Embase®

Indexing Guide 2018

A comprehensive guide to Embase's indexing policy

1. Introduction

This guide describes the indexing policy for journals covered by Embase. It is not intended to be a practical search guide, but it will help you formulate search queries and will give some insight into the results. In other words, this guide focuses not on how to search but on what to search.

2. About Embase

Embase gives users access to the world's largest searchable biomedical literature database, containing peer-reviewed articles and grey literature, including conference abstracts. It is available both as a stand-alone database at www.embase.com and through vendor platforms.

Embase provides access to the content of millions of peer-reviewed articles and conference abstracts thanks to its extensive and authoritative indexing. Together with its sister product Embase Classic, Embase covers over 32 million articles from 1947 to present, and is currently growing at over 1.4 million records a year.

Indexing is based on Elsevier's life science thesaurus Emtree®. Each article or conference abstract is indexed with as many terms as required to describe its content, with a special focus on drugs, devices and diseases.

As a biomedical database covering around 8,200 journal titles, Embase covers all disciplines of medicine and biomedical science, and includes substantial coverage of related health subjects. The full range of topics covered by Embase is shown in Appendix 1.

How articles are indexed depends on the source and the stage in the production process:

- Articles from more than 6,200 journal titles are indexed using the guidelines described in this guide. This includes over 3,300 journals that represent the core titles of biomedical science and are also covered by MEDLINE®.

- A further 2,030 MEDLINE titles that are considered less important for the core focus of Embase (drugs and clinical science) are licensed from the National Library of Medicine of the United States (NLM). Indexing for these titles is derived from the MeSH® terms assigned by NLM. These are mapped to Emtree to maximize the consistency of access and retrieval (see Section 5).

- Since 2009, Embase has covered conference abstracts published primarily in journal supplements. These abstracts, which represent the entire record (i.e., there is no longer article with additional content associated with them), are indexed using automated procedures based on the manual guidelines described here (see Section 4.5).

- Automated procedures are also used to provide a provisional index for articles-in-press and "in-process" records that have not yet been fully manually indexed.

3. How Embase articles are indexed

3.1. Principles

Note: Hereafter, article is used to mean any content type.

Indexing makes it possible to retrieve consistent and comprehensive information from Embase. It significantly enhances search options, which would otherwise be limited to citations and abstracts. Embase embodies three core principles of indexing:

- In assigning index terms, indexers check the full article, not just the title and abstract.
- Index terms are controlled by the Emtree thesaurus to give consistent coverage of concepts that may be expressed in many different ways in the literature.
- Indexing is carried out according to well-defined guidelines summarized in this guide. This further enhances the consistency of the database.

3.2. Process

With the exception of articles designated for automatic indexing (see Section 4.5), indexing for Embase is a manual process performed by trained indexers with a biomedical background.

Indexers read and analyze the full text of articles to identify relevant concepts and index them with the most appropriately specific Emtree terms. At the same time, they index other terms in fields not controlled by Emtree, such as drug and device trade names and manufacturer names, clinical trial numbers and molecular sequence numbers.

For articles that are not in English, the indexers use the English title and abstract (if present).

3.3. Thesaurus

Emtree, also known as Elsevier's life science thesaurus, contains over 75,000 preferred biomedical terms and 320,000 biomedical synonyms ordered within 14 facets (topic-specific taxonomies) including anatomy, diseases, organisms, biochemical functions, biomedical procedures, health care concepts, study types and geographical areas among others.

The largest facet, "chemicals and drugs", includes both drugs (see Section 4.3.3) and chemical entities of every kind, from endogenous compounds to environmental toxins. This facet accounts for almost half of all Emtree preferred terms and over 60% of its synonyms.

Using Emtree, indexers are able to identify the correct preferred term for any concept they find in the full text of the articles they read. Therefore, users can be confident in their use of Emtree preferred terms for searching.

> Example: Navelbine and vinorelbine are alternative names for the same drug. Without indexing, both names would have to be searched to maximize retrieval. However, with the help of Emtree all records are indexed with the preferred term navelbine, so that comprehensive retrieval is assured using this term alone. If users instead search using the synonym vinorelbine, Emtree maps this term to navelbine, thus ensuring identical results.

3.4. Major and minor terms

When reading and analyzing articles, our indexers ensure that each relevant concept is identified with an index term. They also designate selected terms representing the focus of the article as major terms. All other terms are (by extension) minor terms.

