

Tutorial T20
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The Unified Medical Language System

What is it and how to use it?



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Acknowledgements

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Outline

- ◆ What is the UMLS?
- ◆ How to use the UMLS?
 - Obtaining a license
 - Remote access
 - Knowledge Source Server (UMLSKS)
 - UMLSKS Application programming interface (API)
 - Local installation and customization (MetamorphoSys)
- ◆ Questions

Part I
What is the UMLS?

Outline

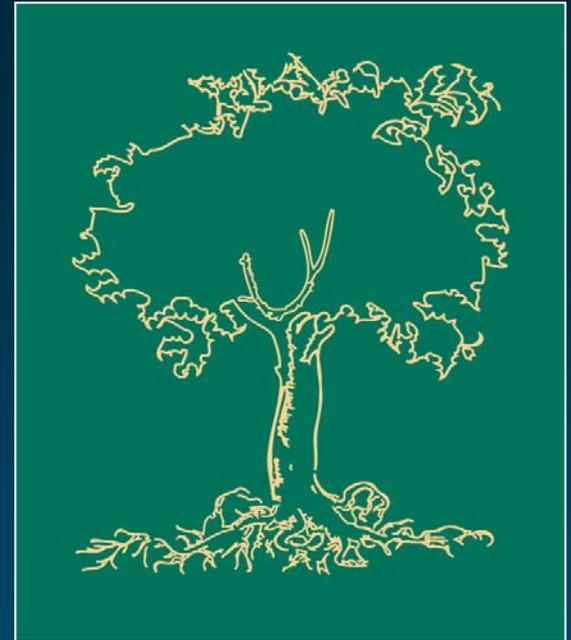
- ◆ Part I: *What is the UMLS?*
 - Introduction
 - Overview through an example
 - The three UMLS Knowledge Sources
 - UMLS Metathesaurus
 - UMLS Semantic Network
 - SPECIALIST Lexicon and lexical tools

Part I
What is the UMLS?

(1) Introduction

What does UMLS stand for?

- ◆ Unified
- ◆ Medical
- ◆ Language
- ◆ System



UMLS[®]
Unified Medical Language System[®]
UMLS Metathesaurus[®]

Motivation

[Lindberg & al., *Methods*, 1993]
[Humphreys & al., *JAMIA*, 1998]

- ◆ Started in 1986
- ◆ National Library of Medicine
- ◆ “Long-term R&D project”
- ◆ Complementary to IAIMS

(Integrated Academic
Information Management Systems)

«[...] the UMLS project is an effort to overcome two significant barriers to effective retrieval of machine-readable information.

- The first is the variety of ways the same concepts are expressed in different machine-readable sources and by different people.
- The second is the distribution of useful information among many disparate databases and systems.»

The UMLS in practice

◆ Database

- Series of relational files

◆ Interfaces

- Web interface: Knowledge Source Server (UMLSKS)
- Application programming interfaces (Java and XML-based)

◆ Applications

- lvg (lexical programs)
- MetamorphoSys (installation and customization)



The UMLS is *not* an end-user application

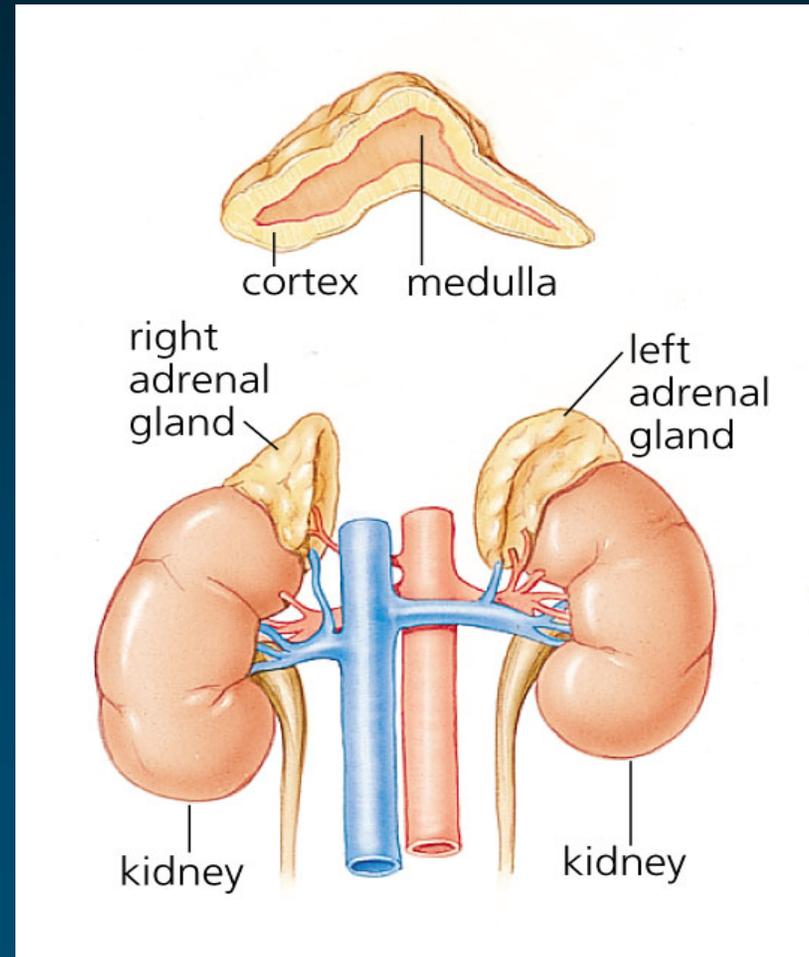
Part I

What is the UMLS?

(2) Overview through an example

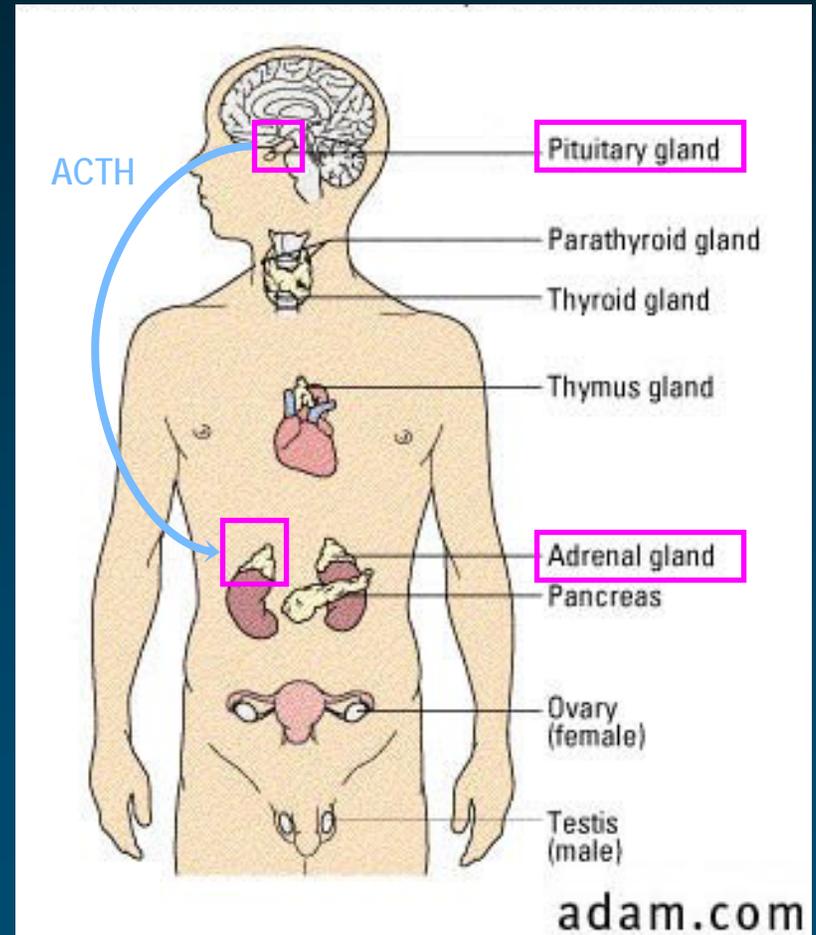
Addison's disease

- ◆ Addison's disease is a rare endocrine disorder
- ◆ Addison's disease occurs when the adrenal glands do not produce enough of the hormone cortisol
- ◆ For this reason, the disease is sometimes called chronic adrenal insufficiency, or hypocortisolism



Adrenal insufficiency Clinical variants

- ◆ Primary / Secondary
 - Primary: lesion of the adrenal glands themselves
 - Secondary: inadequate secretion of ACTH by the pituitary gland
- ◆ Acute / Chronic
- ◆ Isolated / Polyendocrine deficiency syndrome



Addison's disease: Symptoms

- ◆ Fatigue
- ◆ Weakness
- ◆ Low blood pressure
- ◆ Pigmentation of the skin (exposed and non-exposed parts of the body)
- ◆ ...

AD in medical vocabularies

◆ Synonyms: different terms

- Addisonian syndrome
 - Bronzed disease
 - Addison melanoderma
 - Asthenia pigmentosa
 - Primary adrenal deficiency
 - Primary adrenal insufficiency
 - Primary adrenocortical insufficiency
 - Chronic adrenocortical insufficiency
- } eponym
- } symptoms
- } clinical variants

◆ Contexts: different hierarchies



Organize terms

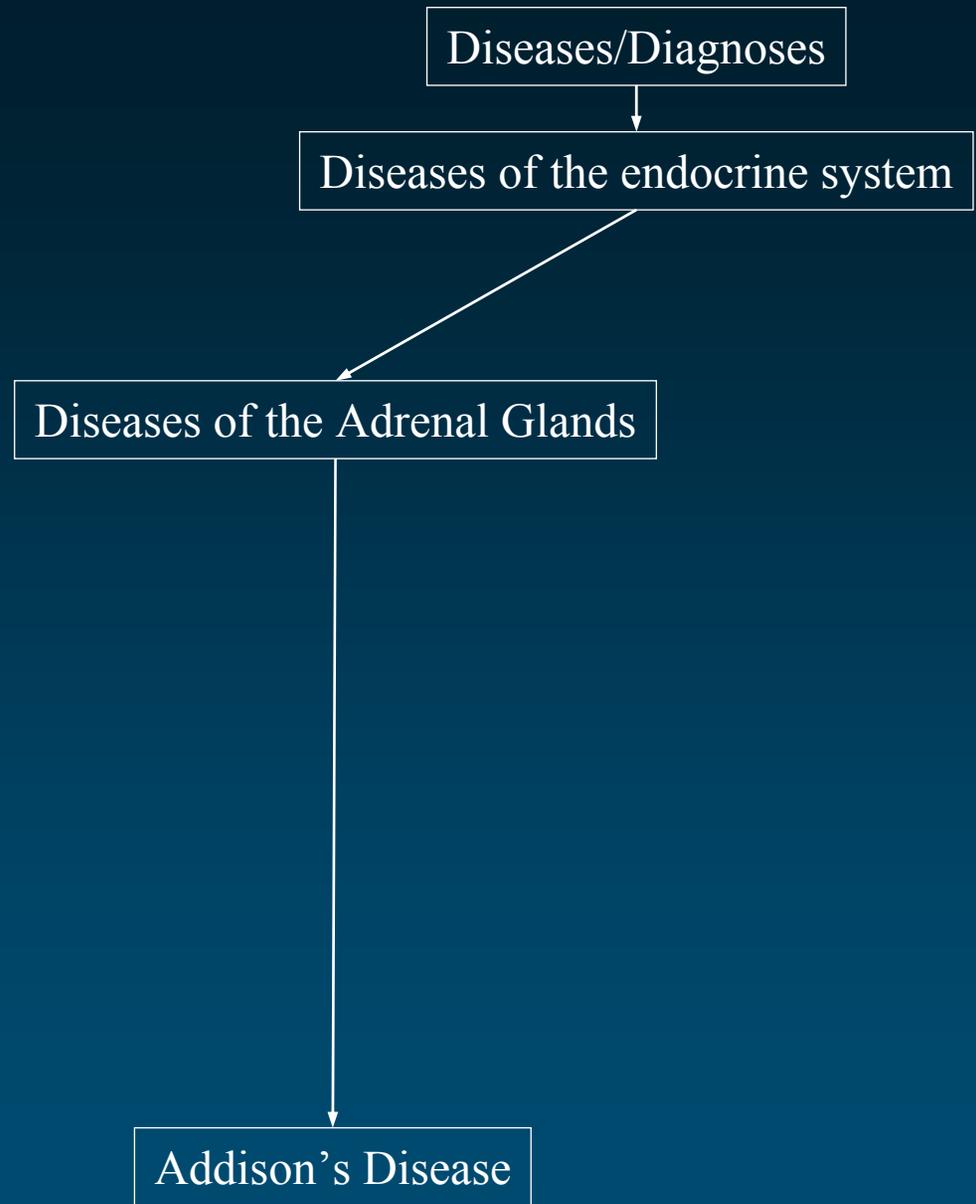
- ◆ Synonymous terms clustered into a concept
- ◆ Preferred term
- ◆ Unique identifier (CUI)

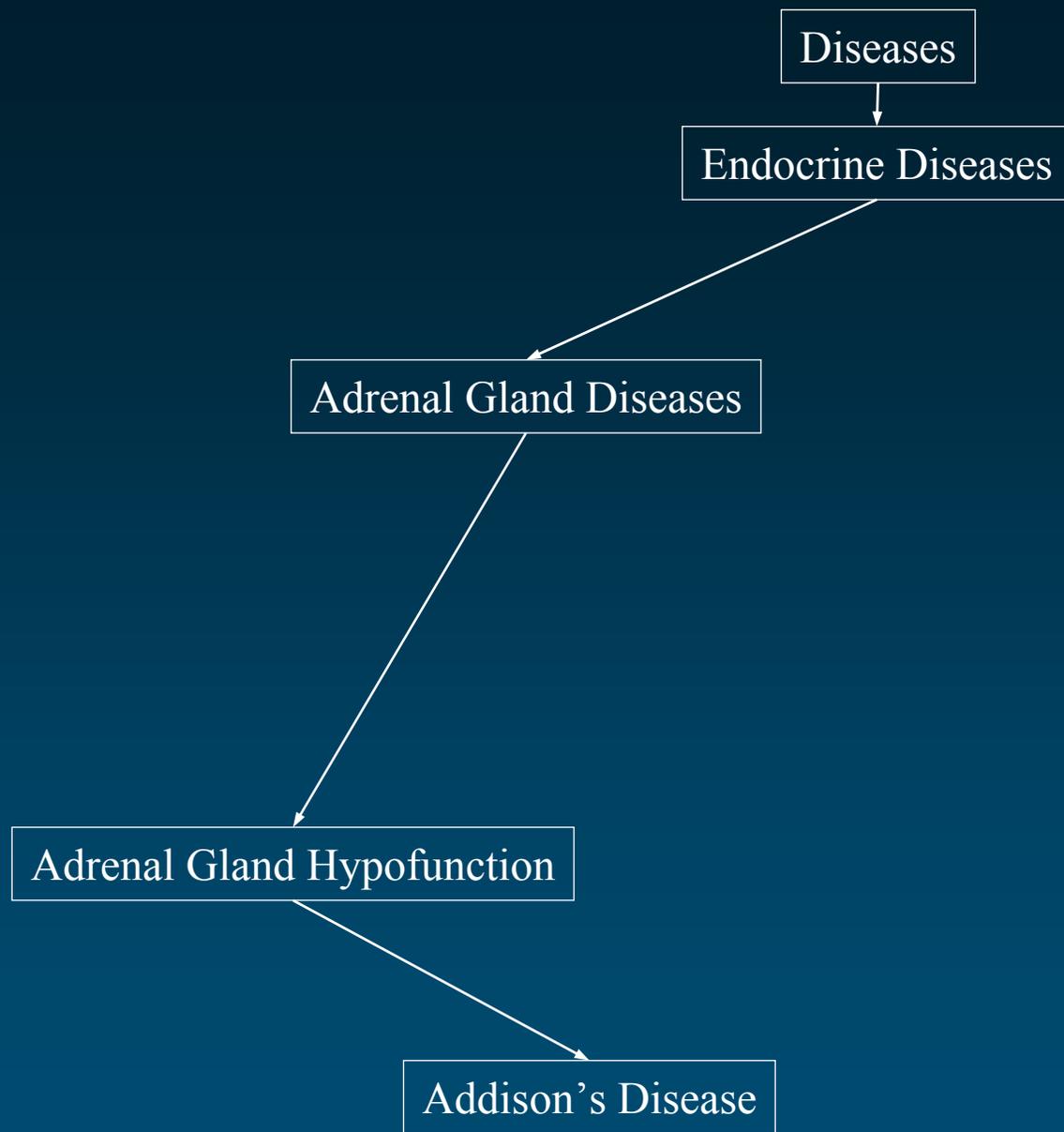
Adrenal gland diseases	MeSH	D000307
Adrenal disorder	AOD	0000005418
Disorder of adrenal gland	Read	C15z.
Diseases of the adrenal glands	SNOMED	DB-70000

