

Critical Steps on the road toward tailored screening: More than the science to get it 'just right'

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Caring about Women

BreastScreen
Victoria

Overview of Issues from a Programmatic Perspective

a perspective based on BSV experience, nuanced by a non random, non controlled, not necessarily objective series of conversations

Highlights of those conversations

"BS has all the **data** but no toys"

"There is no **evidence** that tailored screening leads to mortality benefits"

"It **costs** less to treat a small cancer"

"**Benefits** must always outweigh the **harms**"

"Early diagnosis means less need to take **poison** is likely"

"Inconsistency opens the door to **litigation**"

"No change without cost **trade offs**"

"Funding streams breed **competitive** silos"

Distilled wisdom

DATA

EVIDENCE

COST

BENEFITS vs HARMS

MORBIDITY vs MORTALITY

RISK

ECONOMICS

INTEGRATION



Breast Screening Program Characteristics

Affordable from population health perspective

Net cost LYG \$424 : 38,202

'Relatively' universal

For women in the target group

Accountable

Via National Accreditation System

Evidence based

Although contentious for some eligible cohorts when considering harms vs benefits

Eligibility defined by gender & age

One size fits all

Degree of tailoring consists of in/out 2 years vs 1 year for defined groups

Siloed from industry partners

Success defined by mortality

Conservative when faced with change

Example of digital implementation, currently tomosynthesis at assessment

Consistent in the main

Federated model 'nibbles' at consistency imposed by accreditation

Focus on consumer experience

Breast Screening Program

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Tailored Screening Model



Tailored based on relative risk evidence



Eligibility defined by 'risk' with leading risks gender and age

Screening cycle based on risk

Integrated industry at best, seamless perception by women at worst

Success defined by mortality and morbidity reduction

Thoughtful, not bleeding edge but responsive to credible evidence for change



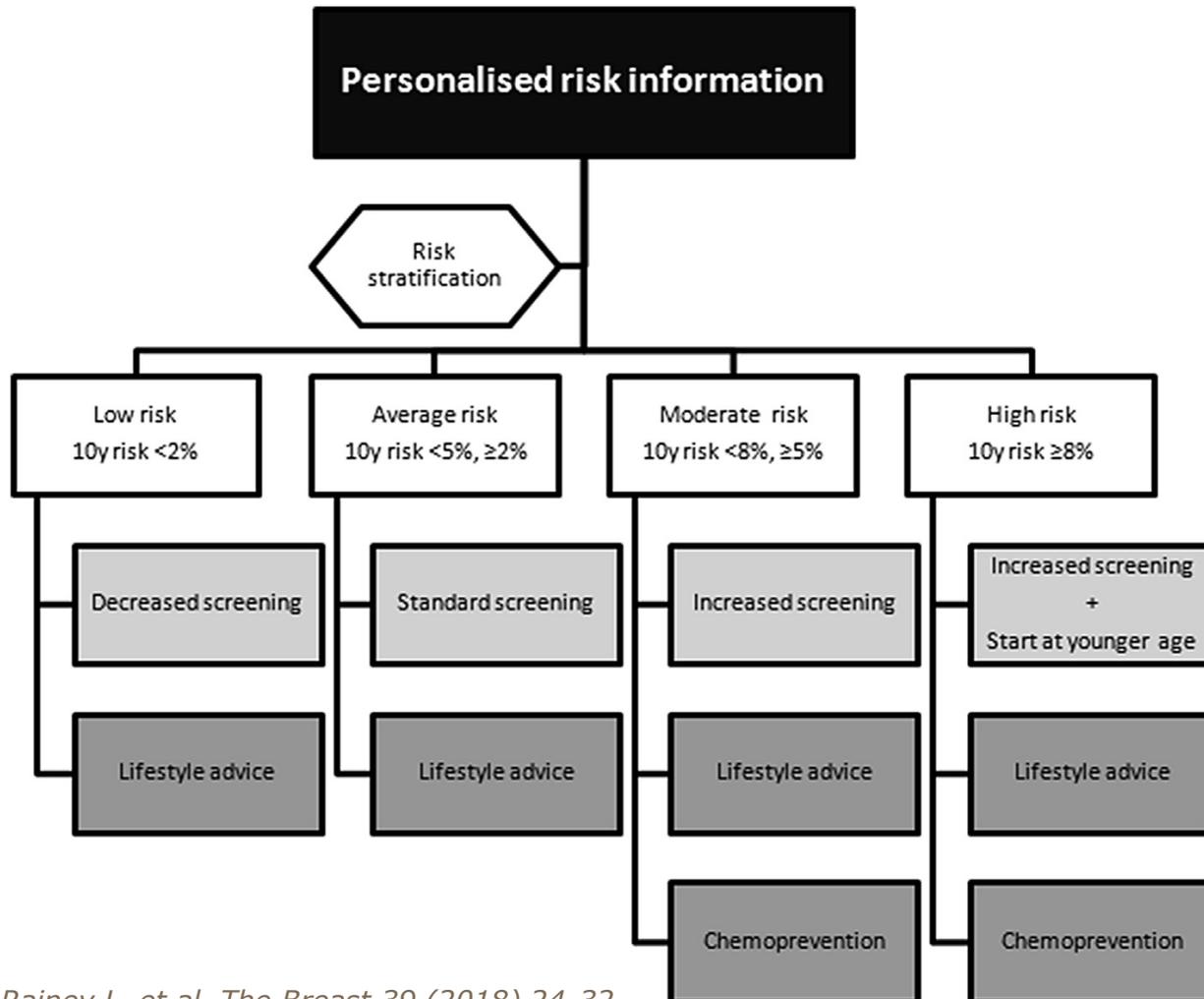


- Board of Management & Executive
- Operational enthusiasm
- Community drive
- Previous and ongoing interaction with Research Community

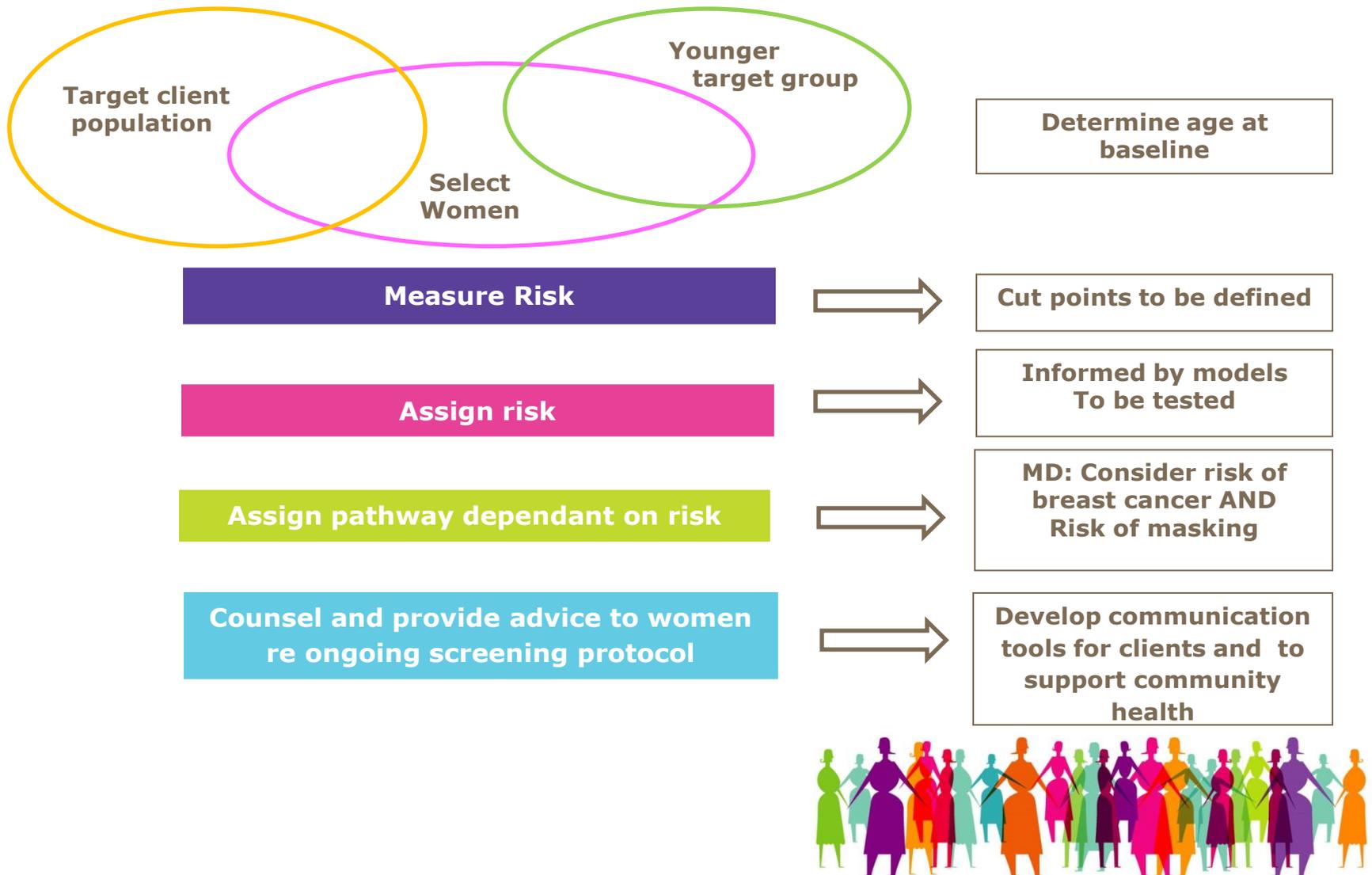


Convergence of activity in tailored breast cancer screening internationally

Flowchart of potential implementation of personalised risk-based breast cancer screening and primary prevention based on the National Institute for Health and Care Excellence (NICE) guidelines



