Embase Indexing Guide 2015

A comprehensive guide to Embase indexing policy

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1. Introduction

This indexing guide describes the indexing policy for journals covered by Embase. Although not intended to be a practical search guide, it will help you formulate search queries and will give you some insight as to what results you can expect. In other words, this guide focuses not on *How to search* but on *What to search.*

2. The Embase database

Embase, produced by Elsevier B.V., is the largest and arguably most comprehensive Abstract and Indexing (A&I) database for peer-reviewed biomedical information available today - both as a stand-alone database (www.embase.com) and via traditional vendor platforms.

Embase provides reliable access to the content of millions of articles using extensive and authoritative indexing. Together with its sister product Embase Classic, Embase covers over 29 million[1] articles back to 1947, and is currently growing at over 1.3 million records a year.

Indexing is based upon the Elsevier Life Science Thesaurus Emtree. Each article is indexed with as many terms as required to describe its content, with a special focus on drugs, devices and diseases.

3. Scope of Embase

As a biomedical database covering over 8,400 journal titles, Embase covers all disciplines of medicine and biomedical science, and includes substantial coverage of Allied Health subjects. The full range of topics covered by Embase is shown in Appendix 1.

How articles are indexed depends both on the origin of the source journals and the stage in the production process:

- More than 5,900 Embase titles are indexed by Elsevier using the guidelines described in this Guide. This includes over 3,000 journals which represent the core titles of biomedical science and are also covered by MEDLINE.

- A further 2,500 MEDLINE titles that are considered relatively less important for the core content of Embase (drugs and clinical science) are licensed from NLM. Indexing for these titles is derived from the MeSH terms assigned by NLM by mapping to Emtree in order to maximize consistency of access and retrieval (see Section 6).

- Since 2009, Embase has covered conference abstracts published primarily in journal supplements. These abstracts, which represent the entire record (i.e. there is no full-length article with additional content), are indexed using automated procedures based upon the manual guidelines described here (see Section 5.5).

- Automated procedures are also used to provide a provisional index for Articles-in-Press and "In-Process" records which have not yet been fully manually indexed.

The journal numbers given above are correct as of April 2014. The proportion of titles indexed by Elsevier or licensed from NLM may change as new journals are added; an updated list is published each Spring.

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[1] Embase reached a total of 29 million articles in November 2014

4. How Embase articles are indexed

4.1 Indexing principles

Indexing facilitates consistent and comprehensive retrieval of information from Embase, significantly enhancing search options which would otherwise be limited to citation and abstract only. Embase embodies three core principles of indexing:

- In assigning index terms, indexers check the full article (not just title and abstract).
- Index terms are controlled by the Emtree thesaurus (see below), resulting in 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), which further enhances the consistency of the database.

4.2 Indexing process

With the exception of articles designated for automatic indexing (see Section 5.5), indexing for Embase is a manual process performed by trained indexers with a biomedical background.

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

The English title and abstract (if present) are used to index articles which are not in English.

4.3 Emtree thesaurus

Emtree, also known as the Elsevier Life Science Thesaurus, contains over 70,000 biomedical preferred terms and 290,000 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 5.3.3) 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.

As well as being an essential search tool, the Emtree thesaurus functions as a key indexing aid. 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. Users can therefore 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.

4.4 Major/minor terms

When reading and analysing articles, indexers ensure that each relevant concept is identified by an index term. In addition, they 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, and 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.

4.5 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: indexers are warned if they attempt to index terms in the wrong field, or if 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.

5. Embase indexing in detail

The Embase indexing guidelines described in this Guide are applied to the core content of Embase (see Section 3), that is to say to more than 5,900 journals which are indexed by Elsevier, including all major drug and clinical journals. Approximately two thirds of articles are indexed with at least one drug or chemical term.

For articles derived from the 2,500 additional MEDLINE journals included in Embase, MeSH terms are mapped to Emtree to provide indexing that is compatible with Elsevier indexing (see Section 6).

5.1 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, clinical trial*, 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.

5.2 Item types

Every record in Embase is identified by a single Item type (also known as a Publication type). Item types[2] 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

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

5.3 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 of these categories is discussed below. All articles[3] are indexed with general terms and check tags, and over two thirds of articles with drug terms. Other categories are assigned or generated when applicable.