C0001621

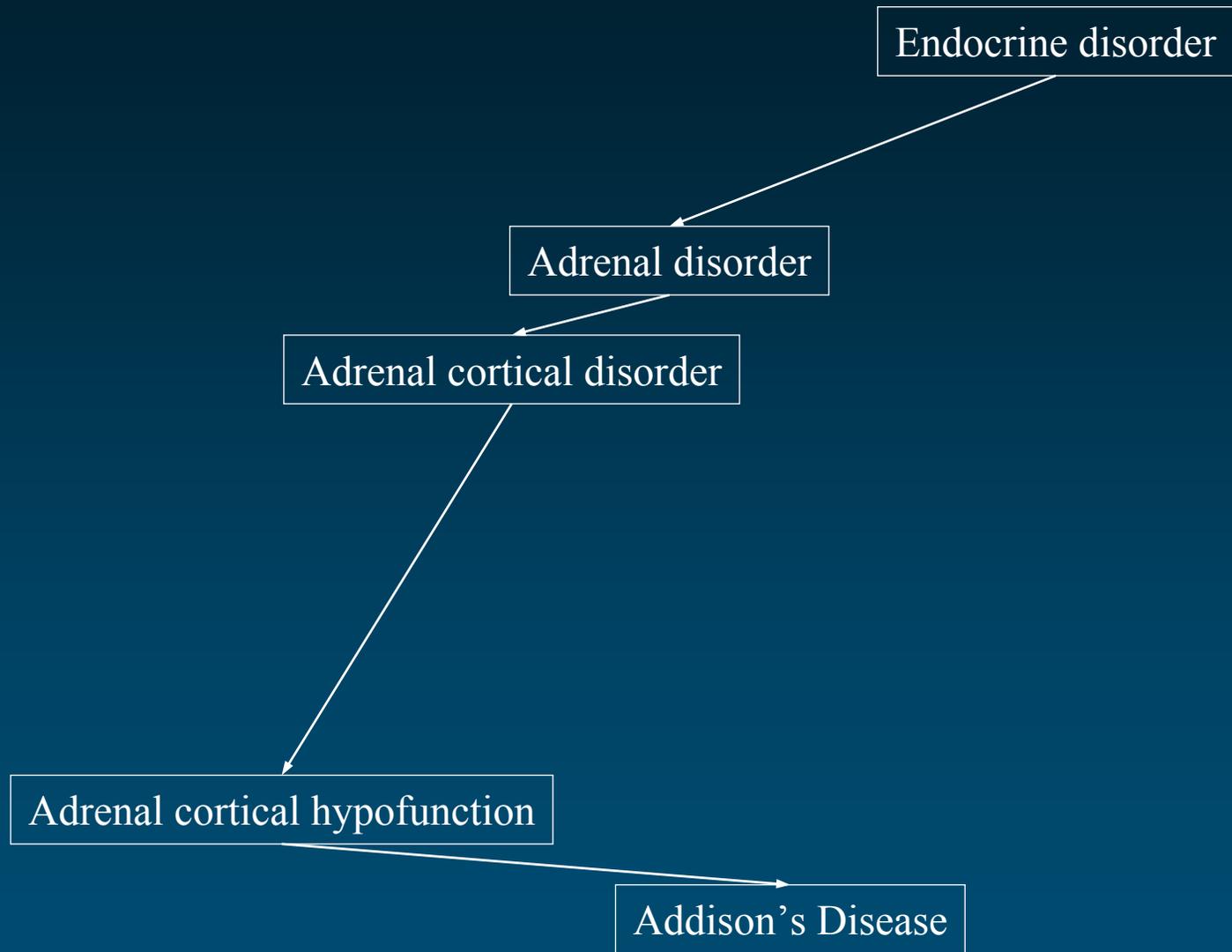
Adrenal Gland Diseases

SNOMED International

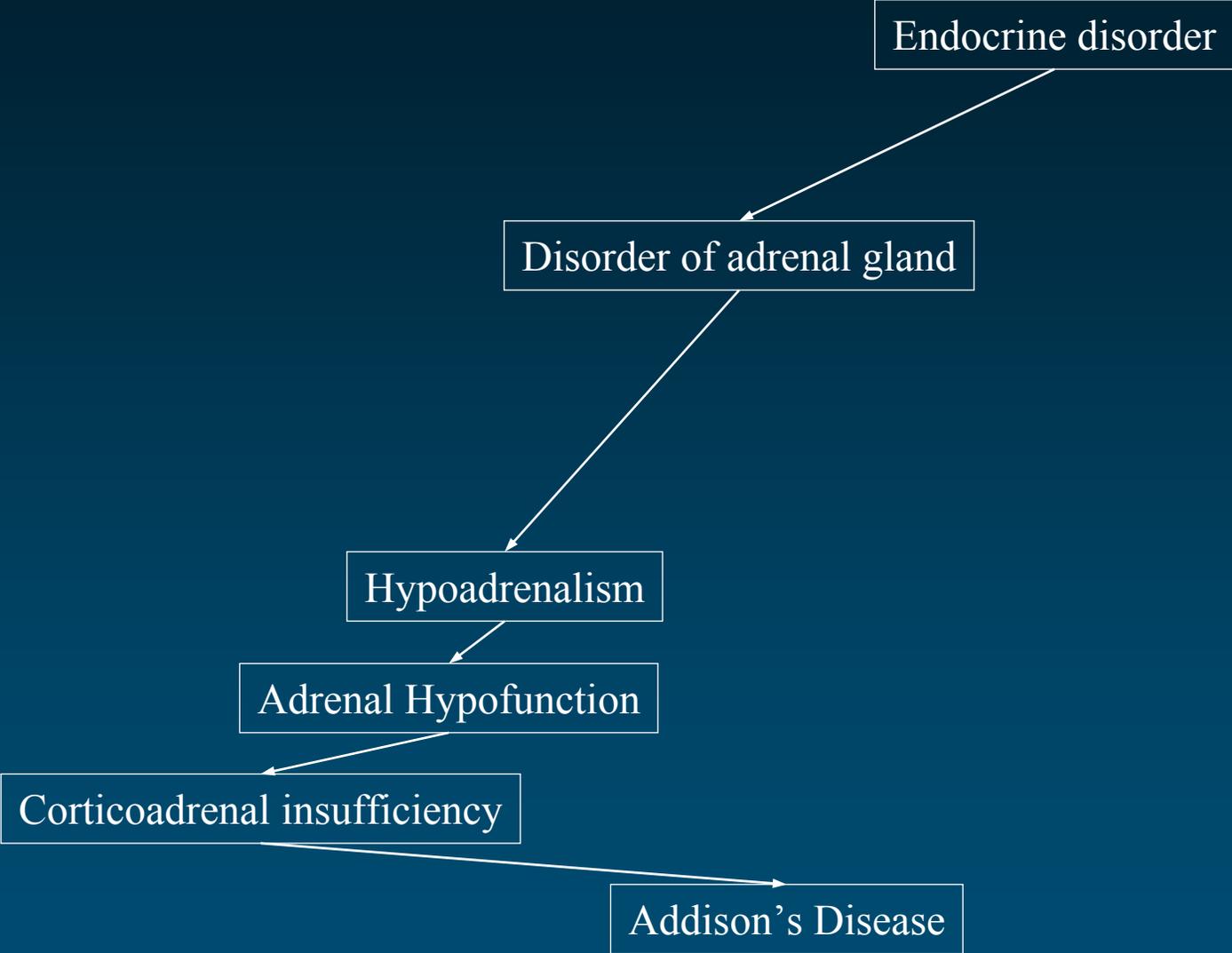




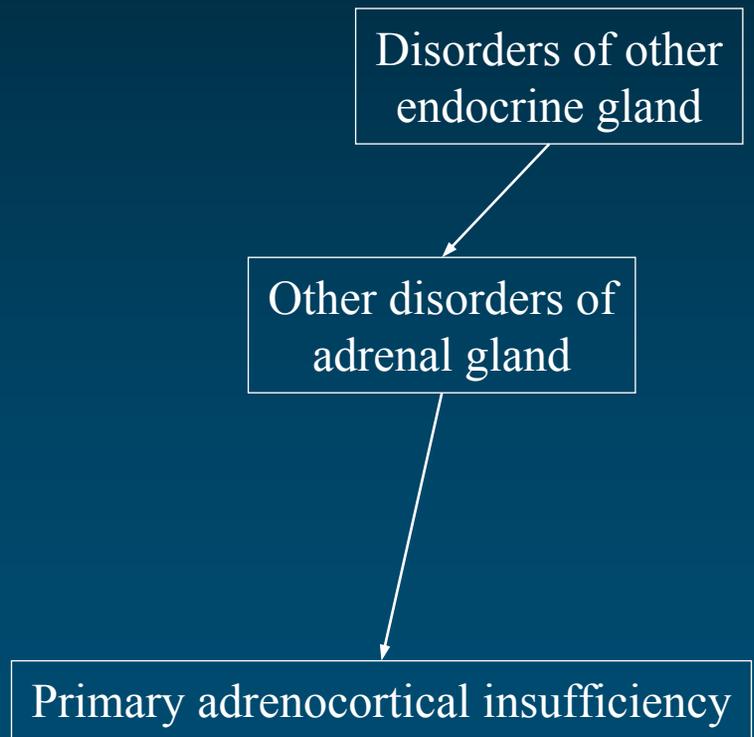
AOD



Read Codes

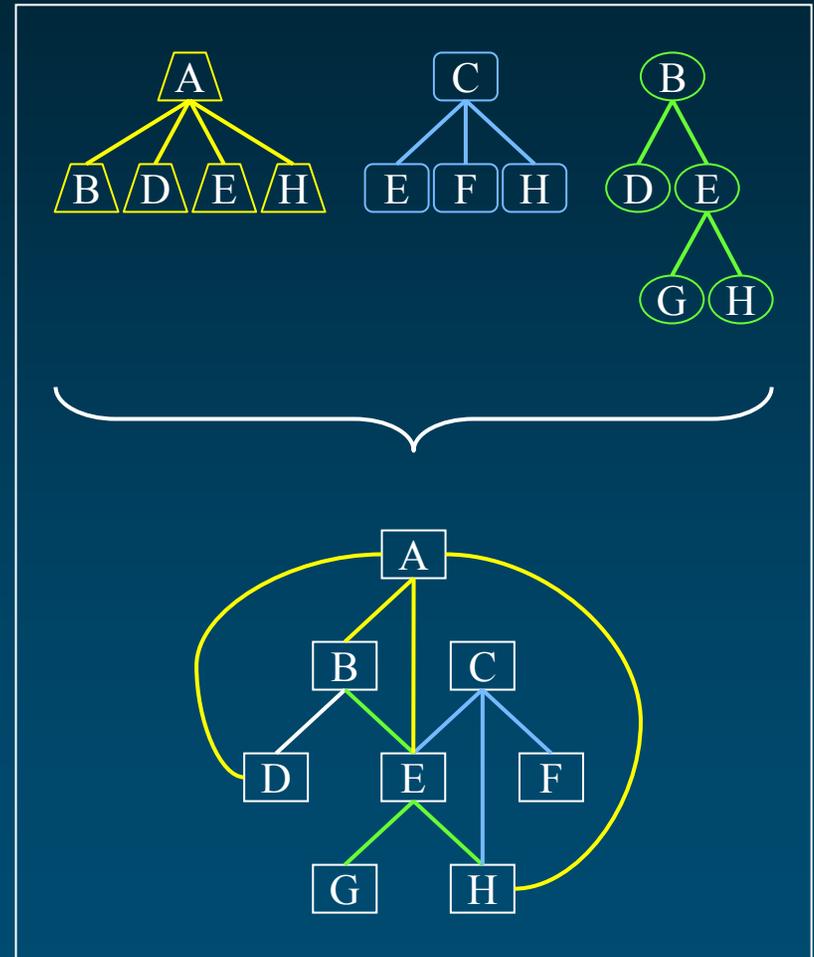


ICD-10

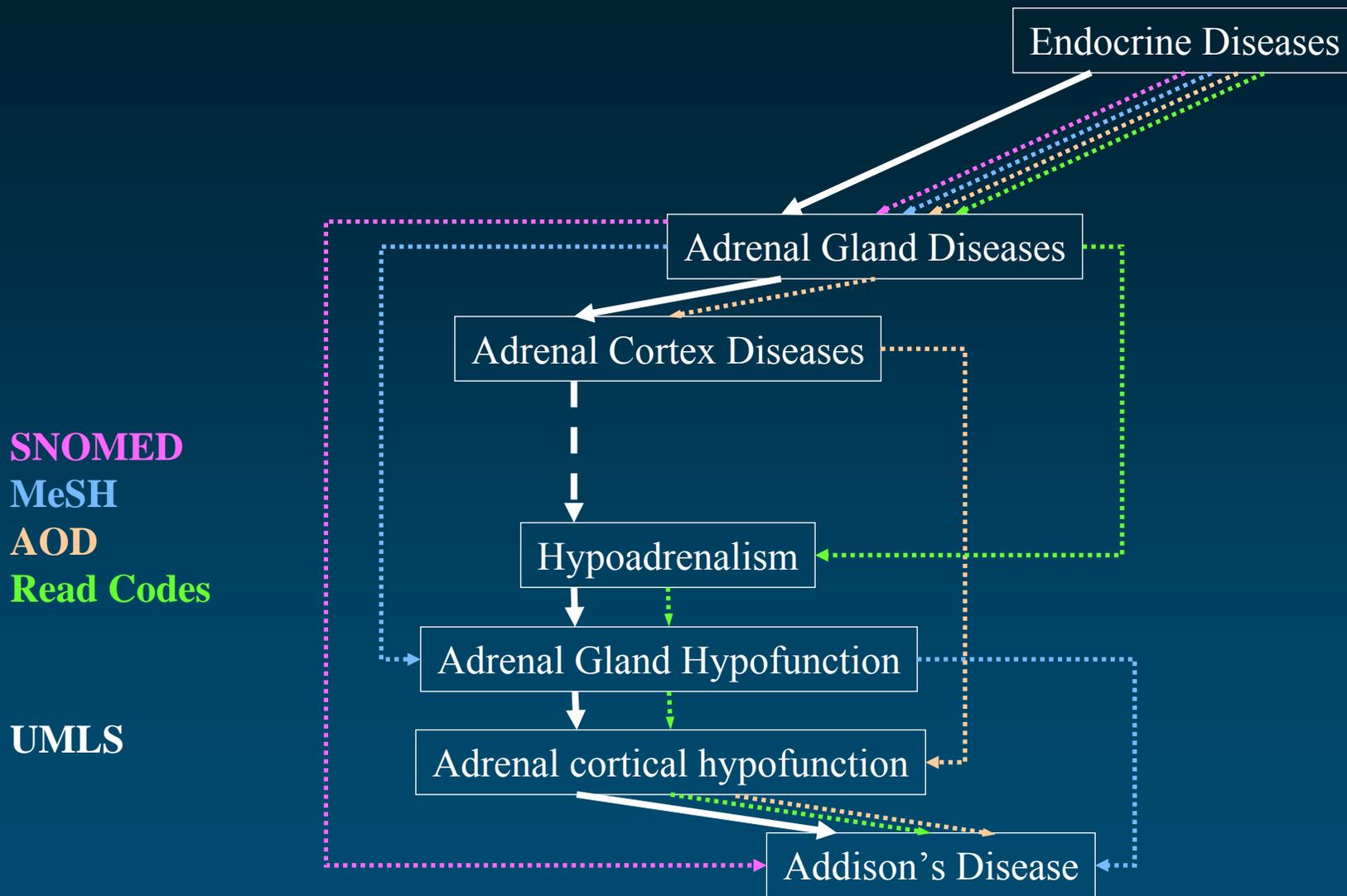


Organize concepts

- ◆ Inter-concept relationships: hierarchies from the source vocabularies
- ◆ Redundancy: multiple paths
- ◆ One graph instead of multiple trees (multiple inheritance)