Articles are indexed with an average of 3–4 major terms. Up to 50 minor terms are possible, though there is much variation. Since the major status of a searched index term identifies the most relevant records in a search, it is a useful tool to limit retrieval

3.5. Quality control

An important aspect of indexing for Embase is quality control. Quality control is carried out at two stages of the indexing process:

- Validation during indexing: Our indexers are warned if they attempt to index terms in the wrong field, or if the terms cannot be found in Emtree.

- Overall indexing quality: This is monitored in monthly checks using representative samples. Feedback is given to the indexers to improve the quality of their work.

4. Embase indexing in detail

The Embase indexing guidelines described in this guide are applied to the core content of Embase (see Section 2). That covers over 6,200 journals that are indexed by Elsevier, including all major drug and clinical journals. Approximately two-thirds of the articles are indexed with at least one drug or chemical term.

For articles derived from the 2,030 additional MEDLINE journals included in Embase, MeSH terms are mapped to Emtree to provide indexing that is compatible with Elsevier indexing (see Section 5).

4.1. Original versus non-original articles

Embase covers both original literature (e.g., research articles) and non-original literature (e.g., reviews). Original articles are typically identified using the *Item* types article and conference paper. The most important non-original *Item* types are review and short survey.

Original articles: Only original (new) information is indexed. Information originating from other publications (e.g., background information in the Introduction or results from other studies mentioned in the Discussion) is not indexed.

Non-original articles: Only topics that are substantially discussed are indexed. Although the check tags human, nonhuman and systematic review are indexed whenever the definition applies, other check tags are only indexed if they are the main topic of the article. Similarly, subheadings for disease, drug and device terms are only indexed if they are the main topic of the article.

4.2. Item types

Every record in Embase is identified by a single *Item* type (also known as a *Publication* type). Item types* are defined with scope notes as follows:

Article	Original research or opinion
Conference abstract	Abstract or poster item presented at a conference or symposium
Conference paper	Original article reporting data presented at a conference or symposium
Conference review	Review item summarizing conference abstracts presented at a single conference or symposium
Editorial	Item summarizing several articles or providing editorial news
Erratum	Item reporting an error, correction or retraction of a previously published paper
Letter	Letter to or correspondence with the editor
Note	Note, discussion or commentary
Review	Significant review of original research
Short survey	Short or minireview of original research

*All Item types except Conference abstract & Conference review are also included as Check tags in Emtree

4.3. Index terms

The following categories of index term may be assigned in Embase:

- General terms (controlled by Emtree)
- Drug terms (controlled by Emtree)
- Check tags (controlled by Emtree)
- Candidate terms (not controlled)
- Drug, disease and device subheadings
- Drug trade names and manufacturers
- Device trade names and manufacturers
- Clinical trial numbers
- Molecular sequence numbers
- CAS registry numbers

Each category is discussed below. All articles are indexed with general terms and check tags, and over two-thirds of articles are also indexed with drug terms. Other categories are assigned or generated when applicable.

4.3.1 General terms

General terms are defined as all Emtree terms that are not drugs or chemicals. This includes terms from all 13 Emtree facets other than “chemicals and drugs” (see Section 3.3). They are distinguished from drug terms in that the latter are indexed in greater depth (Section 4.3.3).

4.3.2 Check tags

Check tags comprise about 52 terms, including most Item types (see Section 5.2), study types and age groups (see Appendix 2) whose definitions are described by scope notes. Check tags are assigned using a check list to ensure the highest possible consistency of indexing.

4.3.3 Drug terms

Drug terms are index terms used for all drugs and chemicals: not only therapeutic drugs, but also endogenous compounds, laboratory chemicals, environmental chemicals and environmental toxins. It is important to realize that “drugs terms” as defined in Embase may refer to any chemical entity.

Clinical drugs: Clinical drugs are defined as compounds, factors or preparations that are in clinical use, or have a potential clinical use, as therapeutic, palliative, prophylactic or diagnostic agents. They are indexed in greater depth than other drug terms, meaning that:

- They are indexed even when they are not the primary focus of the article, provided at least some significant information is available
- They are generally modified using drug subheadings, as described in Section 4.3.4.2.

Drug group names: Drug group names (e.g., antineoplastic agent) are indexed if the group as a whole is discussed, or when they are required as “umbrella terms” for candidate drug terms (see Section 4.4).

