Breast Cancer Screening

Gail Ward PSM – State Manager, Population Screening and Cancer Prevention
Breast Cancer in Tasmania

- 394 breast cancers were diagnosed in Tasmanian women in 2016*
- 5 breast cancers diagnosed in Tasmanian men in 2016*
- * Tasmanian Cancer Registry 2016 report
- Excludes DCIS
- BreastScreen Tasmania diagnoses just over half of these cancers
Breast Cancer in Tasmania

• 394 breast cancers were diagnosed in Tasmanian women in 2016*

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• Excludes DCIS

• BreastScreen Tasmania diagnoses over half of these cancers (BST participation rate of women 50-74 is 59.8%)
Breast Screening - Australia

Aims

1. To ensure significant reductions can be achieved in morbidity and mortality attributable to breast cancer.

2. To maximise the early detection of breast cancer in the target population.

3. Screening must be provided in dedicated and accredited Screening and Assessment Services as part of the BreastScreen Australia Program.

4. To ensure equitable access for women aged 50–69 years to the Program.

5. To ensure that services are acceptable and appropriate to the needs of the eligible population.

6. To achieve high standards of program management, service delivery, monitoring and evaluation, and accountability.
BreastScreen Tasmania

• Targets asymptomatic women aged 50 – 74 (although all Tasmanian women aged over 40 are eligible)

• Delivers services in accordance with the Principles of BreastScreen Australia (Aims and Objectives)

• Meet the criteria of the Australian Population Based Screening Framework

• Based on the World Health Organization (WHO) principles of screening
WHO Principles of Early Disease Detection

Condition

- The condition should be an important health problem.
- There should be a recognisable latent or early symptomatic stage.
- The natural history of the condition, including development from latent to declared disease should be adequately understood.

Test

Treatment

Screening Program
WHO Principles of Early Disease Detection

Condition

Test

• There should be a suitable test or examination.
• The test should be acceptable to the population.

Treatment

Screening Program
WHO Principles of Early Disease Detection

Condition

Test

Treatment

- There should be an accepted treatment for patients with recognised disease.

Screening Program
Forms of Health Test

• Population Based Screening
• Opportunistic Testing
• Targeted Risk Screening
• Routine Exam or Planned surveillance
• Diagnostic Testing
Screening vs. Diagnostic

Ideal Breast Process

- **Detect**
  - Asymptomatic
  - No Clinical Findings
  - Target Age Group
  - Screening Read

- **Diagnose**
  - Assessment Clinic
  - Breast Surgeon

- **Treat**
  - GP Consult
  - Diagnostic Radiology

Symptomatic
- Clinical Abnormality
- High Risk
- < 40 yo
Screening vs. Diagnostic

Real Breast Process

Detect
- Asymptomatic
  - No Clinical Findings
  - Target Age Group
  - Screening Read
    - B screened

Diagnose
- Symptomatic
  - Clinical Abnormality
  - GP Consult
  - Diagnostic Radiology
    - Assessment Clinic
      - B screened

Treat
- Breast Surgeon
Screening vs. Diagnostic

What happens when women go in the wrong direction?

Assuming the asymptomatic woman has no clinical findings, the GP has a choice of two paths.
Screening vs. Diagnostic

Sending the asymptomatic woman in the eligible age group (40-74) to BreastScreen is the right patient for the right pathway.

BreastScreen Benefits

- Free
- Optimised to serve asymptomatic population
  - Formal read process
  - Sensitivity and Specificity tightly controlled
  - Robust continuous QA
- Proven cost/benefit if asymptomatic
Screening vs. Diagnostic

What happens if the asymptomatic woman is sent down the diagnostic pathway?
Screening vs. Diagnostic

- Variable cost
- Solves diagnostic problems (symptoms)
- Test is sensitive
- Not as specific as screening mammography
- Variable reading QA processes
- Absolutely right for symptomatic
- Risk of over investigation and over-biopsy in asymptomatic women
Screening vs. Diagnostic

What happens when symptomatic women are sent to BreastScreen?