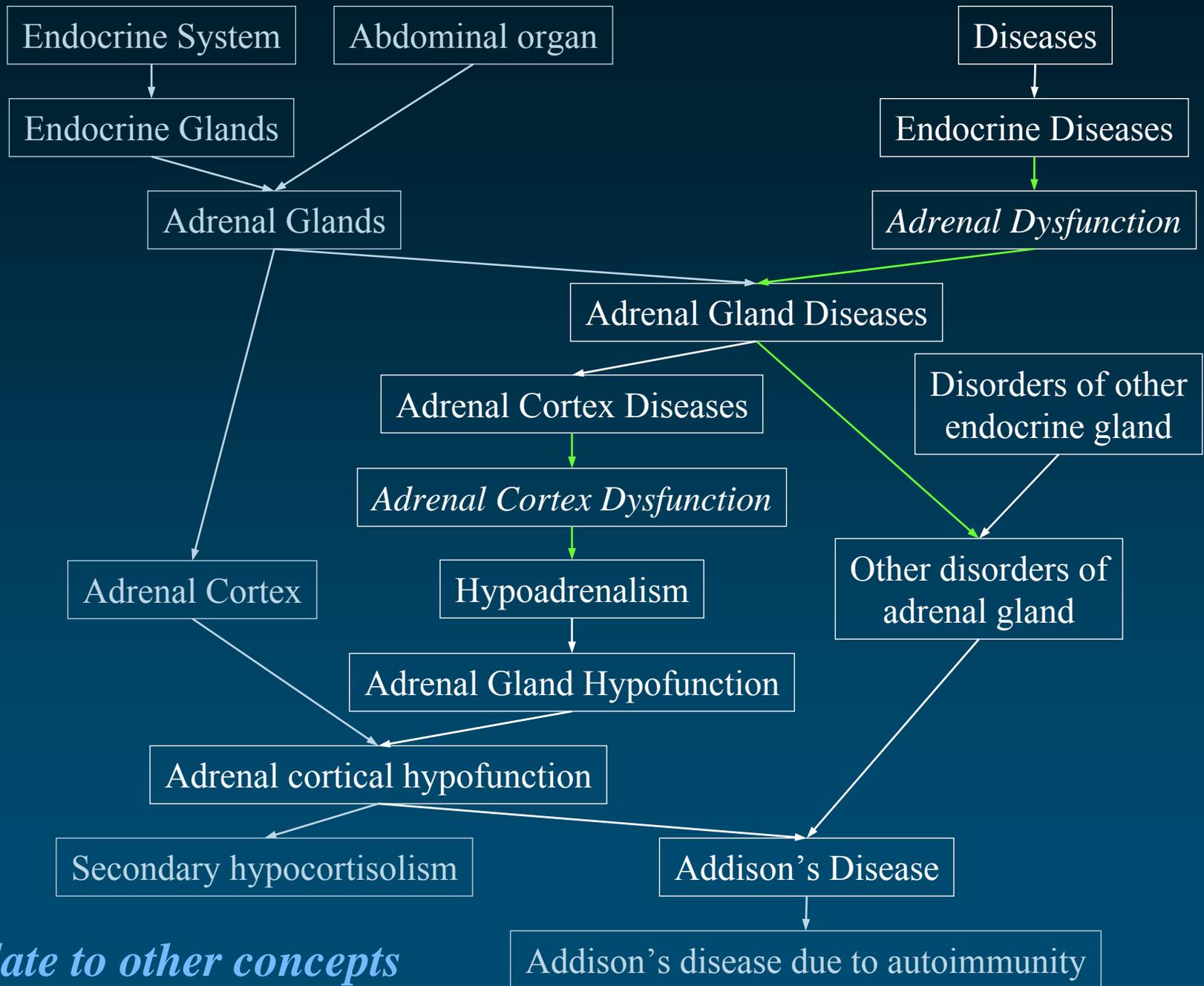


organize concepts



Relate to other concepts

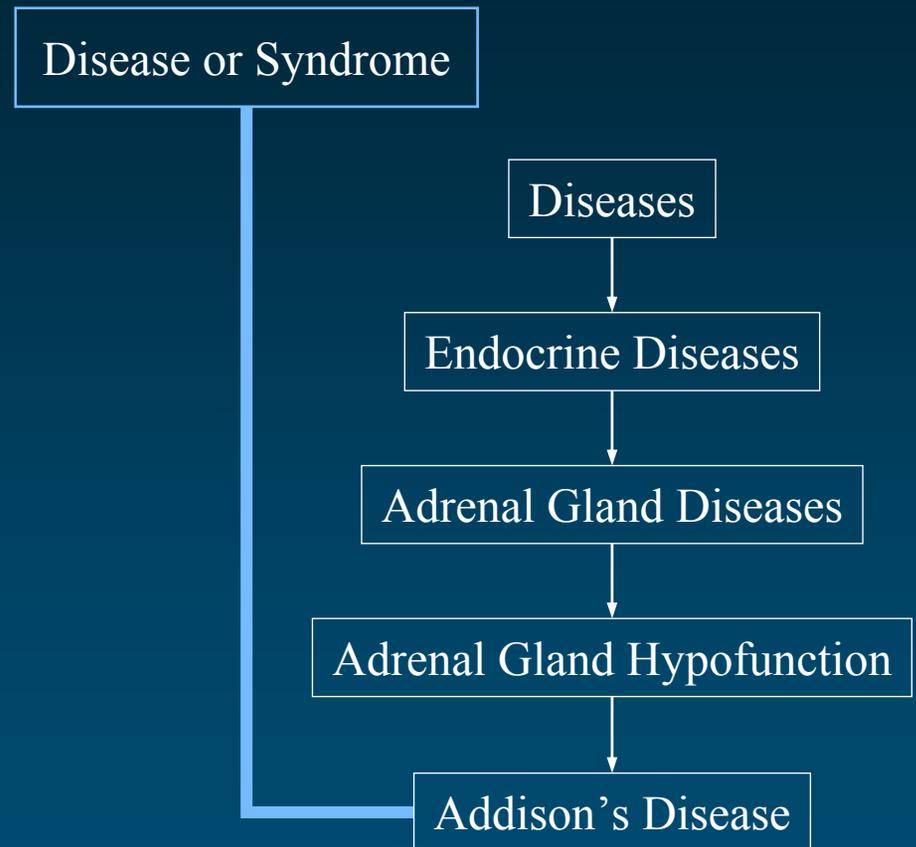
- ◆ Additional hierarchical relationships
 - link to other trees
 - make relationships explicit
- ◆ Non-hierarchical relationships
- ◆ Co-occurring concepts
- ◆ Mapping relationships



relate to other concepts

Categorize concepts

- ◆ High-level categories (semantic types)
- ◆ Assigned by the Metathesaurus editors
- ◆ Independently of the hierarchies in which these concepts are located



How do they do that?

- ◆ Lexical knowledge
- ◆ Semantic pre-processing
- ◆ UMLS editors

Lexical knowledge

Adrenal gland diseases

Adrenal disorder

Disorder of adrenal gland

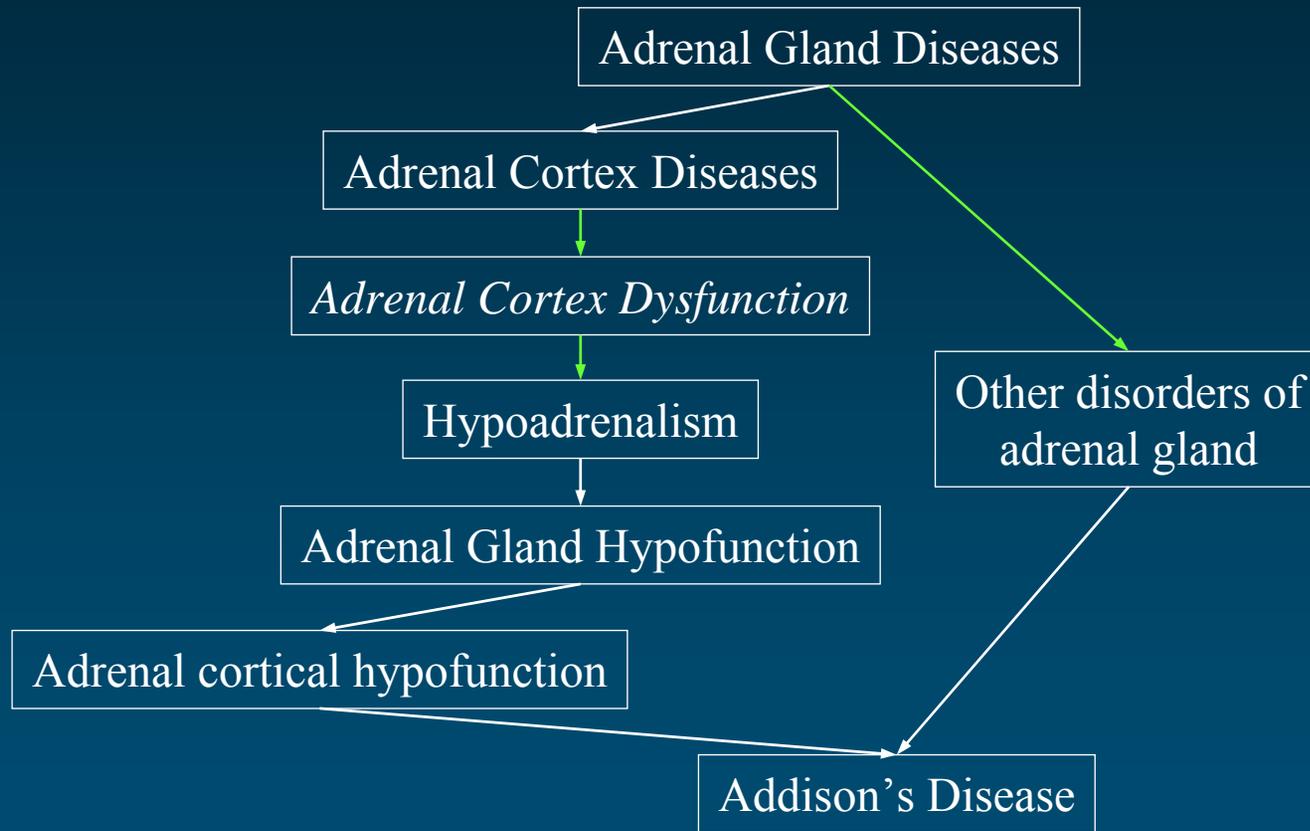
Diseases of the adrenal glands

C0001621

Semantic pre-processing

- ◆ Metadata in the source vocabularies
- ◆ Tentative categorization
- ◆ Positive (or negative) evidence for tentative synonymy relations based on lexical features

Additional knowledge: UMLS editors



UMLS Summary

- ◆ Synonymous terms clustered into concepts
- ◆ Unique identifier
- ◆ Finer granularity
- ◆ Broader scope
- ◆ Additional hierarchical relationships
- ◆ Semantic categorization

Part I

What is the UMLS?

(3) UMLS Knowledge Sources

UMLS 3 components

- ◆ Metathesaurus
 - Concepts
 - Inter-concept relationships
- ◆ Semantic Network
 - Semantic types
 - Semantic network relationships
- ◆ Lexical resources
 - SPECIALIST Lexicon
 - Lexical tools

UMLS Metathesaurus

Metathesaurus Basic organization

◆ Concepts

- Synonymous terms are clustered into a concept
- Properties are attached to concepts, e.g.,
 - Unique identifier
 - Definition

◆ Relations

- Concepts are related to other concepts
- Properties are attached to relations, e.g.,
 - Type of relationship
 - Source

Source Vocabularies

(2004AB)

- ◆ 134 source vocabularies
 - 126 contributing concept names
- ◆ 73 families of vocabularies
 - multiple translations (e.g., MeSH, ICPC, ICD-10)
 - variants (American-English equivalents, Australian extension/adaptation)
 - subsequent editions usually considered distinct families (ICD: 9-10; DSM: IIR-IV)
- ◆ Broad coverage of biomedicine
- ◆ Common presentation



Biomedical terminologies

◆ General vocabularies

- anatomy (UWDA, Neuronames)
- drugs (RxNorm, First DataBank, Micromedex)
- medical devices (UMD, SPN)

◆ Several perspectives

- clinical terms (SNOMED CT)
- information sciences (MeSH, CRISP)
- administrative terminologies (ICD-9-CM, CPT-4)
- data exchange terminologies (HL7, LOINC)

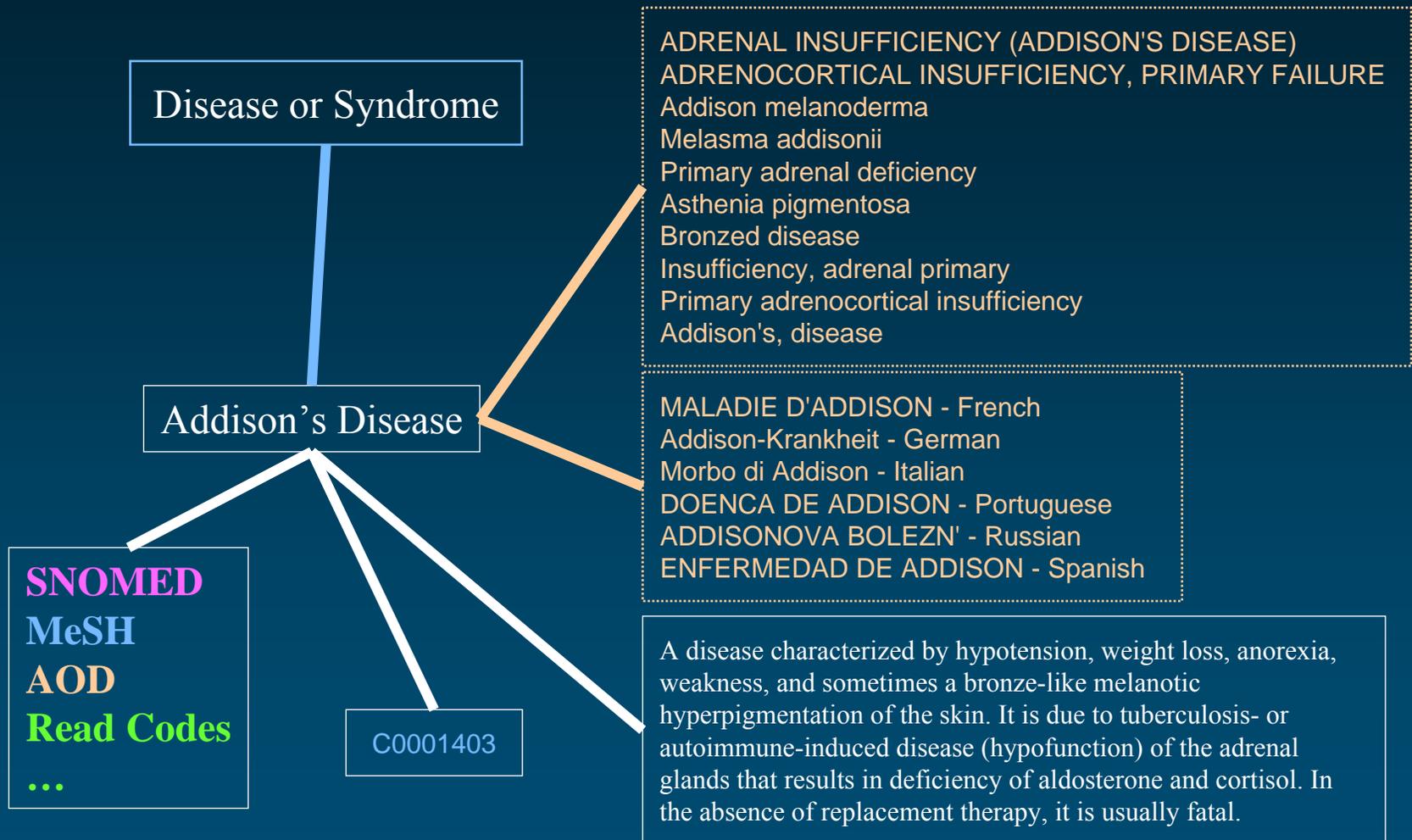
Biomedical terminologies (cont'd)

- ◆ Specialized vocabularies
 - nursing (NIC, NOC, NANDA, Omaha, PCDS)
 - dentistry (CDT)
 - oncology (PDQ)
 - psychiatry (DSM, APA)
 - adverse reactions (COSTART, WHO ART)
 - primary care (ICPC)
- ◆ Terminology of knowledge bases (AI/Rheum, DXplain, QMR)



The UMLS serves as a vehicle for the regulatory standards (HIPAA, CHI)

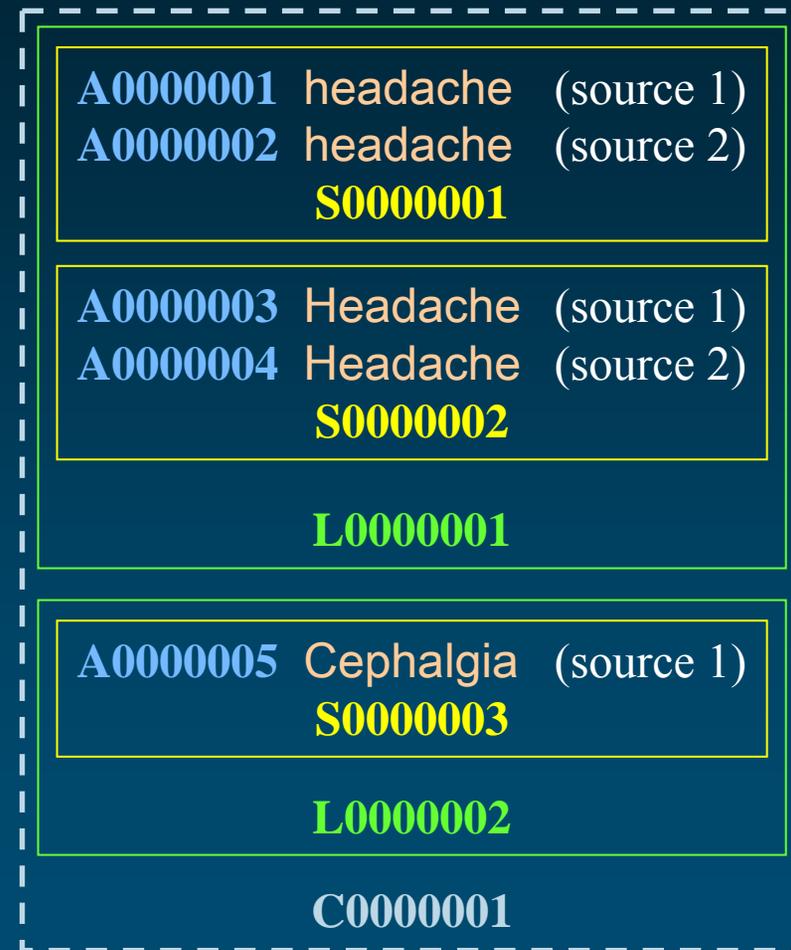
Addison's Disease: Concept



Metathesaurus Concepts

(2004AB)

