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Large differences in breast cancer survival between Australia and England

a comparative study using cancer registry data

UICC Conference, Geneva, 28\textsuperscript{th} August 2008
International differences in five-year survival compared to England and Wales (baseline)

Absolute difference (%)

- Australia
- Southern, Western and Northern Europe
- North America
- Eastern Europe
Material

- Cancer registry data
  - Women aged 15-99 diagnosed with breast cancer
    - Patient demographics, tumour characteristics
    - Ecological deprivation scores (unemployment)
Methods

Relative survival

– Probabilities
– Excess hazard ratio
Survival from cancer in the absence of death from other causes

Methods

Survival (%)

Time since diagnosis (years)
Results

New South Wales
- 1980-1983
- 1984-1987
- 1992-1995
- 1996-1999
- 2000-2002

West Midlands
- 1980-1983
- 1984-1987
- 1992-1995
- 1996-1999
- 2000-2002

Age-standardized relative survival (%)

Years since diagnosis

2002: period analysis

16.0%

10.6%
Results

New South Wales

West Midlands
Results - patterns

- Survival higher in New South Wales and Australia
- Deprivation ‘gap’ wider in West Midlands
- Survival much lower among elderly in West Midlands than New South Wales
- Extent-specific differences greater in New South Wales
Results - explanations

- International & socio-economic differences not fully explained by extent of disease
- No effect of age or histology
- Not explained by deprivation
Up to one year after diagnosis

Excess hazard ratio

Model includes:
- deprivation X region
- age group X region
- extent of disease X region
- year of diagnosis
- histological group

Unemployment category

1980-1987
1988-1995
1996-2002
Up to one year after diagnosis

Model includes:
- deprivation X region
- age group X region
- extent of disease X region
- year of diagnosis
- histological group

Excess hazard ratio
2\textsuperscript{nd}-5\textsuperscript{th} years after diagnosis

Model includes:
- deprivation X region
- age group X region
- extent of disease X region
- year of diagnosis
- histological group

1980-1987
1988-1995
1996-2002
Up to one year after diagnosis

Excess hazard ratio

Model includes:
- deprivation X region
- age group X region
- **extent of disease X region**
- year of diagnosis
- histological group

Extent of disease at diagnosis

Localised
Regional
Distant

1980-1987
1988-1995
1996-2002
Some causal explanations

• Delay in diagnosis – patient or system
• Treatment – type, delivery, compliance
• Nutritional status, co-morbidity
Conclusions

• Breast cancer survival differences exist
• Unlikely to be artefact
• May be treatment-related
• May also be partly related to delay (patient, healthcare system)