Class Objectives:

1. Identify ways to get help using PubMed
2. Register and use the My NCBI feature
3. Write out your question
4. Perform basic topic search using MeSH, keywords and synonyms
5. Use the MeSH Database
6. Explore the Advanced Search options to combine and refine search results
7. Review a PubMed Citation
8. PubMed’s Clinical Queries
9. Explore the Send To options
10. Creating Alerts
11. Use Article Linker to access full text
12. Explore how to get Interlibrary Loan for articles we don’t have in the library
13. Review captured Recent Activity in My NCBI
14. Using Filters
15. Pharmacological Action: MeSH vs. PA field

1. **Identify ways to get help using PubMed**
   - PubMed FAQs | PubMed Tutorials | Help
   - Email: AskUs@hsl.ucdenver.libanswers.com (Preferred Method) OR 303-724-2152 – Tell the person who answers that you need help with PubMed

2. **Register and use the My NCBI feature**
   - Create and customize your My NCBI account
     - Customize Highlighting
     - Customize Outside Tool
     - Customize Result Display Setting

3. **Write out your question!**

   If you can’t write down your question, you probably aren’t ready to begin searching a literature database like PubMed. You can use any style of question you like – Null Hypothesis, research question, evidence based PICO style – but write out the question or questions you have so you can identify the concepts you want to search.

<table>
<thead>
<tr>
<th>Patient/Population/Problem</th>
<th>P</th>
<th>In a 48 y.o. Caucasian female with obesity is</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention (or Exposure)</td>
<td>I</td>
<td>liraglutide better than</td>
</tr>
<tr>
<td>Comparison (usually standard of care)</td>
<td>C</td>
<td>orlistat to</td>
</tr>
<tr>
<td>Outcome</td>
<td>O</td>
<td>1 induce weight loss 2 reduce LDL cholesterol 3 Reduce risk of stroke 4 Improve likelihood of survival</td>
</tr>
<tr>
<td>type of question</td>
<td>t</td>
<td>Therapy</td>
</tr>
<tr>
<td>type of study design</td>
<td>t</td>
<td>Meta-analysis</td>
</tr>
</tbody>
</table>
4. Perform basic topic search using MeSH, keywords and synonyms

**Level 1 Comprehensive Search (3 parts)**
and why do we need to be concerned with this?

1. **MeSH** [Medical Subject Heading] = Explodes
2. MeSH vocabulary as “quoted MeSH keyword” to search newest article titles and abstracts
3. Synonyms and variations
   - Plurals vs. Singular, or both
   - Verb or Adjective Endings
   - Compound Words vs. Phrases
   - British Spellings
   - Synonyms – other ways of saying the same thing with entirely different words

5. **Use the MeSH Database**
   - Use the MeSH Database to find MeSH terms, Entry Terms for synonyms and the “tree structures” to understand how PubMed explodes your terms.
   - Use the Pubmed Search Builder box (or a text editor) to build your 3-part search strategy for each single concept.

6. **Explore the Advanced Search options to combine and refine search results**
   - Go to the Advanced Search and review the interface and combine individual search concepts to refine and reduce retrieval.

7. **Review a PubMed Citation**
   - What are the hidden gems in a PubMed citation? Review author contact information, the Similar Articles functionality, reveal assigned MeSH terms to help change or improve your search. Use CTRL-F or Find in your web browser to search for strings of letters/spaces in the text on the webpage.

8. **PubMed’s Clinical Queries**
   - Use the Clinical Queries to help focus your search on the best study designs to help answer therapy questions or etiology/harm questions or prognosis questions. PubMed adds a search behind the scenes to help you limit to the best kind of studies for specific kinds of questions.
   - Other ways to focus include – diagnosis, clinical prediction guides, appropriateness, process assessment, outcomes assessment, costs, economics, qualitative research, and quality improvement. Make a consultation appointment with one of the librarians if you’d like to know more about these other filters you can use with PubMed.

9. **Explore the Send To options**
   - What can you do with your citations once you get them? Explore collections, citation manager, clipboard and e-mail options
     1. Add some citations to a collection. What is the different between creating and appending
     2. Review the Citation Manger option to understand how to export records for EndNote
     3. Use the Clipboard to save selected articles
        - Put some records on the Clipboard and review what happens in your results lists and go to the Clipboard and explore how you might use it in your workflow.
     4. Email yourself some citations so you can see what that looks like and how you might use them.
### 10. Creating Alerts
- Review how to setup an Alert and how to turn it off when you’re done with it.

### 11. Use Article Linker to access full text
- How can you get the article? Do we have a journal subscription you can access or do you need to order a free copy from Interlibrary Loan?

### 12. Explore how to get Interlibrary Loan for articles we don’t have in the library
- Create your Interlibrary Loan account

### 13. Review captured Recent Activity in My NCBI
- Use your My NCBI account to review your last 6 months of searching. Are there other ways to capture your work?

### 14. Using Filters
- You can use filters to create shortcuts to limits like therapy broad/narrow, etiology/narrow, prognosis/narrow, diagnosis/narrow as well as create your own saved strategy to apply on the fly.

### 15. Pharmacological Action: MeSH vs. PA field
- Tagging a pharmacological action term with [mh] targets those citations where the action of interest is indexed in the article. So *methotrexate AND antirheumatic agents[mh]* will find citations which describe methotrexate as an antirheumatic agent. Often used to identify articles that discuss the properties of the pharmacological action in conjunction with the specific drug. This kind of search will miss the most recently added citations to PubMed.
- Tagging a pharmacological action term with [pa] retrieves citations indexed with any drug or chemical identified as exhibiting a particular action. So *methotrexate AND antirheumatic agents[pa]* will find citations which must include methotrexate AND any other indexed antirheumatic agent. Often used with a disease or condition to find citations that include *arthritis AND antirheumatic agents[pa]*, the substances connected to arthritis specifically. This kind of search will miss the most recently added citations to PubMed.