Databases for SEA projects
for Pharmacy students

8 Jul 2019
9am to 12 noon

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Pamela Oon

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http://libguides.nus.edu.sg/chemistry

I am Suei Nee
Medical Resource Librarian, Medical Library
Master (Library & Information Science)
Introduction
Outline

1. Recap on Session 1
   • PubMed, EMBASE, Cochrane
   • What are the different types of reviews? (CR vs SR)

2. IDEATE
   • Search techniques

3. SEARCH
   Databases (Demo & Hands on)
   • Scopus
   • Web of Science (WoS)
   • SciFinder
Outline (Recap in Session 1)

1. About systematic review
2. Preparing an EndNote Library for Systematic Review
3. Defining A Focused Question
4. Identifying Sources to Search
5. Search Syntax
6. Subject Heading vs. Keyword search
7. Developing Search Strategy (with hands-on exercises)
   a. Pubmed
   b. The Cochrane Library
   c. Embase
8. Reporting the Search Process
9. Managing Search Results With EndNote
   ▪ Remove duplicates
   ▪ Export the Endnote Library to Excel
   ▪ Backup
PICO framework

A useful tool/framework for asking focused clinical questions

<table>
<thead>
<tr>
<th>P</th>
<th>AND</th>
<th>I</th>
<th>C</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Patients</td>
<td>Problems</td>
<td>Interventions or exposures</td>
<td>Comparison</td>
</tr>
<tr>
<td>How would you describe a group of patients?</td>
<td>What do we want to do with them?</td>
<td>What is the main alternative being considered, if any?</td>
<td>What are you trying to accomplish, measure, improve, or affect?</td>
<td></td>
</tr>
<tr>
<td>How is the problem?</td>
<td>What are they exposed to?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Defining a Focused Clinical Question
ALL relevant studies must be found by searching
Search strategy – Refined, documented (i.e. you must keep a record of all searches)
LibGuides on Systematic Review at http://libguides.nus.edu.sg/c.php?g=145717&p=955241
# Critical Review and Systematic Review

<table>
<thead>
<tr>
<th>Label</th>
<th>Description</th>
<th>Search</th>
<th>Appraisal</th>
<th>Synthesis</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Critical Review</strong></td>
<td>Aims to demonstrate writer has extensively researched literature and critically evaluated its quality. Goes beyond mere description to include degree of analysis and conceptual innovation. Typically results in hypothesis or model.</td>
<td>Seeks to identify most significant items in the field.</td>
<td>No formal quality assessment. Attempts to evaluate according to contribution.</td>
<td>Typically narrative, perhaps conceptual or chronological.</td>
<td>Significant component: seeks to identify conceptual contribution to embody existing or derive new theory.</td>
</tr>
<tr>
<td><strong>Systematic review</strong></td>
<td>Seeks to systematically search for, appraise and synthesis research evidence, often adhering to guidelines on the conduct of a review.</td>
<td>Aims for exhaustive, comprehensive searching.</td>
<td>Quality assessment may determine inclusion/exclusionaccompaniment.</td>
<td>Typically narrative with tabular</td>
<td>What is known; recommendations for practice. What remains unknown; uncertainty around findings, recommendations for future research.</td>
</tr>
</tbody>
</table>


https://libguides.nus.edu.sg/c.php?g=145717&p=2317192
Learning Outcomes

Students will be able to:

- **Ideate** - search effectively employing the techniques and strategies (Concepts)
- **Search** - retrieve relevant information from Scopus, Web of Science & SciFinder based on relevant topics
- **Use & Cite, Organize & Manage** - use EndNote to manage the references with ease
- **Additional tools & resources** - Reaxys
IDEATE

Effective Search Techniques
Research Topic: Does Vancomycin cause kidney failure?

Identify the keywords in the topic
vancomycin, kidney failure

Find the synonyms / alternate terms of the keywords
kidney failure: nephrotoxicity

Look for different variations of keywords
nephrotoxicity – nephrotoxic* – nephrotoxin* e.g. *toxin*

Use phrase searching
“kidney failure”

Use Boolean operators
nephrotoxicity OR “kidney failure”

AND OR
**Research Topic:** Does Vancomycin cause kidney failure?

<table>
<thead>
<tr>
<th>Concept 1</th>
<th>Concept 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Keyword / Synonym</strong></td>
<td>vancomycin</td>
</tr>
<tr>
<td>kidney failure</td>
<td></td>
</tr>
</tbody>
</table>

**Alternative terms / Synonyms**

<table>
<thead>
<tr>
<th>Concept 1</th>
<th>Concept 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Keyword / Synonym</strong></td>
<td>vancomycin</td>
</tr>
<tr>
<td>nephrotoxicity</td>
<td></td>
</tr>
<tr>
<td>renal toxicity</td>
<td></td>
</tr>
<tr>
<td>acute kidney injury</td>
<td></td>
</tr>
</tbody>
</table>

vancomycin AND “kidney failure” OR nephrotoxicity OR “renal toxicity” OR “acute kidney injury”
Research Topic: Does Vancomycin cause kidney failure?

