

Literature Search for Drug Safety: Process Model

1. Identify the drug.

2. Check for alternate names of the drug.

Using Micromedex, type in the drug name. From the Integrated Index, click on Summary Documents and under Drug Information, click on links that might say "List of Drugdex Tradename Products" or "List of Martindale Tradename Products". Martindale is especially good for foreign drug names.

3. Define the research setting and population in which the drug will be used.

4. Consult reference or tertiary sources as a starting point.

Tertiary sources are usually summaries of available information in an understandable format (reference sourcebooks, textbooks).

5. Consult secondary sources for comprehensiveness and quality assurance.

Secondary sources are databases that index or abstract the primary literature (bibliographies, reviews, indexing and abstracting services).

Primary sources are patents, conference papers, case reports, journal articles, correspondence, and theses.

6. Choose the most appropriate sources of evidence of safety/adverse effects.

7. Create bibliography.

Attached:

Reference/Tertiary Drug Information Sources

Secondary Sources for Drug and Chemical Information

Reference/Tertiary Drug Information Sources

These are examples of reference/tertiary drug information sources. Check the online catalog and Ref 17 for more.

Title	Description	Citation	EResource	PResource
Drug information: a guide to current resources	Detailed and annotated guide to drug and chemical information, including history, legislation, and industry information.	Snow, Bonnie. Drug Information: A Guide to Current Resources , 2 nd edition. Lanham, MD: Medical Library Association and Scarecrow Press, 1999.	No	Ref 2 ZRS91 S64 1999
AHFS drug information 2003	A tested and proven source of comparative, unbiased, and evaluative drug information containing a monograph on virtually every single drug entity available in the United States. Monographs are considerably beyond the FDA-approved labeling in their scope.	AHFS drug information. Bethesda, MD : Published by authority of the Board of Directors of the American Society of Hospital Pharmacists, c1989-	Yes Click EBooks on home page. Part of Stat!Ref collection.	<u>Ref 17 RS125 A56+ Oversize</u>
Basic and clinical pharmacology	Textbook for medical, pharmacy, and other health science students	Katzung, Bertram G. Basic and Clinical Pharmacology , 8 th edition. New York: Lange Medical Books, 2001	Yes Click EBooks on home page	Reserve Room RM300 B25 2001
Center for Drug Evaluation and Research		Center for Drug Evaluation and Research. U.S. Food and Drug Administration	http://www.fda.gov/cder/	No
Goodman and Gilman's the pharmacological basis of therapeutics	Preeminent US textbook on pharmacology and therapeutics. "First published in 1941, its emphasis remains on therapeutic advances made possible by newly marketed drugs, with selective coverage of agents still under investigation."	Hardman, Joel G. et al, eds. Goodman and Gilman's the pharmacological basis of therapeutics , 10 th edition. New York: McGraw-Hill, 2001	No	Reserve Room RM300 G644 2001
Material safety data sheets	Materials information, hazards identification, first-aid and fire-fighting measures, exposure control, physical properties, stability and reactivity, and toxicological and regulatory information included.	Material safety data sheet. Philipsburg, N.J. : J.T. Baker Chemical Co., 1985- .	Yes Click Material Safety Data Sheets under All Major Resources A-Z under Major Resources on home page	S Ref 17 T55.3 H3 M28 1985+ Oversize

