

Flight Tracker Consortium Meeting

February 5, 2025



www.edgeforscholars.org

X@EdgeForScholars

https://redcap.link/flight_tracker

Meeting Agenda



Current Version:
v6.19.0

What's New?

A Letter to Request a My Bibliography API
Bye, Bye to Altmetric

Deep Dive: All About MeSH Terms

What's Next?

Major Updates to Find a Collaborator
Flight Tracker Educational Videos



What's New?

Request: My Bibliography API



- Scholars regularly vet/wrangle their own publications for the NIH's My Bibliography tool
- **Corey Snelson at the University of Washington** asked if there was a way for Flight Tracker to tap into that info
- The way that's done is via an “API” so that computers can talk together; the NIH would have to build one

A screenshot of a PubMed search results page. The search bar at the top contains the text "trevor r smith". Below the search bar, there are buttons for "Save", "Email", and "Send to". To the right of these buttons, it says "Sorted by: Best match" and "Display options". On the left, there are filters for "MY NCBI FILTERS" and "RESULTS BY YEAR" (a bar chart from 2004 to 2020). On the right, the search results are listed. The first result is a checkbox followed by the title "Oral nutritional supplements in a randomised trial are more effective than dietary advice for improving quality of life in malnourished care home residents." Below the title, it says "Elia M. Smith TR, Elia M. Cawood AL, Stratton RJ. doi: 10.1016/j.jclin.2016.01.002. Epub 2016 Jan 11." The second result is also a checkbox followed by the title "Cost-effectiveness of oral nutritional supplements in older malnourished care home residents." Below the title, it says "Elia M. Parsons EL, Cawood AL, Smith TR, Stratton RJ." To the right of the results, there is a "Clipboard" section with a "Clear selection" button. Below the clipboard, there are buttons for "My Bibliography" (which is circled in red), "Collections", and "Citation manager". At the bottom, there are "Cite" and "Share" buttons.

Request: My Bibliography API



- Goal: Co-sign group letter to increase chances of acceptance
- Letter & co-signing: <https://redcap.vumc.org/surveys/?s=FRN39DWCJ7F88KFA>
- We'll send this link out via email after NIH-related dramas cool
- We'll wait until the budget turmoil subsides to send to NLM
- **What could get more PIs and admins to sign it?**



Bye, By, Altmetric



- Per their request, Altmetric is no longer granting Flight Tracker free access to their data
- We're deactivating this code as of **v6.20.0**
- We'll consider putting the code behind a key if your institution has a site license agreement with them
 - **Let me know if you have a site license!**





Deep Dive

All About MeSH Terms

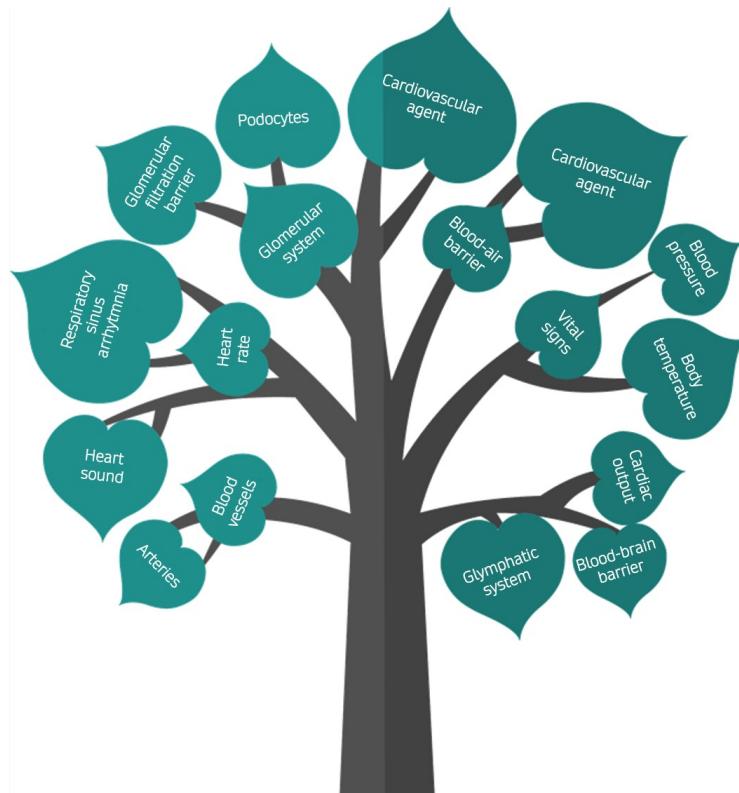
Background



- The Edge for Scholars team has been interested in **connecting** scholars with opportunities more efficiently
 - Cut down on unnecessary noise in research
- At first, I explored **AI** as an enabling technology
- I soon discovered that PubMed's standardized MeSH terms seemed to perform just as good as AI
 - Why reinvent the wheel?
- Therefore, we're planning to use it heavily in new software projects
 - Including Flight Tracker



Overview of MeSH Terms



- What are MeSH terms?
- What are they used for now?
- How does it work?
- Who organizes them?
- How are they organized?
- How can we use them to connect scholars?
- What is our proposed algorithm?