Construct the search statement

vancomycin

AND

“kidney failure” OR nephrotoxicity OR “renal toxicity” OR “acute kidney injury”
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• **Additional tools & resources** - Reaxys
Scopus and WoS – Why?

Scopus

Web of Science

http://www.bio.unipd.it/seminari/SCOPUSversusWoS.pdf
<table>
<thead>
<tr>
<th>Features</th>
<th>Scopus</th>
<th>Web of Science Core collection</th>
<th>Google Scholar</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of journals</td>
<td>21,950 (22,800 if include trade pubs)</td>
<td>13,100 (20,556 if include ESCI)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Proceedings</td>
<td>8 million</td>
<td>10.5 million</td>
<td>Unknown</td>
</tr>
<tr>
<td>Focus</td>
<td>science, technology, medicine, social sciences, and arts and humanities</td>
<td>science, social sciences, arts and humanities</td>
<td>All subject areas</td>
</tr>
<tr>
<td>Period covered</td>
<td>1970-</td>
<td>1900-present; coverage back to 1900</td>
<td>Unknown</td>
</tr>
<tr>
<td>Non-English</td>
<td>Yes, if has an English abstract; 22% of journals are non-English</td>
<td>Yes, if has an English abstract</td>
<td>Articles published in many languages</td>
</tr>
<tr>
<td>Interdisciplinary field coverage</td>
<td>Strength</td>
<td>Weakness</td>
<td>Strength</td>
</tr>
<tr>
<td></td>
<td>Elsevier</td>
<td>Clarivate Analytics</td>
<td>Google</td>
</tr>
<tr>
<td>Strengths</td>
<td>• Visually stunning author and citation reports</td>
<td>• Covers only &quot;journals of influence&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• International and specialized disciplinary coverage</td>
<td>• Coverage back to 1900</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Includes Altmetrics when available (on abstract page)</td>
<td>• Organization name unification</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Includes in-press articles</td>
<td>• Publisher neutral (they are an info provider, not a publisher)</td>
<td></td>
</tr>
<tr>
<td>Weaknesses</td>
<td>• Early reports pointed out weak in social sciences and humanities</td>
<td>• Covers only &quot;journals of influence&quot;</td>
<td>• Difficult to narrow down common author name searches</td>
</tr>
<tr>
<td></td>
<td>• Studies show still weak in sociology and physics/astronomy</td>
<td>• Difficulty searching unusual author name formats: hyphenated, compound names, umlauts, etc.</td>
<td>• Few sorting options</td>
</tr>
<tr>
<td></td>
<td>• Typographical errors in records</td>
<td>• Punctuation issues - e.g., ampersands in journal titles.</td>
<td>• Questionable content quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Many non-peer-reviewed sources</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Have to create a Scholar Citation Profile to create reports</td>
</tr>
</tbody>
</table>
SEARCH

Retrieving Information from Scopus
How to access Scopus & WoS?

NUS staff & Students - via NUS Libraries Portal:

1. Go to: http://www.lib.nus.edu.sg

2. Click on “Databases” tab and then click on “Scopus”/“Web of Science” under Major & Popular Databases
On the Advanced search page, you can conduct an advanced search using a large number of field names and other advanced search parameters.

On the Document Search page, you can conduct both simple and more advanced searches using common search parameters.
Build search strategy
In the 'Enter query string' search box, enter the 'drug' term shown below
Enter 'Outcome' term as shown
Click Search (magnifying glass)
From the results page, the following options are available: **Export, Download** and **View Citation Overview** plus the **View Secondary Documents** and **Analyze Search Results** options.
### Operator order of precedence

<table>
<thead>
<tr>
<th>Order</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. OR</td>
<td>The search sensor ( W/15 ) robot AND water OR orbit OR planet is processed in the following order:</td>
</tr>
<tr>
<td>2. ( W/n, \text{PRE}/n )</td>
<td>1. <strong>OR</strong>: First, Scopus processes the <strong>OR</strong> connector by looking for documents containing water, orbit, or planet.</td>
</tr>
<tr>
<td>3. AND</td>
<td>2. <strong>W/15</strong>: Next, it looks for documents where sensor is within 15 words of robot.</td>
</tr>
<tr>
<td>4. AND NOT</td>
<td>3. <strong>AND</strong>: Scopus processes the <strong>AND</strong> operator last, returning any documents it found in steps 1 and 2 that contain water, orbit, or planet, and also contain sensor within 15 words of robot.</td>
</tr>
</tbody>
</table>
SEARCH

Retrieving Information from Web of Science
What is Web of Science Collection?

- **peer-reviewed timely**: curated collection of over 20,000 journals

- **Open Access & subscribed journals**: high-quality (influential) scholarly journals published worldwide

- 250 science, social sciences, and humanities **disciplines**. Conference proceedings and book data are also available.