- ◆ Concept (> 1M) CUI
 - Set of synonymous concept names
- ◆ Term (> 3.8 M) LUI
 - Set of normalized names
- ◆ String (> 4.3M) SUI
 - Distinct concept name
- ◆ Atom (> 5.1M) AUI
 - Concept name in a given source



Cluster of synonymous terms

Concept
C0001621

Term L0001621	<p>S0011232 <i>Adrenal Gland Diseases</i></p> <p>S0011231 Adrenal Gland Disease</p> <p>S0000441 Disease of adrenal gland [...]</p> <p>S0481705 Disease of adrenal gland, NOS</p> <p>S0220090 Disease, adrenal gland</p> <p>S0044801 Gland Disease, Adrenal</p>
Term L0041793	<p>S0860744 <i>Disorder of adrenal gland, unspecified</i></p> <p>S0217833 Unspecified disorder of adrenal glands</p>
Term L0161347	<p>S0225481 <i>ADRENAL DISORDER</i> [...]</p> <p>S0627685 DISORDER ADRENAL (NOS)</p>
Term L0181041	<p>S0632950 <i>Disorder of adrenal gland</i> [...]</p> <p>S0354509 Adrenal Gland Disorders</p>
Term L0368399	<p>S0586222 <i>Adrenal disease</i> [...]</p> <p>S0466921 ADRENAL DISEASE, NOS</p>
Term L1279026	<p>S1520972 <i>Nebennierenkrankheiten</i> GER</p>
Term L0162317	<p>S0226798 <i>SURRENALE, MALADIES</i> FRE [...]</p>



Metathesaurus Evolution over time

- ◆ Concepts never die (in principle)
 - CUIs are permanent identifiers
- ◆ What happens when they do die (in reality)?
 - Concepts can merge or split
 - Resulting in new concepts and deletions



Metathesaurus Relationships

- ◆ Symbolic relations: ~9 M pairs of concepts
 - ◆ Statistical relations : ~7 M pairs of concepts
(co-occurring concepts)
 - ◆ Mapping relations: 100,000 pairs of concepts
-

- ◆ Categorization: Relationships between concepts and semantic types from the Semantic Network

Symbolic relations

◆ Relation

- Pair of “atom” identifiers
- Type
- Attribute (if any)
- List of sources (for type and attribute)

◆ Semantics of the relationship: defined by its *type* [and *attribute*]

Source transparency: the information
is recorded at the “atom” level

Symbolic relationships Type

◆ Hierarchical

- Parent / Child
- Broader / Narrower than

PAR / CHD

RB / RN



◆ Derived from hierarchies

- Siblings (children of parents)

SIB



◆ Associative

- Other

RO



◆ Various flavors of near-synonymy

- Similar
- Source asserted synonymy
- Possible synonymy

RL

SY

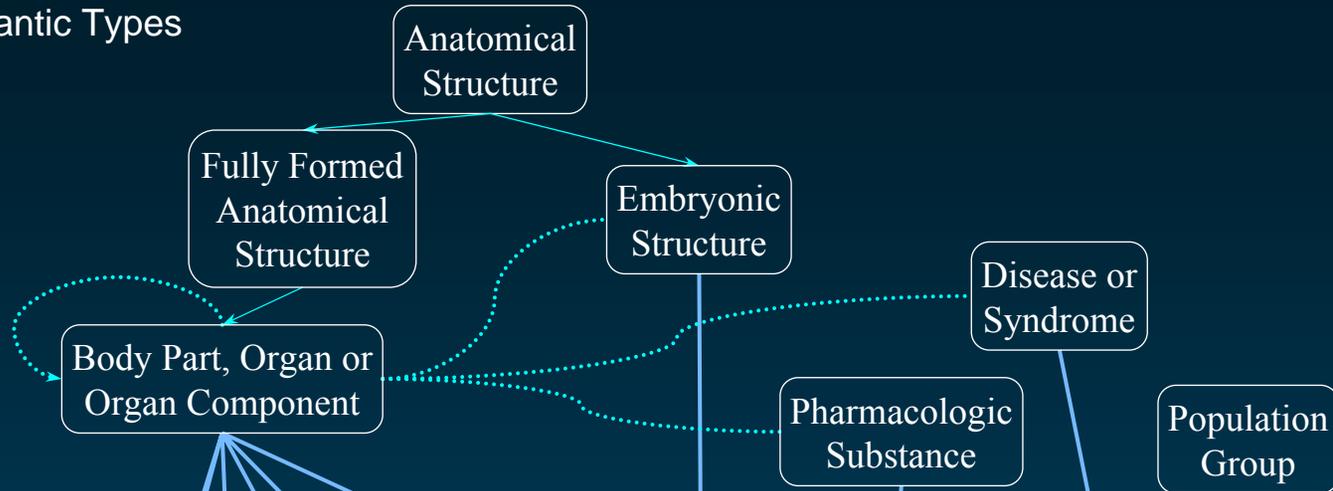
RQ



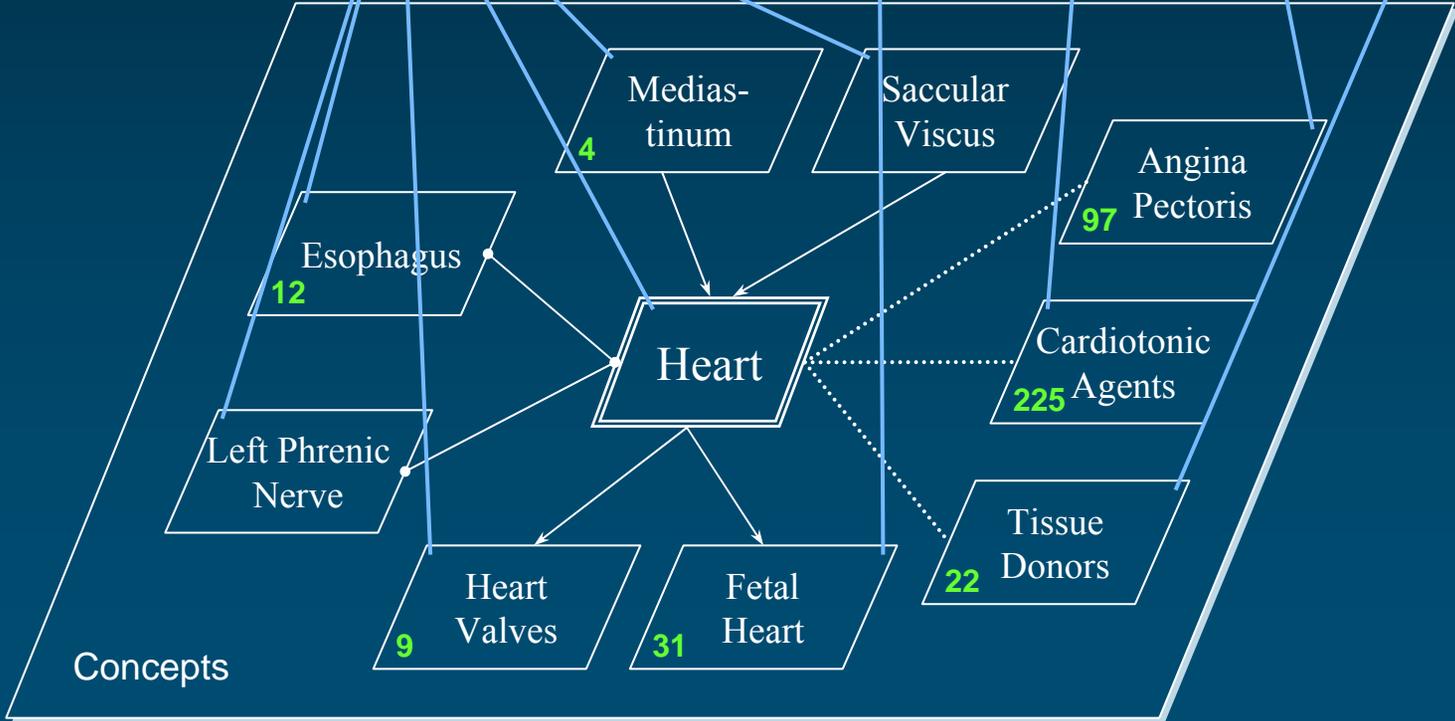
Symbolic relationships Attribute

- ◆ Hierarchical
 - isa (is-a-kind-of)
 - part-of
- ◆ Associative
 - location-of
 - caused-by
 - treats
 - ...
- ◆ Cross-references (mapping)

Semantic Types



Semantic Network



Metathesaurus

Concepts

UMLS Semantic Network

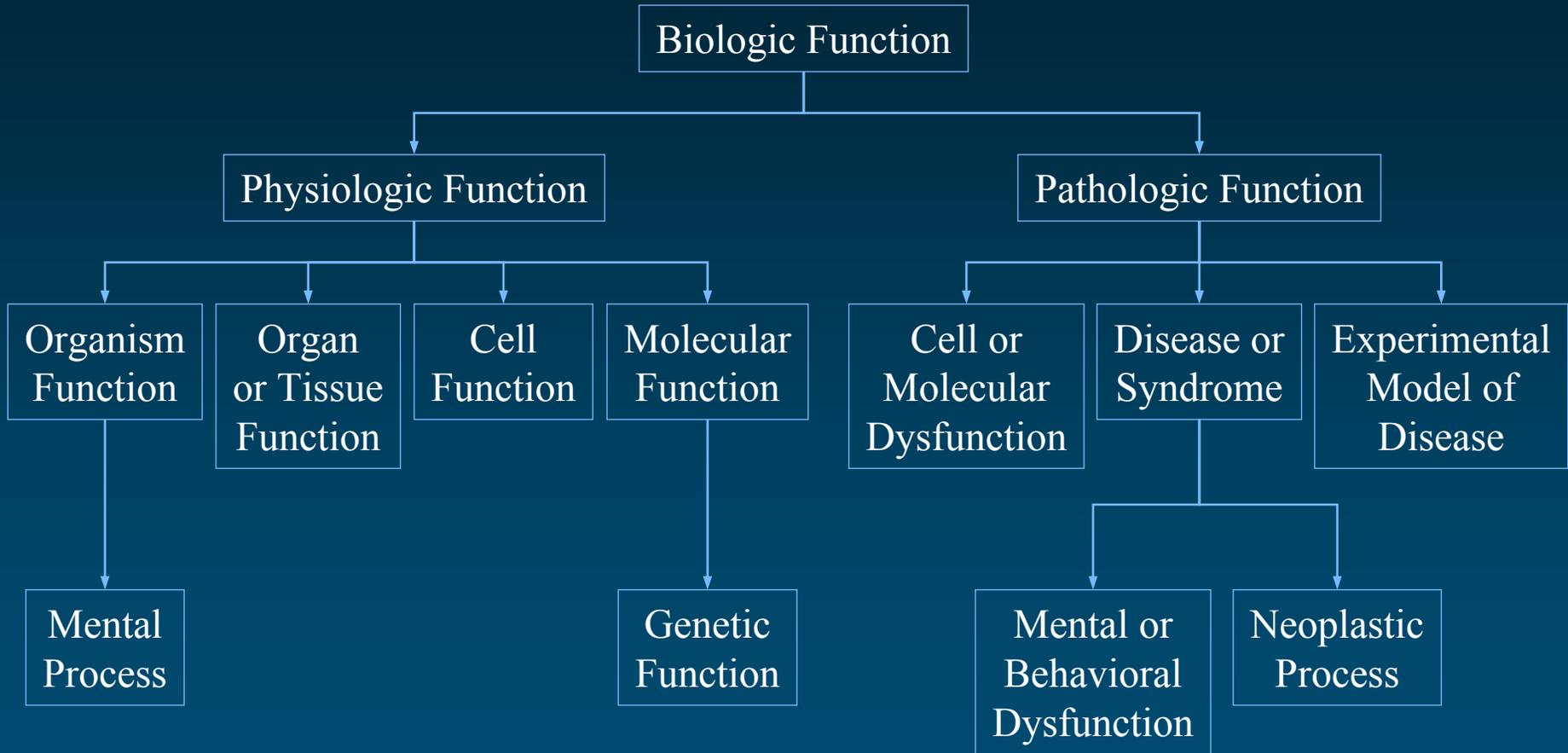
Semantic Network

- ◆ Semantic types (135)
 - tree structure
 - 2 major hierarchies
 - Entity
 - Physical Object
 - Conceptual Entity
 - Event
 - Activity
 - Phenomenon or Process

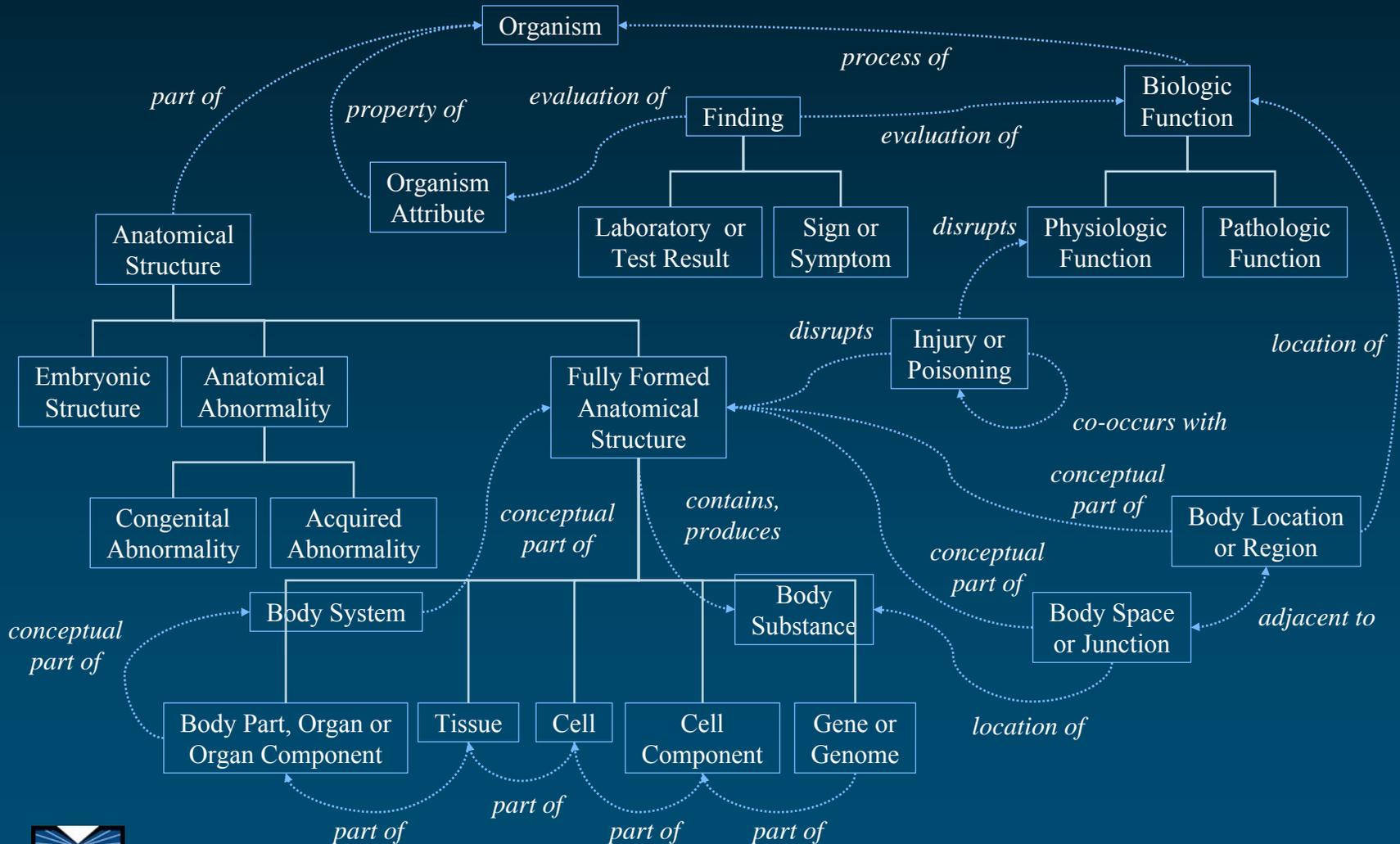
Semantic Network

- ◆ Semantic network relationships (54)
 - hierarchical (isa = is a kind of)
 - among types
 - *Animal isa Organism*
 - *Enzyme isa Biologically Active Substance*
 - among relations
 - *treats isa affects*
 - non-hierarchical
 - *Sign or Symptom diagnoses Pathologic Function*
 - *Pharmacologic Substance treats Pathologic Function*

“Biologic Function” hierarchy (isa)