Definition

- MeSH = Medical Subject Headings
- From National Library of Medicine
- Topics of the medical literature
- Introduced in 1960s via print
- Print version discontinued in 2007
- Freely browsable through PubMed



Current Uses



- A “controlled vocabulary” that indexes journals & books in the life sciences
- Huge: **31,000+ standardized categories**
- A hierarchy
- Can “explode” a search to extend to sub-categories
- → Like a thesaurus for medical research terms
- MEDLINE, PubMed & ClinicalTrials.gov
- MeSH terms have their own website
- Medical Librarians are a main use group



MeSH on Demand



<https://meshb.nlm.nih.gov/MeSHonDemand>

MeSH on Demand identifies MeSH® terms in your submitted text (abstract or manuscript). MeSH on Demand also lists PubMed similar articles relevant to your submitted text.

Search Reset Help/FAQ Features

Enter text to be processed here - then click Search

Search any
custom text
for MeSH
terms

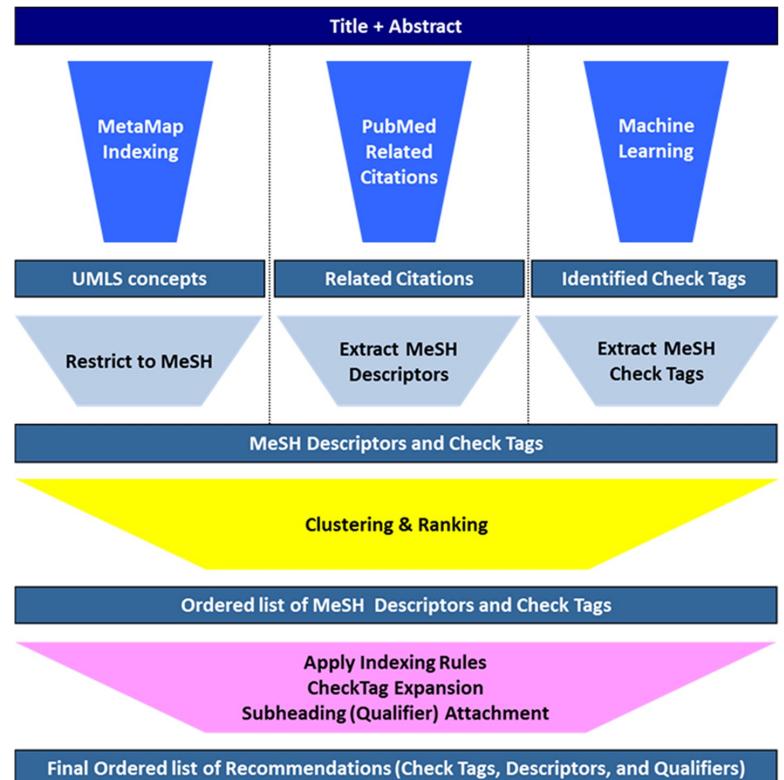
How It Works



Medical Text Indexing [MTI]

1. Identifies medical terms
2. Looks through the paper's citations
3. Uses Machine Learning to refine the results

From “12 Years on – Is the NLM medical text indexer still useful and relevant?” by J Mork *et al.* *Journal of Biomedical Semantics*.



Maintenance



- National Library of Medicine has a team assigned to MeSH
 - Video tutorials about their work are available
- They do a full update in December of each year
 - Combine, add, remove, rename, etc.
- Terms update every business day for quickly evolving science
 - *E.g.*, Covid pandemic



PubMed Papers



- The MeSH on Demand computer [not human] scans almost every publication listed in PubMed:
 - Abstract
 - Title
- When available, the PubMed abstract displays the terms near the bottom of their webpage
- You can search PubMed by a MeSH term

MeSH terms

- [Abortion, Spontaneous* / epidemiology](#)
- [Alcohol Drinking* / adverse effects](#)
- [Alcohol Drinking* / epidemiology](#)
- [Cohort Studies](#)
- [Female](#)
- [Fetal Development](#)
- [Humans](#)
- [Maternal Exposure*](#)
- [Models, Statistical](#)
- [Pregnancy](#)
- [United States / epidemiology](#)

Organization: Tree Hierarchy



- Organized in a “tree”
- Higher categories are more general
- Lower categories are more specific
- Searches encompass the given category and all lower nodes

[All MeSH Categories](#)