Other drug terms: Drug terms that do not fall under the above definition of clinical drugs (e.g., endogenous compounds) follow the same indexing policy as general terms. They are indexed when relevant to the article.

4.3.4 Subheadings

Subheadings are Emtree terms that are also used as concept modifiers for drugs, diseases and devices. When used as drug, disease and device subheadings, these terms are defined by scope notes (see Appendix 3).

4.3.4.1 Disease subheadings

Disease subheadings may be used to modify any disease term, e.g., infection or myocardial infarction. They are assigned whenever applicable, as defined in their scope notes. Of the 14 disease subheadings, two are designated as key subheadings:

- *Drug therapy*: When this subheading is indexed, the drugs used to treat the indexed disease are also indexed with the drug subheading *Drug therapy*.
- *Side effect*: When this subheading is indexed, the drugs reporting the indexed side effect are also indexed with drug subheading *Adverse drug reaction*.

4.3.4.2 *Drug subheadings*

There are 64 drug subheadings, including 47 routes of drug administration. Of the 17 other subheadings, five are designated as key subheadings:

- *Drug therapy*: When this subheading is indexed, the diseases treated are also indexed with the disease subheading *Drug therapy*.
- *Adverse drug reaction*: When this subheading is indexed, all reported adverse reactions are also indexed with the disease subheading *Side effect*. See also Section 4.3.5.
- *Drug comparison*: All drugs compared to the indexed drug are also indexed with the same drug subheading, *Drug comparison*.
- *Drug combination*: All drugs given concomitantly with the indexed drug are also indexed with the same drug subheading, *Drug combination*.
- *Drug interaction*: All drugs that show an interaction with the indexed drug are also indexed with the same drug subheading, *Drug interaction*.

In general, assignment of any drug subheading requires a certain emphasis in the article on that concept. Exceptions are drug therapy, adverse drug reaction, endogenous compound and routes of drug administration, which are used whenever they can be applied.

In addition, these drug subheadings warrant special attention:

- Drug toxicity and Endogenous compound: These subheadings can be used to modify all drug terms. All other drug subheadings, including *Routes of drug administration*, can only be used to modify clinical drugs (as defined in section 4.3.3).
- Clinical trial: This subheading is used only for prospective clinical trials on drugs. By contrast, the check tag *Clinical trial* can also be used for other medical interventions.
- Drug administration: Although specific routes of drug administration are indexed whenever applicable, the subheading *Drug administration* is only used when the route of drug administration is a significant aspect.

4.3.4.3 *Device subheadings*

Four device subheadings were introduced in March 2014. They may be used to modify any general or medical device. Two are defined as key subheadings:

- Adverse device effect: When this subheading is indexed, the adverse effects are also indexed when possible with the disease subheading *Complication*.
- Device comparison: All devices compared to the indexed device are also indexed with the device subheading *Device comparison*.

4.3.5 Adverse drug reactions

Adverse effects are a key aspect of Embase indexing. When an adverse effect is reported for a drug, this is indexed as follows:

- The drug is modified with the drug subheading *Adverse drug reaction*.
- The specific disease adverse effect(s) are modified with the disease subheading *Side effect*.
- **On embase.com only**, this indexing is displayed as a triplet:

```
cimetidine * adverse drug reaction * constipation

constipation * side effect * cimetidine
```

The following rules apply for the indexing of adverse effects:

- The adverse effect is always indexed from original data items, whether reported as severe or not. Indexing of an adverse effect as a major descriptor means that it is the main topic of the article. It does not imply that the effect is reported as severe.
- All adverse effects in Embase are disease terms except those in articles originating from MEDLINE (see Section 6). If an adverse drug effect is reported that cannot be designated with a disease term, it is still indexed. However, since Embase requires that a disease term is indexed as a side effect for every reported adverse drug reaction, in this case the disease term *Side effect* is additionally indexed and modified with the disease subheading *Side effect*, leading to a format as illustrated in this example:

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risperidone * adverse drug reaction weight gain

side effect * side effect
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- If an article only reports adverse effects in general for a specific drug (without mentioning any specific adverse effect), the disease term *Unspecified side effect* is indexed (modified with the subheading *Side effect*).

4.3.6 Drug trade names and manufacturers

For all drug index terms, any trade names mentioned in the article are indexed in a separate *Drug trade names* field. Both 'true' trade names (registered trademarks) and laboratory codes can be indexed in this way.

