MeSH Update Agenda

- History of MeSH
- Components
- Users & Stakeholders
- Request & Review Process
MeSH History

History of MeSH

Components

Users & Stakeholders

Request & Review Process
History of MeSH

- **1660**: Bill of Mortality for London uses a classification system of 62 known diseases.
- **1960**: First edition of Medical Subject Headings.
- **2001**: Medical Subject Headings changed to concept-centric from term-centric.
- **1954**: First official list of subject headings published by NLM.
- **1963**: Second edition and first printed version of Medical Subject Heading.
- **2015**: MeSH stakeholder review study.
MeSH History (continued-1)

History of MeSH

Components

Users & Stakeholders

Request & Review Process
Component update cycles

- MH and SH updated released on an annual basis every fall.
- Supplemental Concept Records (SCRs) are created daily and distributed nightly Monday-Thursday.
- Users can access MeSH data through Web interfaces (MeSH Browser and the MeSH database)
- Downloadable data set from the NLM Data Distribution Program.
  - XML, ASCII, MARC 21, and RDF.
Descriptors (MH) 30,194

- DC1- 29,607 (Topical)
- DC2- 187 (Pub Type)
- DC3- 2 (Check tag)
- DC4- 498 (Geographic)
Supplemental Concept Records (SCR) 318,184

- easier to make
- daily instead of yearly update
- retain all important MeSH fields for searchers (e.g., synonyms, tree (via Heading mapped to), frequency)
- making a boutique terminology "MeSHfy"

- CC1- 245,823 (Chemicals)
- CC2- 1,217 (Protocols)
- CC3- 6,533 (Diseases)
- CC4- 65,206 (Organisms)
Subheadings (SH) 76

• Also called qualifiers
MeSH History (continued-2)

History of MeSH

Components

Users & Stakeholders

Request & Review Process
NLM Users

- Indexing Cataloging
- History of Medicine Division
- Unified Medical Language System
- Medical Text Indexer
- Genetics Home Reference
- MedGen
Other Stakeholders
## 2020 MeSH & MeSH RDF Usage Study

<table>
<thead>
<tr>
<th>444 Respondents</th>
<th>164 Products</th>
<th>25% of Respondents</th>
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| • 346 respondents fully completed the survey.  
• 98 respondents partially completed the survey. | • Identified as using MeSH data.  
• Products were wide ranging. | • Reported that they provide an application, tool, or system that utilizes MeSH data. |
What We Heard

FAIR Principles
- Findable
- Accessible
- Interoperable
- Reusable

Uses
- Indexing
- Cataloging
- PubMed
- UMLS
- Content Mapping

Needs
- Training
- Documentation
- Content development

NIH National Library of Medicine
MeSH History (continued-3)

History of MeSH
Components
Users & Stakeholders
Request & Review Process
Review Process Principle

• NLM follows a consistent, thoughtful, and deliberate process informed by stakeholder input.
• NLM receives approximately 700 submissions annually.
• Seven review meetings are scheduled throughout the annual MeSH production cycle.
• This process includes review of feedback and requests from internal and external stakeholders through MeSH suggestions.
• Each MeSH request is assigned to a staff member with the subject specialty who drafts recommendations for review by the MeSH Section.
Review process Principle- continued

• Where there are gaps in knowledge, NLM engages SMEs across NIH, other federal agencies, and externally for input.

• The MeSH Section then determines whether to add or modify MeSH vocabulary based on various factors (e.g., literary warrant, previous indexing, and special needs for under-represented fields, and guidelines from DHHS and existing federal government standards).

• Decision-making during review meetings is consensus-based.

• Announces updates via the MeSH webpage and the NLM Technical Bulletin.
Is My Heading Appropriate for MeSH?

1. Determine the heading's meaning.
2. Ask yourself, "Is it in MeSH already?"
3. Does it have high posting in PubMed?
Step 1: Determine Heading's Meaning

- How is it used in the literature?
- Does it have any synonyms?
- How is it indexed currently?
- Is it distinct enough from previous indexing?
- Can it be disambiguated by adding a qualifying word?
- Is it too general or applied too broadly?
- Is your request in scope for indexing the biomedical literature?

*Find answers to these questions!*
Sources & Tools for Step 1

To find alternative terms, relationships to other headings; semantic types, definitions, and previous indexing, use:

- PRIMARY SOURCE
- MeSH Browser and MeSH on Demand
- UMLS Browser
- PubMed
- MeSH Authority Sources
- NCBI Taxonomy
Step 2

Is it in MeSH already or as a synonym or closely related concept?

Yes → Proceed to Step 3!

No → STOP
Step 3

Does it have high posting in PubMed?

• 100 occurrences in titles of MEDLINE-indexed articles
• Or not so high but a lot recently (20 or more in the last 5-10 years and significantly increasing)
• Not a fad? Had a lot of posting a few years back
• Not in only one journal or by a single set of authors
• Not in only a restricted, narrow field?
• High for a commonly occurring disease?
Other Ways to Add MeSH terms

MeSH works on special projects to harmonize data, represent under-served domains.

Recent Projects
- ORDR
- Medicinal Plants
- NCBI Taxonomy
- SDOH
- PFAS
- Ethnic Minorities

Outstanding Projects
- Population Minority
- PROMS
- Anatomy
- BRAIN
- CAS
- Space Medicine
- OT
- American Colleges...
New Trends in MeSH terms

Are we ready for data-centric usage to leverage MeSH to gain NLM resources?

1. AI ready
2. Machine readable fields
3. Simplification of MeSH (e.g., Elbow Injury and Shoulder Injury)
4. Inclusion of natural language friendly entry terms (e.g., heart attack)
5. Continued interaction with regional translations of MeSH (e.g., PAHO)
6. Adoption of other formats (e.g., MeSH RDF)
7. Integration and harmonization of other databases into MEDLINE
8. Increase the coverage
9. Close the gap and MeSHfy
Q&A
Thank you