This is usually because of cost or accessibility
Women with symptoms will not be turned away, but.....
Screening vs. Diagnostic

Only a minority will have a screen detected abnormality and go on to assessment.

Women who have no abnormality detected (and their GP) receive a letter advising they should consult their GP for a referral to a diagnostic mammography service for their breast symptom, which is the pathway they should have been on initially.
**Screening vs. Diagnostic**

*Reality is:* many women go down the wrong pathway but eventually find their way to the appropriate assessment.

It’s about safety and costs to women and the community, and using the right tool for the job!

BreastScreen is specifically designed and quality controlled for screening. Diagnostic radiology is not.
Breast Density

- The breasts are almost entirely fatty BIRADS a
- There are scattered areas of fibro-glandular density BIRADS b
- The breasts are heterogeneously dense, which may obscure small masses BIRADS c
- The breasts are extremely dense, which lowers the sensitivity of mammography BIRADS d
- 0-25, 25-50, 50-75, >75% area
Mammographic Density Measurement

- USA, 18 radiologists, >215,000 screens over 3 years
- Overall 36.9% of mammograms rated as dense (BIRADS c&d), ranging across radiologists from 6.3% to 84.5%
- Among women with consecutive mammograms interpreted by different radiologists, 17.2% had discordant assessments of dense versus nondense status

**Conclusion:** There is wide variation in density assessment across radiologists that should be carefully considered by providers and policymakers when considering supplemental screening strategies. The likelihood of a woman being told she has dense breasts varies substantially according to which radiologist interprets her mammogram.

Variation in Mammographic Breast Density Assessments Among Radiologists in Clinical Practice: A Multicenter Observational Study

B Sprague et al Annals of Internal Medicine October 2016
BSA Breast Density Research

Early Detection of Breast Cancer – The Role of the GP

Mr David Finkelde
Outline

• Facts about Breast Cancer
• GP Breast Assessment
• Pathways for your patient
  – Asymptomatic
  – Symptomatic
• What I do in Practice
• Newly diagnosed cancer
• Decisions, decisions.
• Breast density
• New Breast Imaging techniques
• Psychosocial support
• Cases for discussion
Facts About Breast Cancer

• Heterogeneous group of malignancies arising from breast tissue

• Now estimated to be the most commonly diagnosed cancer across all sexes and in females

• Likelihood of being diagnosed with breast cancer before age 85 is 1 in 8 for females

• Second most common cause of cancer death in females (behind lung) and fourth most common cause of cancer death in the community
Facts About Breast Cancer

• 2009 – 2013 5yr relative survival 90% c.f general population

• 1984 – 1988 5yr relative survival 72%

• Figures are worse for younger women and specific subtypes of breast cancer
Facts About Breast Cancer

• Age <40; 5% of all breast cancers
• Survival worse than for >40
• Leading cause of cancer death in women aged 20 – 39
• Most common cancer in women 20 – 39
• Higher grade / hormone receptor negative / HER2 positive
• Worse outcome for hormone receptor positive tumours
Facts About Breast Cancer

• Increasing life expectancy in the community
• Elderly also get hormone receptor negative tumours
• No reason to compromise standard treatment in the era of breast conservation surgery and sentinel node biopsy
GP Breast Assessment

• History (including BSE)

• Inspection
  – Symmetry
  – Contour

• Examine both sides

• Physical examination is the starting point
  – Symptomatic assessment
  – Surveillance
Early Detection – Advice to Women

• Perspective on risks (especially family history)
• Symptoms
• Breast Awareness (Self Examination)
• Surveillance
  – Screening
  – Higher risk groups
• Lifestyle factors
Pathway for Asymptomatic Women

• No increased risk
  – BreastScreen Tasmania (if aged $\geq 40$)
  – Breast Awareness
  – Annual clinical check

• Increased/High Risk
  – Seek Advice
Pathway for Symptomatic Women

1. Suspect Everyone
2. Imaging points the way but is not diagnostic
3. Pathology rules
4. The Triple Test
5. What I do in Practice
Imaging (Symptomatic Women)

