Systematic Reviews: What's It All About?

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Center for Reducing Health Disparities 
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Why?
Professor Archibald Leman Cochrane, CBE FRCP FFCM, (1909 - 1988)
During WWII, Dr. Cochrane was taken prisoner and spent his time in captivity caring for Allied prisoners in German POW camps.

1. Doctors are sometimes unnecessary.

2. Evidence available is often insufficient to support any of the treatments used.

3. High quality, randomized controlled trials are needed to provide the evidence for scientifically-based medical treatment.
First Trial:

Problem: Prisoners of war "emaciated above the waist and had pitting oedema to above the knees".

First Hypothesis: Probably famine edema

Differential Dx:. Vit B deficiency, Vit C deficiency

Interventions: yeast in hut 1 (Vit B), vitamin C in hut 2

Outcome:
number of buckets of urine carried out per day
had to be changed to the number of times urine was passed
First Trial:

“As regards the trial, I have always felt rather emotional about it and ashamed of it. I have seldom referred to it since. It was a poor attempt.”

the wrong hypothesis,
the number of subjects was too small,
the subjects were not randomised.
the outcome measure was not valid
trial did not go on long enough.

“On the other hand, it could be described as my first, worst, and most successful trial.”

*One Man's Medicine: A biography of Professor Archie Cochrane*
In the 1987 forward to an Ob/Gyn text:

Need for reviews of randomized controlled trials that are:

- prepared systematically
- kept up-to-date to take account of new evidence

Without such reviews:

- important effects of health care (good and bad) will not be identified promptly,
- new research may duplicate old efforts
- researchers and funding bodies will miss promising leads
- people using the health services will be ill-served
Cochrane Collaboration Formed in 1993 in Response to Cochrane’s Plea.
Systematic Review Process

How can a librarian help?

Cindy Schmidt, M.D., M.L.S.
Education & Research Services
McGoogan Library of Medicine
Standards


**Systematic Review Resources & Service**

**Description of Services**

McGoogan Library librarians can partner with you to author systematic reviews. A full description of our services are below.

**Registry-Related Services**

When asked, librarians will:

1. Search systematic review registries to see if others are already working on your topic.
2. Provide links to systematic review registry websites so that you can register your planned systematic review.
3. Register your planned, systematic review with a systematic review registry.

**Searching Services**

1. Perform an initial thorough search of the relevant, literature databases available at UNMC. A thorough search requires intermittent search work over the course of a few days to a week and is a good basis for an exhaustive search but is not, itself, an exhaustive search.
2. Describe the steps that may be needed to produce an exhaustive search from the initial thorough search.
3. Perform a comprehensive/exhaustive search of the relevant literature databases available at UNMC. An exhaustive search requires repeated review of search results, term harvesting, search revision, and re-searching and may take a month or more of intermittent work.
4. Update search results. A librarian's ability to help with a literature search update will depend on who performed the initial search, whether the search strategies were well documented, when the update is requested, what type of update is needed and what time is available to perform the update.

**Documentation Services**

1. Provide a document containing the search strategies, dates of searches, number of results retrieved from each database, and the number of duplicates removed from the search results as a whole.
2. Write a narrative description of the database search strategies for the methods section of your article.
Getting Started
Welcome to PROSPERO
International prospective register of systematic reviews

Register a review
Registering a review is quick and easy. Just follow three simple steps to register your review in PROSPERO

Search PROSPERO
Search titles of reviews with this simple search or use the filtered search for more searching options

Register your review now
Rough Draft Search Phase
Concepts ➔ headings, keywords, synonyms, related terms

Grouping, joining terms

Filtering search

Translating for additional databases.
PubMed, EMBASE, Cochrane Library

Scopus?

Google Scholar?
CINAHL (nursing allied health)?
PsycINFO (psychology/psychiatry)?
ERIC (education)?
CAS (chemistry)?

Clinical Trial Registries?
Meeting Abstracts?
Search Refinement Phase
Compare results of searches to find missing search terms. Harvest new search terms from search results. Re-search Repeat.
Identify some highly relevant articles

Use citation indexes/Google Scholar to search for articles citing previously identified highly relevant articles?
Request peer review of search strategies?
We want to produce a search that will avoid or stand up to criticism.
Search Result Processing
<table>
<thead>
<tr>
<th>Database</th>
<th>Count</th>
</tr>
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<tbody>
<tr>
<td>PubMed</td>
<td>980</td>
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<tr>
<td>EMBASE</td>
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<tr>
<td>Cochrane Library</td>
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<tr>
<td>Scopus</td>
<td>898</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3902</strong></td>
</tr>
</tbody>
</table>
Title: Comparative analysis of five methods of emergency zipper release by experienced versus novice clinicians
Authors: Oquist M; Buck L; Keagan M; Emery M; Bush C; Ouellette L.

EMBASE:
GET IT @ UNMC

Title: Changes in self-perceived abilities among male and female medical students after the first year of clinical training; 18158655
Authors: Lurie, S. J.; Melcroman, S.; Notziger, A. C.; Sillinn III, L. F.; Mooney, C. J.; Epstein, R. M.
Source: Med. Teach., 2007, 29 (9-10):S21-S26,

Scopus:
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Source: Med. Teach., 2007, Nov, 29 (9):S21-S26, 18158655

Cochrane:
GET IT @ UNMC

Title: Changes in self-perceived abilities among male and female medical students after the first year of clinical training
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Cochrane 2:
Cochrane all:
Cochrane remove:
EMBASE:
EMBASE 2:
EMBASE2more:
ERIC:
Quick Access:
Advanced Search
Import
Export
Create Bibliography
Print References
Statistics:
3902 Reference(s)
12 Folder(s)
2 Shared Item(s)
0 Attachment(s)
0 / 5368709120 bytes used.
Search Date:

9/13/2017

Search Result Numbers:

Original results:

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</tr>
</tbody>
</table>

Results after de-duplication (1477 duplicates removed):

Total: 2425
Several pages of search strategies

(Avoid copying and pasting into an autocorrected document.)
Final or Rough Search Results to the Team
Exhaustive searches are high sensitivity/low specificity searches. 1.5-10% of search results are usually worthy of full critique.
Review of results by Team: One more search step
It is expected that as robotic surgical experience advances, a larger number of expert participants with larger robotic case logs would be included in future studies. Furthermore, the future generation of robotic simulators needs to incorporate more complex robotic tasks, such as robotic surgeries, with anatomical variations to better distinguish experts from intermediates.

Conclusion

Notwithstanding the limitations of our present pilot study, it confirms the face, content, and construct validity of the dVSS across the 3 surgical disciplines of urology, gynecology, and general surgery. Larger sample size and more complex tasks are needed to further differentiate intermediates from experts.

Conflict of Interest: This study was supported by an unrestricted educational grant from Accuris Pharmaceuticals and Pelcom Labs Inc., Canada. Dr. Xuming Tan of the Biostatistics Core Facility, MGH University Health Center Research Institute was commissioned to perform the statistical analysis.

This paper has been peer reviewed.

References

5. Stamekova B, Hooge Wil, Scott DJ. Robotic simulated vs. the UC model urethrotomy task validity, is less drastically demanding, and is performed by more surgeons compared with laparoscopy. Surg Endosc 2011;25:2141-6. http://dx.doi.org/10.1007/s00464-011-2116-1
Writing
Write search strategy section of methods.
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