69 million article records
1 billion cited references

**1900 - present**

- **Web of Science Core Collection**: Search the world's leading scholarly journals, books, and proceedings in the sciences, social sciences, and arts and humanities and navigate the full citation network.
  - All cited references for all publications are fully indexed and searchable.
  - Search across all authors and all author affiliations.
  - Track citation activity with Citation Alerts.
  - See citation activity and trends graphically with Citation Report.
  - Use Analyze Results to identify trends and publication patterns.
On the **Basic Search** page, you may search for records from WoS indexes. All *successful searches are* added to the Search History table.

**Topic search is to search the following fields within a record.**
- Title
- Abstract
- Author Keywords
- Keywords Plus®
Web of Science – Sign up for account

To access Web of Science personalization features, please sign in or register.

As a registered user, you can:

- Set a preference to start your session in a specific database or product
- Save searches in the Web of Science
- Save a Marked List to recall for later use
- Export up to 5000 records at one time
- Add references to your EndNote Library
- Automatically sign in every time you access Web of Science.
From the results page, the following options are available: **Export, sort by** and **Create Citation Report** and **Analyze Search Results** options.
The pharmacokinetic and pharmacodynamic properties of vancomycin

By: Rybak, MJ (Rybak, M.J)

CLINICAL INFECTIOUS DISEASES
Volume: 42 Pages: 535-539 Supplement: 1
DOI: 10.1096/491712
Published: JAN 1 2006
Document Type: Article
View Journal Impact

Abstract
Vancomycin is one of only a few antibiotics available to treat patients infected with methicillin-resistant Staphylococcus aureus and methicillin-resistant, coagulase-negative Staphylococcus species. Therefore, understanding the clinical implications of the pharmacokinetic and pharmacodynamic properties of vancomycin is a necessity for clinicians. Vancomycin is a concentration-independent antibiotic (also referred to as a "time-dependent" antibiotic), and there are factors that affect its clinical activity, including variable tissue distribution, inoculum size, and emerging resistance. This article reviews the pharmacokinetic and pharmacodynamic data related to vancomycin and discusses such clinical issues as toxicities and serum concentration monitoring.

Keywords
KeyWords Plus: RESISTANT STAPHYLOCCUS-AUREUS; PROTEIN-BINDING; IN-VITRO; CLINICAL-SIGNIFICANCE; RENAL-FUNCTION; INTERMEDIATE; SERUM; NEPHROTOXICITY; TEICOPRANIN; INFECTIONS

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Publisher
UNIV CHICAGO PRESS, 1427 E 60TH ST, CHICAGO, IL 60637-2954 USA
Guide to Boolean & Proximity Operators (WoS)

Evaluation of Search Results:
Finding Potential Collaborators

Find the most prevalent authors, organisations (institutions) or countries in a particular field of study based on search query
EndNote – Add references to EndNote Library

- Export references from database, e.g. Scopus or Web of Science
- Export to EndNote Desktop
SEARCH

Retrieving Information from SciFinder
SCIFINDER
HANDS-ON DEMO SESSION

Conducted by Ms Pamela Oon (from ACS International)

Refer to slides at Chemistry Libguide
Steps to access SciFinder

*Note: Always access from Library Portal

1. Go to Library Portal http://lib.nus.edu.sg
2. Click “Database” tab
3. Type SciFinder
4. For first-time user, click SciFinder (Registration website)
   ** Please use your NUS email account
5. For users who have registered for a SciFinder login account, click SciFinder (Publisher’s website)
SciFinder Outline

- Demo
  - Andrographis paniculata
    - Research topic search
  - Vancomycin
    - Substance search
  - 2-oxoglutarate (2OG) dependent oxygenases
    - Research topic search with advanced concepts

- Activity (handout)
  - Your own topic
Additional Tools & Resources
## Essential Resources for Pharmacy

### References
- Web of Science
- Scopus
- Science Direct
- Patent databases

### Selected Chemistry Databases

<table>
<thead>
<tr>
<th>Databases</th>
<th>Chemical &amp; Physical Properties</th>
<th>Reactions</th>
<th>Spectra</th>
<th>References</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material Safety Data Sheets (MSDS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Reaxys</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SciFinder</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Find more resources in: [Chemistry LibGuide](#)
Chemistry Databases

**Reaxys**
- Beilstein and Gmelin Handbook (goes back to 18th century), patents, journal articles
- Wide coverage of literature and patents from 1967 forward, comprehensive registration of all types of chemical compounds, polymers and mixtures
- Physio-chemical data, at one glance physical properties data display
- Natural products
- Query builder
- Includes MEDLINE
- Powerful refine tools to retrieve relevant results
- Patent coverage

**SciFinder**
- Chemical or Civil Engineering, Biomedical Engineering, Materials Science, Physics, Pharmacy

**Complimentary databases**
1. Recap on Session 1
   • PubMed, EMBASE, Cochrane
   • What are the different types of reviews? (CR vs SR)

2. IDEATE
   • Search techniques

3. SEARCH
   Databases (Demo & Hands on)
   • Scopus
   • Web of Science (WoS)
   • SciFinder

4. Clinic session (20 mins)
   • Q&A
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• **Additional tools & resources** - Reaxys
Thank you

Please complete the feedback form @

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