

Breast Cancer 101

Dr. Erica Whineray Kelly
FRACS



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Fellow of the
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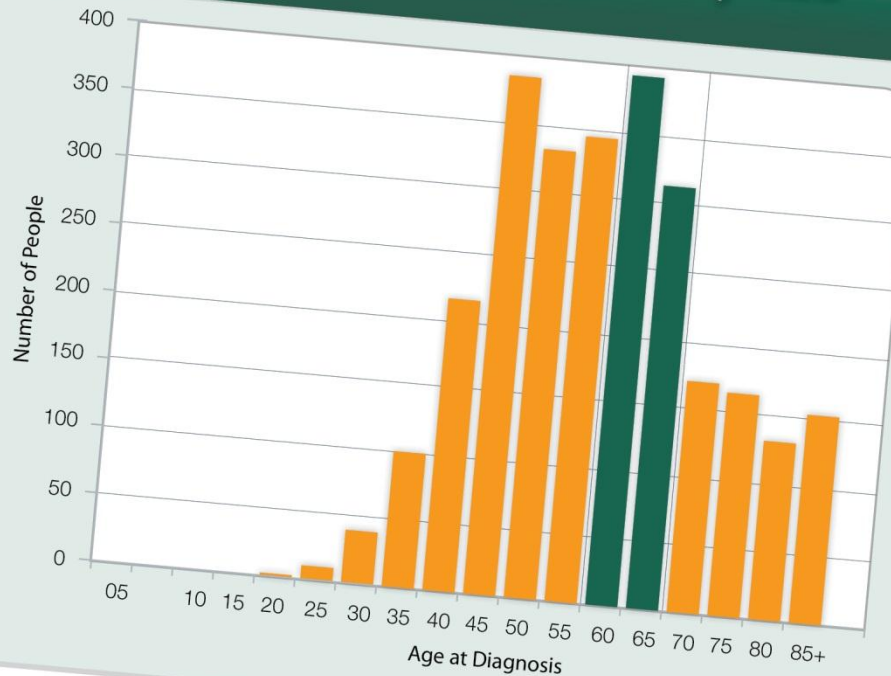
www.aucklandbreastcentre.co.nz

The Stats....

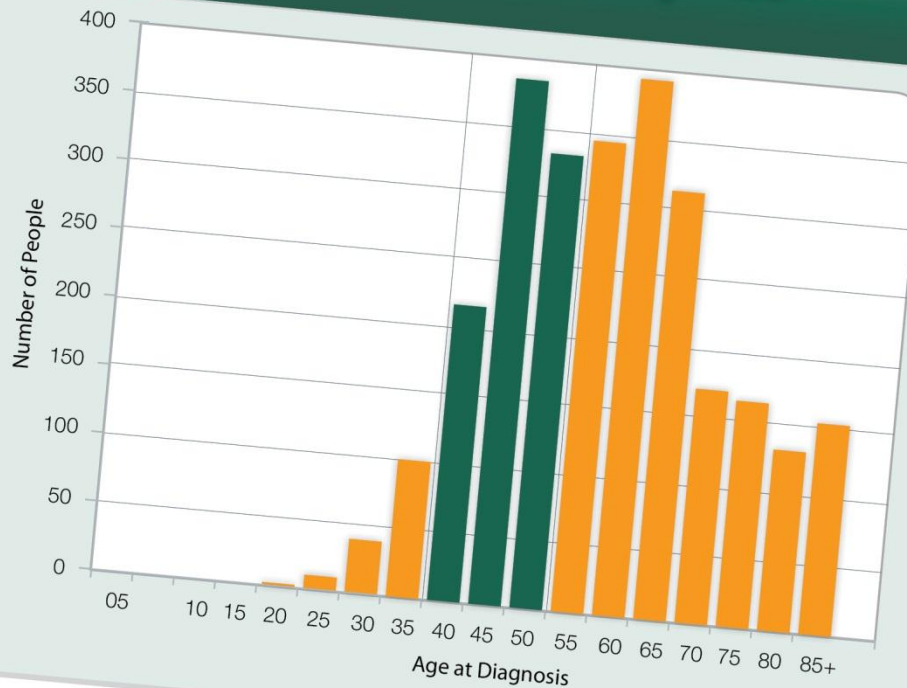
- 2,750 women diagnosed per year
- 650 women die per year
- Incidence:
ASR 93/100,000 Non- Maori
ASR 123/100,000 Maori
- Mortality:
ASR 32/100,000 1987
ASR 20/100,000 2006 despite ↑ incidence