- Mammography
- Mammography and tomosynthesis, contrast mammography
- Ultrasound
- MRI
- Screening
- Influenced by age, family history, personal history, previous imaging
Pathology Rules (Symptomatic Women)

• Pathology can explain imaging, but not vice versa
• We treat pathology, not images
• Surgery in the absence of a pathological diagnosis cannot be considered to automatically be therapeutic
The “Triple Test”

• Strictly applies only to assessment of a lump
• Original study was only 234 patients
  – Clinical Examination, mammography, FNA
• Combined triad had negative predictive value of 100%
  – These patients could be safely observed
What I do in Practice

• If there is an imaging abnormality, get a pathological diagnosis

• Try to get a core biopsy rather than a FNA

• The aim of assessment of a breast symptom is to exclude cancer, no matter how trivial the symptom

• Don’t observe a lump without making a diagnosis

• If you and the patient are happy to leave the lump in situ, follow it up
Rules to Live By

- The only breast lump diagnosable by imaging alone is a simple cyst.
- Breast tissue is living and changes – any assessment is only valid at the time it was made.
- A benign diagnosis does NOT mean that it cannot become malignant.
- The patient has the last word in deciding whether to excise a non-malignant lump.
- Be Paranoid – it’s what they came to you for.
A New Diagnosis of a Cancer

- Assume that the starting point will be surgery
- <1% will have evidence of secondary spread at diagnosis
  - Beware recent onset of site specific pain
Decisions, Decisions

• What we know at diagnosis
• Major changes in recent practice
• What we do now and why
What We Know at Diagnosis

- Size
- Nodal status (clinical)
- Histology
Major Changes in Recent Practice

• Management of the Axilla
• Guidelines on margins for breast conservation surgery
• Mastectomy and reconstruction
Management of the Axilla

• Sentinel Node Biopsy
  – First node or nodes in the regional basin that receive lymph from the primary site
  – Accurately predicts status of regional node basin

• ACOSOG Z0011 Trial
  – T1-2 node negative tumours with positive SN (H&E) randomised to ALND or no further surgery
  – Equivalent results (1 or 2+ SN) for LR relapse and survival
Margins for Breast Conserving Surgery

• Negative margins reduce odds of LR

• Increasing distance for defining negative margins is not associated with reduced odds for LR

• Positive margin is defined as ink on invasive cancer or DCIS

• A negative margin is no ink on tumour
Mastectomy and Reconstruction

• Increasing rates in US and Australia
• Increasing numbers of reconstructions
• BCS offers equivalent long term survival
• Definite role in the management of high risk genetic mutations
Molecular Diagnosis

• Receptors
• Gene mutations
• New treatments
What We Do Now and Why

• Work-up is everything – the planned operation should be what is performed

• The surgical options and proposed treatment, as well as the potential for further surgery and other treatments, should all have been discussed with the patient before the operation

• Mastectomy is equivalent to lumpectomy and radiotherapy and both operations should be explained

• In general, the default operation for a palpable lump with a clinically negative axilla is wide local excision of the lump and sentinel node biopsy
What We Do Now and Why

- Is it operable? Is it suitable for breast conservation?
- If a mastectomy is needed, does the lady want a reconstruction?
- If the plan is eventually a mastectomy and reconstruction, then what type of mastectomy?
- How will surgery fit in with the timeline and priorities of the other treatments? Is there a role for neo-adjuvant therapy?
What We Do Now and Why

• Lumpectomy and SNB
  – 2x small incisions, 2-3 cm long, no drains
  – Think about cosmesis and potential for mastectomy

• Axillary dissection
  – Level 2-3 clearance, single drain
  – Lymphoedema rate 12%

• Simple mastectomy
  – Removal of breast, NAC and redundant skin, single drain
What We Do Now and Why

• Absorbable sutures, lots of local anaesthetic, waterproof dressings, padded support
• Aim for early discharge; outpatient support
• Not usually painful compared to muscle cutting procedures
• 4-5 working days for useful pathology results
Breast Density

