

## **Th11-00 Issues and Challenges around Searching the Literature**

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### **Overview**

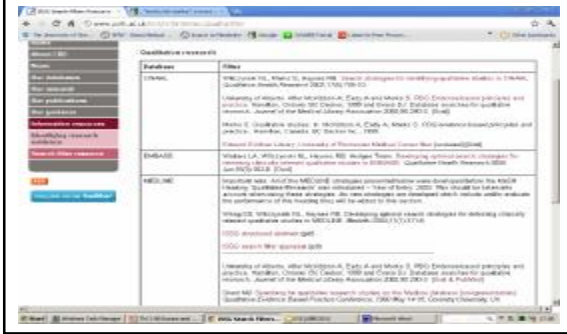
- What is already known (overview of current methods)
  - Bibliographic Databases
  - Supplementary Methods
- What we have learnt recently
- Issues/Challenges to be resolved (methodological questions to be answered)

### **What is already known**

#### **What is Already Known - 1**

- Searching for QR particularly challenging
  - Titles/Abstracts
  - Index terms
- Filters exist but scanning is critical
- Need to create “audit trail” for transparency and “reproducibility”
- Unpublished studies may contain particularly rich, thick description

<http://www.york.ac.uk/inst/crd/intertasc/qualitat.htm>



## What is Already Known - 2

- Searching based on few key terms (e.g. "qualitative", "findings" and "interviews" and thesaurus term "Interviews") may be sufficiently effective and may compare favourably with exhaustive lists of qualitative terms (Grant 2000, Shaw et al, 2004; Flemming & Briggs, 2007)
- Follow up of references/citation searching may yield additional references but provides possible source of bias

## What we have learnt recently

## Bibliographic Databases

- Pearson et al (2011) - Evaluated range of search strategies to identify qualitative evidence on implementation of cardiovascular disease (CVD) prevention programs.
- Within time-limited context of production of policy-relevant systematic review, protocol-driven, targeted, and reference-checking search strategies found to be most effective.
- Obtaining authors' suggestions - resource-intensive process with negligible results.
- Weaknesses in indexing qualitative research in electronic databases mean that sensitivity of searches may need to be reduced to allow time for other search strategies to be implemented.
- Expert knowledge may be optimally used through involving experts in design/implementation of search strategy, rather than solely as source of citations.

### Filters? - 1

- Gorecki et al (2010) compared qualitative methodology search strategies vs subject-specific (health-related quality of life) search strategies in retrieval of qualitative patient-reported data of impact of pressure ulcers on health-related quality of life.
- Combined 5 search strategies with terms for pressure ulcer. Searched 7 electronic databases. Assessed sensitivity, specificity, precision and accuracy for each search strategy.
- Subject-specific (health-related QoL) search strategy, developed by team, had high yield (100% sensitivity), but low specificity (<50%).
- Research methodology-based strategies had lower yields (sensitivity 72-83%) but high specificity (79-83%).

### Filters? - 2

- Subject-specific search strategies identified ALL relevant studies. Research methodology-based strategies did not identify qualitative data reported in mixed method studies. Subject-based strategies more effective in retrieving qualitative patient-reported health-related QoL research.
- Qualitative data reported in both qualitative and mixed methodology research. Searching for QOL data involves trade-offs between yield, sensitivity and specificity.
- Accurate indexing of subject-specific outcomes and methodology still needed.
- *Possible need for mixed method specific search filters?*

### Supplementary Methods - 1

- Conventional subject search (CSS) undertaken as principal method of identifying literature. Four supplementary search methods used:
  - 1.citation searching,
  - 2.reference list checking,
  - 3.contact with experts and
  - 4.pearl growing.
- CSS identified 30/41 included references from 10 different databases.

(Papaioannou et al, 2010)

### Supplementary Methods - 2

- 11 references missed by CSS - identified via citation searching, reference list checking and contact with experts. Pearl growing suspended (nominated pearls dispersed across numerous databases - no single database indexed more than four pearls).
- CSS identified majority of references, but additional search techniques essential and located further high quality references.

(Papaioannou et al, 2010)

**Warning:** A “poor” bibliographic search makes supplementary search approaches appear relatively more effective!

e.g. Greenhalgh T, Peacock R. Effectiveness and efficiency of search methods in systematic reviews of complex evidence: audit of primary sources. *BMJ*. 2005; **331** (7524): 1064-5. *Only 30% of sources obtained from database and hand searches. 51% by “snowballing” (pursuing references of references), and 24% by personal knowledge or personal contacts.*

### Not all studies are of equal value

- “When two articles identified late in the search process did not add anything new to the emerging synthesis, it appeared that theoretical saturation had been reached” (O’Connell and Downe 2009) .
- “As we analysed each additional study, we consciously checked if the findings extended or refuted the emerging line of argument synthesis. If additional studies continue to reinforce the line of argument, it is likely that continuing to search for new studies will reap increasingly diminutive returns, and so the search can be truncated at that point”. (Downe, 2008)