Similarly, drug manufacturers mentioned in the article in relation to the drug index terms (either in combination with the trade name or alone) are indexed in a separate *Drug manufacturers* field. Designations of legal entities (e.g., Co., Comp., GmbH, Inc., Ltd.) as part of the manufacturer name are omitted.

Search tip: To find articles with a specific drug trade name (e.g., aspirin), search for this name in the *Drug trade names* field. A similar search in the *Indexing* field (where many trade names are mapped to the corresponding generic name as preferred term) will retrieve articles indexed with the generic name, and may not be about the specific trade name.

4.3.7 Device trade names and manufacturers

General and medical devices are broadly defined as equipment, reagents or systems intended for use in healthcare and, more specifically, in the diagnosis, prevention, treatment, cure or mitigation of disease in humans, animals or animal models. These include:

- Patient-related equipment, such as prostheses, infusion systems and contraceptive devices
- Laboratory-related equipment, such as analyzers and centrifuges
- Diagnostic test systems, such as kits and culture media
- In-vitro reagents used in healthcare applications
- Computer software used in healthcare

Contrast media and substances defined in Embase as drugs are excluded.

Devices are indexed when relevant device-related information is given in the article, and device trade names and/or manufacturer names (if mentioned in the article) are indexed in designated fields in the same way as drug trade names and manufacturer names (see Section 4.3.7).

4.3.8 Clinical trial numbers

Clinical trial numbers are the numbers under which a clinical trial is registered with one of the registry organizations registered at the World Health Organization. They have been indexed for Embase since 2007.

Search tip: To find articles with registration details for a drug clinical trial, search the drug name with the subheading clinical trial and limit your results to records for which clinical trial numbers have been indexed.

4.3.9 Molecular sequence numbers

Molecular sequence numbers are the accession numbers under which nucleic acid or amino acid sequences can be found in their respective repositories (Genbank, PIR and SWISSPROT). The repository name and accession number for all molecular sequence numbers mentioned in Embase articles are indexed.

Only newly submitted sequences are indexed. However, these designations are not visible and searchable on all platforms.

Search tip: To find articles discussing a protein’s amino acid sequence, search the protein name and limit your results to records containing molecular sequence numbers. If there are too many results, consider also limiting the protein name to “major terms”.

4.3.10 CAS registry numbers

Chemical Abstracts Service (CAS) registry numbers are generated (when available) for all drug terms. They are displayed together with the corresponding drug name.

Since some drug derivatives (such as the hydrate or hydrochloride) are defined as synonyms of a single (more generic) Emtree preferred term, more than one CAS number may be generated for each preferred term. For instance, amantadine has two CAS numbers: one for “amantadine” (768-94-5) and one for amantadine hydrochloride (665-66-7).

4.4 Candidate terms

Indexers may find that terms discussed in articles are valuable additions for enrichment of Emtree. In such cases a candidate term may be indexed, together with a broader Emtree term covering the new term at a higher level (an “umbrella” term). For example, when a new antivirus agent is designated as a candidate term, indexers also assign the broader term *Antivirus agent*. For candidate drug terms, the term *Unclassified drug* is also indexed.

Search tip: To find articles in which new antivirus agents have been indexed as candidate terms, search using the terms antivirus agent and unclassified drug.

More than 100,000 candidate terms — drugs, diseases, devices and other terms — are proposed each year, including many that are never indexed more than a handful of times. Frequently indexed candidate terms are evaluated regularly for possible inclusion in Emtree, including synonyms that may have been separately indexed as candidate terms. For new drug terms, a CAS registry number is also assigned if possible.

In the case of drugs, new entities may initially be designated as laboratory codes and only later using chemical names, trade names or generic names. In Emtree, the preferred term is always the generic name, if it is available. When older terms are replaced in Emtree by newer terms, articles with the older index terms can be backposted so that the old terms are replaced by the new index terms. **This procedure is used on embase.com but is not available on all platforms.**

4.5 Automatic indexing

Automatic indexing for selected articles was introduced in 2009 for three types of article:

- Conference abstracts
- Articles in Press
- In-Process records

Automatically indexed articles are indexed with Emtree terms selected by an algorithm that is applied to the text of the titles, abstracts and author keywords.