Through consultation and consolidation of research knowledge locally:



General degree of consensus on the critical elements for inclusion

'Science'	'Out of the lab'
Family History	Ethical issues
Genetic profile (SNPs)	Insurance implications
Mammographic Density	Acceptability
Lifestyle factors, BMI	Community expectations
	Workforce issues
	Funding and health economics



**M
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Volpara®

AutoDensity: C Nickson, Y Arzhaeva et al Breast Cancer Research (2013)

**R
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K**

iPrevent: K Phillips, B Mann, J Hopper, I Collins et al Breast Cancer Research & Treatment (2016)

Tyrer-Cuzick (IBIS) : J Tyrer, SW Duffy, J Cuzick Stat Med (2004)

Gail : MH Gail et al JNCI (1989)

BOADICEA: AC Antoniou, et al Br J Cancer (2004)

Cumulus: JW Byng, NF Boyd et al Phys Med Biol (1994)

BI-RADS: American College of Radiology (2003)

**M C
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UK Predicting Risk of Cancer at Screening (PROCAS) Gareth Evans et al
Evans et al Breast cancer risk feedback to women in the UK NHS breast screening population. Br J Cancer 2016;114(9):1045-52

USA Women Informed to Screen Depending On Measures of risk (WISDOM) Laura Esserman et al

SWEDEN Karolinska Mammography Project (KARMA) Per Hall et al

Learning from experience in related screening program: Renewal of national cervical cancer screening program

Significant renewal of program delivering national cancer screening services to women in Australia

Key elements :

- ❑ Evidence base, consensus position
- ❑ Health economics, impact across health sector including public and private
- ❑ Communication (community, practitioners)
- ❑ Governance (funding, ethico-legal, data and registry)

Gathering evidence, building consensus

Health economics analysis, cost – benefit,
pilot CT (COMPASS 5,000 women)

Communicating intentions, building
information base with clients

Program change



2011 Expert steering committee established

2012 MSAC systematic review of international evidence

2013- consumer research

2013-2014 COMPASS trial

2015-2016 Development of detailed clinical management guidelines

2017- renewed program launched

12 months on, where are we now?

1. Significant injection of Commonwealth funding
Strategy for optimising early detection of breast cancer within a clinical guidelines framework Cancer Council Australia
2. Active engagement with Victorian Comprehensive Cancer Centre's Initiative '***Precision Prevention and Tailored Screening***'
3. Ongoing work toward key modules of work including:
 - a. Dr Jocelyn Lippey '***DEFINE: Development and Evaluation of a decision aid to Facilitate decision-making about Individualised breast screening based on personalised breast cancer risk***' funded by NBCF & enabled by lifepool
 - b. **Analysis & comparison of screening methodologies and measures of MD within the BSV service:** Jill Evans, Darren Lockie, Nehmat Houssami et al



Several presentations from national colleagues over these 3 days including

'MD in WA Aboriginal women',

'BreastScreen WA Breast Density Survey',

'Toward better breast screening for Australian women'

Jennifer Stone et al

Risk Prediction modelling work

'Clinical and health economics modelling of tailored screening'

' Prospective validation of personalized risk tools in 39,000

BreastScreen clients' presented by Carolyn Nickson, and including Bruce Mann, Ian Campbell, Patrick Brennan



Project	Project Leads	Commenced
lifePool	BSV, Peter Mac, UoM, RMH	2008
Density measurement methods (AutoDensity)	Caz Nickson UoM	2012
Tomosynthesis in assessment (Maroondah 1)	Darren Lockie, BSV	2013
Breast density, breast cancer risk & mortality	Caz Nickson UoM Helen Frazer StV BS	2013
Tomosynthesis cost benefit (Maroondah 2)	Darren Lockie, MBS	2015
Density as a predictor of breast cancer risk	Jennifer Stone, UoM	2015
Density Measurements in Screening (Monash)	BSV, Volpara, Jane Fox, Robin Bell, Jill Evans (Monash)	2016
Cancer detection using digital	BSV, NSW	2017
Treatment differences in screen- and community-detected breast cancer	Bruce Mann, RMH	2016
Tailored screening	BSV	2016
Volpara Enterprise trial	BSV, Volpara	2016
Reporting AutoDensity measurements	Caz Nickson UoM Helen Frazer StV BS	2016
BSV tomosynthesis in screening pilot	BSV, US	2017
Tomosynthesis in assessment	Helen Frazer StV BS	2017
Automated MD measurement comparison	Caz Nickson UoM Jill Evans BSV	2017
Tomo screening comparative study (3 sites)	BSV, US	2017
Radial scars from film screen to digital	Stephanie Koo StV BS	2017

Thank you

