



DUNDEE CANCER CENTRE



Breast Cancer in Scotland: Current issues/future visions

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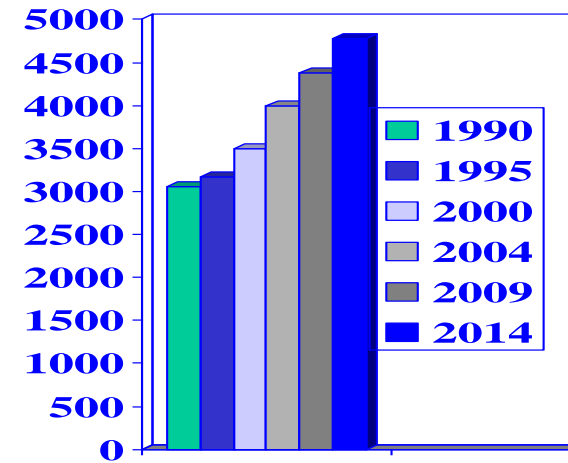
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Breast Cancer

- Increasingly common
- 205 to 481 new cancers in Tayside and NE Fife 2009
- ~60% to >90% 5 year survival
- Multidisciplinary evidence based practice.



Imaging

- Breast Screening – who, when, how
- Detect Cancer Early
- DCIS – which will progress?

- Screening prevents 1300 deaths pa qv 4,000 unnecessary treatment (1% of 307,000 pa)
- 10,00 women, 681 cancers in 20 years, 129 overdiagnosed ,43 deaths prevented
- 20% reduction in relative risk of dying from breast cancer among invitees

Pathology

- Increasing quality and quantity of information on breast cancers
- Information pre-operatively (type, ER, R, HER2)
- Attention to margins - benefits for treatment planning and outcome
- Tissue banking to improve research
- Molecular pathology – tumour categories, relevant to outcome and treatment response
- Pressure on services



Surgery

- “Less is as good as more extensive surgery”
- Mastectomy = breast conservation for survival
- Sentinel node biopsy for more patients (qv axillary node clearance)
- More exact excisions (margins)
- Oncoplastic approaches

- Better reconstruction (autologous (abdominal) flap; synthetic collagen; implants)
- Minimally invasive surgery.....

Drug therapy

- Increased survival with anthracyclines, ?taxanes
- Targeted therapies HER2 (Trastuzumab, T-DM1, Pertusumab)
- Increased use of pre-operative therapy/ trial designs
- Selection of those who do and those who do not benefit from chemotherapy (MINDACT)
- Toxicities (esp of combination therapies)
- Costs v (small) incremental gain

Radiotherapy

- Shorter fractionation (START Trial)
- Increasing fractionation (FAST, FAST-forward)
- Intraoperative radiotherapy (TARGIT Trial)
- Intensity Modulated Radiotherapy (IMPORT Trials)

- Conservatism of some practitioners (£)
- Inadequate resources (kit, physicists, research radiographers)