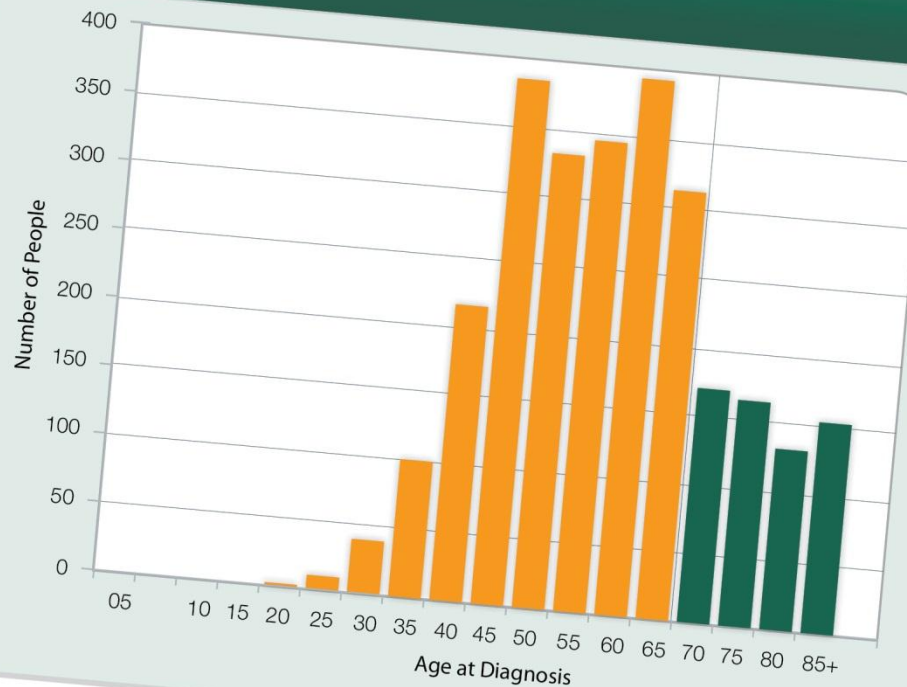
Peak diagnosis 60- 65 years



22% women 40-50 years



22% > 70 years



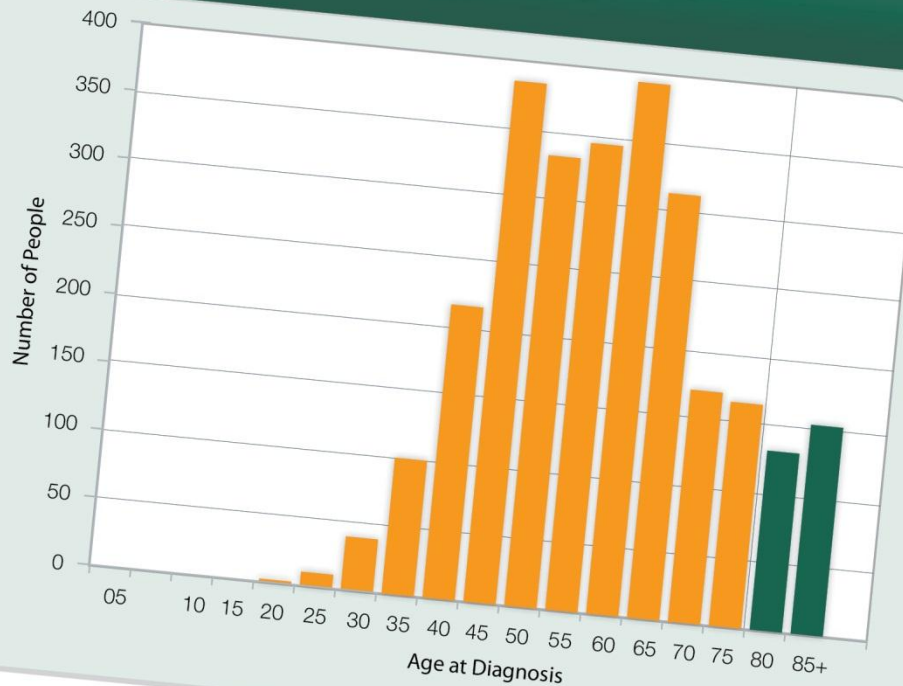
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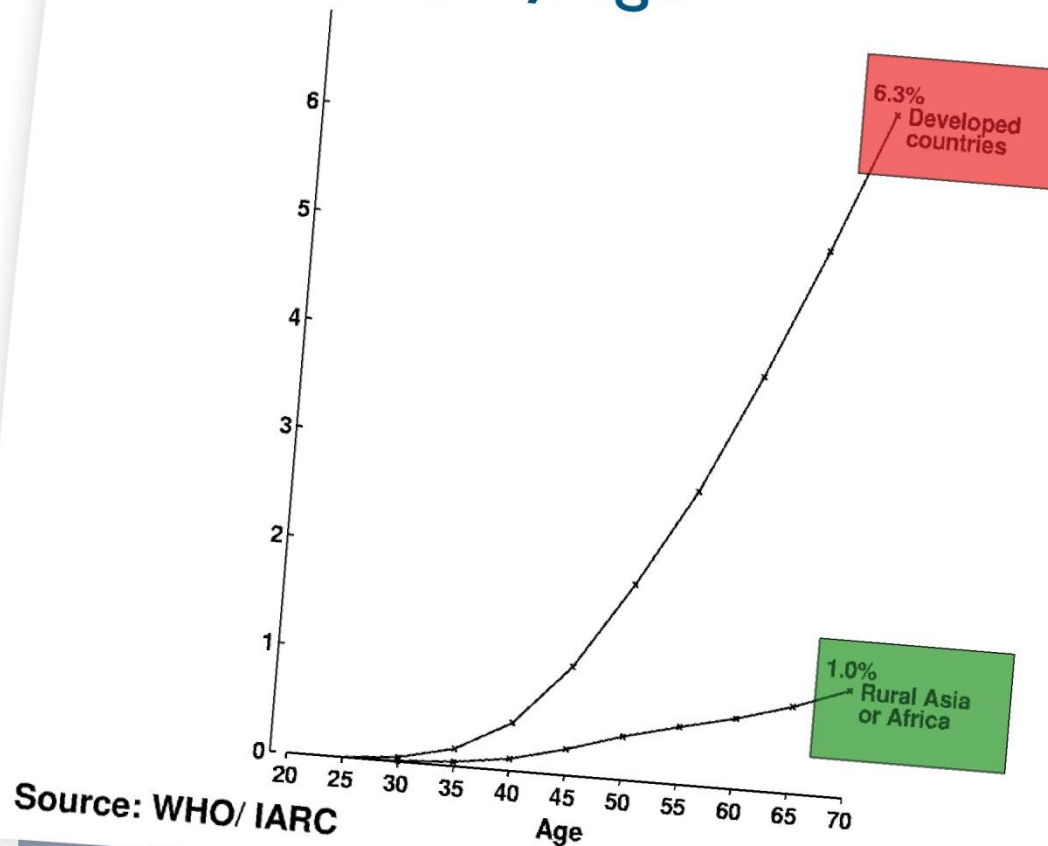
10% > 80 years



