Identifying Information Gaps
Creating Effective Research Questions
Information in Action series

Check out upcoming lunch & learn dates! → Register at library.nshealth.ca/lunchandlearn

Session 2: Screening & Appraising Results
Wednesday, November 8, 2017, 12-1pm

Session 3: Synthesizing Information
Tuesday, November 21, 2017, 12-1pm

Session 4: Using Knowledge to Change Practice
Wednesday, December 6, 2017, 12-1pm
Learning Outcomes

• Determine information **outcome and scope** of need to inform creation of knowledge resource(s)
• Build a **searchable question**
• Identify **key search concepts** and terminology
• **Organize** the parts of your search
Do you dive right in?

When you need to find information, how do you prepare for your search?
1. Determine Information Outcome

• What are you **creating**?
  – Systematic review versus policy update

• What do you **already know**?
  – Reference list, knowledge in the field, exemplar articles

• Are there any **time constraints**?
  – Deadline, working group meeting, submission date, tasking someone else with a search
2. Considering Scope

- What **kind of question** are you asking?
  - Is there already an answer?
  - Are you looking for a review (synthesized) or a clinical trial (raw data)?

- Points in the direction of potential resources to search
Background Questions

**General in nature** and provide foundational information on a single concept.

Background questions cover:
- Terminology
- General Pathology
- Patient Education Resources
- General Drug Information
- Examination/Assessment Procedures

**Examples:**
- What are the clinical manifestations of menopause?
- What causes migraines?
- How do I insert a jugular venous central line?
- How do I perform a psychological assessment?
Foreground Questions

• Typically concern a **specific patient, population or problem**
• More specific and **complex** than background questions
• **Qualitative:** ask about an individual's or population's experience
• **Quantitative:** discover cause and effect relationships by comparing two or more individuals or groups based on differing outcomes associated with exposures or interventions

How do we **capture the central concepts of a complex question** in a way that:

A. Facilitates effective communication about your search need?
B. Identifies potential terminology and additional limits (e.g. study type) to focus search results?
How Questions Impact Search Results

# of Systematic Reviews in PubMed

- Effects of low dose aspirin on stroke risk (520)
- Effects of low dose aspirin on stroke risk in patients who have already had a transient ischemic attack (109)
- Effects of low dose aspirin combined with clopidogrel versus aspirin alone in patients who have already had a transient ischemic attack (38)
### Identify Question Type

<table>
<thead>
<tr>
<th>What are you focusing on?</th>
<th>Type of question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of disease/condition</td>
<td>Intervention/Therapy</td>
</tr>
<tr>
<td>Effective diagnosis of condition</td>
<td>Diagnosis</td>
</tr>
<tr>
<td>Development of disease/condition</td>
<td>Etiology/Harm</td>
</tr>
<tr>
<td>Occurrence or absence of new condition, disease course</td>
<td>Prognosis</td>
</tr>
<tr>
<td>Prevention of disease/condition</td>
<td>Prevention</td>
</tr>
</tbody>
</table>

# Identify Study Types

<table>
<thead>
<tr>
<th>Type of question</th>
<th>Type of study design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention/Therapy</td>
<td>RCT &gt; cohort &gt; case control &gt; case series</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Prospective, blind comparison to a gold standard or cross sectional</td>
</tr>
<tr>
<td>Etiology/Harm</td>
<td>RCT &gt; cohort &gt; case control &gt; case series</td>
</tr>
<tr>
<td>Prognosis</td>
<td>Cohort study &gt; case control &gt; case series</td>
</tr>
<tr>
<td>Prevention</td>
<td>RCT &gt; cohort study &gt; case control &gt; case series</td>
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</tbody>
</table>
3. Building Search Question

Build your PICO

- **Patient or problem**
  - May include the primary problem, disease, or comorbidities
  - Gender, age or race of a patient may be relevant (not always)
  - **Example:** Females over 60 who’ve had a recent transient ischemic attack

- **Intervention**
  - Intervention, prognostic factor, or exposure
  - What do you want to do for the patient? What are you doing to do about problem?
  - **Example:** Daily clopidogrel and aspirin

...PICO Building continued

• **Comparison**
  – What is the main alternative to compare with the intervention?
  – Your question may not always have a specific comparison.
  – **Example: aspirin alone**

• **Outcome**
  – What can you hope to accomplish, measure, improve or affect?
  – **Example: Reduced risk of recurrent stroke**
PICO Question Templates

In ___[P]___, do/does ___[I]___ result in ___[O]___ when compared with ___[C]___?