### Searching Is Typically Iterative

- “There is as yet, no agreement on whether search strategies for studies to include should be narrow or widely focused, or how strictly they should be applied. The approach of the author...has been to *be explicit about what question they started off with, and where they ended up, and to take an iterative approach to which studies to include*”. (Downe 2008)
- “The process of undertaking metasynthesis is iterative, contingent, and never definitively complete”. (Downe 2008)

### Searching Will Require Multiple Techniques

- “Having defined the area of investigation, Downe et al (2007) use formal search strategy methods, augmented with techniques termed ‘*berry-picking*’ (Bates, 1989), where initial searching against the broad topic leads to new, unpredictable ideas and directions, and even a new formulation of the original query”.
- “The search also lead to ‘*backchaining*’, which involves close searching through reference lists of included studies to identify any further papers that may fall within the scope of a review”. (Downe 2008)

### QES search methods may be analogous to primary QR

- "While there is general agreement on the need for search strategies aiming to identify qualitative research to be systematic and explicit, there is recent *debate on whether qualitative evidence syntheses share the need for comprehensive, exhaustive searches*".
- "It has been argued that a more purposive sampling approach, aiming to provide a holistic interpretation of a phenomenon, where the extent of searching is driven by the *need to reach theoretical saturation* and the *identification of the 'disconfirming case'*, may be more appropriate". (Noyes et al 2008)

### Issues and Challenges

- Does QES require comprehensive literature searches
- Can literature searches for QES be iterative (instead of "big bang")?
- How should sampling frame for studies be constructed?
- When is theoretical sampling appropriate?
- How many studies are "enough"?
- How many studies are "too many"?
- Is there a place for theoretical saturation?

### Theoretical Sampling?

- "Key difficulties with [theoretical sampling] include *how to establish the population of studies from which to sample without first identifying all relevant studies*. It is also unclear *how data saturation is determined in a synthesis*, where access to the original data is limited, and little guidance on this is available" (Atkins et al 2008)

### Purposive rather than Exhaustive

- "Doyle [2003, p326] states that, *"like meta-analysis, meta-ethnography utilizes multiple empirical studies but, unlike meta-analysis, the sample is purposive rather than exhaustive because the purpose is interpretive explanation and not prediction"*. ....it may not be necessary to locate every available study because, for example, the results of a conceptual synthesis will not change if ten rather than five studies contain the same concept, but will depend on the range of concepts found in the studies, their context, and whether they are in agreement or not.....Aiming for 'conceptual saturation' might be more appropriate when planning a search strategy for qualitative research, although it is not yet clear how these principles can be applied in practice. (Thomas & Harden, 2008)

## Deliberately Seeking Diversity

- “Other principles from primary qualitative research methods may also be 'borrowed' such as deliberately seeking studies which might act as negative cases, aiming for maximum variability and, in essence, **designing the resulting set of studies to be heterogeneous**, in some ways, instead of achieving the homogeneity that is often the aim in statistical meta-analyses” (Thomas & Harden 2008).

## Manuscripts in Progress

- Use of SPIDER mnemonic for specifying qualitative evidence synthesis questions/strategies (to include mixed methods) *Qualitative Health Research (Revised)*
- Strategies for identifying the disconfirming case *Qualitative Health Research (Submitted – awaiting peer review comments)*
- Using strategies analogous to primary qualitative sampling for constructing sampling frames for QES *(Writing in progress)*

## Key Messages

- Retrieval of QES or primary qualitative research studies can inform definition and refinement of Review Question.
- For some purposes use of brief methodological filters may be sufficient.
- Retrieval of qualitative trial-related evidence should not rely merely on serendipity or chance occurrence.
- Systematic approaches to identifying trial-related evidence include searching for mixed method/process evaluations; identification of sibling studies, use of related articles features and citation searching.
- Methods exist to identify studies for a full qualitative evidence synthesis alongside a Cochrane Review of Effectiveness. *Such reviews are not to be considered as Cochrane reviews as they lie outside current Cochrane remit.*

## References

- Gorecki CA, Brown JM, Briggs M, Nixon J. Evaluation of five search strategies in retrieving qualitative patient-reported electronic data on the impact of pressure ulcers on quality of life. *J Adv Nurs.* 2010 Mar;66(3):645-52.
- Papaioannou D, Sutton A, Carroll C, Booth A, Wong R. Literature searching for social science systematic reviews: consideration of a range of search techniques. *Health Info Libr J.* 2010 Jun;27(2):114-22.
- Pearson M, Moxham T, Ashton K. Effectiveness of Search Strategies for Qualitative Research About Barriers and Facilitators of Program Delivery. *Eval Health Prof.* 2011 Jan 10.