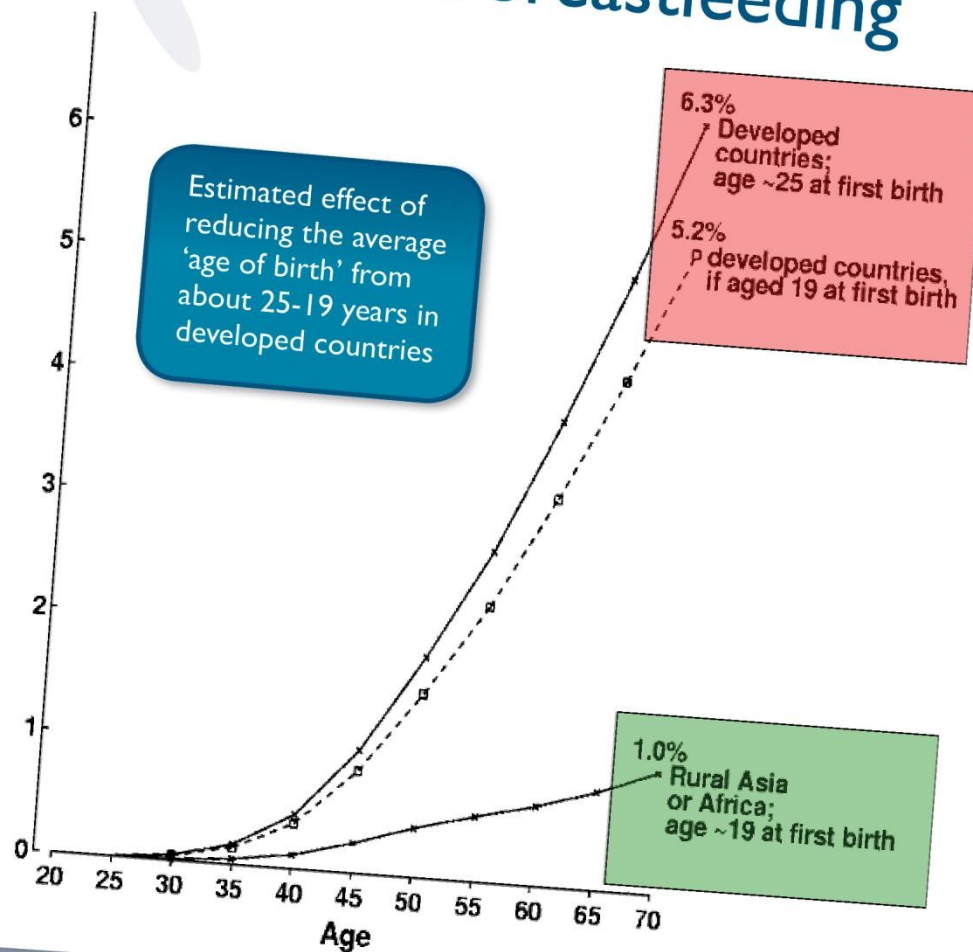
Risk Factors

- Female sex, age.
- Oestrogen history
Age of milestones, parity, OCP/HRT, BF
- FHx
- Pre-malignant lesions