• Definition

• Risk

• Management
Breast Density – Definition

• What we are talking about is mammographic breast density

• It is an assessment of the mammographic appearance of the breast

• MBD is defined in the relative amount of radiopaque elements to radiolucent fat in the breast image

• There is no consistently agreed method for describing breast density and determining the value at which the breast is ‘dense’
Breast Density – Risk

• Multiple issues with defining ‘dense’ breasts
• Multiple methods of assessing breast density
• Variability with results both between differing measuring systems and within the same system
• Generally accepted that increased breast density correlates with an increased relative risk of 1.2 - 2.1 c.f. average population
• Level of risk is equivalent to that of having a post-menopausal first degree relative diagnosed with breast cancer
Breast Density – Risk

• This is not new!

• Two potential avenues of increased risk
  – Masking
  – More rapid growth in dense tissue

• Limitations of cancer detection based on mammographic images with large amounts of radiopaque tissue have always been recognised

• This underpins selection of screening age ranges
Breast Density – Management

• Supplemental imaging
  – Whole breast ultrasound
  – Molecular breast imaging (ultrasound, isotopes)
  – Digital Breast Tomography
  – MRI
  – Contrast Enhanced Mammography

• Public awareness
  – Breast density reporting mandatory in >30 US States
Breast Density – Management

• Is it necessary?
  – Small increase in cancer detection
  – False positives, cost
  – No evidence for improved survival

• Individual risk management
New Breast Imaging

• Tomosynthesis
• Ultrasound
• MRI
• Contrast Enhanced Mammography
• Selective OSR
• Screening vs. Diagnosis
• Pathology still rules
Psychosocial Support

- GP
- Breast Care Nurse
- Oncologist
- Cancer Council/Support Groups
- Social Worker
- Psychologist
Psychosocial Support

- Age-related needs
- Diagnosis
- Impact of treatment
  - Surgical
  - Adjuvant
Cases for Discussion - 1

- 2014
- 29 y.o. 6/52 lump in breast
- No children, no FHx, only med OCP
- Palpable mass LUOQ, palpable L axillary LN
- Mammogram and U/S – 35 mm mass with microcalc and multiple abnormal LN
- Core and FNA – Grade 2 IDC, positive LN on cytology
- Elected mastectomy (with AD)
- D/w Med Onc post-op chemotherapy
- Fertility referral – embryo preservation
Cases for Discussion - I

• Pathology
  – 30mm Gr3 IDC (focal lobular differentiation)
  – Additional DCIS to 50mm
  – ER/PR negative (focal ER+ in lobular)
  – HER2 Positive
  – 11/20 LN involved
  – Staging OK
Cases for Discussion - I

• Post-operative treatment
  – TC and Herceptin, Zoladex for ovarian protection
  – DXRT to chest wall and SCF
  – Tamoxifen (LN ER+)

• Outcome
  – 2018 left reconstruction with flap and implant
  – Alive and well with no evidence of recurrence, no immediate plans for a family.
Screening Images
Tomosynthesis Image

- The breast lesion is clearly visible on the screening images and using tomosynthesis.
Cases for Discussion - 2

• 52 y.o. 6/12 intermittent swelling (L) arm and ‘change’ in (L) breast
• No family history
• TBSS 28/11/18
• Recalled for assessment 14/12/18
  – 35mm stellate lesion
  – Abnormal mass left axilla
• Biopsy results 18/12/18
  – Grade 3 ductal carcinoma (+) cytology (L) axillary LN
  – ER/PR (+) HER29 (-) on core
Cases for Discussion - 2

- Consideration of neo-adjuvant therapy
- Staging
- Elected Breast Conservation Surgery
  - ChG and AD
Screening Images
Tomosynthesis Image

- The breast lesion (close to chest wall) and masses in axilla become clearly visible.
Cases for Discussion - 3

- 74 y.o.
- Screen detected mass left breast
- 13mm – Provisional Grade 3 cancer
- Wire localised excision + SN Bx
- Pathology
  - 10mm Grade 3 triple negative
  - Basal phenotype
  - SN neg
Cases for Discussion - 3

• Referred for adjuvant treatment
  – Chemotherapy
  – Radiotherapy