bench

Discovery

**Tumour
factors**

Implications

**Patient
factors**

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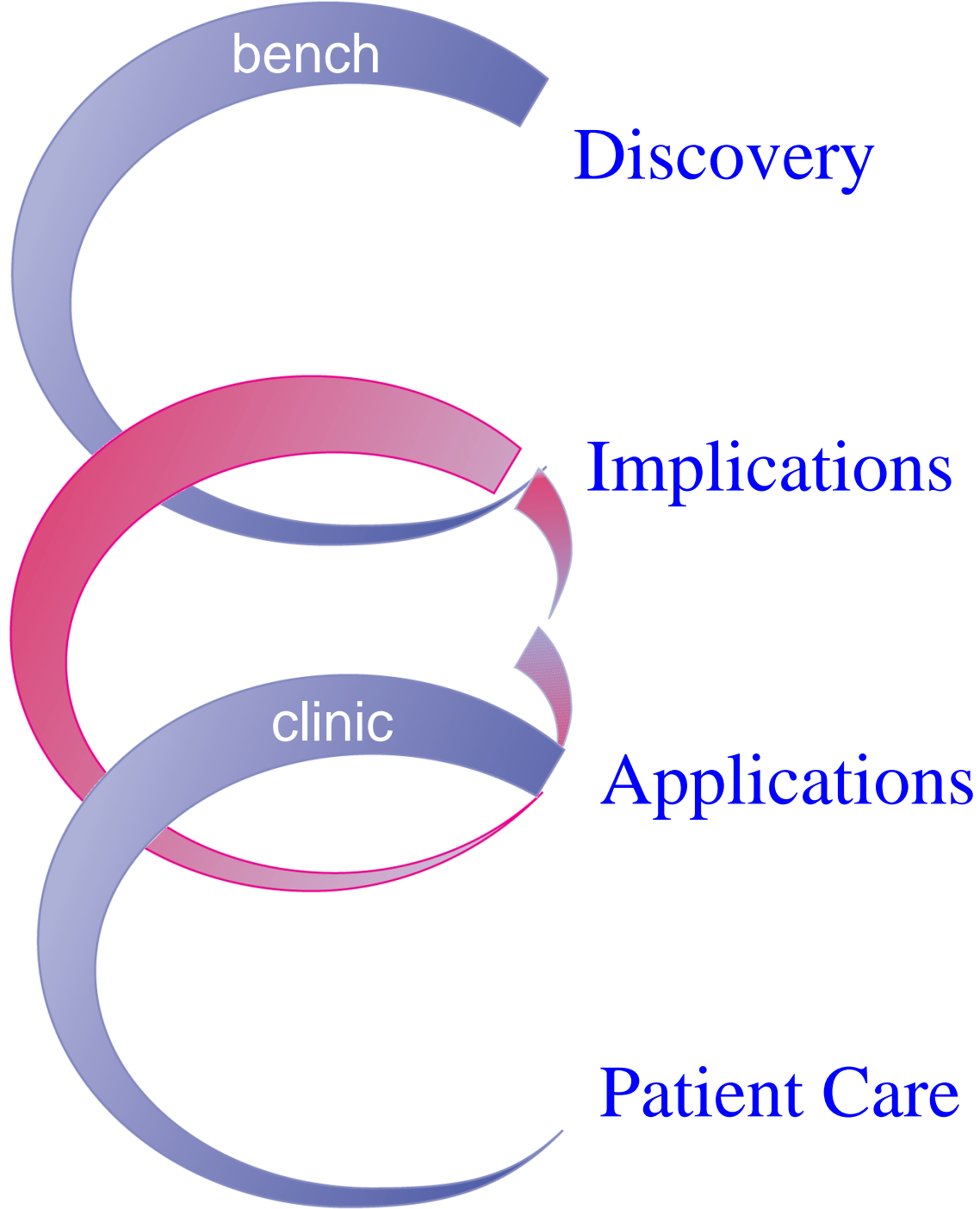
Applications

Behaviours

Patient Care

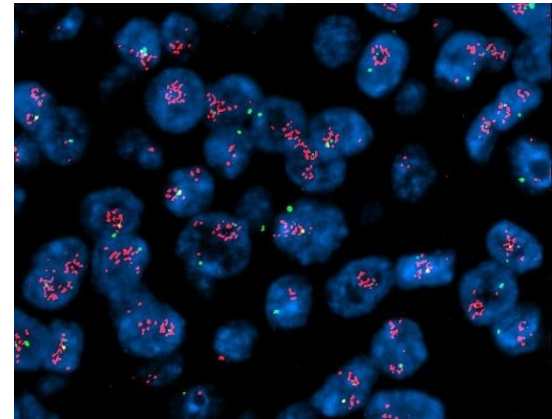
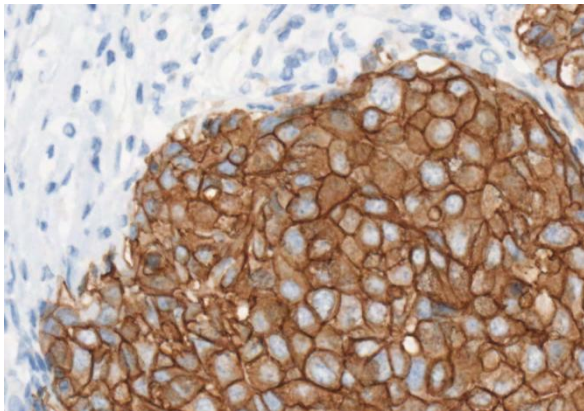