5.3.1 General terms

General terms are defined as all Emtree terms that are not drugs or chemicals, and include terms from all 13 Emtree facets other than "chemicals and drugs" (see Section 4.3). They are distinguished from drug terms in that the latter are indexed in greater depth (Section 5.3.3).

5.3.2 Check tags

Check tags comprise about 50 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 <u>check list</u> to ensure the highest possible consistency of indexing.

5.3.3 Drug terms

Drug terms are index terms used for all drugs and chemicals: not only therapeutic drugs, but also endogenous compounds, laboratory chemicals and environmental chemicals or toxins. It is important to realise that "drugs" 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, by which is meant both that they are indexed even when they are not the primary focus of the article, provided at least some significant information is available, and that they are generally modified using drug subheadings as described in Section 5.3.4.2.

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 5.4).

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

5.3.4 Subheadings

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

Nine subheadings (5 for drugs, 2 for diseases and 2 for devices) are denoted *key subheadings*. For these concepts, the following sections describe how they are indexed in greater depth.

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[3] In this Guide "article" is used as a shorthand to refer to any Item type

Search tip: prior to the introduction of automatic indexing for Articles-in-Press, In-process records and Conference Abstracts in 2009 (see Section 5.5), many of these terms were indexed relatively infrequently outside their use as subheadings. However from 2009 they have become more frequently indexed as general terms in automatically indexed articles, and are worth considering as search terms in such articles.

5.3.4.1 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. Among 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 <u>also</u> indexed with drug subheading *drug therapy*.
- *Side effect*: when this subheading is indexed, the drugs reporting the indexed side effect are <u>also</u> indexed with drug subheading *adverse drug reaction*.

5.3.4.2 Drug subheadings

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

- *Drug therapy*: when this subheading is indexed, the diseases treated are <u>also</u> indexed with the disease subheading *drug therapy*.
- *Adverse drug reaction*: when this subheading is indexed, all reported adverse effects are <u>also</u> indexed with the disease subheading *side effect*. See also Section 5.3.5.
- *Drug comparison*: all drugs compared to the indexed drug are <u>also</u> indexed with the same drug subheading, *drug comparison*.
- *Drug combination*: all drugs given concomitantly with the indexed drug are <u>also</u> indexed with the same drug subheading, *drug combination*.
- *Drug interaction*: all drugs that show an interaction with the indexed drug are <u>also</u> 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 5.3.3*)*.
- *clinical trial*: this subheading is used only for clinical trials on drugs. In contrast, the <u>check tag</u> *clinical trial* can also be used for other medical interventions.
- *drug administration*: although specific *routes of drug administration* are indexed whenever applicable, the <u>subheading</u> *drug administration* is only used when the route of drug administration is a significant aspect.

5.3.4.3 Device subheadings

Four device subheadings were introduced in March 2014, and 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 <u>also</u> indexed with the device subheading *device comparison*

5.3.5   Adverse drug reactions

Adverse effects are a key aspect of Embase indexing. This section describes how they are indexed in Embase.

When an adverse effect is reported for a drug, this is indexed as follows:

- The drug is modified by the drug subheading *adverse drug reaction,*
- The specific adverse effect(s) are modified by the disease subheading *side effect*
- In Embase.com only, this indexing is <u>displayed</u> 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 <u>always</u> indexed, whether reported as severe or not. Indexing of an adverse effect as a major descriptor means that it is a main topic of the article. It does not imply that the effect is reported as severe.

- If a specific adverse effect is explicitly looked for but not found, it is <u>still</u> modified by the subheading *adverse drug reaction*, as an indication that the article contains information that the adverse effect was *expected to occur but was not found*.