[Diseases Category](#)

[Urogenital Diseases](#)

[Female Urogenital Diseases and Pregnancy Complications](#)

[Female Urogenital Diseases](#)

[Urologic Diseases](#)

[Kidney Diseases](#)

Renal Insufficiency

[Acute Kidney Injury](#)

[Kidney Tubular Necrosis, Acute](#)

[Cardio-Renal Syndrome](#)

[Renal Insufficiency, Chronic](#)

[Chronic Kidney Diseases of Uncertain Etiology](#)

[Kidney Failure, Chronic +](#)

Organization: Tree Hierarchy

- 19 root nodes – very broad
- Encompasses all active topics of life sciences research
- Can be used to organize research spaces



All MeSH Categories

[Analytical, Diagnostic and Therapeutic Techniques and Equipment Category](#) +
[Anatomy Category](#) +
[Anthropology, Education, Sociology and Social Phenomena Category](#) +
[Check Tags Category](#) +
[Chemicals and Drugs Category](#) +
[Disciplines and Occupations Category](#) +
[Diseases Category](#) +
[Geographical Locations Category](#) +
[Health Care Category](#) +
[Humanities Category](#) +
[Information Science Category](#) +
[Organisms Category](#) +
[Persons Category](#) +
[Pharmacological Actions Category](#) +
[Phenomena and Processes Category](#) +
[Psychiatry and Psychology Category](#) +
[Publication Type Category](#) +
[Subheadings Category](#) +
[Technology and Food and Beverages Category](#) +

Organization: Tree Hierarchy



- Like an ancestry tree
- Familial terms used:
 - Child / Parent
 - Grandparent / Grandchild
 - Sibling
 - Cousin
 - Aunt / Uncle
 - Niece / Nephew
 - Ancestor
 - Descendant

[All MeSH Categories](#)

[Diseases Category](#)

[Infections](#)

[Respiratory Tract Infections](#)

[Pneumonia](#)

[Bronchopneumonia](#)

[Healthcare-Associated Pneumonia](#)

[Pneumonia, Ventilator-Associated](#)

[Pleuropneumonia](#)

[Pneumonia, Aspiration](#)

[Pneumonia, Lipid](#)

[Pneumonia, Bacterial](#)

[Chlamydial Pneumonia](#)

[Pneumonia of Calves, Enzootic](#)

[Pneumonia of Swine, Mycoplasmal](#)

[Pneumonia, Mycoplasma](#)

[Pneumonia, Pneumococcal](#)

[Pneumonia, Rickettsial](#)

[Pneumonia, Staphylococcal](#)

[Pneumonia, Necrotizing](#)

[Pneumonia, Pneumocystis](#)

[Pneumonia, Viral](#)

[COVID-19 +](#)

Organization: Qualifiers



- The committee realized that a lot of topics [like viral pneumonia, below] had a bunch of items in common
- They created “qualifiers” or “subheadings” that describe the angle that research takes to address the topic
- Therefore, the MeSH heading can be very specific

blood
 cerebrospinal fluid
 chemically induced
 classification
 complications
 congenital
 diagnosis
 diagnostic imaging
 diet therapy
 drug therapy
 economics
 embryology

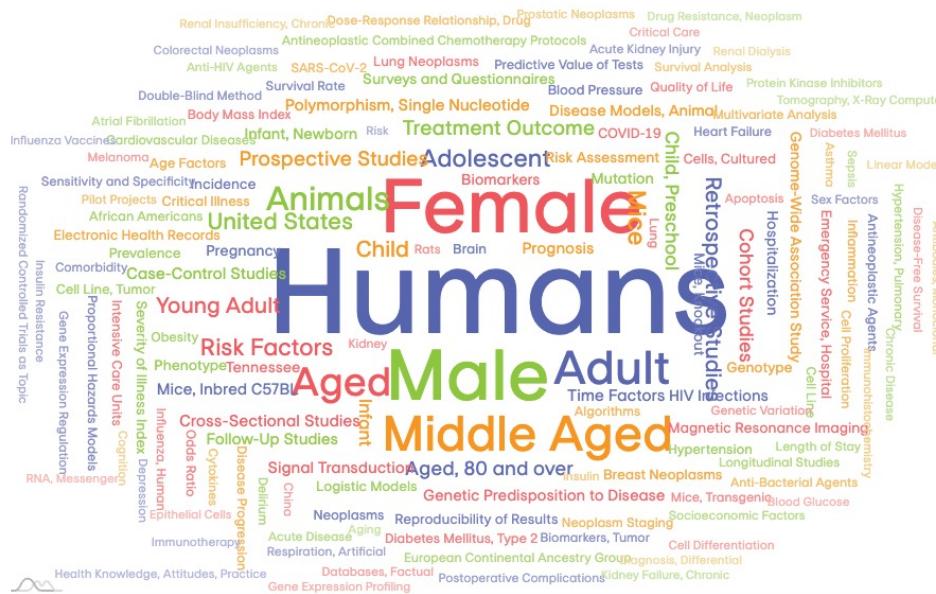
enzymology
 epidemiology
 ethnology
 etiology
 genetics
 history
 immunology
 metabolism
 microbiology
 mortality
 nursing
 parasitology

pathology
 physiopathology
 prevention and control
 psychology
 radiotherapy
 rehabilitation
 surgery
 therapy
 transmission
 urine
 veterinary
 virology