**Tumour
factors**



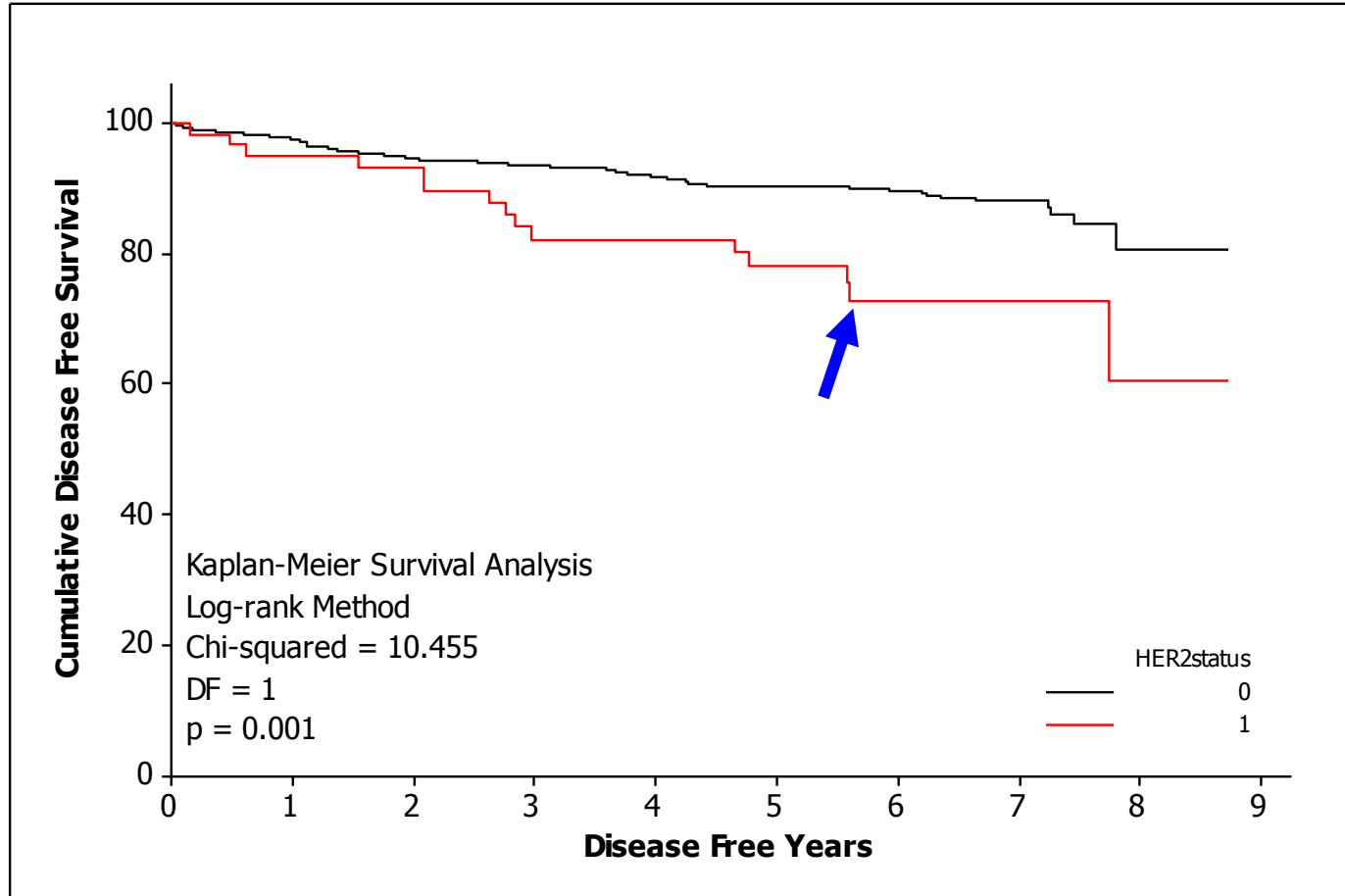
Undertreating ER+ HER2+ cancers

- Capture all demographic, clinical, pathological, ER & HER2 data
- CB11 immunohistochemistry
- HER2 FISH on **all** 2+ cases
- n=776, population based audit



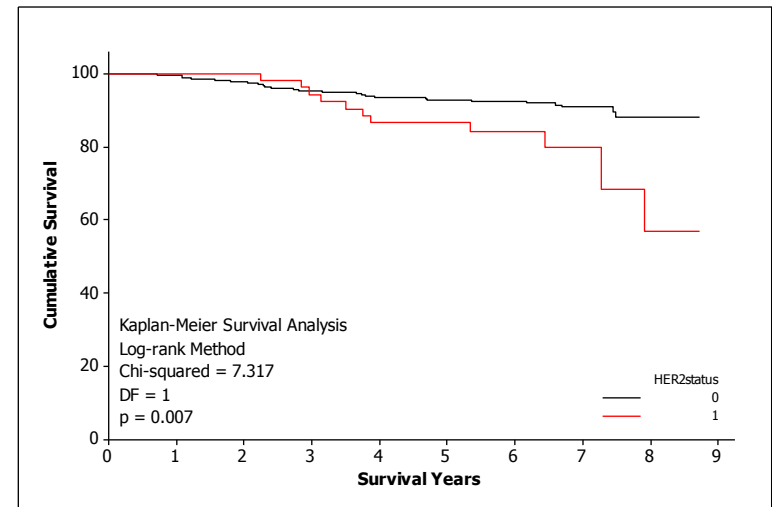