Cumulative incidence of breast cancer (%), by age

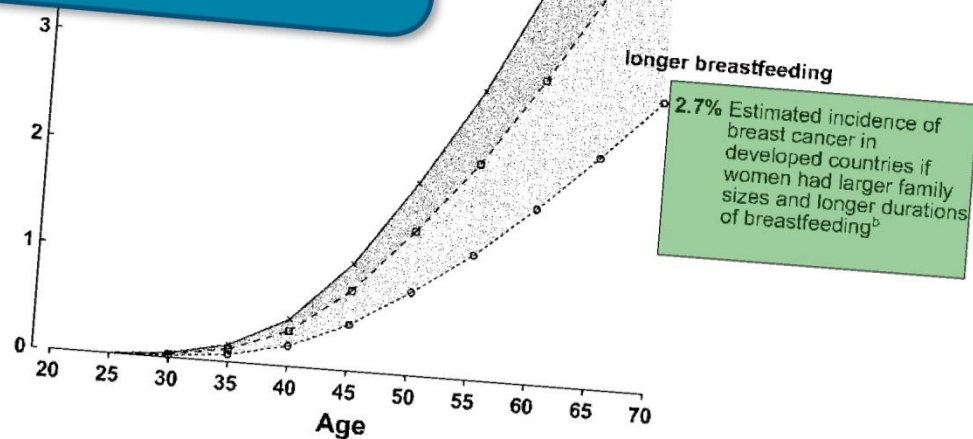


Childbirth & breastfeeding



Childbirth & breastfeeding

Breast cancer incidence in developed countries would be more than halved if women had similar child bearing patterns to women in developing countries



Collaborative Group on Hormonal Factors in Breast Cancer, Lancet, 2002



If women in developed countries had a larger family size (>5) and breastfed for longer (6 years) then the incidence of breast cancer would be halved.



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HRT and OCP

- Oestrogens with or without progestins used before or after menopause increase breast cancer risk during and soon after.....
- With NO persistent long term effects

Other risk factors

- Alcohol & Diet
 - Weight & Exercise
- At least 2 mechanisms
- Smoking
 - Height > 160 cm
 - Family History

Current Guidelines

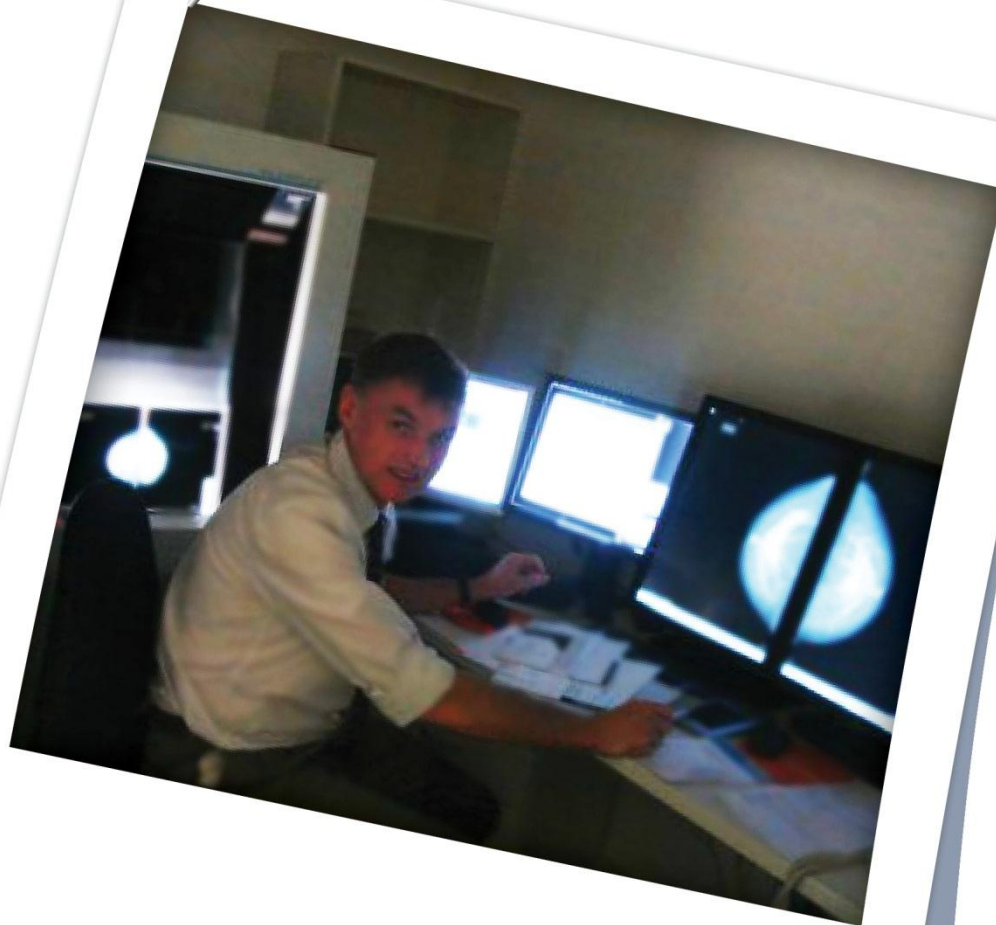
- Annual screening from 40 years.
- Stopping when less than 5 years of healthy life-expectancy