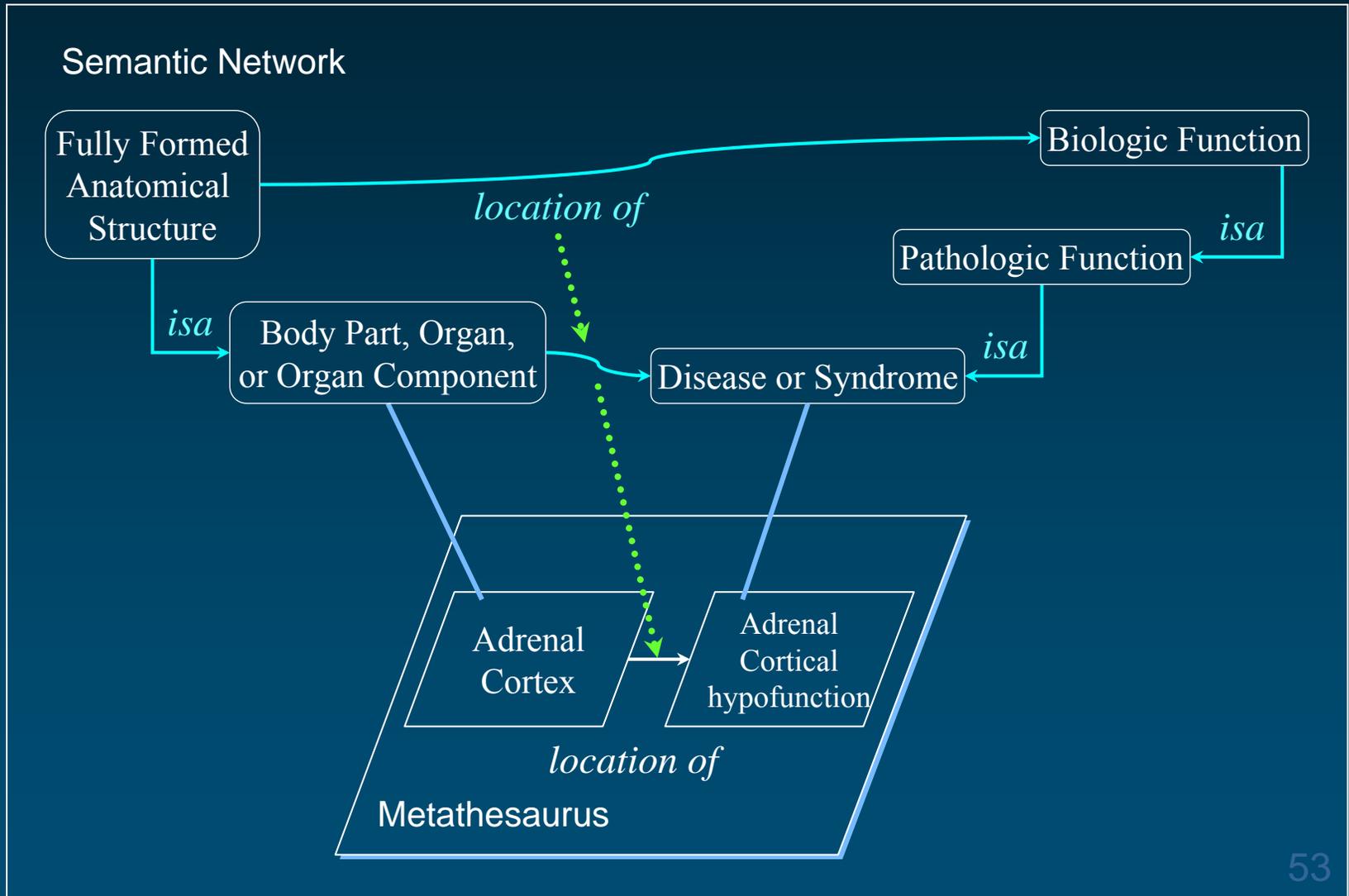
Associative (non-isa) relationships



Why a semantic network?

- ◆ Semantic Types serve as high level categories assigned to Metathesaurus concepts, *independently of their position in a hierarchy*
- ◆ A relationship between 2 Semantic Types (ST) is a possible link between 2 concepts that have been assigned to those STs
 - The relationship may or may not hold at the concept level
 - Other relationships may apply at the concept level

Relationships can inherit semantics



SPECIALIST Lexicon and lexical tools

SPECIALIST Lexicon

- ◆ Content
 - English lexicon
 - Many words from the biomedical domain
- ◆ 200,000+ lexical items
- ◆ Word properties
 - morphology
 - orthography
 - syntax
- ◆ Used by the lexical tools

Morphology

◆ Inflection

- noun nucleus, nuclei
- verb cauterize, cauterizes, cauterized, cauterizing
- adjective red, redder, reddest

◆ Derivation

- verb ↔ noun cauterize -- cauterization
- adjective ↔ noun red -- redness

Orthography

◆ Spelling variants

- oe/e

oesophagus - esophagus

- ae/e

anaemia - anemia

- ise/ize

cauterise - cauterize

- genitive mark

Addison's disease

Addison disease

Addisons disease

Syntax

◆ Complementation

● verbs

- intransitive I'll treat.
- transitive He treated the patient.
- ditransitive He treated the patient with a drug.

● nouns

- prepositional phrase

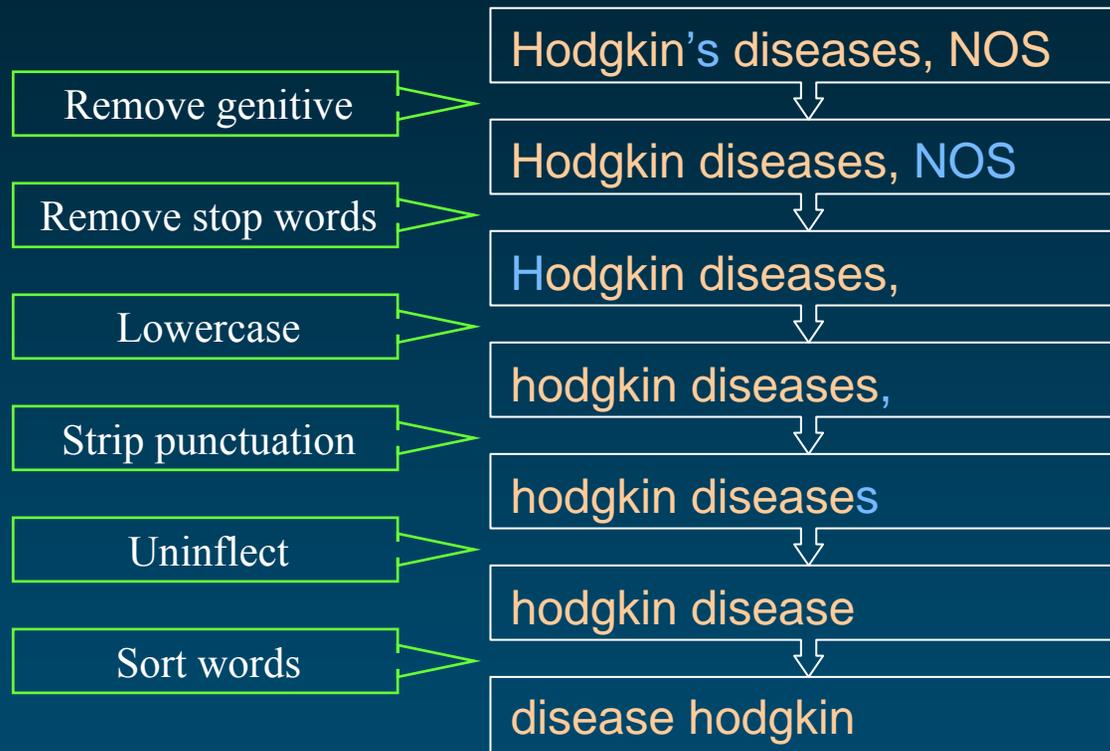
Valve of coronary sinus

◆ Position for adjectives

Lexical tools

- ◆ To manage lexical variation in biomedical terminologies
- ◆ Major tools
 - Normalization
 - Indexes
 - Lexical Variant Generation program (lvg)
- ◆ Based on the SPECIALIST Lexicon
- ◆ Used by noun phrase extractors, search engines

Normalization



Normalization: Example

Hodgkin Disease
HODGKINS DISEASE
Hodgkin's Disease
Disease, Hodgkin's
Hodgkin's, disease
HODGKIN'S DISEASE
Hodgkin's disease
Hodgkins Disease
Hodgkin's disease NOS
Hodgkin's disease, NOS
Disease, Hodgkins
Diseases, Hodgkins
Hodgkins Diseases
Hodgkins disease
hodgkin's disease
Disease, Hodgkin

normalize

disease hodgkin

Normalization Applications

- ◆ Model for lexical resemblance
- ◆ Help find lexical variants for a term
 - Terms that normalize the same usually share the same LUI
- ◆ Help find candidates to synonymy among terms
- ◆ Help map input terms to UMLS concepts

Indexes

- ◆ Word index
 - word to Metathesaurus strings
 - one word index per language
- ◆ Normalized word index
 - normalized word to Metathesaurus strings
 - English only
- ◆ Normalized string index
 - normalized term to Metathesaurus strings
 - English only

Lexical Variant Generation program

- ◆ Tool for specialists (linguists)
- ◆ Performs atomic lexical transformations
 - generating inflectional variants
 - lowercase
 - ...
- ◆ Performs sequences of atomic transformations
 - a specialized sequence of transformations provides the normalized form of a term (the *norm* program)

Part II

How to use the UMLS?

Outline

- ◆ Part II: *How to use the UMLS?*
 - Obtaining a license
 - Remote access
 - Knowledge Source Server (UMLSKS)
 - UMLSKS Application programming interface (API)
 - Local installation and customization (MetamorphoSys)

Part II

How to use the UMLS?

(1) Obtaining a license

First step License agreement

◆ Online Web-based license:

<http://www.nlm.nih.gov/research/umls/license.html>

- Read license 
- Read appendix 
- Print a copy for your records 
- Complete the Web form 

- Verify:
 - receive e-mail from NLM; go to Web site within 72 hours and enter first and last name
- NLM official will countersign (turn-around time of a few days)
- Receive 2nd e-mail from NLM with new license number



Unified Medical Language System

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new SNOMED category

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Accept and continue

Not accept

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APPENDIX A.1

Appendix to the License Agreement for Use of the UMLS® Metathesaurus

UMLS METATHESAURUS® SOURCE VOCABULARIES -- 2004AB Edition

Sources are listed in order according to the abbreviations used in the UMLS Metathesaurus files. If additional restrictions and notices apply, the category of restrictions and the special notices appear under the name of the source. See the license agreement for an explanation of the categories of restrictions. Many sources publish printed editions and/or other explanatory information that may be essential to understanding the purpose and application of particular sources in data creation and retrieval. Contact information is provided for each source. Please address questions about permissions or license agreements for additional uses not covered by this Agreement, or other inquiries about individual sources, to the appropriate contacts.

NLM is working toward inclusion in the UMLS Metathesaurus of the complete, current edition of most of these vocabulary sources.

AIR93 AI/RHEUM. Bethesda, (MD): National Library of Medicine, Lister Hill Center, 1993.

Contact: May Cheh, Lister Hill Center, National Library of Medicine, Bethesda MD; e-mail: cheh@nlm.nih.gov

ALT2003 Alternative Billing Concepts (AltLink). Albuquerque (NM): Alternative Link LLC, 2003.

CATEGORY 3 RESTRICTIONS APPLY

Contact: Alternative Link LLC; 6121 Indian School Road NE, Suite 131; Albuquerque, NM 87110; phone: 877-621-5465;
<http://www.alternativelink.com>; e-mail: mail@alternativelink.com

VANDF03 U.S. Department of Veterans Affairs, Veterans Health Administration National Drug File. Department of Veterans Affairs, Washington, DC. Release Date: March 13, 2003.

*NOTE: Now a CATEGORY 0

Contact: Steven Brown; CPEP Office; 1310 24th Avenue S; Nashville, TN 37215; e-mail: Steven.Brown@msd.va.gov

WHO97 WHO Adverse Drug Reaction Terminology (WHOART). Uppsala (Sweden): WHO Collaborating Centre for International Drug Monitoring, 1997.

CATEGORY 2 RESTRICTIONS APPLY

The Metathesaurus includes translations of WHO97 in French (WHOFRE_1997), German (WHOGER_1997), Portuguese (WHOPOR_1997), and Spanish (WHOSPA_1997).

Contact: WHO Collaborating Centre for International Drug Monitoring, Stora Target 3, S-753 20 Uppsala, Sweden; fax: 18-656080

Accept

Not accept

Last updated: 20 July 2004

First published: 26 March 2004

Permanence level: Permanence Not Guaranteed

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 - *Explicitly prohibited to provide Internet access*
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There may be additional restrictions, or separate license fees, associated with usage of specific vocabularies. Read the UMLS License, including the Appendix!

67%



Part II
How to use the UMLS?

(2) Remote access

Remote Access

- ◆ UMLS Knowledge Source Server:

<http://umlsks.nlm.nih.gov>

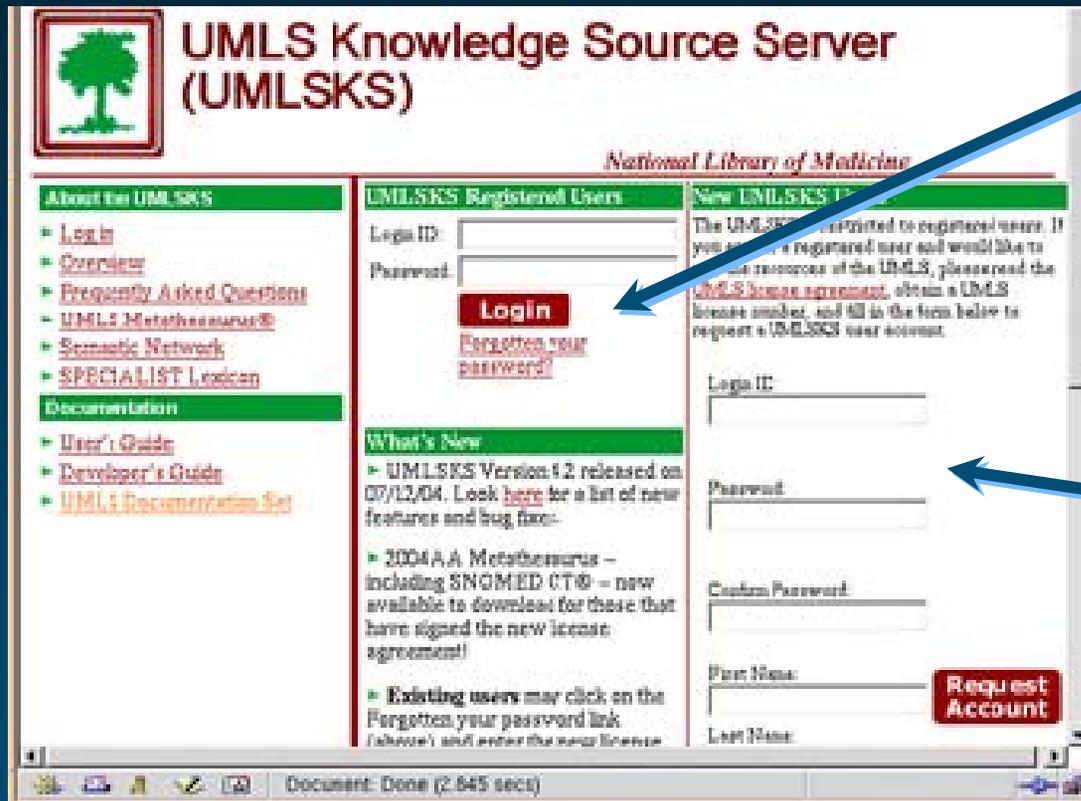
- ◆ Web search interface
- ◆ Application Programming Interface (API)

Knowledge Source Server
Web search interface

UMLS^{KS} Web search interface

- ◆ Logging in
- ◆ Basic searching
- ◆ Advanced searching

UMLSKS Web search interface log in

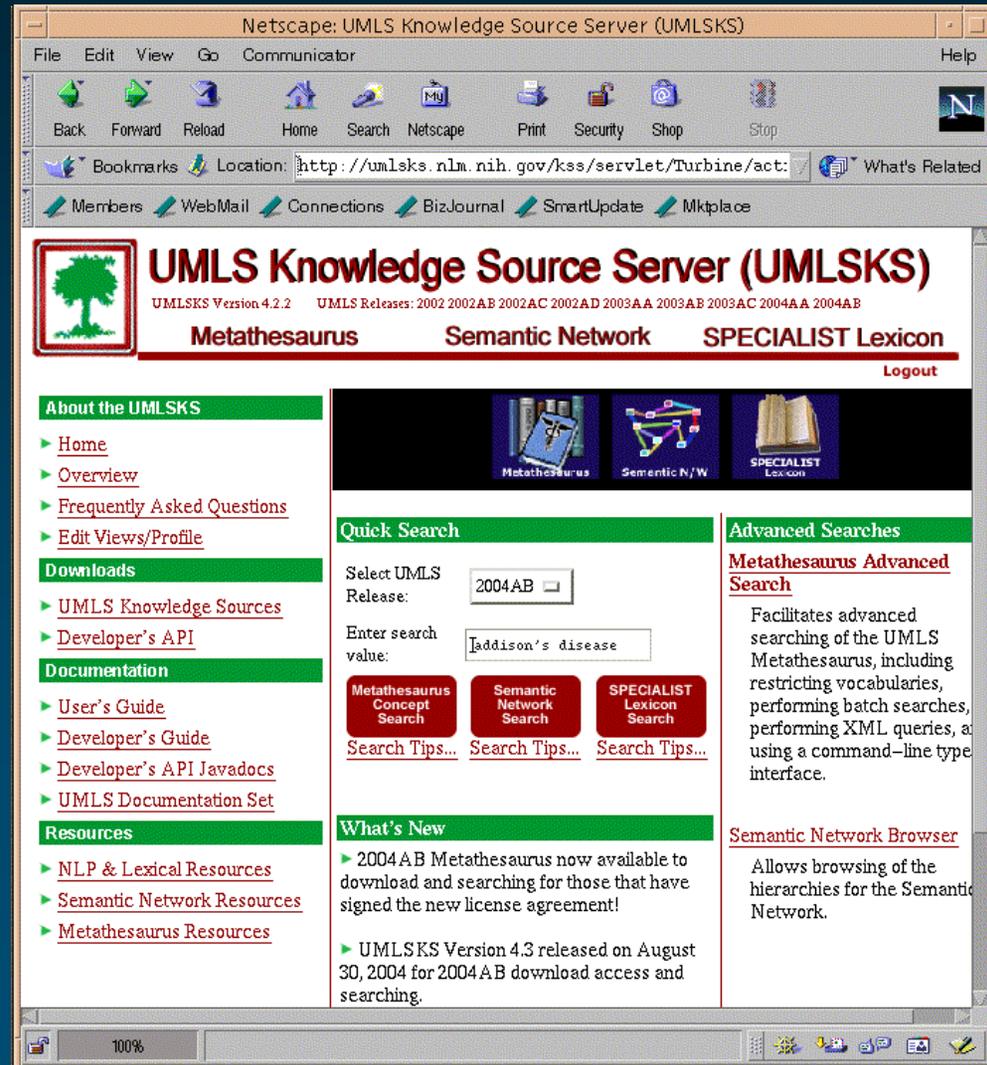


Returning users log in

New users create account

UMLS Knowledge Source Server Home Page

- ◆ Tabs across top access basic searching of 3 Knowledge Sources
- ◆ Advanced searching options on right-hand side