The algorithm is able to differentiate major and minor index terms. However, candidate terms and subheadings are not indexed. Non-Emtree indexing such as trade names, manufacturer names, clinical trial numbers and molecular sequence numbers is also not applied.

4.6 Embase section headings

In addition to assigning index terms, indexers also classify articles to Embase section headings (e.g., *Cancer* or *Surgery*). These headings correspond to the printed abstract journal titles in which Embase abstracts have traditionally been published (see Appendix 4 for a complete list).

Each article is assigned at least one such section heading. Normally, articles are assigned no more than five or six section headings.

5. Coverage of MEDLINE in Embase

More than 3,300 journal titles covered by MEDLINE are independently indexed for Embase by Elsevier, using the guidelines described in this guide.

For articles from the remaining 2,030 MEDLINE titles (with a focus on basic biomedicine, allied health and other topics that are peripheral to the core topics of Embase), MeSH terms are mapped to Emtree to provide an index that is compatible with the Elsevier indexing. The mappying follows these rules

- The 50 MEDLINE publication types are mapped to 8 Embase types.
- All MeSH terms and check tags are included in Emtree.
- Many MeSH subheadings are also found in Emtree. Where this is not the case, or when the definition is slightly different, an appropriate translation is made.
- MEDLINE supplementary concepts are mapped to Emtree or, if unique, included in Embase as candidate terms.
- Numerical codes su h as molecular sequence numbers and clinical trial numbers are used to generate the corresponding Embase code.

Records licensed from MEDLINE are not indexed with Embase-specific indexing such as trade names and manufacturer names, or with Embase classifications.

Appendix 1: Embase scope

Embase has a broad biomedical scope, with in-depth coverage of pharmacology, toxicology, pharmaceutical science and clinical research. Basic biomedical science, veterinary science and extensive allied health topics are also included.

Coverage focuses on the following core topics:

- Pharmacology and toxicology
- General clinical medicine
- Genetics, biochemistry & molecular biology
- Neurology & behavioral medicine
- Microbiology & infectious disease
- Cardiology & hematology
- Psychiatry & mental health
- Oncology
- Healthcare policy & management
- Allergy & immunology
- Pediatrics
- Endocrinology & metabolism
- Obstetrics & gynecology
- Biomedical engineering & medical devices
- Anesthesiology & intensive care
- Gastroenterology
- Respiratory medicine
- Nephrology & urology
- Dermatology
- Geriatrics & gerontology

Additional topics include:

- Basic biological science
- Cell & developmental biology
- Clinical biochemistry & laboratory science
- Complementary & alternative medicine
- Dentistry
- Experimental biology and medicine
- Forensic science & legal medicine
- Nursing
- Ophthalmology
- Orthopedics & sports medicine
- Otorhinolaryngology
- Physical therapy & rehabilitation
- Public, occupational & environmental health
- Radiology & nuclear medicine
- Substance dependence & abuse
- Surgery
- Veterinary science

Appendix 2: Embase check tags

In addition to the listed items, *Item* types are also defined as check tags (see Section 4.2).

Human study types

Human	Used for all items where humans are a feature, including studies on human tissue, cells or cell components
Normal human	Used for original studies on normal (non-diseased) humans or normal human tissue
Major clinical study	Used for original items reporting clinical work on more than 50 patients
Clinical article	Used for original studies reporting clinical work on 1–50 patients
Case report	Used for original studies reporting clinical work which details the symptoms, signs, diagnosis, treatment and follow-up of one or more individual patients (cases) Used when identified as such by the author(s) as well Individual patients (cases) are indicated by information such as initials, patient identification number, date of birth, age, age group or gender. Also indexed with the check tag *Clinical article*
Human experiment	Used for original items reporting experiments on humans (e.g. psychological tests and pharmacokinetic studies) which are not clinical (the study subjects are not studied as patients)
Human tissue	Used for original studies on normal or diseased human tissue
Human cell	Used for original studies on normal or diseased human cells

Animal study types

Nonhuman	Used for all items on non-human organisms (animals, bacteria, viruses, plants, etc.) or on tissue, cells or cell components from such organisms
Animal experiment	Used for original studies using whole animals
Animal tissue	Used for original studies on normal or diseased animal tissue
Animal cell	Used for original studies on normal or diseased animal cells
Animal model	Used for original studies using animal models of disease

