Improving Search Filter Performance
an analysis of what we didn’t find…

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Background

• Initial palliative care search filter study (JMLA Oct 2006)
• Inadequate sensitivity (45.4%)
• Why such poor performance?
  – Indexing/database factors?
  – Missed MeSH terms?
  – Subject conceptualisation?
• Why should we care?
Objective 1
Describe the nature of subjects in ‘false negatives’
  – thematic analysis of MeSH terms

Objective 2
Empirically improve the performance (sensitivity) of the search
  – frequency analysis of MeSH terms in ‘false negatives’
Thematic Analysis

Methods

• MeSH terms for false negatives extracted & exported into Excel
• 3 researchers independently identified major themes
• JS and RS collocated their themes against DC
• Themes discussed, consensus reached
Thematic Analysis

Results

• Different themes (DC=9, JT=23, RS=23)
• Consensus readily achieved
• 13 final themes

Example

*palliative medications* (JS) and *drug related therapies* (RS) were mapped to *therapeutics for symptoms* (DC)
Thematic Analysis

Results

Diseases
Ethical issues
Existential issues
Health Professional issues
Organisational issues
Pain & other symptoms
Patient issues
Patient-Professional relationship
Psychology, communication, attitudes
Quality of life
Therapies – drug for symptoms
Therapies – non drug for symptoms
Therapies – disease modifying
Frequency Analysis
Methods

- MeSH terms for false negatives extracted & exported into Excel document
- Frequencies calculated
- Disregarded tags such as age, human etc
- A priori subjective 2.5% improvement in recall sought (frequencies = 19 or higher)
Frequency Analysis
Results

• 6 additional MeSH terms identified
  – physician-patient relations (39)
  – prognosis (29)
  – quality of life (26)
  – survival rate (26)
  – treatment outcomes (23)
  – attitude to health (21)
Frequency Analysis

Results

Master Search

exp advance care planning/ OR exp attitude to death/ OR exp bereavement/ OR Death/ OR Hospices/ OR Life support care/ OR Palliative care/ OR Exp terminal care/ OR Terminally ill/ OR Palliat$.tw. OR hospice$.tw. OR “terminal care”.tw. OR Physician-patient relations/ OR prognosis/ OR quality of life/ OR survival rate/ OR treatment outcomes/ OR attitude to health
## Search Comparisons

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity</th>
<th>Precision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master Search</td>
<td>46.3%</td>
<td>72.6%</td>
</tr>
<tr>
<td>PAPAS(^1)</td>
<td>45.9%</td>
<td>72.0%</td>
</tr>
<tr>
<td>NICE(^2)</td>
<td>41.0%</td>
<td>26.4%</td>
</tr>
<tr>
<td>SIGN(^3)</td>
<td>59.1%</td>
<td>21.9%</td>
</tr>
<tr>
<td>Revised Master Search</td>
<td>(\uparrow 64.7%)</td>
<td>(\downarrow 21.9%)</td>
</tr>
</tbody>
</table>

\(^1\) Fairman et al, 2003, \(^2\) Gysels & Higginson, 2004, \(^3\) SIGN Guideline 75
Discussion/Conclusions

• Revised Master Search achieved highest sensitivity…at a cost

• Original Master Search still best compromise overall

• Large number of unique MeSH terms supports that palliative care is a diffuse topic…difficult to search well
Discussion/Conclusions

• The vexing issue
  • No obvious MeSH terms missed in Master Search
  • No obvious palliative topics in 13 ‘themes’
    • What makes an article relevant to ‘palliative care’
  • Constellation of concepts and terms, eg perhaps a cluster of MeSH terms or textwords?
Discussion/Conclusions

- ‘palliative episode of care’ defined by the Australian National Sub-acute and Non-acute Patient (AN-SNAP) Version 1 Casemix Classification (Palliat Med 2004; 18: 227-233)
  
  = stage of disease (advanced or active)
  
  = prospect of cure (little or none)
  
  = treatment goals (primarily QOL)
Discussion/Conclusions

• Also, changing nature of disease over time

    prognosis, survival rate, treatment outcome, physician-patient relations, quality of life, attitude to health

    All associated with the passage of time…
Strengths & Limitations

• Frequency analysis is an objective methodology – only used for MeSH terms not textwords

• OVID Medline not static over time – marginally inaccurate frequencies

• Conclusions limited to
  • incorrect exclusions only – conceptualisation of palliative care must also include correct inclusions
  • General medical journals
Further Research

• Further consideration of how palliative care is conceptualised by palliative and non palliative clinicians

• Exploration of clusters
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