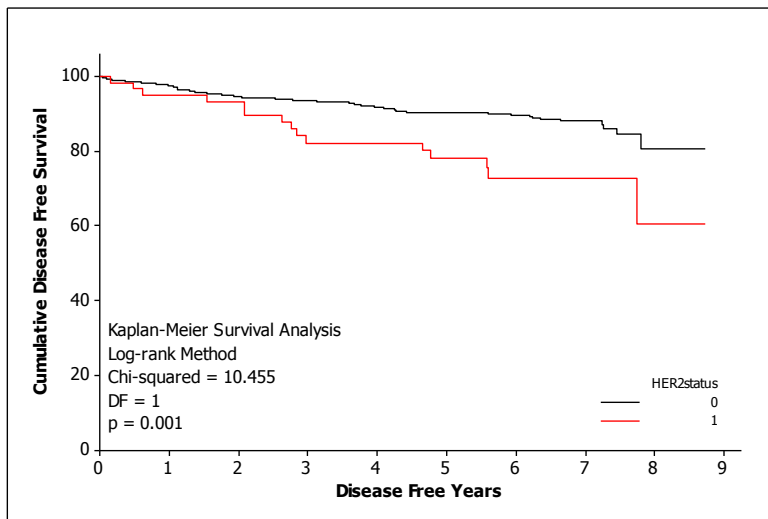
ER+ HER2+ status and DFS

n=737



ER+ HER2+ status and DFS/OS

n=737



Increased mortality in HER2 positive, ER positive
invasive breast cancer: a population based study.

Purdie CA et al, British Journal of Cancer (2010) 103:475-81.