Sex and age

Female	Used for items reporting either clinical or experimental studies mentioning female humans or animals, including studies on tissue, cells or cell components
Male	Used for items reporting either clinical or experimental studies mentioning male humans or animals, including studies on tissue, cells or cell components
Embryo	Used as an age indicator in human or animal studies; in humans, the first trimester after conception
Fetus	Used as an age indicator in human or animal studies; in humans, the second and third trimesters after conception
Newborn	Used as an age indicator in human or animal studies; in humans up to 1 month of age
Infant	Used as an age indicator in human or animal studies; in humans, between 1 month and 1 year of age
Child	Used as an age indicator in human studies identifying children between 1 and 12 years of age (or unspecified)
Preschool child	Used as an age indicator in human studies identifying children between 1 and 6 years of age
School child	Used as an age indicator in human studies identifying children between 7 and 12 years of age
Adolescent	Used as an age indicator in human or animal studies; in humans, between 13 and 17 years of age
Adult	Used as an age indicator in human or animal studies; in humans, between 18 and 64 years of age
Young Adult	Used as an age indicator in human or animal studies; in humans, between 18 and 24 years of age
Middle aged	Used as an age indicator in human or animal studies; in humans, between 45 and 64 years of age
Aged	Used as an age indicator in human or animal studies; in humans, greater than 64 years of age
Elderly	Used as an age indicator in human or animal studies; in humans, 80 years of age and older

Clinical trials

Clinical trial	Used for original reports of prospective clinical studies in which the (comparative) efficacy of one or more medical interventions in humans is evaluated; also used for prospective clinical veterinary trials in which the (comparative) efficacy of one or more medical interventions in animals is evaluated
Controlled clinical trial	Used for original reports of clinical trials using a control group (e.g., placebo, sham or no treatment, standard intervention) for comparison with the experimental intervention
Phase 1 clinical trial	Used for original items in which the reported studies are defined as phase 1 clinical trials (limited to drug trials)
Phase 2 clinical trial	Used for original items in which the reported studies are defined as phase 2 clinical trials (limited to drug trials)
Phase 3 clinical trial	Used for original items in which the reported studies are defined as phase 3 clinical trials (limited to drug trials)
Phase 4 clinical trial	Used for original items in which the reported studies are defined as phase 4 clinical trials (limited to drug trials)
Meta analysis	Used for original reports evaluating medical interventions by the statistical analysis of a large collection of analysis results from individual studies, for the purpose of integrating the findings; not limited to clinical trials
Randomized controlled trial	Used for original reports of clinical trials using a control group (e.g., placebo, sham or no treatment, standard intervention) for comparison with the experimental intervention, with random allocation of subjects to experimental and control groups
Double blind procedure	Used for original items reporting clinical trials that utilize a double blind procedure; also used for non-original studies, but only if the concept is a main topic
Single blind procedure	Used for original items reporting clinical trials that utilize a single blind procedure; also used for non-original studies, but only if the concept is a main topic
Crossover procedure	Used for original items reporting clinical trials that utilize a crossover procedure; also used for non-original studies, but only if the concept is a main topic
Multicenter study	Used for original reports of clinical trials performed at two or more medical centers

Other study types

Observational study	Used for an original study that is a report on a clinical study in which the subjects may receive diagnostic, therapeutic, or other types of interventions, but the subjects are not assigned to specific interventions (as in an interventional study); usually identified as such by the author(s)
Pilot study	Used for an original study that is a report of a small-scale test of a method or procedure to be used on a larger scale if the pilot study demonstrates that the method or procedure can work; usually identified as such by the author(s)
Longitudinal study	Used for an original study that is a report of an assessment of variables relating to an individual or group of individuals over a period of time; usually identified as such by the author(s)
Retrospective study	Used for an original study that is a report on tests of etiological hypotheses about exposure to causal factors relating to characteristics of the patients in the study or to events/experiences in the past; patients with the disease or outcome are compared to unaffected subjects; usually identified as such by the author(s)
Case control study	Used for an original study that starts with the identification of patients with a disease of interest and a control (comparison, referent) group and reports on the relationship of an attribute to the disease by comparing patients identified as having the disease compared to healthy subjects with regard to the frequency or levels of the attribute in each group; usually identified as such by the author(s)
Cohort analysis	Used for an original study identifying subsets of a defined population in which exposure to factors could influence the likelihood of the disease or other outcome; cohorts are defined populations which are followed to determine distinguishing subgroup characteristics; usually identified as such by the author(s)
Cross-sectional study	Used for an original study in which the presence or absence of disease or other health-related variables are determined in each member of the study population or in a representative sample at one particular time; contrasts to a longitudinal study which follows patients over a period of time; usually identified as such by the author(s)
Systematic review	Used for studies that systematically summarize all relevant evidence pertaining to a defined health question, and including items identified as such by the author
Controlled study	Used for original studies with a control group, i.e., in which previously defined groups are compared with each other; also used for studies with control material or control procedures; retrospective studies may also be included
Diagnostic test accuracy study	Used for original studies or systematic reviews that assess how accurately a test distinguishes humans or animals having a condition or disease from those who do not; typically, the test under evaluation is called the index test and its results are compared to the results of the best available standard test (reference standard), which defines the condition or disease

