The SPHERE STUDY – Follow Up

Secondary Prevention Of Heart Disease in General Practice

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Overview of original SPHERE study

• The SPHERE Study was the largest ever non-pharmaceutical trial in general practice on the island of Ireland. The study began in 2003 and ended in 2007.

Aims:
• To design, implement and test an intervention to improve the process of care and clinical outcomes for patients with established coronary heart disease (CHD).
• To reduce rates of illness and premature death for patients with CHD and to improve the care they receive in general practice.
SPHERE Study Rationale

- People with CHD had been highlighted both nationally and internationally as a priority group for prevention efforts
- General Practice is the ideal setting for targeting these patients
- Previous research showed there was considerable room for improvement
SPHERE STUDY SUMMARY

• 903 patients with heart disease (315 in Northern Ireland)
• 48 general practices in the East, North and West of Ireland (16 per region)
• 24 practices were randomly allocated to receive the intervention for 18 months; 24 continued to provide usual care
• Patient risk factor and health status data were collected at baseline and 18 months
  ➢ Questionnaires
  ➢ Medical records
SPHERE Study Intervention

- Designed in consultation with patients and practitioners:
  - Practitioners attended two 90-minute training sessions:
    - Facilitating lifestyle behaviour change
    - Optimal medication prescribing for secondary prevention
  - Patients visited the practice for review every 4 months.
    - Tailored patient care: SPHERE booklet – personal action plan
    - Targets and goals for optimal secondary prevention reviewed
SPHERE Study

- Fewer patients were admitted to hospital over the 18 months in the intervention group: 26% v 34%

- After 18 months there were no significant differences in risk factor control:
  - Systolic BP >140 mmHg: intervention 27%; control 33%
  - Diastolic BP >90 mmHg: intervention 9%; control 10%
  - Total cholesterol >5mmol/l: intervention 15%; control 16%

- No other clinical benefits shown - possible ‘ceiling effect’ related to improved management of CHD

*Murphy, Cupples, Smith et al. BMJ 2009;339:b4220*
Follow-up to the SPHERE study

A six-year follow-up to the SPHERE study commenced in January 2012
The aim - to trace the 903 original participants and explore if the positive changes in admissions are still happening, in the longer term, after six years.
Method

• Contacted practices
• Employed face to face visits & telephone calls
• All practices agreed to take part

• Practices were facilitated to trace original patients
• Research nurses worked with practitioners
• Patients were posted study information, and form to indicate consent
Post Consent

Patients
✓ Short postal questionnaire

Research Nurses
✓ Data collection from records
✓ Questionnaire & patient record data entered into SPSS
Tracing patients

• In NI 16 patients had left the practice
• With ethics committee approval, contact was made with BSO (Business Service Organisation)

Two categories:
• Patients who had moved and were deceased - BSO provided cause of death
• Patients who had moved and were alive - BSO posted study info and invitation to join the follow up study
### Contacting patients who had left the practice

#### Example

<table>
<thead>
<tr>
<th>No</th>
<th>ID</th>
<th>Info from practices</th>
<th>BSO</th>
<th>Outcome</th>
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<td>3403</td>
<td>left practice</td>
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<td>2</td>
<td>3419</td>
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<td>Pt consented &amp; completed Q</td>
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<tr>
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<td>Patient moved to Scotland</td>
<td>Unable to contact</td>
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<tr>
<td>16</td>
<td>4720</td>
<td>left practice</td>
<td>info via BSO</td>
<td>Pt died Myocardial Infarction *</td>
</tr>
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</table>
Northern Ireland

Cause of death (n=46)

- Cardiovascular: 19
- Cancer: 15
- Cerebrovascular: 5
- Other: 4
- Respiratory: 3
Similar methods were employed in the Republic of Ireland

Of the original 903 patients 886 (98%) were traced

Patients Deceased: 138 (15.3%)
No Response: 68 (8.6%)
Declined: 31 (3.9%) [equally divided across arms]

Data were collected from practice medical records:
Intervention Group: 339 (76%)
Control Group: 357 (78%)

Questionnaire return rate: (92%)
RESULTS
• No significant differences between intervention and control practices in hospital admissions

• No differences in mortality

• No differences in proportions of patients above target control for blood pressure or total cholesterol.
Percentage of participants outside secondary prevention risk marker guidelines at baseline and 6 years

<table>
<thead>
<tr>
<th>Variable</th>
<th>SPHERE</th>
<th>SPHERE Follow UP</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Intervention</td>
<td>Control</td>
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<td><strong>Systolic BP</strong></td>
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<td>&gt;140 mm Hg</td>
<td>34.1</td>
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<tr>
<td><strong>Diastolic BP</strong></td>
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<tr>
<td>&gt;90 mm Hg</td>
<td>13.3</td>
<td>11.4</td>
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<tr>
<td><strong>Total cholesterol</strong></td>
<td></td>
<td></td>
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<tr>
<td>&gt;5.0 mmol/l</td>
<td>21.7</td>
<td>22.0</td>
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</table>
Overall risk factor control was much improved from baseline in both groups

- MORTALITY
- BLOOD PRESSURE no difference
- CHOLESTEROL
Conclusions

• Long term follow-up of interventions in primary care
  - is possible and
  - is needed to assess sustainability of effect

• Policy makers should consider
  - regular review of previously effective programmes
  - and a ‘turn on, turn off’ strategy of support

• Improvements are on-going, in the quality of care provision in primary care
Thank You

- **Funder:** Health Research Board, Ireland
- **Participating practices**
- **The SPHERE patients**
- **The Research Nurses**
Healthcare systems in Northern Ireland and Republic of Ireland

Northern Ireland (Population 1.8 million)
• Publicly funded (NHS)
• No charges for access to primary care or hospital care
• People are registered for primary care in a specified general practice
• Practices receive financial incentives for using disease registers and monitoring quality of care
• Prescriptions are free

Republic of Ireland (Population 4.58 million)
• Mixed public and private funding
• Primary health care is free via the General Medical Services scheme (GMS) to those judged less able to pay or aged ≥ 70
• Registration with a practice required only if patient is in the GMS scheme
• Subsidised prescriptions are available (€2.50 per item) within GMS scheme; others pay full cost of medicines, to monthly limit (£84/€90 per family)
• It is important to interpret research in the context of current evidence