Title	Description	Citation	EResource	PResource
Merck index: an encyclopedia of chemicals, drugs, and biologicals	"Compiles all types of nomenclature, including generic, brand, and chemical names, as well as CS RN, empirical formula, and a graphic depiction of molecular structure."	Merck Index: An Encyclopedia of chemicals, drugs, and biologicals , 13 th edition. Rahway, NJ: Merck, 2001.		Ref 17 RS356 M5 Check SREF for older editions
Micromedex	Drugdex®, Poisindex®, Disease Dex® Emergency Medicine, Alternative Medicine, Martindale, Reprorisk®, PDR® Tomes®, MSDS from USP	MICROMEDEX healthcare series . Englewood, Colo. : Micromedex, Inc.	Yes Click Micromedex under Major Resources on home page	No
The review of natural products	Based on scientific research, not just anecdotal information; detailed information on botany, history, chemistry, pharmacology, medicinal uses, toxicology, and patient information; plus significantly documented drug interactions.	The review of natural products . St. Louis, Mo. : Facts and Comparisons, c1996-	Yes Click EBooks on home page	Ref 17 RS160 R49+ Oversize
Unlisted drugs [World Pharmaceuticals directory]		Unlisted Drugs . New York, N.Y.: Unlisted Drugs Committee of the Pharmaceutical Section, Science-Technology Group, Special Libraries Association, 1949-1999.		Ref 17 RS91 U7 Ceased publication 1999.
USP DI drug information for the health care professional	Fully reviewed, industry-respected drug information to support prescribing and dispensing decisions. In-depth monographs cover dosing, indications, interactions, pharmacology/pharmacokinetics, side/adverse effects, and patient counseling guidelines. Labeled and off-label uses are discussed to facilitate third-party reimbursement.	USP DI Drug Information for the Health Care Professional , 22 nd edition. Rockville, Md. : United States Pharmacopeial Convention, 2002		Ref 17 RM300 U833+ Oversize

Secondary Sources for Drug and Chemical Information

These are examples of abstracting and indexing services for drug and chemical information.

Title	Producer	Description
AMED [Allied and Alternative Medicine]	British Library Available from OVID [All Major Resources A-Z/AMED] Updated monthly 1985-	"One of the few online bibliographic sources totally dedicated to indexing the topic of complementary therapeutics...350 medical journals scanned for material related to herbalism, homeopathy, diet therapy, acupuncture, traditional Chinese medicine, and other alternatives to conventional medical care." [Snow, Drug Information: A Guide to Current Resources , 1999, p. 406]
BIOSIS	Biological Abstracts. Available from Silverplatter. [All Major Resources A-Z/BIOSIS] Updated weekly 1969-	Biosis, the online version of Biological Abstracts and Biological Abstracts- Reports, Reviews, Meetings contains literature references from all of the life sciences including: agriculture, cell biology, nutrition, public health, botany, biochemistry, biophysics, genetics, zoology, psychology. The "pharmaceutical searcher will find BIOSIS to be a major secondary literature source for locating bibliography on the early stages of drug development and on toxicology, pharmacology, and biotechnology. Pharmacognosy topics, as well as reference to agrochemicals, environmental pollutants, occupational hazards, cosmetics, and food additives, are also well represented...emphasis in BIOSIS is on research, rather than routine clinical practice data." [Snow, Drug Information: A Guide to Current Resources , 1999, p. 396]
ChemID/ChemIDPlus	National Library of Medicine Fact Sheet: http://www.nlm.nih.gov/pubs/factsheets/chemidplusfs.html Updated	<u>ChemIDplus</u> is a free, web-based search system that provides access to structure and nomenclature authority files used for the identification of chemical substances cited in National Library of Medicine (NLM) databases. ChemIDplus also provides structure searching and direct links to many biomedical resources at NLM and on the Internet for chemicals of interest. The database contains over 367,000 chemical records, of which over 142,000 include chemical structures, and is searchable by Name, Synonym, CAS Registry Number, Molecular Formula, Classification Code, Locator Code, and Structure.
EMBASE	Elsevier Available from OVID [All Major Resources A-Z/EMBASE] Updated weekly 1974-	The Excerpta Medica database (EMBASE) produced by Elsevier Science, is a major biomedical and pharmaceutical database indexing over 3,500 international journals in the following fields: drug research, pharmacology, pharmaceuticals, toxicology, clinical and experimental human medicine, health policy and management, public health, occupational health, environmental health, drug dependence and abuse, psychiatry, forensic medicine, and biomedical engineering/instrumentation. There is selective coverage for nursing, dentistry, veterinary medicine, psychology, and alternative medicine. EMBASE is one of the most widely used biomedical and pharmaceutical databases because of its currency and in-depth indexing. Frequent updates allow access to the latest medical and pharmacological trends. Approximately 375,000 records are added yearly.