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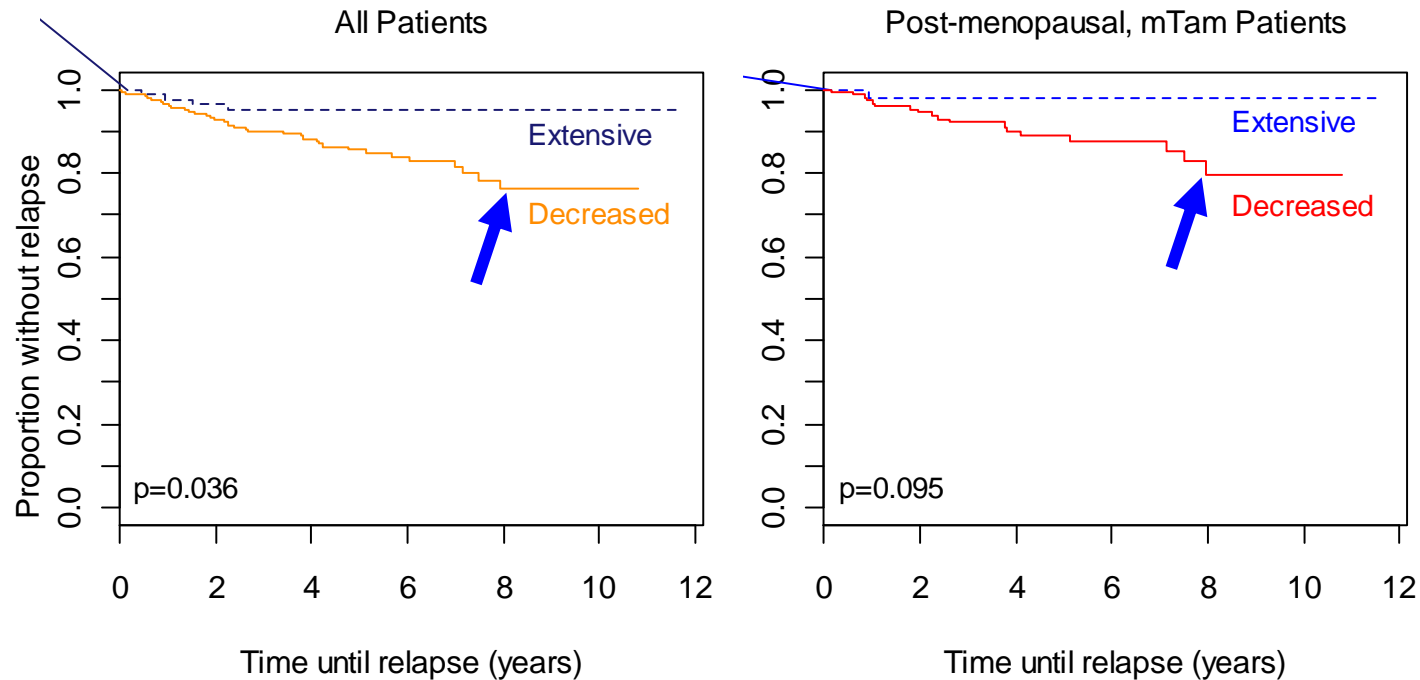
Patient factors

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Who should have tamoxifen?

- CYP450 2D6: tamoxifen/endoxifen
- Dundee/Manchester/Roche Diagnostics Amplichip (comprehensive analysis)



CYP450 2D6

- Comprehensive CYP2D6 genotype and adherence affect outcome in breast cancer patients treated with tamoxifen monotherapy. Thompson AM, et al. Breast Cancer Research and Treatment (2010) 125: 279-287.
- Avoidance of CYP2D6 inhibitors in patients receiving tamoxifen. Ferraldeschi R, Howell SJ, Thompson AM, Newman WG. J Clin Oncol. 2010; 28:e584-5
- 6,000+ patient meta analysis.....