  <u>Example</u>: in an article discussing a drug X that is notorious for blood toxicity, it is stated that this effect was looked for but not found. The following terms are indexed:

>   drug X * adverse drug reaction
>   blood toxicity * side effect

  In Embase.com this is displayed as:
>   drug X * adverse drug reaction * blood toxicity
>   blood toxicity * side effect * drug X

- All adverse effects in Embase are disease terms[4]. If an adverse drug effect is reported that cannot be designated by a disease term, it is still indexed - but since Embase requires that a disease term is indexed as a side effect for <u>every</u> reported adverse drug reaction, in this case the disease term *side effect* is additionally indexed and modified by the disease subheading *side effect*, leading to a format as shown in this example:

>   risperidone * adverse drug reaction
>   weight gain
>   side effect * side effect

- 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 by the subheading *side effect*)

- If an author states that for a particular drug <u>no</u> adverse effects were found, the disease term *absence of side effects* is indexed (modified by the subheading *side effect*)

>   antiallergic agent * adverse drug reaction
>   absence of side effects * side effect

  In Embase.com this is displayed as:
>   antiallergic agent * adverse drug reaction * absence of side effects
>   absence of side effects * side effect * antiallergic agent

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[4] There is an exception in the case of articles originating from MEDLINE: see Section 6

- Use of the drug subheading *adverse drug reaction* and the disease subheading *side effect* is limited to therapeutic doses in humans only. For adverse effects reported in animals, the drug subheading *drug toxicity* is used; the adverse effect is indexed *without* the disease subheading *side effect*. See also the scope notes in Appendix 3.

5.3.6   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 (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.) 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.

5.3.7   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, 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

Excluded are contrast media and substances defined in Embase as drugs.

Devices are indexed when 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 by analogy with drug trade names and manufacturer names.

5.3.8   Clinical trial numbers

Clinical trial numbers are the numbers under which a clinical trial is registered at one of the following three databases: ClinicalTrials.Gov, Current Controlled Trials and the European Clinical Trials Database (EudraCT). Clinical trial numbers mentioned in articles are always indexed, e.g. NCT00582244 (ClinicalTrials.gov), ISRCTN26791028 (Current Controlled Trials) and 2006-000016-25 (EudraCT). 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.

5.3.9   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 & SWISSPROT). The repository name and accession number for all molecular sequence numbers mentioned in Embase articles are indexed.

Newly submitted sequences are designated "major" (A), and referred sequences are "minor" (B). 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 many results consider in addition limiting the protein name to "major terms".

5.3.10 CAS Registry Numbers

Chemical Abstracts Service (CAS) Registry Numbers are generated (when available) for all drug terms and 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).

5.4 Candidate terms

Indexers may find that concepts discussed in articles are not adequately covered by an existing Emtree term. In such cases a *candidate term* may be indexed, together with a broader Emtree term covering the new concept 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 which are never indexed more than a handful of times. Frequently indexed candidate terms are evaluated regularly for possible inclusion in Emtree, including synonyms which 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.

5.5 Automatic indexing

Automatic indexing for selected articles was introduced into Embase in 2009. Three types of article are indexed in this way:

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

Automatically indexed articles are indexed with Emtree terms, selected by an algorithm which is applied to the text of 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 indexed.

5.6 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.

6. Coverage of MEDLINE in Embase

Almost 3,000 of the more than 5,000 journal titles covered by MEDLINE are independently indexed for Embase by Elsevier, using the guidelines described in this Indexing Guide.

For articles from the remaining 2,500 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.

Further information is given in a white paper "Coverage of MEDLINE in Embase", which is available online and provides mapping details for all MEDLINE terms:

- Publication types (50 MEDLINE publication types are mapped to 8 Embase types)
- MeSH terms and check tags (all MeSH terms are included in Emtree)
- MeSH subheadings (many 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 (these are mapped to Emtree or – if unique - included in Embase as candidate terms)
- Numerical codes (Molecular Sequence Numbers, Clinical Trial Numbers): these 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 (range of topics covered)

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 (as % of journal titles):

- Pharmacology and toxicology (12%)
- General clinical medicine (11%)
- Genetics, biochemistry & molecular biology (10%)
- Neurology & behavioral medicine (8%)
- Microbiology & infectious disease (7%)
- Cardiology & hematology (7%)
- Psychiatry & mental health (6%)
- Oncology (5%)
- Healthcare policy & management (4%)
- Allergy & immunology (4%)
- Pediatrics (4%)
- Endocrinology & metabolism (3%)
- Obstetrics & gynecology (3%)
- Biomedical engineering & medical devices (3%)
- Anesthesiology & intensive care (3%)
- Gastroenterology (2%)
- Respiratory medicine (2%)
- Nephrology & urology (2%)
- Dermatology (2%)
- Geriatrics & gerontology (1%)