Title	Producer	Description
		<p>EMBASE offers "unusually thorough indexing of the world's drug related literature. Toxicology, biophysics/bioengineering (including medical devices and drug delivery systems), psychiatry, forensic medicine, as well as environmental and occupational health, are also emphasized in coverage, with much data available in EMBASE not dieted elsewhere online...more than 70% of its subject descriptors are devoted to drug and chemical nomenclature." [Snow, Drug Information: A Guide to Current Resources, 1999, p. 393]</p>
MEDLINE	<p>National Library of Medicine</p> <p>Available from OVID [All Major Resources A-Z/MEDLINE] Updated weekly 1966-</p> <p>Available from PubMed [All Major Resources A-Z/PubMed] Updated almost daily 1966-</p>	<p>MEDLINE®, produced by the National Library of Medicine, provides extensive coverage of the world's biomedical journal literature. MEDLINE covers more than 4000 journal titles and is international in scope. Broad coverage includes basic biomedical research and the clinical sciences since 1966 including nursing, dentistry, veterinary medicine, pharmacy, allied health, and pre-clinical sciences. MEDLINE also covers life sciences that are vital to biomedical practitioners, researchers, and educators, including some aspects of biology, environmental science, marine biology, plant and animal science as well as biophysics and chemistry. Increased coverage of life sciences began in 2000.</p>
MICROMEDEX	<p>Micromedex</p> <p>[All Major Resources A-Z/Micromedex] Updated quarterly</p>	<p>MICROMEDEX publishes clinical decision support databases and tools. The MICROMEDEX® Healthcare Series provides a wide range of databases tailored to meet the needs of healthcare professionals, including information related to drugs, acute care, toxicology, and patient education.</p>
Old MEDLINE	<p>National Library of Medicine</p> <p>Available from the NLM Gateway 1957-1965</p>	<p>OldMEDLINE contains citations published in the 1957 through 1965 Cumulated Index Medicus and covers the fields of medicine, preclinical sciences, and allied health sciences. Subject searching of this file is available through key words (the original Medical Subject Headings, MeSH, assigned back in 1960-65) and text phrases. Unlike MEDLINE, this file contains no abstracts nor MeSH heading (MH) field data from NLM's current controlled vocabulary.</p>
Science Citation Index	<p>Institute for Scientific Information</p> <p>Available from the Web of Science [All Major Resources A-Z/Science Citation Index] Updated 1945-</p>	<p>The <i>Science Citation Index Expanded</i> is a multidisciplinary index, with searchable author abstracts, covering the journal literature of the sciences. It indexes more than 5,700 major journals across 164 scientific disciplines, covering approximately 2,100 more journals than its SCI print and CD-ROM counterparts, with all cited references captured.</p> <p>For the pharmaceutical searcher, SCI offers the benefit of its breadth in subject scope. Searchers will find this database covers many "fringe or interdisciplinary topics less consistently surveyed in more specifically subject oriented publications." [Snow, Drug Information: A Guide to Current Resources, 1999, p. 397]</p> <p>With cited-reference searching, it is possible to trace the evolution of a topic.</p>
SciFinder Scholar	<p>Chemical Abstracts Service</p>	<p>SciFinder Scholar is an interface to four databases: Chemical Abstracts Plus, the Registry File, CASREACT, and Medline. Chemical Abstracts is an index to articles from over 8,000 different</p>