71% reduction in mortality c.f to B50-75

AJR 2011;196:W112-6

- Biannual when fat replaced on mammography
- BSA 45-69 years



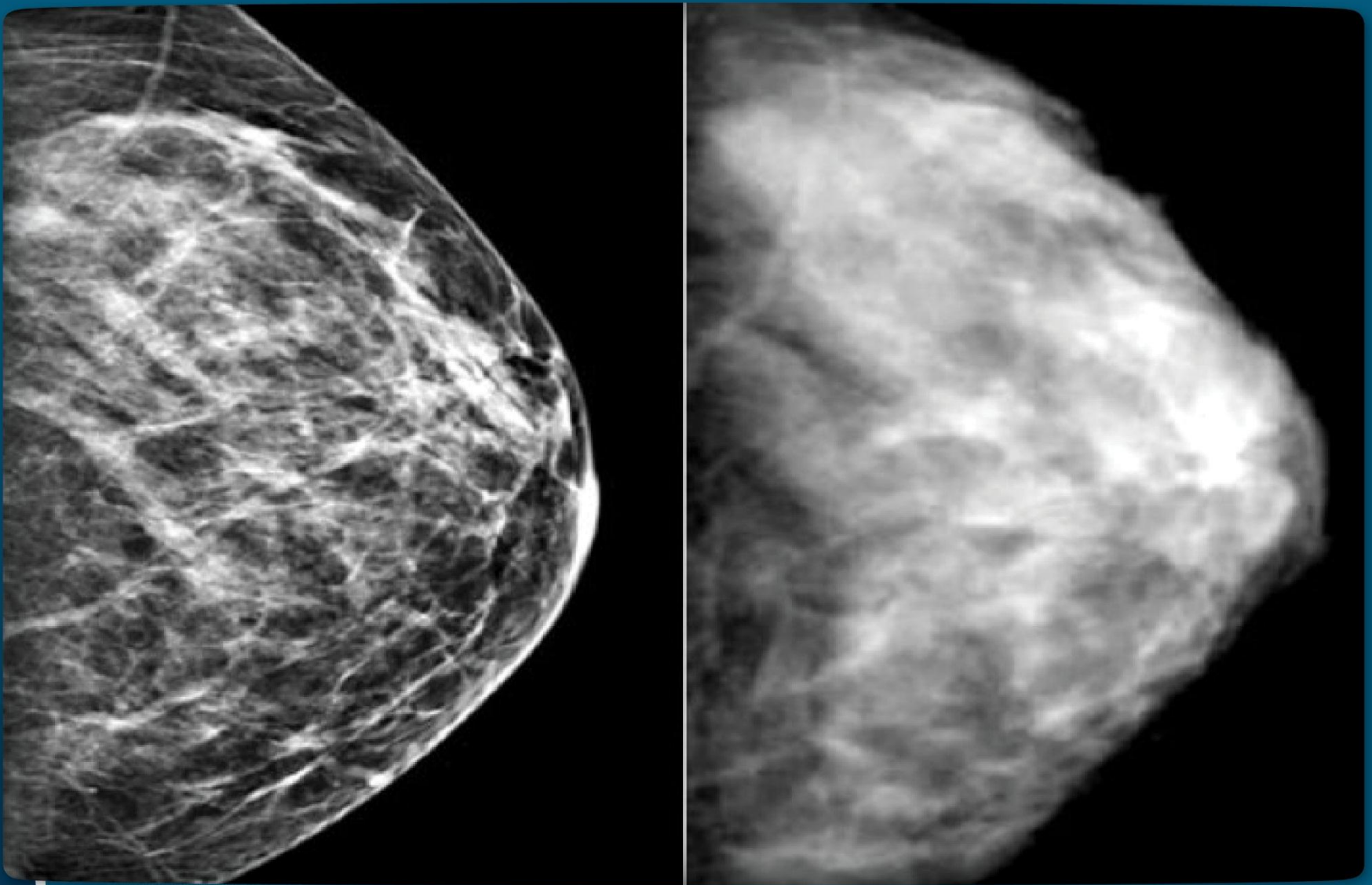


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Best Bang for your Buck

- Annual from 40-50 years.
- (BSA from 45-69 years).
- Pay for the extra one in between until breasts are fat replaced and then do it every 2 years.
- Continue 2 yrly while still has 5 years of healthy life expectancy.



Fat Replaced
vs Dense



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Quality

- Specialist clinic if available
 - Double reading
 - One stop shop for screening through to surgery
 - More appropriate investigations
 - Multi-disciplinary Team
- 10% improvement in survival

RISKS?!

- Recall every 12 years
- Negative biopsy every 149 years
- Missed cancer every 1,000 years
This most significant risk is reduced by more frequent screening.
- Fatal radiation induced breast cancer every 76-97,000 years.

Let us not forget that the aim of screening is not to reduce the number of mammograms..... but to reduce the number of women dying from breast cancer.



Thermography

Position Statement:

The National Screening Unit, the Cancer Society of NZ and the NZ Breast Cancer Foundation do not support the use of thermography as a breast screening or diagnostic tool as there is insufficient evidence.

Lack of proof of efficacy and effectiveness of thermography.

Thermography has never undergone a randomized controlled trial (RCT) or meta-analysis of RCTs.

Concern: women believing that thermography is an adequate replacement for a doctor visit or a mammogram.