Appendix 3: Embase subheadings

Subheadings in Embase may be linked with disease terms (disease subheadings), device terms (device subheadings), or drug terms (drug subheadings). Key subheadings are underlined.

Disease subheadings

Complication	Used as a disease subheading for a disorder or symptom that arises as a complication of a pre-existing disease or medical procedure other than drug treatment
Congenital disorder	Used as a disease subheading when attention is drawn to the congenital nature of a disease or malformation, including hereditary disorders present at birth
Diagnosis	Used as a disease subheading when information is published on the diagnosis of disease or the application of diagnostic tests
Disease management	Used as a disease subheading to identify a disease for which information is published on the evaluation of health care, including cost aspects, treatment outcome or quality of life studies
Drug resistance	Used as a disease subheading to identify a disease for which resistance to drug treatment (other than drug tolerance) is a significant aspect
Drug therapy	Used as a disease subheading to identify a disease or condition treated with a drug
Epidemiology	Used as a disease subheading for the epidemiology of a disease, including its morbidity and mortality
Etiology	Used as a disease subheading for both the etiology (causative factors) and pathogenesis (pathological mechanisms) of a disease
Prevention	Used as a disease subheading to identify a disease for which information is published on its prevention and control, including prophylactic treatment with drugs or vaccines
Radiotherapy	Used as a disease subheading for the treatment of a disease using radiotherapy
Rehabilitation	Used as a disease subheading when information is published on procedures to rehabilitate patients recovering from a disease
Side effect	Used as a disease subheading for a condition which arises as an undesired effect of a drug used at therapeutic dose ranges in humans, including drug-induced disease
Surgery	Used as a disease subheading when information is published on the application of surgical procedures or techniques to treat a disease
Therapy	Used as a disease subheading when information is published on any treatment of a disease other than by drug therapy, radiotherapy or surgery

Device subheadings

Adverse device effect	Used as a device subheading to identify a device that is used for diagnostic, therapeutic or procedural purposes in humans or animals, and for which an undesired effect is reported
Clinical trial	Used as a device subheading when the clinical trial of a device is reported
Device comparison	Used as a device subheading when two or more devices are compared within the same study
Device economics	Used as a device subheading for the economic evaluation of a device, including cost analysis, treatment outcome and quality of life studies

Drug subheadings

Adverse drug reaction	Used for any untoward (adverse) medical occurrence in a patient or subject administered a medicinal product (drug) not necessarily having a causal relationship with the treatment; applies to humans or animals, but limited to veterinary clinical studies for animals
Clinical trial	Used for a drug in an original item that is the report of a prospective clinical study, in which the (comparative) efficacy of the drug in humans is evaluated; used also for prospective clinical veterinary trials in which the (comparative) efficacy of the drug in animals is evaluated; contrast with *Drug development*; limited to those drugs that are the subject of the study
Drug administration	Used as a drug subheading when the route of drug administration is emphasized
Drug analysis	Used as a drug subheading for the identification, determination or structural analysis of a drug or potential drug
Drug combination	Used as a drug subheading for drugs given in combination or concomitantly
Drug comparison	Used as a drug subheading when two or more drugs are compared within the same study
Drug concentration	Used as a drug subheading when information is published on the concentration of a drug in body fluids or tissues
Drug development	Used as a drug subheading for the stages of drug development from screening, isolation and synthesis up to testing in animals, but excluding trials in humans
Drug dose	Used as a drug subheading when drug dosage, including the relation between dosage and effects over time, is a significant factor
Drug interaction	Used as a drug subheading for interactions between drugs, or between a drug and food, alcohol or other chemicals in humans or animals
Drug therapy	Used as a drug subheading to identify a drug used to treat disease (including curative, palliative, symptomatic or prophylactic treatment)