UMLS Knowledge Source Server Home Page



UMLS Knowledge Source Server (UMLS SKS)

UMLS SKS Version 4.2.2 UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB

[Metathesaurus](#) [Semantic Network](#) [SPECIALIST Lexicon](#)

[Logout](#)

About the UMLS SKS

- [Home](#)
- [Overview](#)
- [Frequently Asked Questions](#)
- [Edit Views/Profile](#)

Downloads

- [UMLS Knowledge Sources](#)
- [Developer's API](#)

Documentation

- [User's Guide](#)
- [Developer's Guide](#)
- [Developer's API Javadocs](#)
- [UMLS Documentation Set](#)

Resources

- [NLP & Lexical Resources](#)
- [Semantic Network Resources](#)
- [Metathesaurus Resources](#)



Metathesaurus Semantic N/W SPECIALIST Lexicon

Quick Search

Select UMLS Release:

Enter search value:

[Metathesaurus Concept Search](#) [Semantic Network Search](#) [SPECIALIST Lexicon Search](#)

[Search Tips...](#) [Search Tips...](#) [Search Tips...](#)

Advanced Searches

[Metathesaurus Advanced Search](#)

Facilitates advanced searching of the UMLS Metathesaurus, including restricting vocabularies, performing batch searches, performing XML queries, and using a command-line type interface.

What's New

- ▶ 2004AB Metathesaurus now available to download and searching for those that have signed the new license agreement!
- ▶ UMLS SKS Version 4.3 released on August 30, 2004 for 2004AB download access and searching.

[Semantic Network Browser](#)

Allows browsing of the hierarchies for the Semantic Network.

Metathesaurus Basic Search

Addison's disease

UMLS Knowledge Source Server (UMLS SKS)
UMLS SKS Version 4.2 UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA

Metathesaurus Semantic Network SPECIALIST Lexicon Logout

Quick Search
Select UMLS Release: 2004AA
Enter search value:

Advanced Searches
[Metathesaurus Advanced Search](#)
Facilitates advanced searching of the UMLS Metathesaurus including restricting

Search
Select UMLS Release: 2004AB
Enter search value:

Metathesaurus Concept Search **Semantic Network Search** **SPECIALIST Lexicon Search**

[Search Tips...](#) [Search Tips...](#) [Search Tips...](#)

- ◆ UMLS Release
- ◆ Search Term
- ◆ UMLS Knowledge Source

Concept Report *Addison's disease*

UMLS Knowledge Source Server (UMLSKS)
UMLSKS Version 4.2.2 UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB

Metathesaurus Semantic Network SPECIALIST Lexicon
Home Advanced Search Logout

Metathesaurus Search for: **addison's disease** in UMLS Release 2004AB

Display **Display All**

Concept
 Definition
 Synonyms
 Other Languages
 Suppressible Synonyms
 Sources

Context
 Ancestors
 Parents
 Siblings
 Children

Relations
 Narrower
 Broader
 Similar
 Other
 Related and possibly synonyms

Concept: Addison's disease
CUI: C0001403

Semantic Type: Disease or Syndrome

Definition:
A disease characterized by hypotension, weight loss, anorexia, weakness, and sometimes a bronze-like melanotic hyperpigmentation of the skin. It is due to tuberculosis- or autoimmune-induced disease (hypofunction) of the adrenal glands that results in deficiency of aldosterone and cortisol. In the absence of replacement therapy, it is usually fatal. (MeSH)

disease characterized by hypotension, weight loss, anorexia, weakness, and sometimes a bronze-like melanotic hyperpigmentation of the skin. It is due to tuberculosis or autoimmune induced disease (hypofunction) of the adrenal glands that results in deficiency of aldosterone and cortisol. (CRISP Thesaurus)

Synonyms:
Addison's disease
Addison's disease (disorder)
ADRENAL INSUFFICIENCY (ADDISON'S DISEASE)
ADRENOCORTICAL INSUFFICIENCY, PRIMARY
Asthenia pigmentosa
Bronzed disease

Concept Name /CUI

Semantic Type(s)

Definition(s)

Synonyms

Display All

The screenshot displays the UMLS Knowledge Source Server (UMLSKS) interface. At the top, it shows the logo and title "UMLS Knowledge Source Server (UMLSKS)" along with version information: "UMLSKS Version: 4.2.2" and "UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB". Below this are navigation links for "Metathesaurus", "Semantic Network", and "SPECIALIST Lexicon".

The main content area shows a search result for "addison's disease" in UMLS Release 2004AB. The search results are displayed in a table-like format with columns for "Concept", "CUI", and "Semantic Type". The "Concept" column is expanded to show a detailed view for "Addison's disease" (CUI: C0001403). This view includes a "Display" button and a "Display All" button. The "Display" button is highlighted with a red box, and a blue arrow points from the text "“Display” shows results for selected options" to it. The "Display All" button is also highlighted with a red box, and a blue arrow points from the text "“Display All” shows results for all available options" to it.

The detailed view for "Addison's disease" includes the following information:

- Concept:** Addison's disease
- CUI:** C0001403
- Semantic Type:** Disease or Syndrome
- Definition:** weight loss, anorexia, weakness, and pigmentation of the skin. It is due to disease (hypofunction) of the adrenal glands and cortisol. In the absence of replacement
- Synonyms:** weight loss, anorexia, weakness, and pigmentation of the skin; due to disease (hypofunction) of the adrenal glands and cortisol. (CRISP Thesaurus)
- Other Languages:**
- Suppressible Synonyms:**
- Sources:**
- Context:**

Below the detailed view, there are links to related concepts: [ADRENAL INSUFFICIENCY \(ADDISON'S DISEASE\)](#), [ADRENOCORTICAL INSUFFICIENCY, PRIMARY FAILURE](#), [Asthenia pigmentosa](#), and [Bronzed disease](#).

“Display” shows results for selected options

“Display All” shows results for all available options

Metathesaurus Basic Search

Adrenal gland insufficiency

UMLS Knowledge Source Server (UMLS SKS)
UMLS SKS Version 4.2.2 UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB

Metathesaurus Semantic Network SPECIALIST Lexicon Logout

Metathesaurus Search

Select UMLS Release: 2004AB

Enter a term or a concept unique identifier (CUI): Adrenal gland insufficiency

Perform Concept Search

Basic searching allows users to search for a concept by entering a term name or a

Select UMLS Release: 2004AB

Enter a term or a concept unique identifier (CUI): Adrenal gland insufficiency

Perform Concept Search

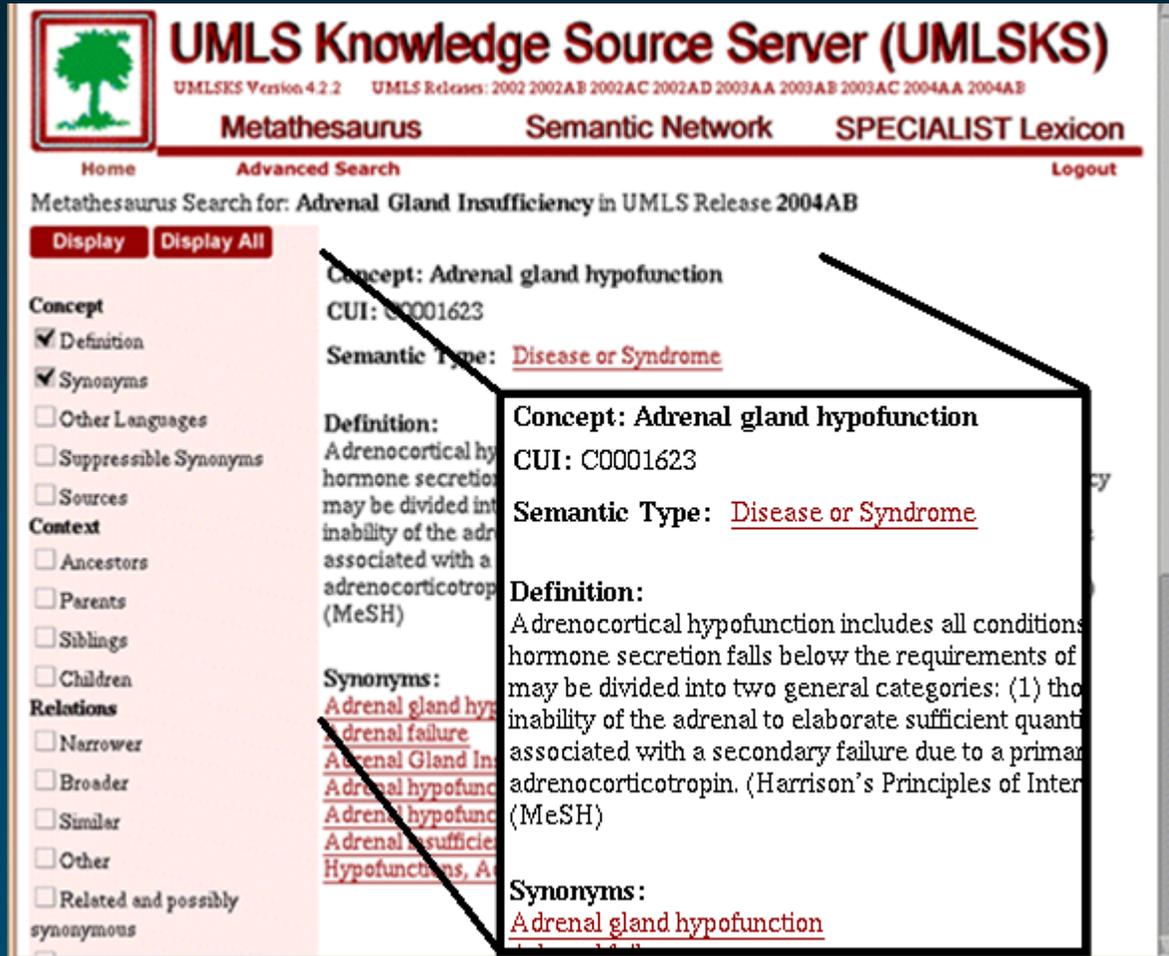
1. The normalized string index is searched for the input string (English only).
2. If not found, then the normalized word index is searched for the input string (English only).
3. If not found, then a spelling check is performed on the input string.

NOTE: The basic searching algorithm is used primarily to locate English terms. To search for non-English terms, used the advanced search option **Focused Search** and select the "Word Index" and language.

- ◆ Specify:
 - UMLS Release
 - Search term
- ◆ Algorithm:
 - Search Normalized String
 - Search Normalized Word
 - Suggest Spelling

Basic Concept Report

Adrenal gland insufficiency



The screenshot displays the UMLS Knowledge Source Server (UMLSKS) interface. At the top, there is a logo of a tree and the text "UMLS Knowledge Source Server (UMLSKS)". Below this, it says "UMLSKS Version 4.2.2" and "UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB". The main navigation bar includes "Metathesaurus", "Semantic Network", and "SPECIALIST Lexicon". There are also links for "Home", "Advanced Search", and "Logout".

The search results show a "Metathesaurus Search for: Adrenal Gland Insufficiency in UMLS Release 2004AB". There are two buttons: "Display" and "Display All".

The left sidebar contains a list of options for the concept report:

- Definition
- Synonyms
- Other Languages
- Suppressible Synonyms
- Sources
- Context**
 - Ancestors
 - Parents
 - Siblings
 - Children
- Relations**
 - Narrower
 - Broader
 - Similar
 - Other
 - Related and possibly synonymous

Concept: Adrenal gland hypofunction

CUI: C0001623

Semantic Type: [Disease or Syndrome](#)

Definition:

Adrenocortical hormone secretion may be divided into two general categories: (1) the inability of the adrenal to elaborate sufficient quantities of hormone associated with a primary failure due to a primary adrenocorticotropin (MeSH)

Synonyms:

[Adrenal gland hypofunction](#)
[Adrenal failure](#)
[Adrenal Gland Insufficiency](#)
[Adrenal hypofunction](#)
[Adrenal hypofunction](#)
[Adrenal insufficiency](#)
[Hypofunctions, Adrenal](#)

Concept: Adrenal gland hypofunction

CUI: C0001623

Semantic Type: [Disease or Syndrome](#)

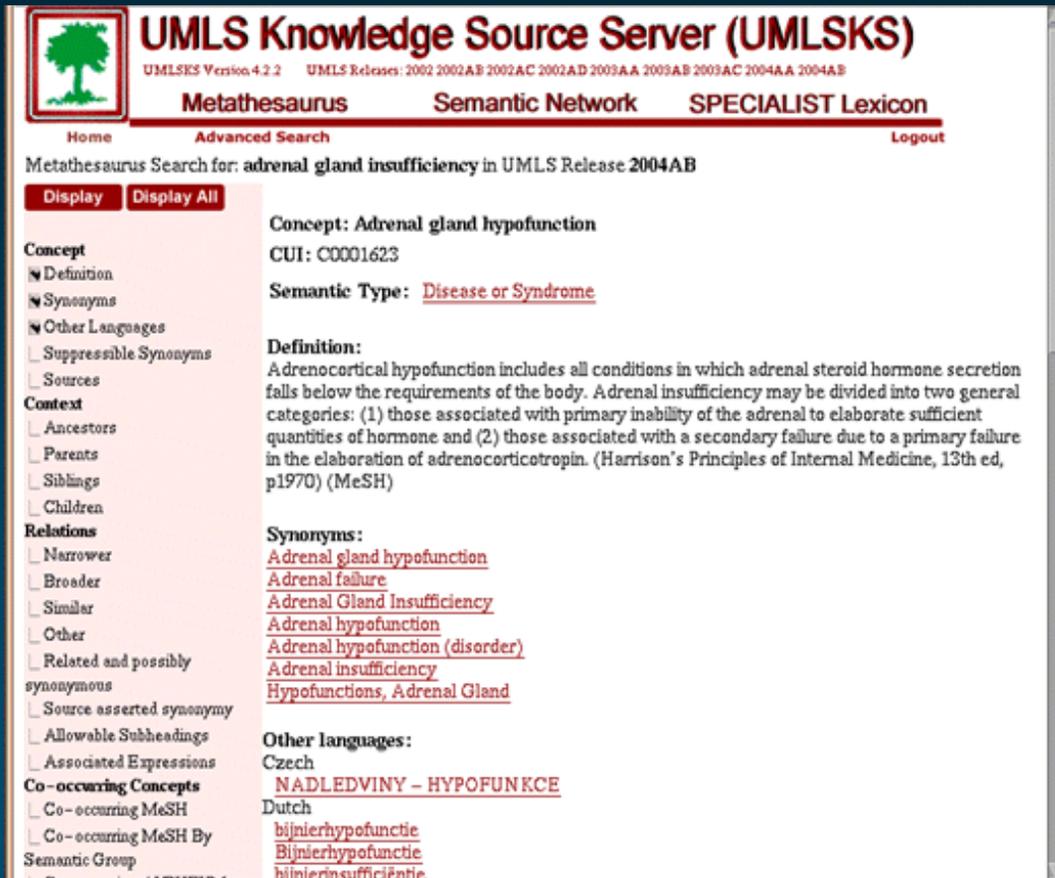
Definition:

Adrenocortical hypofunction includes all conditions in which hormone secretion falls below the requirements of the body. It may be divided into two general categories: (1) the inability of the adrenal to elaborate sufficient quantities of hormone associated with a secondary failure due to a primary adrenocorticotropin. (Harrison's Principles of Internal Medicine, 14th ed., MeSH)

Synonyms:

[Adrenal gland hypofunction](#)

Concept Report Display All *Adrenal Gland Insufficiency*



The screenshot displays the UMLS Knowledge Source Server (UMLSKS) interface. At the top, it shows the UMLSKS logo and version information (UMLSKS Version 4.2.2, UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB). Below this are navigation links for Metathesaurus, Semantic Network, and SPECIALIST Lexicon. The main content area shows a search result for "adrenal gland insufficiency" in UMLS Release 2004AB. The report includes the following sections:

- Concept:** Adrenal gland hypofunction
CUI: C0001623
- Semantic Type:** [Disease or Syndrome](#)
- Definition:** Adrenocortical hypofunction includes all conditions in which adrenal steroid hormone secretion falls below the requirements of the body. Adrenal insufficiency may be divided into two general categories: (1) those associated with primary inability of the adrenal to elaborate sufficient quantities of hormone and (2) those associated with a secondary failure due to a primary failure in the elaboration of adrenocorticotropin. (Harrison's Principles of Internal Medicine, 13th ed, p1970) (MeSH)
- Synonyms:**
 - [Adrenal gland hypofunction](#)
 - [Adrenal failure](#)
 - [Adrenal Gland Insufficiency](#)
 - [Adrenal hypofunction](#)
 - [Adrenal hypofunction \(disorder\)](#)
 - [Adrenal insufficiency](#)
 - [Hypofunctions, Adrenal Gland](#)
- Other languages:**
 - Czech: [NADLEDVINY – HYPOFUNKCE](#)
 - Dutch: [bijnierhypofunctie](#), [Bijnierhypofunctie](#), [bijnierinsufficiëntie](#)

On the left side, there is a navigation menu with various options such as Definition, Synonyms, Other Languages, Suppressible Synonyms, Sources, Context, Ancestors, Parents, Siblings, Children, Relations, Narrower, Broader, Similar, Other, Related and possibly synonyms, Source asserted synonymy, Allowable Subheadings, Associated Expressions, Co-occurring Concepts, Co-occurring MeSH, and Co-occurring MeSH By Semantic Group.