Family History Assessment

- 5-10% cancers inherited
- BRCA 1 and 2 most clinically significant
- Aim to have nurse led clinics
- <http://www.nbocc.org.au/fraboc/>

The Future of treatment: Tailored and Conservative



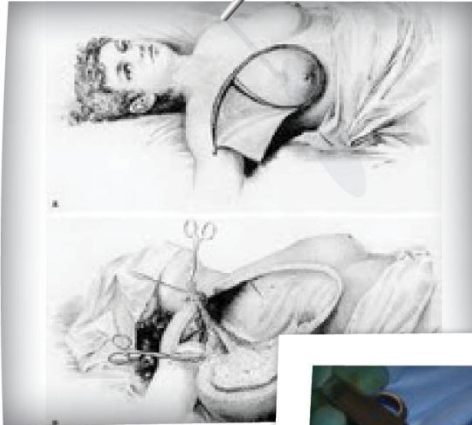
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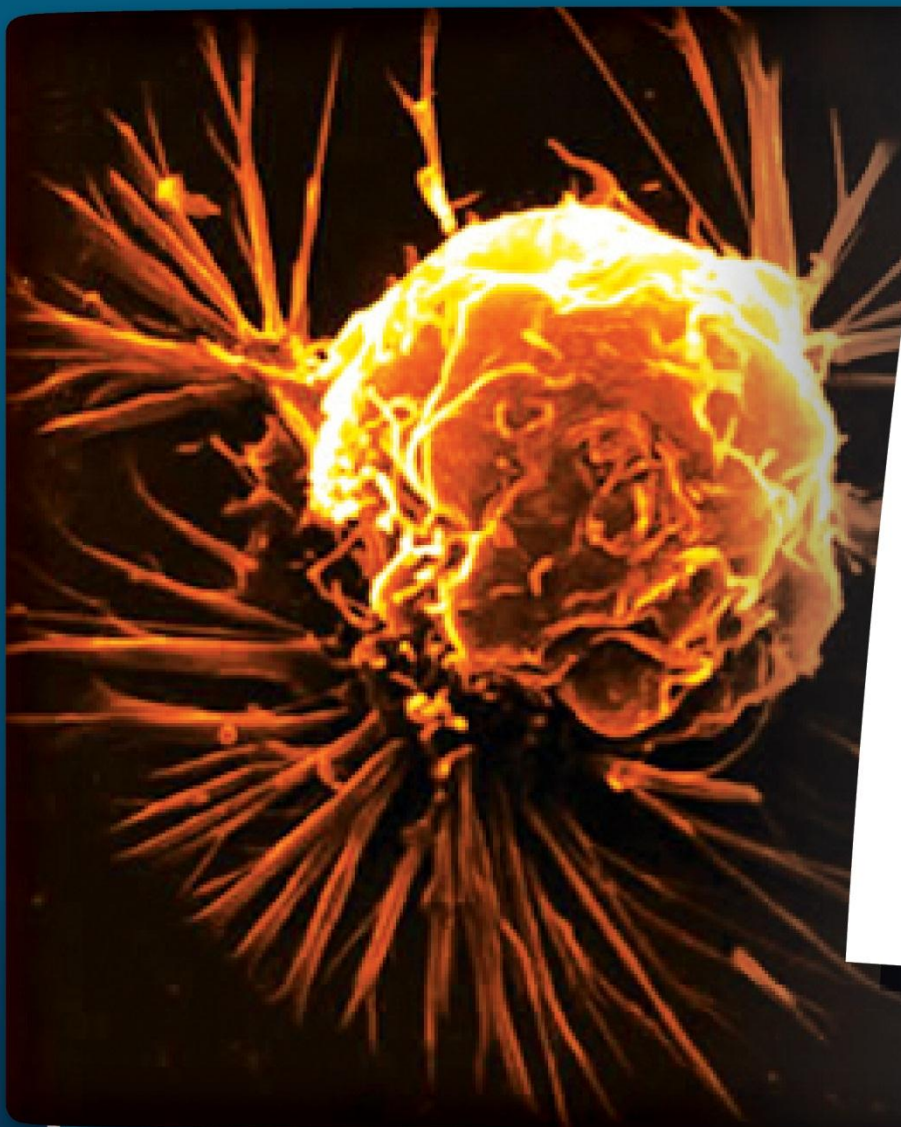
Surgery



Intrabeam®

- 30 mins radiotherapy delivered under GA.





