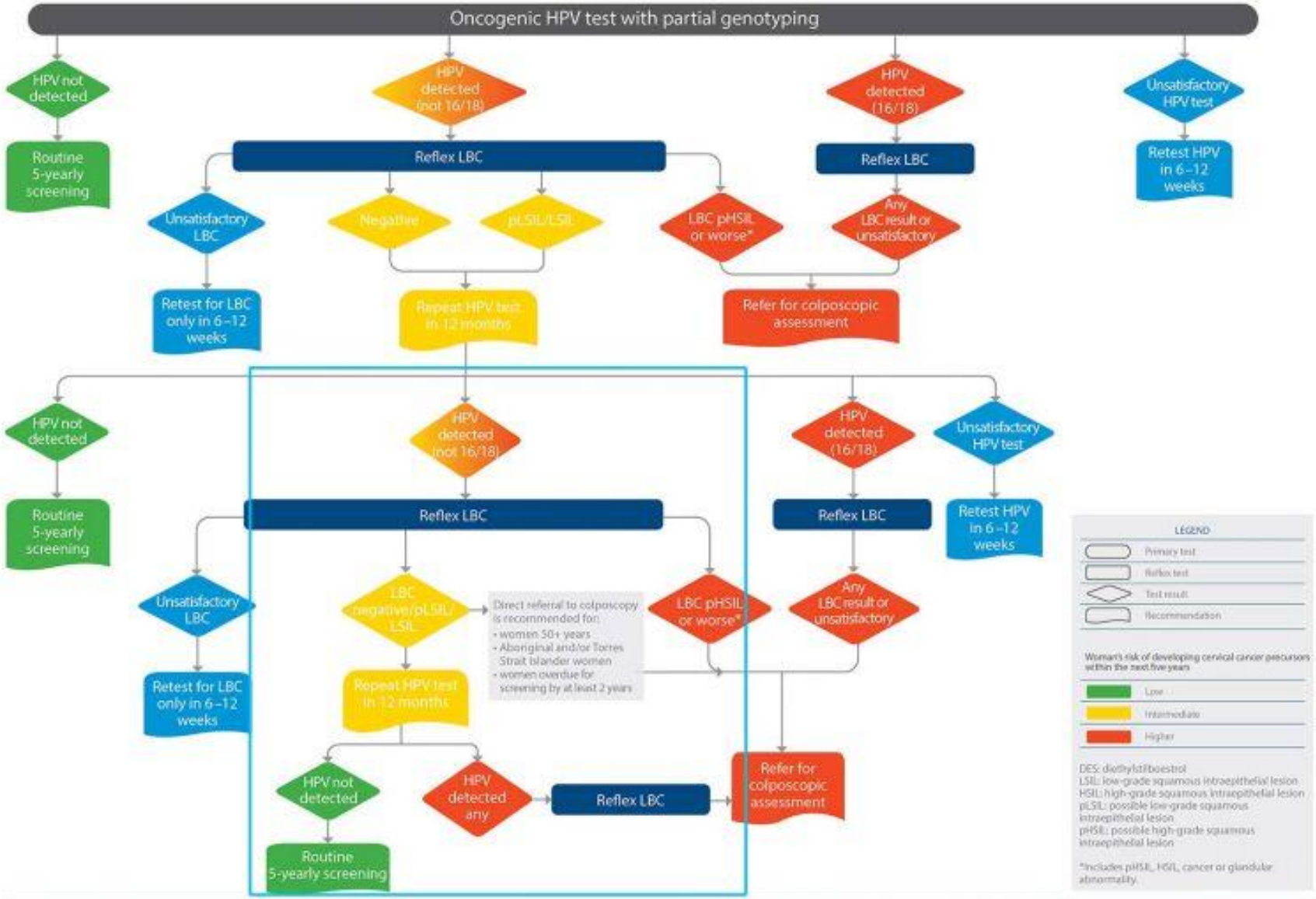
- 3,745,318 women (54.6% of those eligible) had a CST
  - NB Most women <40yo had been offered HPV vaccination
- HPV +ve;
  - Type 16 and/or18 2%
  - Types non-16/18 6.6%
- Colposcopy referral: 3.5% rising to 6.2% after repeat tests
- Cancers detected – 456 cases – 0.98%
  - Inc 89 (0.32%) in HPV16 and/or18 +ve with **negative** cytology
- Non-16/18+ve and < or = LSIL cytology
  - 3.4% with CIN3+ and 0.02% cancer
  - **But** 62% of referrals