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Discovery

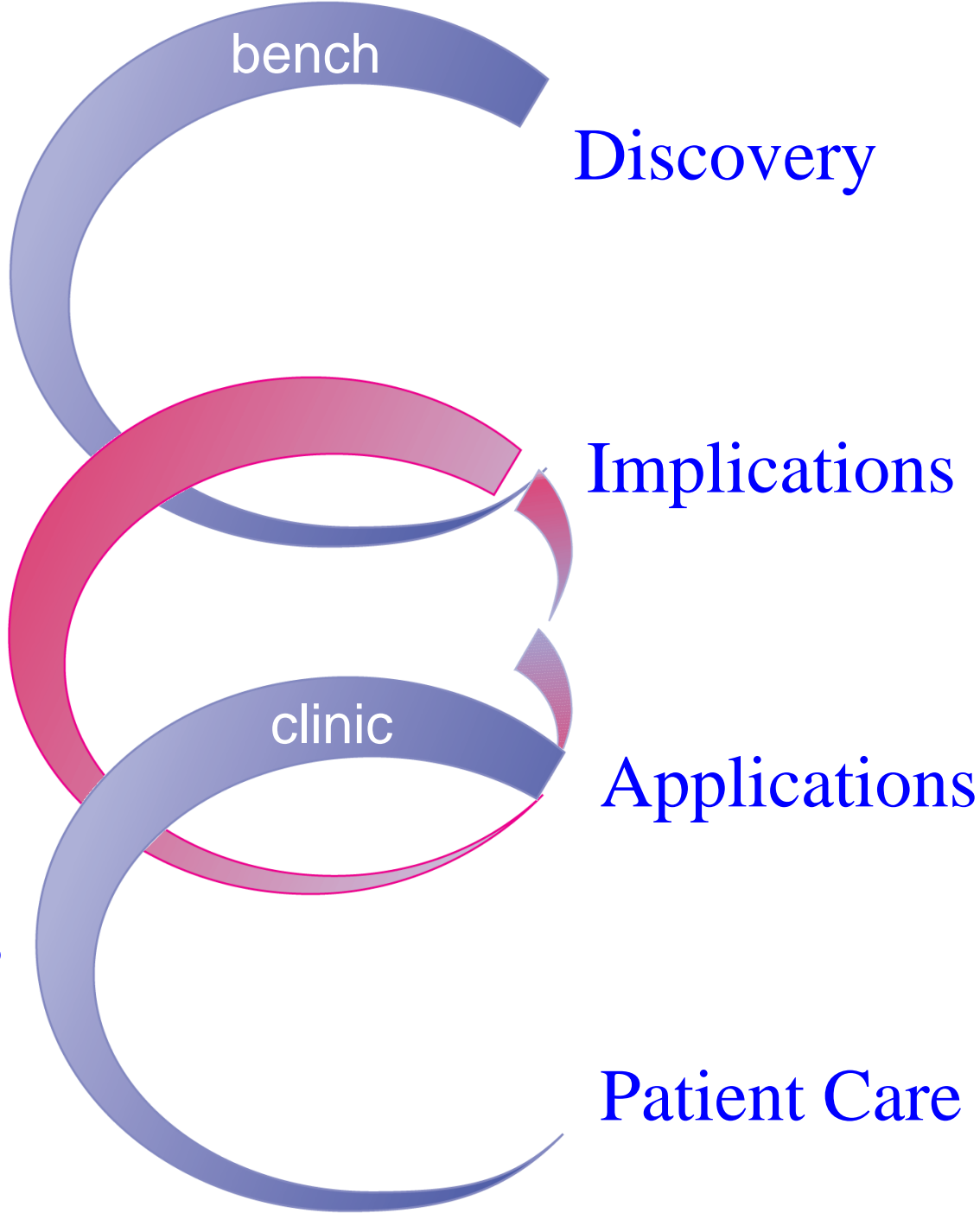
Implications

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Applications

Behaviours

Patient Care



What about adherence?