Current Flight Tracker Use



- An option to filter in the Publication List page
- Word Clouds based on frequency



Proposed Uses



- Searching for publications on a topic by Flight Tracker scholars
 - *E.g.*, autism & epidemiology
 - In one project or across all Flight Trackers at an institution
 - By Flight Tracker admins or in the Scholar Portal
- Networking at a conference, meeting, research center, or institution: Flight Connector
- Evolving over time...



Proposed Scoring Algorithm



- Exact match = +10
- Parent/Child = +8
- Siblings = +6
- [Grandparent/Grandchild = +6]
- Cousins = +3
- Same first two nodes = +1
- Emphasize first- & last-authored papers

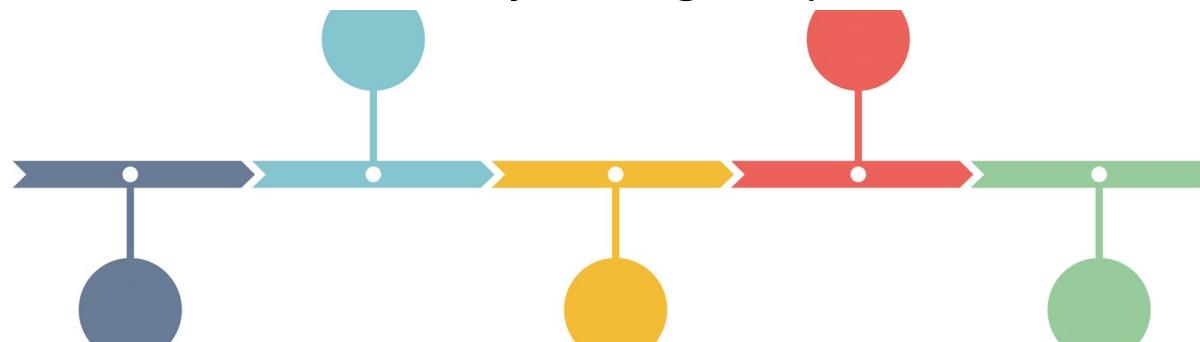


Currently being refined...

Expectations: Timeline



- We're currently just starting to test our core algorithm
- Regardless, we want “connecting scholars” to be a theme throughout **approximately the next two years**
- Not all uses will be through Flight Tracker:
 - Some major Vanderbilt-specific uses targeted
 - Flight Connector is slowly taking shape & will be shared



Recap



- What are MeSH terms?
- What are they used for now?
- How does it work?
- Who organizes them?
- How are they organized?
- How can we use them to connect scholars?
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What's Next?

Find a Collaborator



- Earlier in 2024, the Scholar Portal added a way to search all Flight Trackers for a certain publication topic [MeSH term]
- We've been using it to focus emails for career opportunities, like a research grant for "Health Services Research"
 - Avoiding excess email noise
- We love the targeting; we want to improve it:
 - Make a more advanced interface
 - Make a table of outputs
 - Add it to the admin side of Flight Tracker, too
- **More to come!**



Educational Videos



- Asynchronous, online videos to replace “Newbie” call
- Coming in late spring/early summer
- We’re using an on-campus studio to film short videos to be shared on our website
- **Thanks for your input on topics!**



Educational Video Topics



- History & Overview
- REDCap Instruments
- REDCap Surveys
- Wrangling Data
- Scholar Data
- Publication Graphics
- Grant Data
- NIH Training Tables
- Cohorts
- Dashboards
- Using REDCap Reports with Flight Tracker
- Setting Up the Scholar Portal
- **Maintaining Your Flight Tracker Profile on the Scholar Portal [for Scholars]**
- Tracking Resources & Effectiveness
- Setting up Mentee-Mentor Agreements
- Where Can I Find What Data?
- Data Aggregation [Planned]
- Steps to Get Started
- [Advertisement Video?]



Support Resources



Forum: Flight Tracker Community

Free accounts available

Monthly Troubleshooting Call

3rd Wednesday, February 19, at 1pm CT

Monthly “Newbie” Call

February 18, 11am CT

Monthly Getting Started Workshop

February 21, 12.30pm CT

Type your email in the chat for more info



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