Smith M et al. BMJ. 2022 Mar 30;376:e068582. doi: 10.1136/bmj-2021-068582

Suggested Solutions

- Alter the referral criteria for women with non-16/18 HPV infections to **three** positive tests with cytology < or = to low grade change before colposcopy (see next slide)
  - But further studies needed with full genotyping and stratification according to type and cytology – Normal/pLSIL/LSIL
- Biopsy all lesions preferably more than once and across the TZ - especially in Type16 or/and 18 HPV infections
- Repeat cytology for all older women with type 3 TZ's
  - Use local oestrogen liberally before tests and examinations
  - Consider adjunctive technologies such as Dual Stain (p16/Ki-67) (NB Compass Trial)
  - Consider Endocervical curettage
- Avoid 'Treating HPV', confine to direct evidence for or at least significant suspicion of high-grade dysplasia (CIN2+)
- Review pHSIL cytology at MDM (Concordance meetings)
- ?Move post-treatment follow up to 6 and 18 months (and annually thereafter if required)

CERVICAL SCREENING PATHWAY



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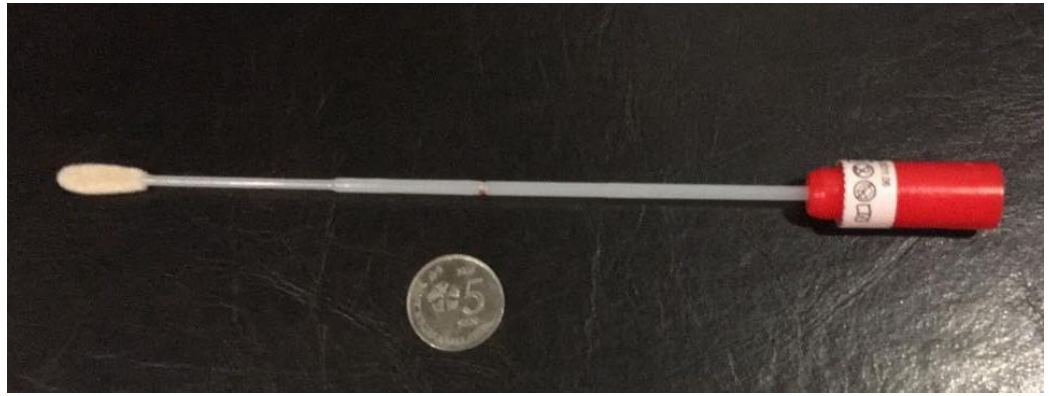
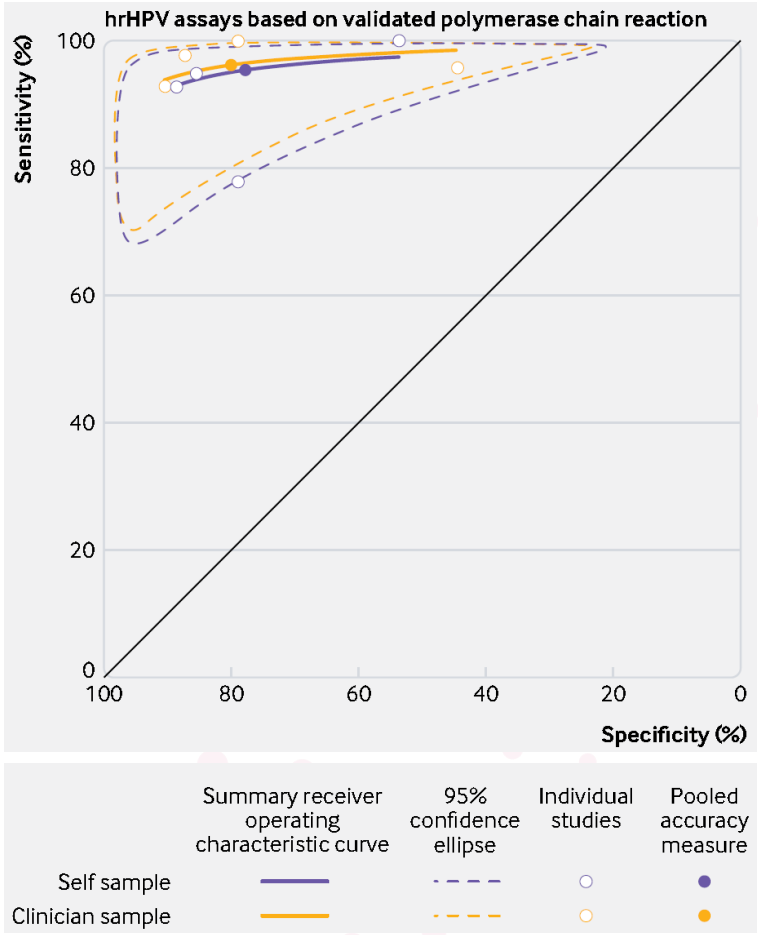
NATIONAL CERVICAL SCREENING PROGRAM