- Comprehensive CYP2D6 genotype and adherence: reassigning patients with adherence <80% to the decreased metabolizer group resulted in the HR of this group increasing.
- Tamoxifen, aromatase inhibitor adherence: adherence <80% increased mortality; younger women particularly

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Discovery

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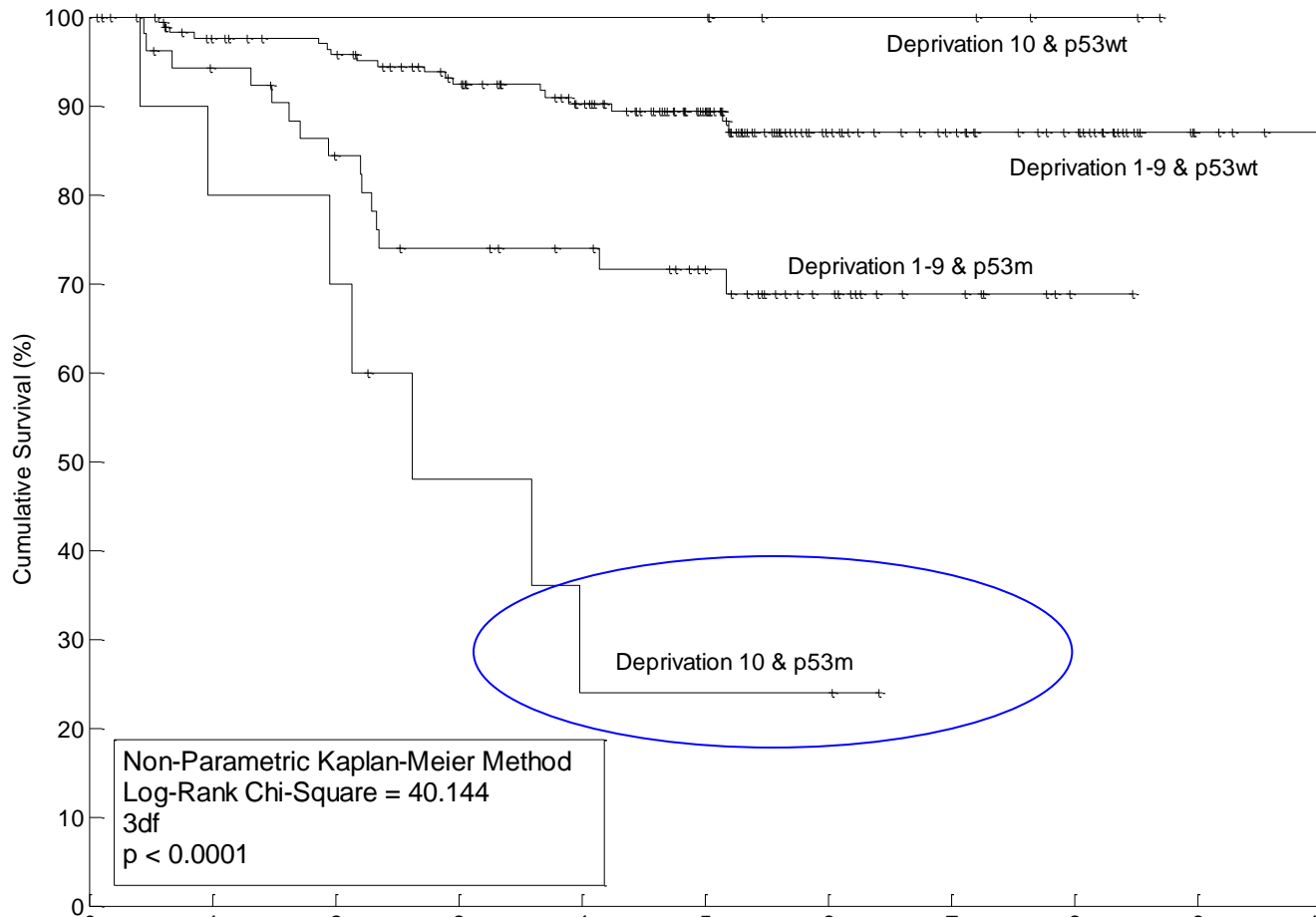
Socioeconomic status and breast cancer

Tayside Tissue Bank/Roche p53 Amplichip

Patients with *p53* mutation in the 10th decile had:

- worse disease-free survival (20% at 5 years)
- worse overall survival (24% at 5 years)
- *p53* mutation, deprivation and poor prognosis in primary breast cancer. Baker L et al British Journal of Cancer (2010); 102: 719-726.

