Evidence Based Health Care: Systematic Reviews in Breast Cancer

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Evidence Based Health Care

• Is not just about the effects of interventions

• But, reliable evidence on which interventions are beneficial, which are harmful and which have little or no effect is vital to well informed decision making

• Systematic reviews, and The Cochrane Collaboration, help provide this evidence
“I look forward to such an organisation of the literary records of medicine that a puzzled worker in any part of the world shall in an hour be able to gain the knowledge pertaining to a subject of the experience of every other person in the world”

George Gould. May 1898 (First President of the Medical Libraries Association, USA)
Why can’t we do this?
Why do we need systematic reviews?

- Overwhelming amount of healthcare literature
- New healthcare research is not reported in context
- Reliable evidence is essential for better health care
Obtaining reliable evidence on the effects of treatment

- The effects of different treatments might not be very different for major outcomes.
- But, if moderate differences are important.
- It would be worthwhile having good evidence for such differences.
- To get good evidence, the research needs to be as reliable as possible.
- It needs to be based on randomised trials and systematic reviews of these.
EBCTCG Overview - Scope

All randomised trials of the treatment of early (operable) breast cancer

Survival as a primary outcome measure

Starting before 1995 (4th cycle)
EBCTCG Overview

1985  Hormonal and cytotoxic therapy
1988  Publication of hormonal and cytotoxic therapy
1990  All treatments (including radiotherapy, surgery)
1992  Publication of systemic therapy
1995  Publication of local therapy
1995  All treatments
1996  Publication of ovarian ablation
1998  Publications of tamoxifen and chemotherapy
2000  Publication of radiotherapy
2000  All treatments
2005  Publication of adjuvant systemic therapy
      Publication of local therapy
2005  All treatments
# EBCTCG Overview - 4th cycle

## Systemic therapy

*(Lancet May 14 2005)*

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Trials</th>
<th>Women</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polychemotherapy vs control</td>
<td>60</td>
<td>29,000 (94%)</td>
<td>10,000</td>
</tr>
<tr>
<td>Anthracycline vs CMF regimens</td>
<td>17</td>
<td>14,000 (92%)</td>
<td>4,000</td>
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<tr>
<td>Tamoxifen vs control</td>
<td>56</td>
<td>48,000 (88%)</td>
<td>18,000</td>
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<tr>
<td>Tamoxifen duration</td>
<td>15</td>
<td>32,000 (100%)</td>
<td>6,000</td>
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<tr>
<td>Ovarian ablation vs control</td>
<td>15</td>
<td>6,500 (98%)</td>
<td>3,000</td>
</tr>
<tr>
<td>Ovarian suppression vs control</td>
<td>6</td>
<td>5,000 (60%)</td>
<td>800</td>
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</tbody>
</table>
Adjuvant tamoxifen versus control

- 30 years of research
- 88% of worldwide data in the overview
- 56 randomized trials
- 48,000 women
- 18,000 deaths
5yr tamoxifen, ER+: breast cancer recurrence and mortality
EBCTCG Overview - 4th cycle
Tamoxifen versus control

- ER+, All ages: Breast cancer mortality

Tamoxifen (5 years)

- 25% compared to 18% (Tamoxifen vs. control)
- 50% compared to 38% (Tamoxifen vs. control)
EBCTCG Overview - 4th cycle
Tamoxifen and anthracycline regimen

- ER+, <50: Breast cancer mortality

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<thead>
<tr>
<th></th>
<th>Anthracycline regimen</th>
<th>Tamoxifen (5 years)</th>
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<tbody>
<tr>
<td>25%</td>
<td>16%</td>
<td>12%</td>
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<tr>
<td>50%</td>
<td>35%</td>
<td>26%</td>
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EBCTCG Overview - 4th cycle
Tamoxifen and anthracycline regimen

- ER+, 50-69: Breast cancer mortality

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<thead>
<tr>
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<th>Anthracycline regimen</th>
<th>Tamoxifen (5 years)</th>
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<tbody>
<tr>
<td>Breast cancer mortality</td>
<td>25%</td>
<td>15%</td>
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<tr>
<td></td>
<td>50%</td>
<td>32%</td>
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<td></td>
<td>21%</td>
<td>43%</td>
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The Cochrane Collaboration is an international organisation that aims to help people make well-informed decisions about healthcare by preparing, maintaining and promoting the accessibility of systematic reviews of the effects of healthcare interventions.