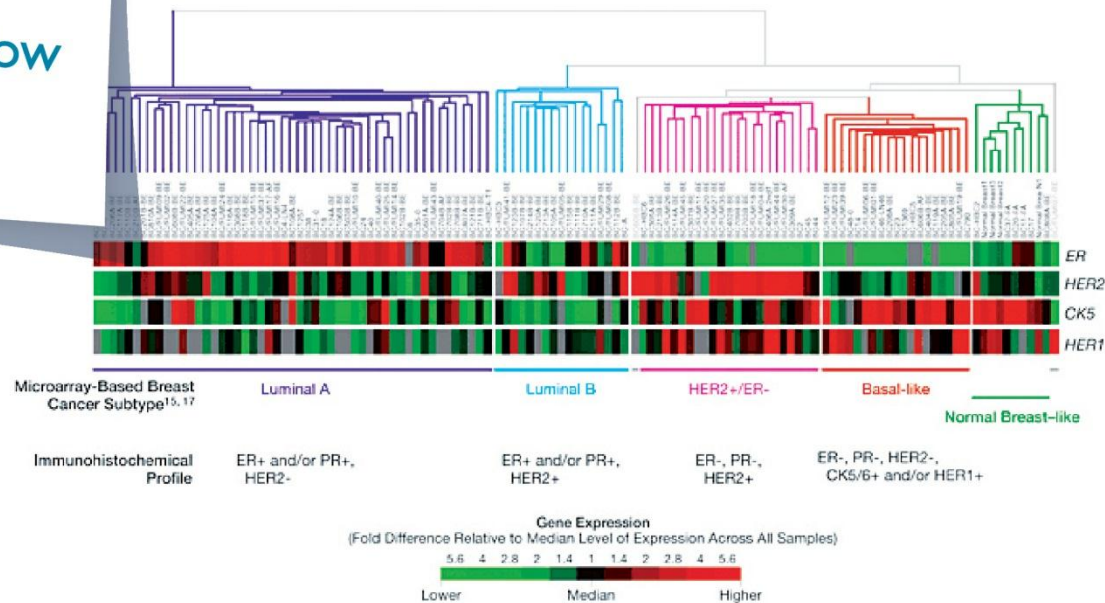
Gene Expression Profiling

- 5000 genes within a breast cancer
- Average of 80 mutations
- 20 of which are prognostic



Perou et al Nature 2000

- Luminal A
- Luminal B
- Basal
- Her 2 +ve
- Normal
- Claudin low



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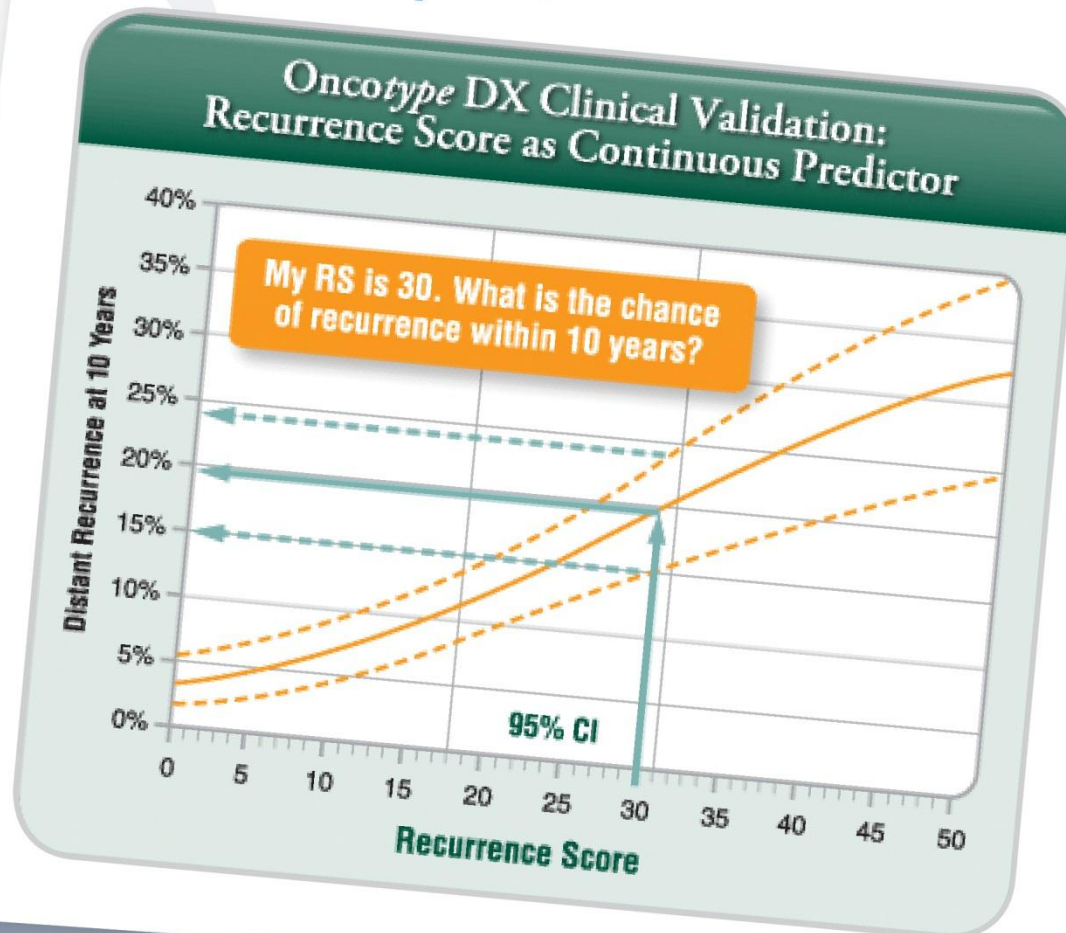
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OncotypeDx®