Australian Government Department of Health

Cancer Council

Self-collection using PCR based assays is as accurate for the detection of CIN2+ as a clinician collected sample





Arbyn M. et al. BMJ. 2018 Dec 5;363:k4823.
doi: 10.1136/bmj.k4823

Self-collection using PCR based assays is as accurate for the detection of HPV as a clinician collected samples: The SCoPE* study

- All consenting women (n=303) attending Royal Women's Hospital Dysplasia Clinic collected
- Self collected vaginal swab and
- Practitioner collected sample using a broom/brush into ThinPrep
- All paired samples sent to VCS Pathology and left at ambient temperature for 7 days prior to processing (extended stability of 14 days has now been demonstrated)

**Self-Collection vs Practitioner-Collection Evaluation*

NB Self collection is available in the renewed program for under screened and never screened women. MSAC has agreed in principle in March 2021 that it should be extended to all women as a screening option – implementation date yet to be decided.

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Results of the SCoPE study

- Results for the Roche cobas HPV test
  - Good concordance between self- and practitioner-collected samples

HPV assay	Oncogenic HPV type	Paired sample				Observed agreement	Kappa
		SC+ & PC+	SC+ & PC-	SC- & PC+	SC- & PC-		
Cobas 4800 HPV Test	HPV16	30	9	2	249	96.2 %	0.82
	HPV18	5	3	0	282	99.0%	0.76
	Other HPV	139	39	8	106	83.9%	0.68
	Any HPV	152	41	9	90	82.9%	0.65
Cobas HPV Test	HPV16	34	7	5	238	95.8%	0.83
	HPV18	9	6	0	264	97.8%	0.74
	Other HPV	140	33	8	110	85.9%	0.72
	Any HPV	158	36	8	90	24884.9%	0.68

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VICTORIAN COMPREHENSIVE CANCER CENTRE

Sisters doing it for themselves
Developing a safe and effective self-collection model for cervical screening

85.7% participation rate

–*'It's so much easier, it takes all the fear out of it. Like you're not going to hurt yourself, you know.'*

91.6% completed follow-up testing within 180 days of self-collection

–*'I felt like it would be really intrusive from another person. I just didn't want to do it with another person in the room, you know, I wanted to do it with the cotton bud because I could do it myself and it didn't make me feel powerless.'*

Saville M et al. *Current Oncology* 2018
McLachlan E et al. *Current Oncology* 2018

Self-Testing from 1/7/2022

- Self-collection was available from 1/12/2017 to women over 30 years old who:
  - have never participated in the NCSP
  - or are overdue for cervical screening by two years or longer

- From **1 July 2022** all people with a cervix* screening within the National program were given the choice of;
  - to screen using either a self-collected vaginal sample or
  - a clinician-collected sample.
    - NB Both screening options will still be collected at the premises of registered healthcare providers

    - *inc transgender men, intersex and non-binary persons

- By mid-2023 45+% of all screening tests received at ACPCC were self-collected vaginal swabs.