- ◆ Concept Name/CUI
- ◆ Semantic Type(s)
- ◆ Definition(s)
- ◆ Synonyms, including foreign languages
- ◆ Relations (broader, narrower, etc.)
- ◆ Co-occurrence data

Concept Report Display All (continued)

Synonyms

Sources

The screenshot displays a window titled "Concept Report Display All" with a list of synonyms and sources. A yellow bracket on the left side of the slide groups the "Synonyms" and "Sources" sections. A black box highlights a portion of the text, showing a detailed view of the synonyms for "Hypofunction of the Adrenal Glands".

Synonyms:

- Japanese: 副腎機能低下, 副腎機能低下症
- Portuguese: Hipofunção das Glândulas Supra-Renais, HIPOFUNCAO SUPRA-RENAL, Hipofunção supra-renal, INSUFICIENCIA SUPRA-RENAL, Insuficiência supra-renal, Insuficiência supra-renal
- Russian: НАДПОЧЕЧНИКОВАЯ ГИПОФУНКЦИЯ
- Spanish: hipofuncion adrenal, hipofunción adrenal, hipofunción de las Glándulas Suprarrenales, hipofunción suprarrenal, Hipofunción suprarrenal, hipofunción suprarrenal, Hipofunción suprarrenal, hipofunción suprarrenal, Insuficiencia adrenal, Insuficiencia suprarrenal, INSUFICIENCIA SUPRARRENAL, Insuficiencia suprarrenal, SUPRARRENAL HIPOFUNCION
- Swedish: Binjurehypofunktion

Suppressible Synonyms:
adrenal insufficiency <2>

Sources:
Beth Israel Problem List
Clinical Problem Statements
COSTAR
CRISP Thesaurus
COSTART

Highlighted Section:

- Japanese: 副腎機能低下, 副腎機能低下症
- Portuguese: Hipofunção das Glândulas Supra-Renais, HIPOFUNCAO SUPRA-RENAL, Hipofunção supra-renal, INSUFICIENCIA SUPRA-RENAL, Insuficiência supra-renal, Insuficiência supra-renal NE
- Russian: НАДПОЧЕЧНИКОВАЯ ГИПОФУНКЦИЯ
- Spanish: hipofuncion adrenal, hipofunción adrenal



Concept Report Display All (continued)

Hierarchies

Ancestors:

MeSH
[MeSH Descriptors](#) []
[Index Medicus Descriptor](#) []
[Diseases \(MeSH Category\)](#) [C]
[Endocrine Diseases](#) [C19]
[Adrenal Gland Diseases](#) [C19.053]
[Adrenal Gland Hypofunction](#) [C19.053.264]

MedDRA
[Endocrine dis](#)
[Adrenal glan](#)
[Adrenal co](#)
[Adrenal in](#)

MedDRA
[Metabolism a](#)
[Metabolism](#)
[Metabolic c](#)
[Adrenal in](#)

MeSH
[MeSH Descriptors](#) []
[Index Medicus Descriptor](#) []
[Diseases \(MeSH Category\)](#) [C]
[Endocrine Diseases](#) [C19]
[Adrenal Gland Diseases](#) [C19.053]
[Adrenal Gland Hypofunction](#) [C19.053.264]

NCI Thesaur
[Diseases, Disorders and Findings](#) []
[Diseases and Disorders](#) []
[Disorder by Site](#) []
[Endocrine Disorder](#) []
[Adrenal Gland Disorder](#) []
[Non-Neoplastic Adrenal Gland Disorder](#) []
[Adrenal Gland Insufficiency](#) []

NCI Thesaurus
[Diseases, Disorders and Findings](#) []
[Diseases and Disorders](#) []
[Disorder by Site](#) []

Concept Report Display All (continued)

Relations

THYROIDITIS [0420]
THYROXINE DECREASED [1349]
TSH DECREASED [1690]
TSH INCREASED [1831]
VIRILISM [0421]

Narrower Concepts:

- Addison's disease (National Drug File – Reference Terminology) [Relation: isa]
- Addison's disease (Metathesaurus Names) [Relation:]
- Hypoadosteronism (National Drug File – Reference Terminology) [Relation: isa]
- Other adrenal hypofunction NOS (Metathesaurus Names) [Relation:]
- Adrenoleukodystrophy (National Drug File – Reference Terminology) [Relation: isa]

Narrower Concepts:

- Addison's disease (National Drug File – Reference Terminology) [Relation: isa]
- Addison's disease (Metathesaurus Names) [Relation:]
- Hypoadosteronism (National Drug File – Reference Terminology) [Relation: isa]

Adrenal Gland Diseases (National Drug File – Reference Terminology) [Relation: inverse isa]
Adrenal Gland Diseases (Metathesaurus Names) [Relation:]
Endocrine Diseases (Metathesaurus Names) [Relation:]
Endocrine Diseases (WHO Adverse Reaction Terms) [Relation:]
Adrenal cortical hypofunction (SNOMED Clinical Terms)

Concept Report Display All (continued)

Co-occurrence
data

The screenshot shows a list of associated expressions and a list of co-occurring MeSH terms. A yellow bracket on the left side of the slide highlights the co-occurring MeSH terms section. A black box highlights a subset of these terms, with arrows pointing from the text 'Co-occurrence data' to this box.

psychology
radiography
radionuclide imaging
radiotherapy
rehabilitation
surgery
therapy
urine
veterinary
ultrasonography
virology

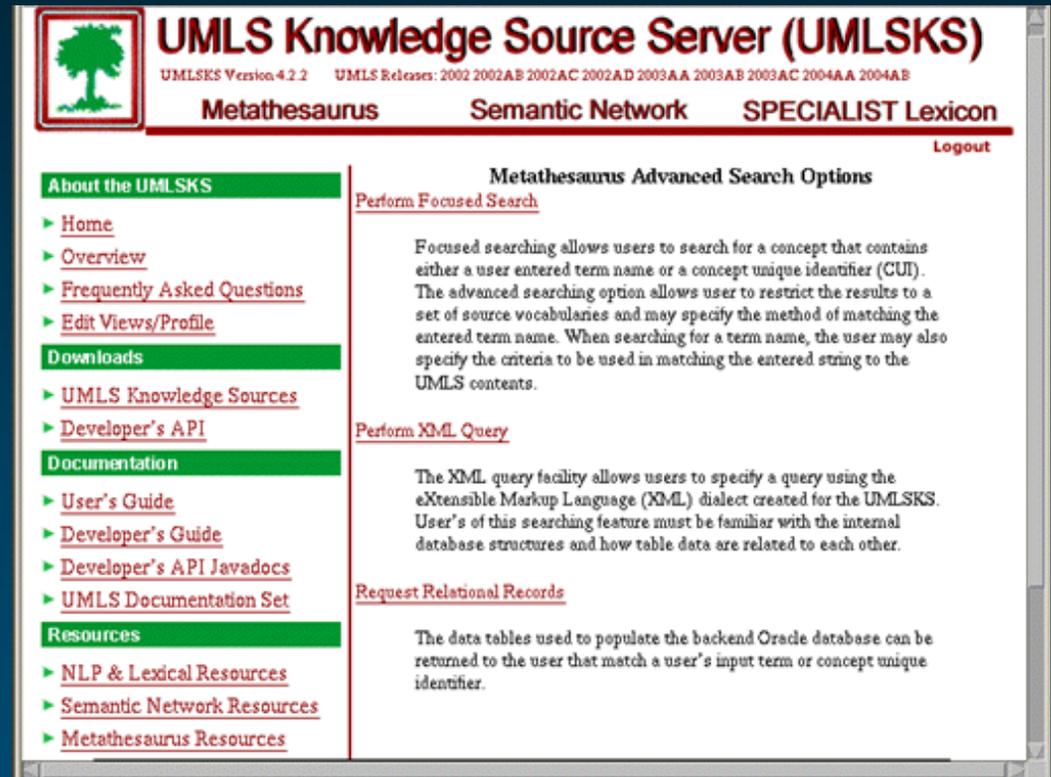
Associated Expressions: None found.

Co-occurring MeSH Terms:

[64] <u>Corticotropin</u>	[64] <u>Corticotropin</u>
[57] <u>Hydrocortisone</u>	[57] <u>Hydrocortisone</u>
[38] <u>Glucocorticoids</u>	[38] <u>Glucocorticoids</u>
[31] <u>Esophageal achalasia</u>	[31] <u>Esophageal achalasia</u>
[30] <u>Dog Diseases</u>	[30] <u>Dog Diseases</u>
[28] <u>Adrenal Glands</u>	[28] <u>Adrenal Glands</u>
[27] <u>Anti-Inflammatory Agents</u>	
[26] <u>DNA-Binding Proteins</u>	
[25] <u>Repressor Proteins</u>	
[25] <u>TRANSCRIPTION FACTORS</u>	
[24] <u>Retinoic Acid Receptors</u>	
[23] <u>Pituitary, Adrenal, and Parathyroid Gland Hormones</u>	
[21] <u>Lacrimal Apparatus</u>	
[20] <u>Hypothalamic Hypophysial Portal Vein System</u>	
[19] <u>Postoperative Complications</u>	
[18] <u>Adrenal Gland Neoplasms</u>	

Metathesaurus Advanced Search Options

- ◆ Focused Search
- ◆ Raw Relational Records



The screenshot displays the UMLS Knowledge Source Server (UMLS KS) website. The header includes the UMLS logo, the title "UMLS Knowledge Source Server (UMLS KS)", and version/release information. Navigation links for "Metathesaurus", "Semantic Network", and "SPECIALIST Lexicon" are present, along with a "Logout" link.

The main content area is titled "Metathesaurus Advanced Search Options" and is divided into three sections:

- Perform Focused Search:** Describes how focused searching allows users to search for a concept containing a user-entered term name or a concept unique identifier (CUI). It notes that advanced searching can restrict results to specific source vocabularies and matching methods.
- Perform XML Query:** Explains that the XML query facility uses the eXtensible Markup Language (XML) dialect for the UMLS KS, requiring familiarity with database structures and table relationships.
- Request Relational Records:** States that data tables from the backend Oracle database can be returned to the user based on their input term or CUI.

A left-hand navigation menu lists various resources and documentation, including "About the UMLS KS", "Downloads", "Documentation", and "Resources".

Metathesaurus Advanced Search Feature

Focused Search

The screenshot shows the UMLS Knowledge Source Server (UMLSKS) interface. The header includes the UMLSKS logo, version information (4.2.2), and release dates (2002, 2002AB, 2002AC, 2002AD, 2003AA, 2003AB, 2003AC, 2004AA, 2004AB). The main navigation bar contains 'Metathesaurus', 'Semantic Network', and 'SPECIALIST Lexicon', along with a 'Logout' link.

The 'Metathesaurus Focused Search' section contains the following fields and options:

- 1) Select UMLS Release:
- 2) Enter a term or a concept unique identifier (CUI):
- 3) Restrict source vocabulary to: Exclude suppressible synonyms, Include suppressible synonyms
- 4) String Matching Criteria: Check if you want results ordered by Semantic Group
- 5) Language:

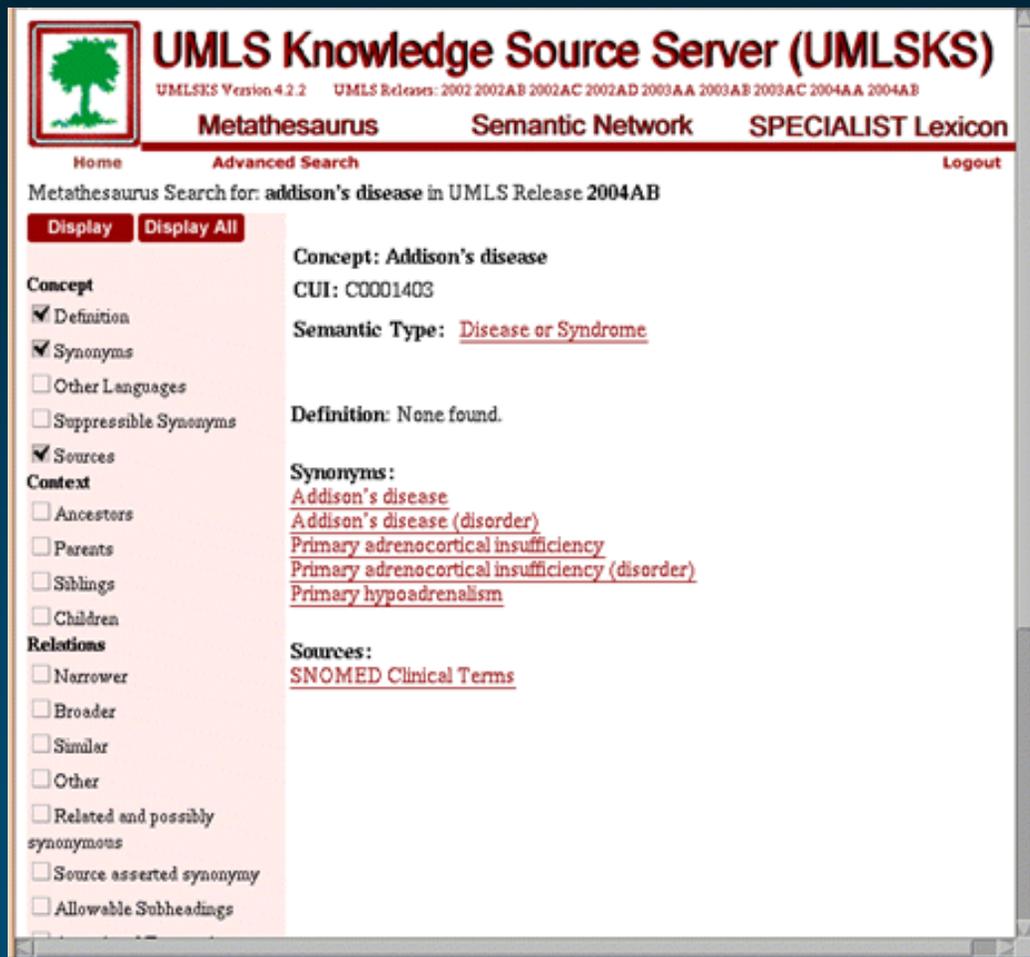
Below the search fields are two buttons: 'Perform Concept Search' and 'Perform Term Search'. A list of source vocabularies is visible in a scrollable area, including AIRRHEUM, Alcohol and Other Drug Thesaurus, Alternative Billing Concepts, Beth Israel Problem List, COSTAR, COSTART, and CPT.

At the bottom, a note states: 'Focused searching allows users to search for a concept that contains either a user entered term name or a concept unique identifier (CUI). The term name/CUI (e.g. C0001175) is'.