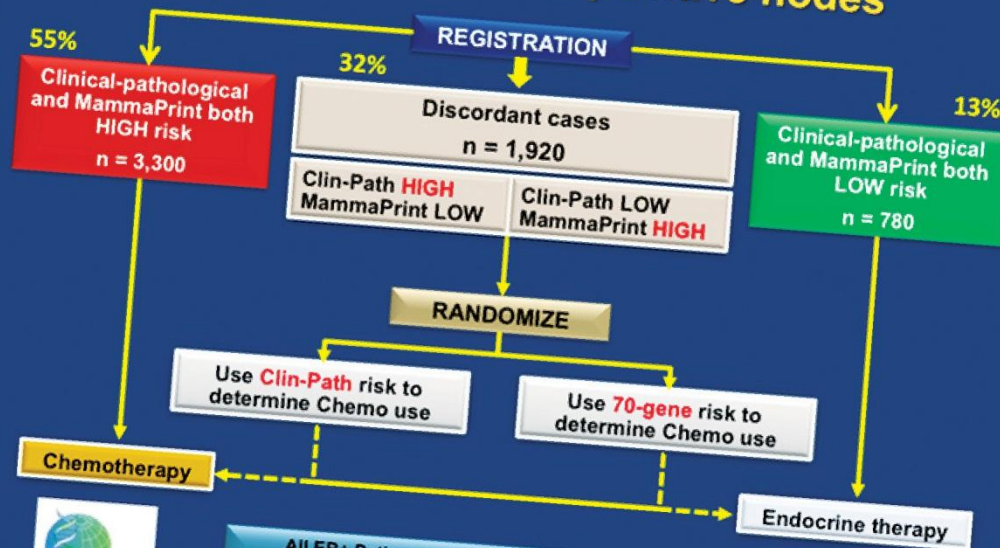
- 20 gene signature- uses PCR
(amplification requires less tissue)
- Paraffin sections or unstained slides
- Sent to USA \$3700



Patient Report



MINDACT Trial Design (n = 6,000) Node negative & 1-3 positive nodes



All ER+ Patients Receive Endocrine Therapy
Potential to spare chemotherapy in 10-15% patients

Supported by the EU framework VI programme



Systemic Therapy

- Tailored Chemotherapy
MINDACT & TAILORx trials
- Antibody mediated targeted treatment
e.g. Herceptin
- Diagnosis- blood test- circulating MiRNA

Take Away...

- Diet, alcohol, exercise
- Screening
- FHx
- Everyone is at moderate risk
- *The majority of women in NZ with breast cancer will not die of their disease.*



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Screening

- Clear evidence from randomised controlled and case controlled studies from the 1960-80's.
- Maximum benefit for women between 55-70 years of age.
- 20% for women between 40-50 years.



Interval

- Mammography detects cancers approx 2 years prior to it being clinically apparent.
- Frequency of mammography is determined by lead time to cancer which is different according to age.
- Based on growth rate- 40-45 year old women should be yearly



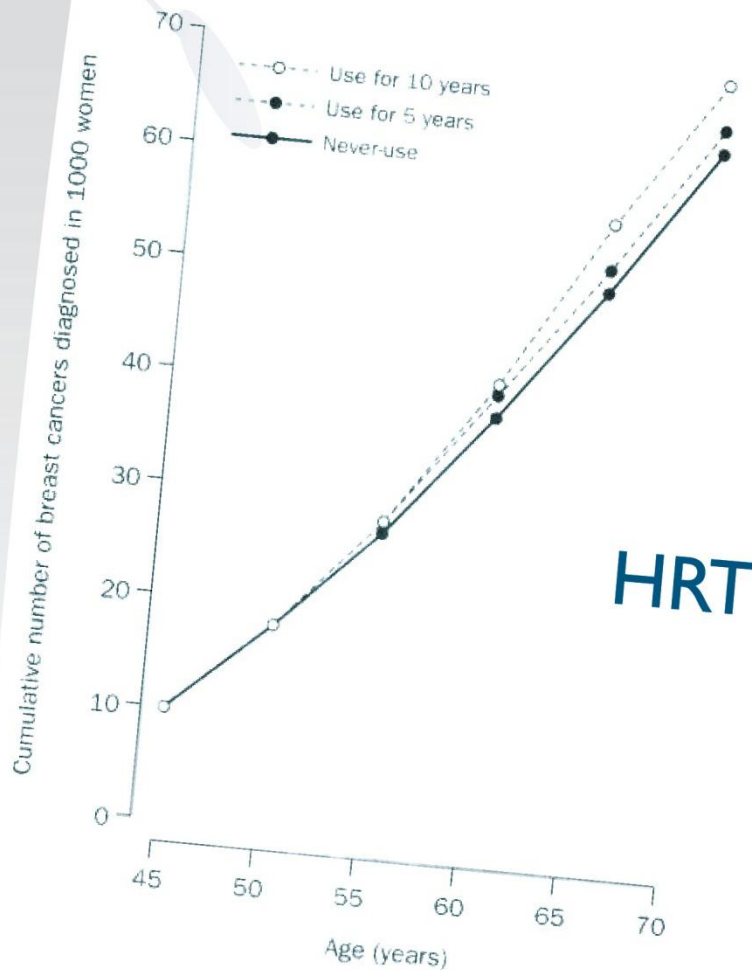


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HRT

Dec. use mirrored by dec. in H-receptor +ve tumours

OCP

ORAL CONTRACEPTIVES AND BREAST CANCER RISK

Collaborative Group on Hormonal Factors in Breast Cancer (Lancet, 1996)