Deprivation



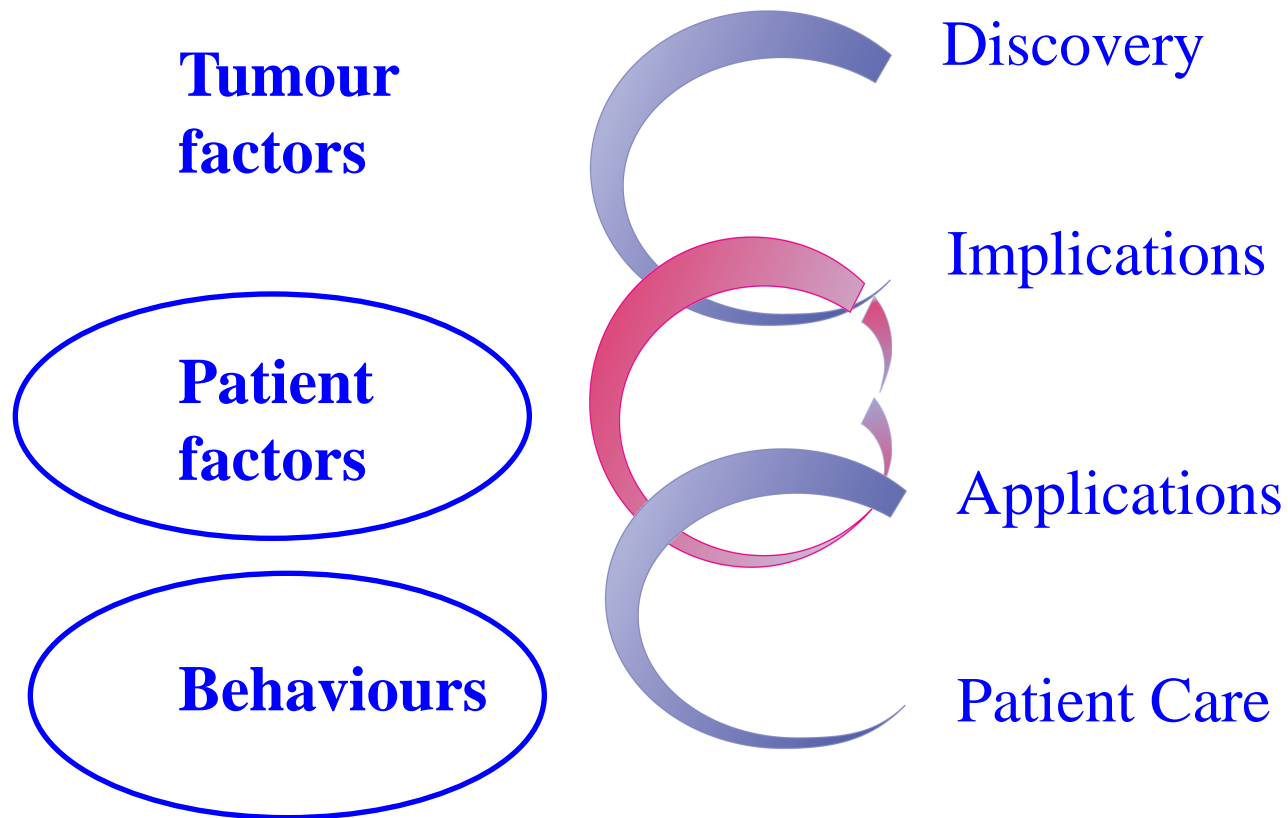


Vision for 2013 and beyond...

An innovative scientific and clinical approach to breast cancer across Scotland (and linking beyond) advancing the:

- prevention
- early detection
- treatments and
- cure of breast cancer.....

What now?



Opportunities:

- Primary prevention:
 - Exercise, diet, alcohol, smoking
 - Drugs (?)
 - DCE, breast screening, workplace, GP
- Secondary (after treatment) prevention:
 - Drugs (tamoxifen, aromatase inhibitors, metformin, aspirin, etc etc)
 - Exercise, diet

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