Older Women @ RWH

- **464 women aged 50-74 in Colposcopy**
  - 1/1/2018 to 31/7/220
- 172 non-16/18 HPV
  - 14.5% CIN2+
- 292 HPV 16 or/and HPV 18
  - 9.9% CIN2+
  - 214 (73.3%) negative reflex LBC but 7 CIN2+ inc one cancer

- Overall; only 54 women had CIN2+ inc 7 cancers up to 2 years after first Colposcopy
  - 88% detected at first visit or excision for pHSIL+ cytology
  - Colposcopy PPV 63.6%
- At Colposcopy 243 (52.4%) had Type 3 TZ
  - 20 with CIN2+ with 13 found at FCV inc. 3 cancers

- **We encourage high rates of Biopsy & ECC**
- **Careful selection for excisional Rx**

VCS Foundation

ELIMINATING CERVICAL CANCER

WHO DIRECTOR-GENERAL CALLS FOR ALL COUNTRIES TO TAKE ACTION TO HELP END THE SUFFERING CAUSED BY CERVICAL CANCER

WHO Global Strategy

- **90%** of girls to be fully vaccinated with the HPV vaccine
  - by 15 years of age
- **70%** of women are screened with a high-precision test
  - by 35 and 45 years of age
- **90%** of women identified with cervical disease receive treatment and care

- **Adopted at virtual World Health Assembly in August 2020**

https://www.who.int/docs/default-source/cervical-cancer/cervical-cancer-elimination-strategy.pdf?sfvrsn=8a083c4e_0

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VICTORIAN COMPREHENSIVE CANCER CENTRE

First precancer treatment

Table 1: Predicted changes in first precancerous treatment age-standardised rates (ASR) (per 1,000 women) and volumes in Australia from 2010 to 2070 for the four modelled scenarios.

	First precancerous treatment ASR			First precancerous treatment volumes		
	2010	2070	Reduction (%) 2010-2070*	2010	2070	Cumulative treatments averted*
No vaccination Renewed	1.49	1.47	0.02 (1%)	15,719	27,519	
HPV4 Renewed		0.59	0.89 (60%)	15,684	11,254	638,574
HPV9 Renewed (base)		0.26	1.23 (82%)	15,684	5,092	800,388
HPV9 Twice lifetime		0.15	1.34 (90%)	15,684	2,972	878,902

*compared to No vaccination Renewed

HPV9=vaccination program commencing in 2007 with quadrivalent HPV vaccine, changing to nonavalent HPV vaccine in 2018 (base); HPV4=ongoing vaccination with quadrivalent vaccine; Renewed=cervical screening with 2-yearly cytology changing to 5-yearly HPV testing in 2018 (base); Twice lifetime=twice lifetime HPV testing in cohorts who received HPV9.

