

Evaluating the UK Breast Screening Programme

Study design and practicalities

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Background

- UK breast screening programme started in 1987
- Decrease in breast cancer mortality rates since 1990
- Debate over relative contribution of screening and treatment changes
- Requirement to evaluate effectiveness

Difficulties of evaluating population screening programmes

- Lack of control group in most programmes
- Dilution
- Self-selection bias
- Confounding
- Small size of effect

UK evaluation study aims

- Primary

Estimate effectiveness of the NHS breast screening programme in reducing breast cancer mortality

- Secondary

Estimate effect of programme on death from all causes and all cancers

Estimate effect of screening policy changes on effectiveness of the programme

Study design

- Cohort study

 - Retrospective and prospective

- Exposure

 - Screening data from national call/recall system

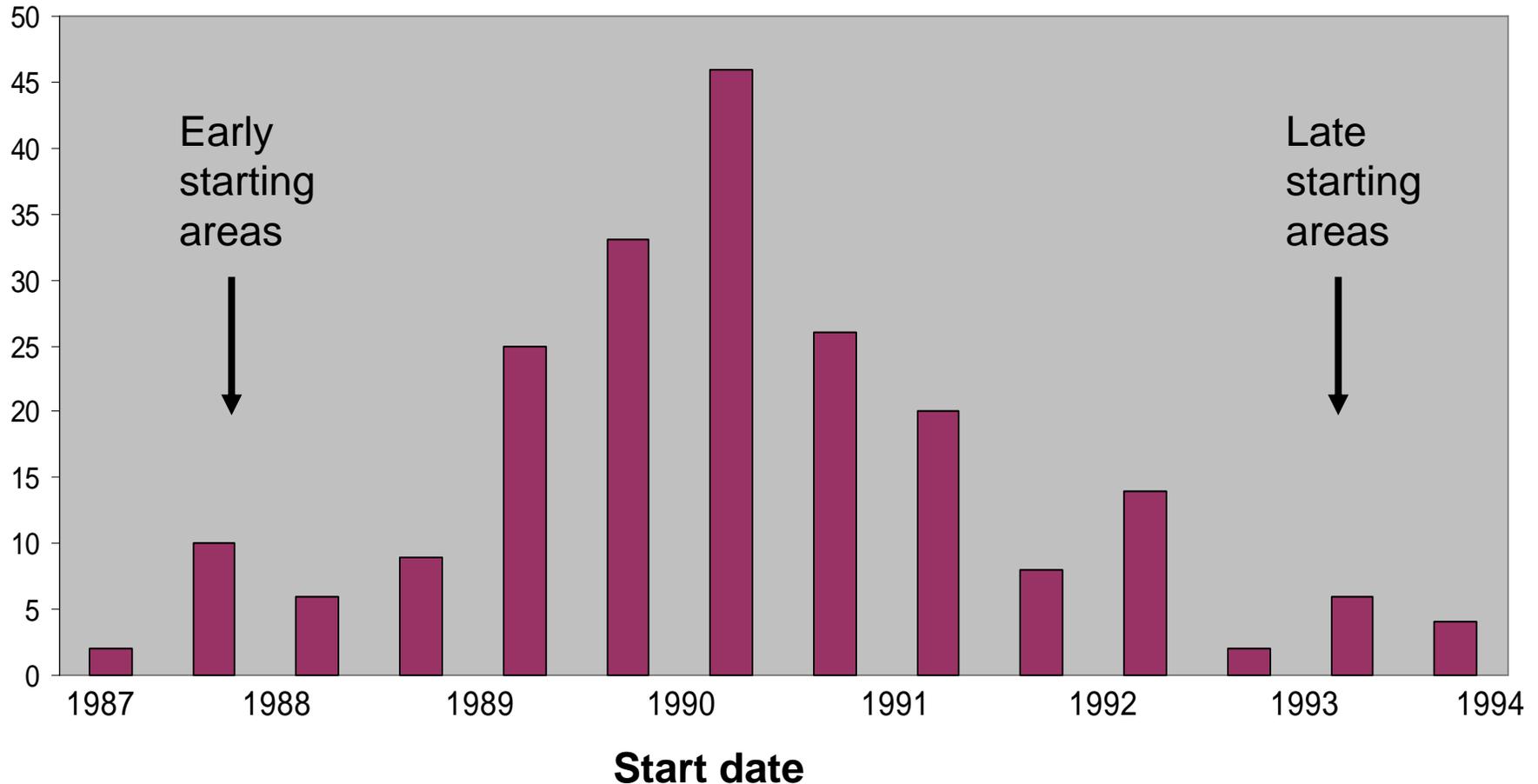
- Outcome

 - Death registrations from UK Office for National Statistics
Predicted breast cancer mortality

Control group

Staggered start to UK programme allows identification of contemporary comparison group

No. of screening areas



Dilution, bias, confounding & size of effect

- Dilution
 - Individual-level data
- Self-selection bias
 - Analyse by intention to treat
- Confounding
 - Socio-economic status
 - Treatment data
- Size of effect
 - Powered for 15% mortality difference after 7 years

Health area re-organisation and data protection

- 2002: major re-organisation of health areas in England and Wales
- Climate of increased data protection

**18 months to obtain permission to
collect data**

Obtaining individual mortality data

- Standard methods are impractical
 - Cost
 - Time
- Exploration of alternative data sources and linkage methods

Progress

- Collection of cohort
2.7M women of eligible screening age up to 1995
- Collection of exposure data for these women
7.3M screening episodes up to end 2004
- Method for collection of mortality data developed and piloted

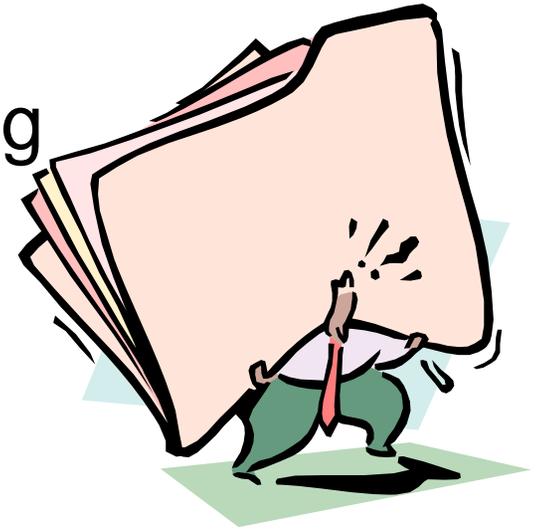
Next stages

- Collection of mortality data
- Data validation
- Preliminary analyses

Effect of screening programme 1995-2001

Concluding remarks

- Evaluation of population screening is technically and practically challenging



- Major hurdles can be overcome