Title	Producer	Description
	Restricted Access Updated 1907-	<p>journals, patents, books, technical reports and conference proceedings (primarily journals). The Registry File is a database of over 35 million compounds. CASREACT is a database of more than 5.6 million single- and multi-step reactions found in organic chemistry journals covered for CA from 1974 to the present and organic chemistry patents covered for CA from January, 1991 to the present. Medline is the premier source for bibliographic and abstract coverage of biomedical literature.</p> <p>The SciFinder Scholar interface allows you to search these databases using a chemical name, molecular formula, structure, substructure, reaction, registry number, author name or research topic.</p> <p>Chemical Abstracts covers all areas of chemical research and is also a valuable tool for those working in related disciplines such as medicine, engineering, and biology.</p>
TOXNET [including Toxline]	National Library of Medicine Available from NLM Gateway http://toxnet.nlm.nih.gov/	<p>TOXNET is a cluster of databases on toxicology, hazardous chemicals, and related areas.</p> <p>For Toxicology Data (Factual information on toxicity and other hazards of chemicals) HSDB [Hazardous Substances Data Bank] - Broad scope in human and animal toxicity, safety and handling, environmental fate, and more. Scientifically peer-reviewed. IRIS [Integrated Risk Information System] - data from the Environmental Protection Agency (EPA) in support of human health risk assessment, focusing on hazard identification and dose-response assessment. CCRIS [Chemical Carcinogenesis Research Information System] - carcinogenicity, mutagenicity, tumor promotion, and tumor inhibition data provided by the National Cancer Institute (NCI). GENE-TOX - Peer-reviewed mutagenicity test data from the EPA.</p> <p>For Toxicology Literature (Scientific studies, reports, and other bibliographic material) TOXLINE Extensive array of references to literature on biochemical, pharmacological, physiological, and toxicological effects of drugs and other chemicals. EMIC [Environmental Mutagen Information Center] - Current and older literature on agents tested for genotoxic activity. DART/ETIC [Developmental and Reproductive Toxicology and Environmental Teratology Information Center] - Current and older literature on developmental and reproductive toxicology.</p> <p>For Toxic Release Information (Annual estimated releases of toxic chemicals to the environment - the Environmental Protection Agency's TRI (Toxics Release Inventory) TRI [Toxics Release Inventory] - reporting years 1995 - 1999.</p> <p>For Chemical Information (Nomenclature, Identification, Structures) ChemIDplus Numerous chemical synonyms, structures, regulatory list information, and links to other databases containing information about the chemicals. HSDB Structures 2D structural information on the HSDB chemicals.</p>

Title	Producer	Description
		NCI-3D 2D and 3D information compiled by the National Cancer Institute, and augmented by MDL
Cochrane Database of Systematic Reviews	Cochrane Collaboration	full text of the regularly updated systematic reviews of the effects of healthcare prepared by The Cochrane Collaboration
Database of Abstracts of Reviews of Effect	National Health Services' Centre for Reviews and Dissemination (NHS CRD) at the University of York, England,	DARE is a full text database containing critical assessments of systematic reviews from a variety of medical journals. DARE is produced by the expert reviewers and information staff of the National Health Services' Centre for Reviews and Dissemination (NHS CRD) at the University of York, England, and consists of structured abstracts of systematic reviews from all over the world. DARE records cover topics such as diagnosis, prevention, rehabilitation, screening, and treatment.
Cochrane Central Register of Controlled Trials (CENTRAL)	Cochrane Collaboration	CENTRAL is a bibliography of publications which report on controlled trials. These articles are identified by contributors to the Cochrane Collaboration as part of an effort to scan the world's scientific literature, creating a source of data for systematic reviews. CENTRAL is also used as a central resource pool by members of the Cochrane Collaboration. The database includes details of published articles taken from bibliographic databases (notably MEDLINE and EMBASE), and other published and unpublished sources. CENTRAL records include the title of the article, information on where it was published (bibliographic details) and, in many cases, a summary of the article. They do not contain the full text of the article.

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