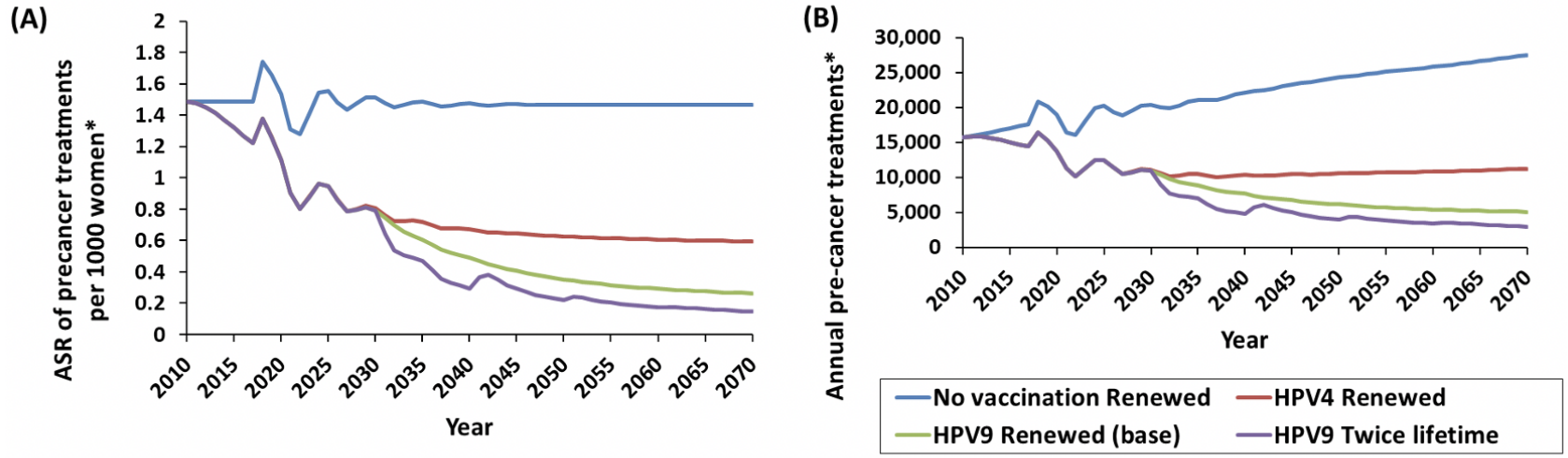

Figure 2. (A) Age-standardised rate (ASR) of first precancerous treatment per 1,000 women and (B) Volumes of first precancerous treatment in Australia from 2010-2070 in women aged 0-84 years.

* in women who are not in post-treatment follow-up

HPV9=national HPV vaccination program commencing in 2007 with quadrivalent vaccine, changing to nonavalent vaccine in 2018 (base); HPV4=ongoing vaccination with quadrivalent vaccine; Renewed=cervical screening with 2-yearly cytology changing to 5-yearly HPV testing in 2018 (base); Twice lifetime=twice lifetime HPV testing in cohorts who received HPV9.

Key Messages for Primary Care

- Australia's HPV testing program is an enormous success
- We must maintain and, if possible, improve current levels of screening and vaccination
  - Hospital services need to screen more consistently
- We are on track to be the first country to achieve the WHO primary elimination target
  - **But this has to be achieved for all demographics**

- Self Testing **is** as sensitive as clinician collected samples & is very popular with patients
- Please prescribe Ovestin cream for all women in menopause before testing and colposcopy
- Guideline revision is going out for public consultation shortly.
  - Test of Cure to be two annual HPV tests – can be self collected
  - Changes to ACIS follow up and re-referral for persistent type16/18

ECC Melbourne 2024

The Eliminating Cervical Cancer 2024 Conference (ECC2024) is being held between the 27-29th November at the Sofitel Hotel, Melbourne. The theme of the conference is *Achieving equity in Australia and the Indo-Pacific region*. A dy
line up of speakers – who are at the forefront of elimination efforts – will share their experience and expertise drawn from the full spectrum of cervical cancer prevention. The program will be based on the three pillars of the WHO g
cervical cancer elimination strategy: vaccination, screening and treatment.

Discussion and the exchange of ideas through panel conversations and networking will be pivotal aspects of ECC2024.

Conclusions

- Australia is a world leader in cervical cancer screening, prevention and treatment
- In August 2020, the WHO adopted the strategy global elimination of cervical cancer as a public health problem
- Australia is only the second country in the world to have moved its successful National Cervical Screening Program to one based on HPV primary screening.
- This has produced significant challenges for Colposcopists
- Self-collection for HPV DNA analysis is a tool to drive equity in disadvantaged and under screened groups particularly Aboriginal & Torres Straight Islander women.
- The continuing vaccination program and recent changes to cervical screening should see Australia as one of the first countries to reach the primary WHO elimination target by 2035 at the latest, but **until that target is achieved for all groups including first nations, recent immigrants and the socially disadvantaged we cannot claim it has been achieved.**
- As a nation we have the ability and indeed the duty to work in partnership with colleagues throughout the Indo-Pacific region to extend the vision of cervical cancer elimination for the benefit of women & their families across the region.

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Acknowledgements

- Professor Marion Saville
- Professor Karen Canfell
- Professor Julia Brotherton
- Dr. Jeff Tan
- A/Prof Megan Smith
- Dr. Susan Yuill
- A/Professor Orla McNally
- Professor Suzanne Garland
- Professor Michael Quinn
- A/Professor David Allen
- A/Professor Ian Hammond
- Sr. Angela Steele & Sr. Barbara McBride
- Ms. Estefania Vicario & Ms. Margot Osinski
- Ms. Julie Silvers (RIP)

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Relevant Links

- http://www.who.int/reproductivehealth/topics/cancers/en/
- http://ifcpc.org/
- https://www.cancerresearchuk.org/about-cancer/cervical-cancer
- https://wiki.cancer.org.au/australia/Guidelines:Cervical_cancer/Screening
- http://www.cancerscreening.gov.au/internet/screening/publishing.nsf/Content/cervical-screening-1
- www.compasstrial.org.au
- http://screening.iarc.fr/colpo.php

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Session Conclusion

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