Drug toxicity	Used for toxicity of drugs or other chemicals in animals (including LD_{50} tests), in animal or human cells & tissues, and in other toxicity studies; index for substances for which toxicity is reported or investigated (including chemical toxicity).
Endogenous compound	Used as a drug subheading for a substance that is endogenous to the organism, tissue, cells or body fluids being studied
Pharmaceutics	Used as a drug subheading for the formulation of a drug or drug mixture, including the physical and chemical properties of drugs relevant to drug pharmacy
Pharmacoeconomics	Used as a drug subheading for the economic evaluation of drug therapy, including cost analysis, treatment outcome and quality of life studies
Pharmacokinetics	Used as a drug subheading for the kinetics of absorption, distribution, biotransformation or elimination of a drug in humans and animals
Pharmacology	Used as a drug subheading for the mechanism of action of a drug, including drug binding to receptors and drug sensitivity or resistance studies (other than for microorganisms)

Route of administration

Drug administration routes all have the scope note “Route of drug administration”. For a further explanation of the route, users are advised to consult a medical dictionary.

Buccal drug administration
Epidural drug administration
Inhalational drug administration
Intraarterial drug administration
Intraarticular drug administration
Intrabronchial drug administration
Intrabursal drug administration
Intracameral drug administration
Intracardiac drug administration
Intracavernous drug administration
Intracerebral drug administration
Intracerebroventricular drug administration
Intracisternal drug administration
Intradermal drug administration
Intraduodenal drug administration
Intragastric drug administration
Intralesional drug administration
Intralymphatic drug administration
Intramuscular drug administration
Intranasal drug administration
Intraocular drug administration
Intraosseous drug administration
Intraperitoneal drug administration
Intrapleural drug administration
Intraspinal drug administration
Intrathecal drug administration
Intratracheal drug administration
Intratumoral drug administration
Intratympanic drug administration
Intraurethral drug administration
Intrauterine drug administration
Intravaginal drug administration
Intravenous drug administration
Intravesical drug administration
Intravitreal drug administration
Oral drug administration
Parenteral drug administration
Periocular drug administration
Rectal drug administration
Regional perfusion
Retrobulbar drug administration
Subconjunctival drug administration
Subcutaneous drug administration
Sublabial drug administration
Sublingual drug administration
Topical drug administration
Transdermal drug administration

Appendix 4: Embase section headings

1		Anatomy, anthropology, embryology and histology
2		Physiology
3		Endocrinology
4	*	Microbiology: bacteriology, mycology, parasitology and virology
5		General pathology and pathological anatomy
6		Internal medicine
7		Pediatrics and pediatric surgery
8		Neurology and neurosurgery
9	*	Surgery
10		Obstetrics and gynecology
11		Otorhinolaryngology
12		Ophthalmology
13		Dermatology and venereology
14		Radiology
15		Chest diseases, thoracic surgery and tuberculosis
16		Cancer
17		Public health, social medicine and epidemiology
18		Cardiovascular diseases and cardiovascular surgery
19		Rehabilitation and physical medicine
20		Gerontology and geriatrics
21		Developmental biology and teratology
22		Human genetics
23		Nuclear medicine
24		Anesthesiology
25		Hematology
26		Immunology, serology and transplantation
27		Biophysics, bioengineering and medical instrumentation
28		Urology and nephrology
29		Clinical and experimental biochemistry
30		Clinical and experimental pharmacology
31		Arthritis and rheumatism
32		Psychiatry
33		Orthopedic surgery
34	*	Plastic surgery
35		Occupational health and industrial medicine
36		Health policy, economics and management
37		Drug literature
38		Adverse reaction titles
39	**	Pharmacy
40		Drug dependence, alcohol abuse and alcoholism
46		Environmental health and pollution control
47	*	Virology
48		Gastroenterology
49		Forensic science abstracts
50		Epilepsy abstracts
51	***	Leprosy and other mycobacterial diseases
52	****	Toxicology

* 1974–1991: Sections 47 and 34 were incorporated into Sections 4 and 9, respectively, in 1992.
** Introduced in 1997
*** 1979–1988: Incorporated into Section 4 in 1989
**** Introduced in 1983