Example:
In women over 65 who have experienced a transited ischemic attack, does clopidogrel combined with aspirin result in reduced risk of future stroke when compared with aspirin alone?

Find more PICO question templates here: https://library.nshealth.ca/ld.php?content_id=34036872
## 4. Structuring Search Concepts

<table>
<thead>
<tr>
<th>Transient Ischemic Attacks</th>
<th>Clopidogrel</th>
<th>Aspirin</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIA</td>
<td>Plavix</td>
<td>ASA</td>
</tr>
<tr>
<td>mini stroke</td>
<td></td>
<td>acetylsalicylic acid</td>
</tr>
</tbody>
</table>

- **TIA**: Transient Ischemic Attack
- **Plavix**: Clopidogrel
- **ASA**: Acetylsalicylic Acid
## Using Your Search Planning Grid

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(Transient ischemic attack OR TIA OR mini stroke) AND (clopidogrel OR Plavix) AND (aspirin OR acetylsalicylic acid OR ASA)
Benefits of Grid

• Statement will make sense to database
  – OR down column to expand, keep in brackets
  – AND across to combine
• Identifying **filters** separately will ensure you remember to apply last
• Record for updating/modifying search later
1. What type of question is being asked?
2. What type of studies would be best to focus on?
3. Build a PICO
4. Start to fill in grid with key concepts

- Use your own area of research/interest, or try one of our example scenarios to brainstorm the parts of a PICO.

- [https://library.nshealth.ca/ld.php?content_id=34036872](https://library.nshealth.ca/ld.php?content_id=34036872)
Submitting a Literature Search Request

https://library.nshealth.ca/home

Make the Library a Part of Your Team

Library Services support patient care, staff development and serve as research hubs throughout Nova Scotia.

We provide access to evidence-based content in digital and print formats, literature searching services, borrowing from libraries across Canada and the world, programs to support residents and fellows, a dedicated collection for the Sandwich Generation, many exhibitions, and opportunities for research.
Hospital Library Services – Request a Literature Search

Turn-around Time:
Requestors may anticipate search results via a librarian within two weeks of submission. For urgent searches, email the Library directly at cdhalib@nshealth.ca

Please use this form to request help with Literature Searches.

Please help us evaluate the success of this service by letting us know how we can improve this form, or any other aspect of literature searching support by e-mailing: cdhalib@nshealth.ca

Required fields - must be filled in. A red asterisk (*) marks required fields.

User Information

*Name
Mahmet Oz

*Occupation
Physician

*Date Required by:
○ Non-urgent (Usual turnaround time is within 2 weeks, subject to librarian workload)
○ I have a deadline

Deadline Date
11/03/2017

Site/Building
Dartmouth General
Room number/Unit Number
555

*Phone Number
555-555-5555

Fax
555-555-5555

Pager (Cell)

*Email
mehmet.oz@nshealth.ca

*Purpose of Search
Research/Publication ▼

Specify if Other

Costs

Please note: Literature search support is provided as a service to our users. More in-depth searches (i.e. systematic reviews) may have an associated fee. In the case where there are fees, you will be contacted by a Librarian.

**Topic of Search**

P - Population
women over 65 who have had TIA

I - Intervention/Exposure
clopidogrel and aspirin

C - Comparison
aspirin alone

O - Outcome
reduced risk of recurrent stroke
Explain the details and context of your topic. Include terms to include/exclude:

I am only interested in RCTs and systematic reviews.

Provide any known relevant articles:

A systematic review and meta-analysis of published randomized controlled trials of combination of clopidogrel and aspirin in transient ischemic attack or minor stroke.
Zhou X, Tian J, Zhu MZ, He CK.

Search Limits

*Number of Results:
less than 25 ▼

*Time Period in Years (eg. 2004-2010)
2010-

*Languages:
English ▼

*Age Group
Adult ▼

Population
Humans ▼
Take-away thoughts

- **Consider your goals** from the start of a project to make your information-seeking more manageable and productive
- **Use PICO as a framework** to organize key search concepts
- **Access** Library literature search service, support and related training (including custom sessions) via your organization’s library team
Thank you!

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