**Ovid Manual**

**Overview:** This manual provides guidance on effectively utilizing MeSH and Emtree indexing within the Ovid platform to retrieve publications related to Electronic Health Records (EHRs). It covers the following topics:

* Overview of Medical Subject Headings (MeSH) and Emtree
* Introduction to the Ovid platform
* Strategies and query formulation for retrieving EHR-related publications

# Medical Subject Headings (MeSH) and Emtree

**MeSH and Emtree Definitions**

The Medical Subject Headings (MeSH) thesaurus is a structured and hierarchical vocabulary developed by the National Library of Medicine. It is used for indexing, cataloging, and searching biomedical and health-related information. MeSH encompasses subject headings featured in MEDLINE/PubMed, the NLM Catalog, and other NLM databases.

The Emtree thesaurus is a hierarchically structured, controlled vocabulary for biomedicine and the related life sciences. It includes a whole range of terms for drugs, diseases, medical devices and essential life science concepts. Biomedical experts use Emtree for deep, full-text indexing of all journal articles in Embase, ensuring maximum discoverability of biomedical evidence.

**Why Using MeSH and Emtree**

MeSH and Emtree are used to index citations, allowing us to retrieve all records on a particular subject regardless of the terminology used by the author. For example, a search for the MeSH term Electronic Health Records will retrieve records that include terms such as EHRs, electronic medical records, and computerized medical records, including any variant spellings and plurals. Narrower, more specific MeSH terms will also be searched, such as Health Information Exchange.

**Differences and Similarities between MeSH and Emtree**

MeSH and Emtree are both comprehensive biomedical and life science thesauri, respectively used to index the biomedical literature in MEDLINE® and Embase®. MeSH is used to index articles for MEDLINE. Emtree is used for full-text indexing of all journal articles in Embase.

MeSH and Emtree have similar facet structures. Emtree was modeled on MeSH in 1988. They both include broader and narrower terms and synonyms and are linked to CAS registry and Enzyme Commission numbers.

**MeSH and Emtree Hierarchy**

MeSH Headings, Subheadings, and Publication Types are organized within hierarchical "MeSH trees," allowing for simultaneous searching of both broad and specific topics. This structured approach enhances indexing by leveraging hierarchical relationships. At the broadest level, MeSH includes general categories such as "[Genetic Phenomena](https://www.ncbi.nlm.nih.gov/mesh/?term=genetic+phenomena)," while more specific terms, such as “Metabolic Reprogramming” and “Biological Coevolution”, appear at narrower levels. A single MeSH term can belong to multiple hierarchies, ensuring comprehensive coverage across related subjects.

A screenshot of a cell division

Description automatically generated

Emtree also has a similar hierarchy.

A screenshot of a computer

Description automatically generated

**Anatomy of a MeSH Record**

Each MeSH term has an entry in the MeSH database. For example, take a look at the entry for the MeSH term [Electronic Health Records](https://www.ncbi.nlm.nih.gov/mesh/68057286).

**MeSH Heading & Definition:** describes how the term is used for indexing.

**Subheadings:** can be added to a MeSH heading to focus on a particular aspect of a concept.

Ensures MeSH term is one of the main subjects of a paper.

Turns off auto-explosion of a MeSH term.

A close-up of a questionnaire

Description automatically generated

A white background with black numbers

Description automatically generated

**Entry Terms:** synonyms of the MeSH term. Searching any of these in PubMed will automatically retrieve citations for papers indexed with the MeSH term.

A close-up of a computer screen

Description automatically generated

**MeSH Hierarchy:** shows the hierarchical relationship of MeSH terms. More specific terms are found lower in the hierarchy. Some terms are positioned in more than one branch.

# Ovid

Ovid is an online platform for accessing medical journals, books, and databases. Follow these steps to retrieve publications on Ovid:

**Step 1:** Access the [Ovid Search History Launcher](https://tools.ovid.com/ovidtools/launcher.html).

A screenshot of a computer

Description automatically generated

**Step 2:** Click "Choose databases" and select the relevant databases.

A screenshot of a computer

Description automatically generated

**Step 3:** Input your search terms and click "Submit" to retrieve publications.

A screenshot of a computer

Description automatically generated

# EHR Query Explanation

Our EHR queries consist of three key filters:

* Topic Filter – Identifies publications related to Electronic Health Records (EHR).
* Publication Year Filter – Limits results based on the year of publication.
* Geographic Location of Study Population Filter – Restricts results to publications focused on specific regions

**Topic Filter**

* Query: (EHR or EMR or electronic health record\* or electronic medical record\* or electronic patient record\*).mp.
* Explanation: This query retrieves publications that mention Electronic Health Records (EHR) and related terms. The “.mp.” (multi-purpose) command in Ovid searches for these terms across multiple fields, including titles, abstracts, and subject headings. The use of wildcards (\*) ensures that variations (e.g., "records" vs. "record") are included.

**Publication Year Filter**

* Query: (2014\* or 2015\* or 2016\* or 2017\* or 2018\* or 2019\* or 2020\* or 2021\* or 2022\* or 2023\* or 2024\*).dt.
* Explanation: This filter ensures that retrieved publications fall within the specified publication years (2014–2024). The “.dt.” (date) field in Ovid restricts results to articles published within these years. The wildcard (\*) allows flexibility in capturing variations in date formatting within the database.

**Geographic Location of Study Population Filter**

We utilize MeSH term [Geographic Locations](https://www.ncbi.nlm.nih.gov/mesh/68005842) to realize the population geotagging. We took US as an example.

* Query: (exp United States/ or Puerto Rico/ or United States Virgin Islands/)
* Explanation: The "exp" (explode) function ensures that all related subcategories under "United States" are included, as it has multiple hierarchical subdivisions (see below). The "/" (forward slash) indicates a Medical Subject Headings (MeSH) term or a controlled vocabulary term, instructing Ovid to search for a specific subject heading rather than just keywords in the text. Additionally, Puerto Rico and the United States Virgin Islands are explicitly included, as they are not categorized under "United States" in MeSH but are U.S. territories (see below).

A white background with black text

Description automatically generatedA close up of a map

Description automatically generatedA screenshot of a computer

Description automatically generated

And this is how the query appears when retrieving EHR-related publications focused on the United States, published in 2014, from MEDLINE:

A screenshot of a computer

Description automatically generated

**Reference**

1. <https://www.nlm.nih.gov/mesh/meshhome.html>
2. <https://www.ncbi.nlm.nih.gov/mesh/1000048>
3. <https://libguides.mssm.edu/pubmed/why_MeSH>
4. <https://library-guides.ucl.ac.uk/pubmed/mesh>
5. <https://supportcontent.elsevier.com/Support%20Hub/Embase/Files%20&%20Attachements/4685-Embase_White%20Paper_Comparison%20of%20Emtree%20and%20MeSH_July%202015.pdf>