The above areas (with significant overlap between topics) represent over 70% of Embase content. Additional topics include:

- Basic biological science (e.g. anatomy, physiology)
- 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, including pollution control
- Radiology & nuclear medicine
- Substance dependence & abuse
- Surgery
- Veterinary science

Appendix 2: Embase check tags [5] (with scope notes)

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 humans or normal (non-diseased) human tissue
major clinical study	Used for original items reporting clinical work on greater than 50 patients
clinical article	Used for original items reporting clinical work on 5-50 patients
case report	Used for original items reporting clinical work on not more than 4 individual patients
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

male	Used for items reporting either clinical or experimental studies mentioning male humans or animals, including studies on tissue, cells or cell components
female	Used for items reporting either clinical or experimental studies mentioning female 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

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[5] Item types are also defined as Check tags (see section 5.2) but are not included in this Appendix

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 1–12 years of age (or unspecified)
preschool child	Used as an age indicator in human studies identifying children between 1–6 years of age
school child	Used as an age indicator in human studies identifying children between 7–12 years of age
adolescent	Used as an age indicator in human or animal studies; in humans, 13–17 years of age
adult	Used as an age indicator in human or animal studies; in humans, 18–64 years of age
young adult	Used as an age indicator in human or animal studies; in humans, 18–24 years of age
middle aged	Used as an age indicator in human or animal studies; in humans, 45–64 years of age
aged	Used as an age indicator in human or animal studies; in humans, greater than 64 years of age
very 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
clinical trial (topic)	Used for items that discuss clinical trials, but which are not themselves original reports of clinical trials
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
controlled clinical trial (topic)	Used for items that discuss controlled clinical trials, but which are not themselves original reports of controlled clinical trials
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 1 clinical trial (topic)	Used for items that discuss phase 1 clinical trials, but which are not themselves original reports of phase 1 clinical 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 2 clinical trial (topic)	Used for items that discuss phase 2 clinical trials, but which are not themselves original reports of phase 2 clinical 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 3 clinical trial (topic)	Used for items that discuss phase 3 clinical trials, but which are not themselves original reports of phase 3 clinical 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)
phase 4 clinical trial (topic)	Used for items that discuss phase 4 clinical trials, but which are not themselves original reports of phase 4 clinical 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
meta analysis (topic)	Used for items that discuss meta analyses, but which are not themselves original reports of meta analysis studies
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
randomized controlled trial (topic)	Used for items that discuss randomized controlled trials, but which are not themselves original reports of randomized controlled trials
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
multicenter study (topic)	Used for items that discuss multicenter studies, but which are not themselves original reports of multicenter studies

Miscellaneous

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
systematic review (topic)	Used for items that discuss systematic reviews, but which are not themselves systematic reviews
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 which 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 subheading are underlined.

Disease subheadings

complication	Used as a disease subheading for a disorder or symptom which 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

<u>adverse drug reaction</u>	Used as a drug subheading to identify a drug for which an undesired side effect is reported (when used at therapeutic dose ranges in humans)
clinical trial	Used as a drug subheading when the clinical trial of a drug is reported
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
<u>drug combination</u>	Used as a drug subheading for drugs given in combination or concomitantly
<u>drug comparison</u>	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
<u>drug interaction</u>	Used as a drug subheading for interactions between drugs, or between a drug and food, alcohol or other chemicals in humans or animals
<u>drug therapy</u>	Used as a drug subheading to identify a drug used to treat disease (including curative, palliative, symptomatic or prophylactic treatment)
drug toxicity	Used as a drug subheading to identify a drug or chemical that is toxic in animals (including LD50 tests), in animal or human cells and tissues, and in other toxicity studies. In humans, used to signal toxicity at non-therapeutic dose ranges, or when lasting damage is caused at therapeutic dose ranges
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/resistance studies (other than for microorganisms)

Routes of drug 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

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*   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 (Microbiology: bacteriology, mycology, parasitology and virology) in 1989

****   Introduced in 1983