- ◆ UMLS Release
- ◆ Search Term
- ◆ Source Vocabularies
- ◆ String Criteria
 - Exact Match
 - Normalized string & word
 - Word
 - Truncation (left/right)
 - Approximate Match
- ◆ Language

Restricted Source Concept Report

Addison's Disease



The screenshot displays the UMLS Knowledge Source Server (UMLSKS) interface. At the top, it shows the UMLSKS logo and version information (4.2.2) along with a list of UMLS releases from 2002 to 2004AB. Below this, there are navigation links for 'Metathesaurus', 'Semantic Network', and 'SPECIALIST Lexicon'. The main search area shows a search for 'addison's disease' in the UMLS Release 2004AB. The results are displayed in a table with columns for 'Display' and 'Display All'. The search results are as follows:

Display	Display All
<input checked="" type="checkbox"/>	<input type="checkbox"/>
Concept	
<input checked="" type="checkbox"/> Definition	
<input checked="" type="checkbox"/> Synonyms	
<input type="checkbox"/> Other Languages	
<input type="checkbox"/> Suppressible Synonyms	
<input checked="" type="checkbox"/> Sources	
Context	
<input type="checkbox"/> Ancestors	
<input type="checkbox"/> Parents	
<input type="checkbox"/> Siblings	
<input type="checkbox"/> Children	
Relations	
<input type="checkbox"/> Narrower	
<input type="checkbox"/> Broader	
<input type="checkbox"/> Similar	
<input type="checkbox"/> Other	
<input type="checkbox"/> Related and possibly synonymous	
<input type="checkbox"/> Source asserted synonymy	
<input type="checkbox"/> Allowable Subheadings	

Concept: Addison's disease
CUI: C0001403
Semantic Type: Disease or Syndrome
Definition: None found.
Synonyms:
Addison's disease
Addison's disease (disorder)
Primary adrenocortical insufficiency
Primary adrenocortical insufficiency (disorder)
Primary hypoadrenalism
Sources:
SNOMED Clinical Terms

- ◆ UMLS Release:
2004AB
- ◆ Search Term:
addison's disease
- ◆ Source Vocabulary:
SNOMED CT
- ◆ String Criteria:
Normalized string
- ◆ Language:
English

Addison's disease in SNOMED CT

Preferred Term and Code



UMLS Knowledge Source Server (UMLS SKS)
UMLS SKS Version 4.2.2 UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB

Metathesaurus **Semantic Network** **SPECIALIST Lexicon**

[Home](#) [Advanced Search](#) [Logout](#)

Metathesaurus Search for: **Addison's disease** in UMLS Release **2004AB**

Display

Terms

Term Variants
 MeSH Entry Terms
 MeSH Attributes

Term Name: Addison's disease
CUI: C0001403
Term UI: L0001403

Source: SNOMED Clinical Terms
TTY: PT
ID: 363732003

Users are responsible for compliance with [UMLS copyright restrictions](#)

- ◆ TTY: Term Type
- ◆ ID: Source Code Descriptor

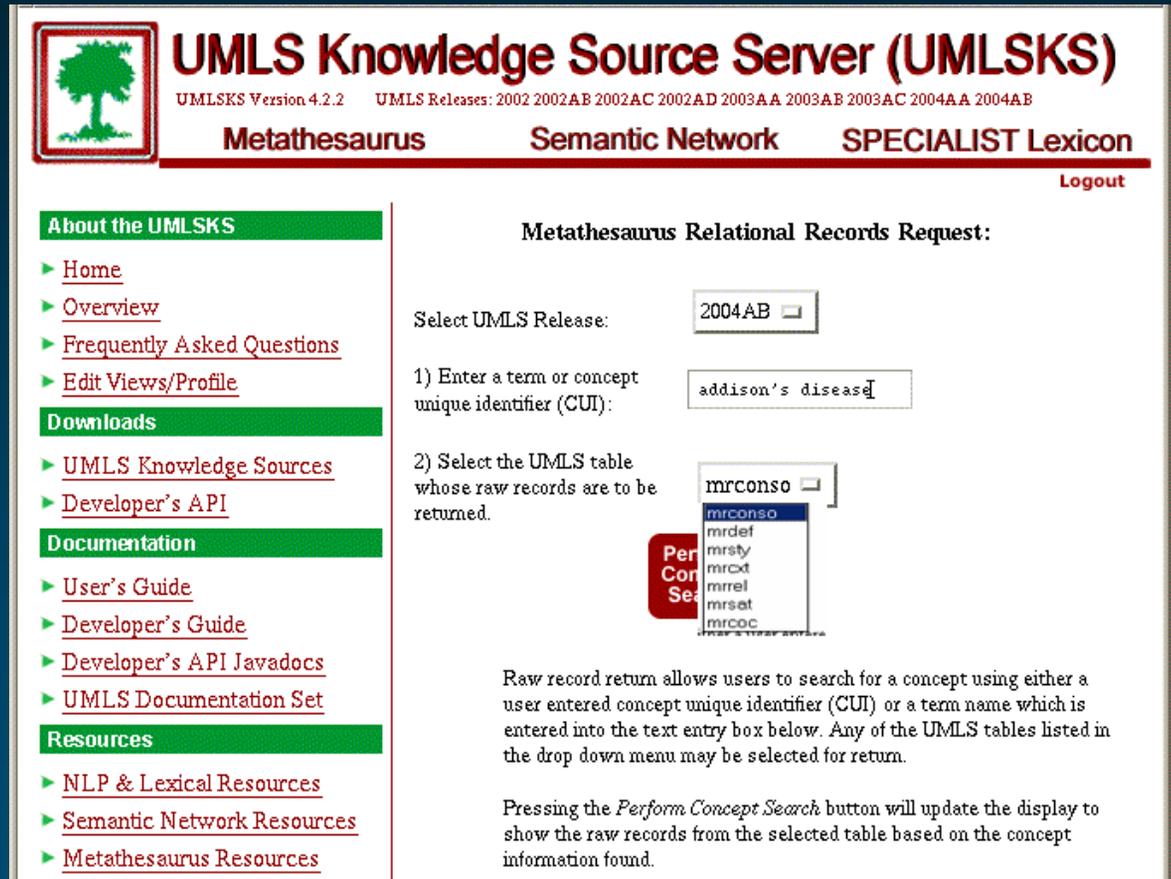
Metathesaurus Advanced Search Feature

Relational Record Request

◆ UMLS Release

◆ Search Term

◆ UMLS Relational Table



UMLS Knowledge Source Server (UMLS SKS)
UMLS SKS Version 4.2.2 UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB

Metathesaurus Semantic Network SPECIALIST Lexicon [Logout](#)

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- [NLP & Lexical Resources](#)
- [Semantic Network Resources](#)
- [Metathesaurus Resources](#)

Metathesaurus Relational Records Request:

Select UMLS Release:

1) Enter a term or concept unique identifier (CUI):

2) Select the UMLS table whose raw records are to be returned.

**Per
Con
Se**

- mrconso
- mrdef
- mrsty
- mrct
- mrrel
- mrset
- mrcc

Raw record return allows users to search for a concept using either a user entered concept unique identifier (CUI) or a term name which is entered into the text entry box below. Any of the UMLS tables listed in the drop down menu may be selected for return.

Pressing the *Perform Concept Search* button will update the display to show the raw records from the selected table based on the concept information found.

Relational Records MRCNSO.RRF

```
CUI|LAT|TS|LUI|STT|SUI|ISPREF|AUI|SAUI|SCUI|SDUI|SAB|TTY|CODE|STR|SUPPRESS|CVF|
C0001403|CZE|P|L3180742|PF|S3708232|Y|A3910108|||D000224|MSHCZE|MH|D000224|ADDISONOVA NEMOC|
C0001403|DUT|P|L2048638|PF|S2386860|N|A6566810|||10001130|MDRDUT|LT|10001130|Addison, ziekte
C0001403|DUT|P|L2048638|PF|S2386860|Y|A3931189|||D000224|MSHDUT|MH|D000224|Addison, ziekte v
C0001403|DUT|S|L2048637|PF|S2386859|Y|A3931188|||D000224|MSHDUT|SY|D000224|Addison, syndroom
C0001403|DUT|S|L2528364|PF|S2985131|Y|A3966882|||D000224|MSHDUT|SY|D000224|Ziekte van Addisc
C0001403|DUT|S|L3205108|PF|S3732602|N|A5146733|E27.1||ICD10DUT|PT|E27.1|Primaire bijniersch
C0001403|DUT|S|L3205108|PF|S3732602|Y|A3970882|||D000224|MSHDUT|SY|D000224|Primaire bijniers
C0001403|DUT|S|L4999233|PF|S5686738|Y|A6627443|||10036696|MDRDUT|LT|10036696|primair hypoadr
C0001403|DUT|S|L4999270|PF|S5686775|N|A6627493|||10052381|MDRDUT|LT|10052381|primaire bijnie
C0001403|DUT|S|L4999270|PF|S5686775|Y|A6627494|||10052381|MDRDUT|PT|10052381|primaire bijnie
C0001403|DUT|S|L5012413|PF|S5699917|Y|A6645695|||10013096|MDRDUT|LT|10013096|ziekte van Addi
C0001403|ENG|P|L0001403|PF|S0354372|N|A0388276|||A0D|DE|0000006012|Addison's disease|0||
C0001403|ENG|P|L0001403|PF|S0354372|N|A0388277|||0060-3321|CSP|PT|0060-3321|Addison's diseas
C0001403|ENG|P|L0001403|PF|S0354372|N|A0388279|||LCH|PT|U000061|Addison's disease|0||
C0001403|ENG|P|L0001403|PF|S0354372|N|A0388280|||10001390|MDR|LT|10001130|Addison's disease|
C0001403|ENG|P|L0001403|PF|S0354372|N|A0388281|||RCD|PT|C1541|Addison's disease|3||
```

Semantic Network Searching

- ◆ Select Tab along top
- ◆ Quick search
- ◆ Advanced Search on right-hand side

Netscape: UMLS Knowledge Source Server (UMLSKS)

File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Shop Stop

Bookmarks Location: <http://umlsks.nlm.nih.gov/kss/servlet/Turbine/act:> What's Related

Members WebMail Connections BizJournal SmartUpdate Mktplace

 **UMLS Knowledge Source Server (UMLSKS)**
UMLSKS Version 4.2.2 UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB

Metathesaurus Semantic Network SPECIALIST Lexicon

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- ▶ [Metathesaurus Resources](#)

Quick Search

Select UMLS Release:

Enter search value:

Metathesaurus Concept Search **Semantic Network Search** **SPECIALIST Lexicon Search**

[Search Tips...](#) [Search Tips...](#) [Search Tips...](#)

Advanced Searches

[Metathesaurus Advanced Search](#)

Facilitates advanced searching of the UMLS Metathesaurus, including restricting vocabularies, performing batch searches, using a command-line type interface.

What's New

- ▶ 2004 AB Metathesaurus now available to download and searching for those that have signed the new license agreement!
- ▶ UMLSKS Version 4.3 released on August 30, 2004 for 2004 AB download access and searching.

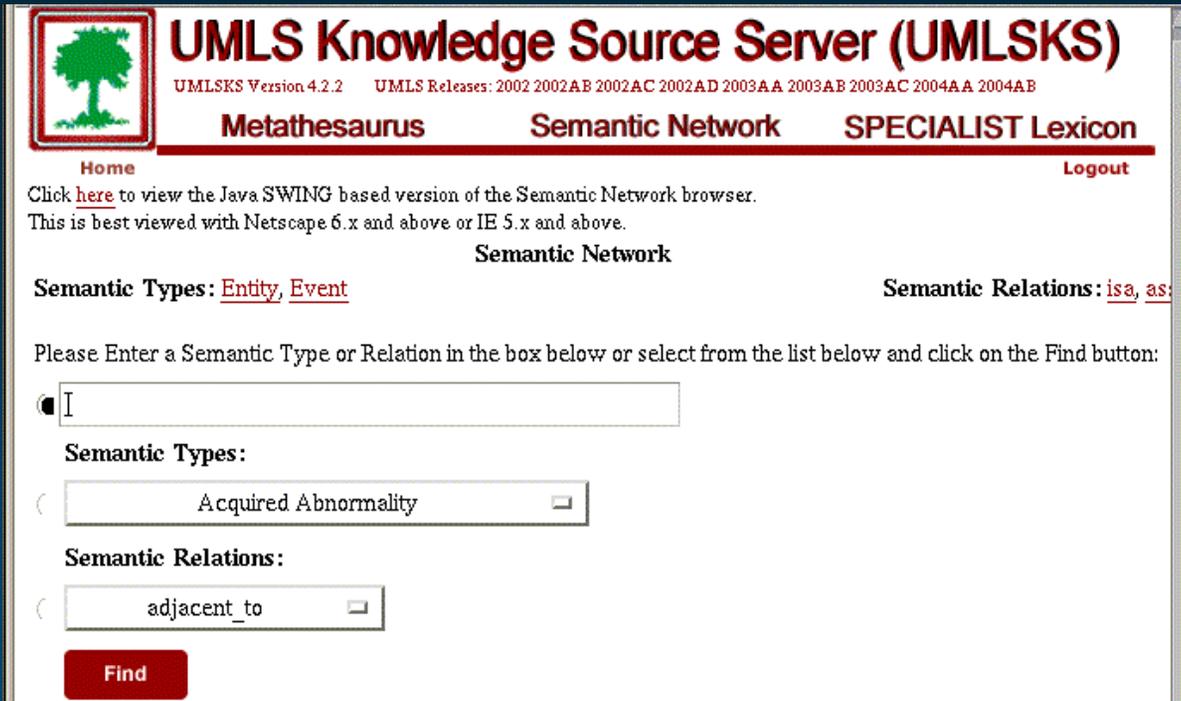
Semantic Network Browser

Allows browsing of the hierarchies for the Semantic Network.

100%



Semantic Network Search



The screenshot shows the UMLS Knowledge Source Server (UMLSKS) Semantic Network search interface. At the top left is a logo of a tree. The main title is "UMLS Knowledge Source Server (UMLSKS)" with version and release information below it. Navigation links include "Home", "Logout", "Metathesaurus", "Semantic Network", and "SPECIALIST Lexicon". A message states: "Click [here](#) to view the Java SWING based version of the Semantic Network browser. This is best viewed with Netscape 6.x and above or IE 5.x and above." The "Semantic Network" section contains "Semantic Types: [Entity](#), [Event](#)" and "Semantic Relations: [isa](#), [as](#)". Below this is a text input field with a cursor. Underneath are two dropdown menus: "Semantic Types:" with "Acquired Abnormality" selected, and "Semantic Relations:" with "adjacent_to" selected. A red "Find" button is at the bottom left.

◆ Enter search string

-or-

◆ Select semantic type

-or-

◆ Select semantic relation

Semantic Type Clinical Drug

The screenshot displays the NLM Metathesaurus Semantic Network interface. At the top, there are navigation links: Home, Metathesaurus, Semantic Network, and SPECIALIST Lexicon, along with a Logout button. Below this, a message states: "Click [here](#) to view the Java SWING based version of the Semantic Network browser. This is best viewed with Netscape 6.x and above or IE 5.0 and above." The main content area is titled "Semantic Types: Entity, Event". A search box is present with the text "Please Enter a Semantic Type or Relation in the". Below the search box, there are sections for "Semantic Types:" (with a dropdown menu showing "Acquired Abnormality") and "Semantic Relations:" (with a dropdown menu showing "adjacent_to"). A red "Find" button is located below the search box. On the left side, there is a hierarchical tree of semantic types under the "Entity" category, including Physical Object, Organism, Plant, Alga, Fungus, Virus, Rickettsia or Chlamydia, Bacterium, Animal, Invertebrate, Vertebrate, Amphibian, Bird, Fish, Reptile, and Mammal. A large black-bordered box is overlaid on the page, showing a detailed view of the "Clinical Drug" semantic type. This box contains the following information: "Semantic Type: Clinical Drug", "TUI: T200", and "Definition: A pharmaceutical preparation as produced by the manufacturer. The name usually includes the substance, its strength, and the form, but may include the substance and only one of the other two items." At the top of this box, there are three checkboxes: "Meta Concepts", "Relations", and "Raw Records".

- ◆ Browse ST hierarchy
- ◆ View Concepts with ST
- ◆ View Relations valid for the ST
- ◆ View Raw Relational Records

Show Relations Between Types

UMLS Knowledge Source Server (UMLSKS)
UMLSKS Version 4.2.2 UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB

[Home](#) [Logout](#) [Metathesaurus](#) [Semantic Network](#) [SPECIALIST Lexicon](#)

Select an element from each list below and click the *Submit Query* button.

Type 1:	Relation(s):	Type 2:
Acquired Abnormality	adjacent_to	Acquired Abnormality
Activity	affects	Activity
Age Group	analyzes	Age Group
Alga	assesses_effect_of	Alga
Amino Acid Sequence	associated_with	Amino Acid Sequence

[Submit Query](#) [Reset](#)

- ◆ Validates whether a selected Semantic Relationship (SR) holds between two selected Semantic Types (ST)

SPECIALIST Lexicon Searching

- ◆ Select Tab along top
- ◆ Quick search

Netscape: UMLS Knowledge Source Server (UMLSKS)

File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Shop Stop

Bookmarks Location: <http://umlsks.nlm.nih.gov/kss/servlet/Turbine/act:> What's Related

Members WebMail Connections BizJournal SmartUpdate Mktplace

 **UMLS Knowledge Source Server (UMLSKS)**
UMLSKS Version 4.2.2 UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB

Metathesaurus Semantic Network SPECIALIST Lexicon

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Quick Search

Select UMLS Release:

Enter search value:

Metathesaurus Search **Semantic Network Search** **SPECIALIST Lexicon Search**

[Search Tips...](#) [Search Tips...](#) [Search Tips...](#)

Advanced Searches

Metathesaurus Advanced Search

Facilitates advanced searching of the UMLS Metathesaurus, including restricting vocabularies, performing batch searches, performing XML queries, and using a command-line type interface.

What's New

- ▶ 2004 AB Metathesaurus now available to download and searching for those that have signed the new license agreement!
- ▶ UMLSKS Version 4.3 released on August 30, 2004 for 2004 AB download access and searching.

Semantic Network Browser

Allows browsing of the hierarchies for the Semantic Network.

100%



SPECIALIST Lexicon Search



UMLS Knowledge Source Server (UMLS KS)

UMLS KS Version 4.2.2 UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB

[Metathesaurus](#) [Semantic Network](#) [SPECIALIST Lexicon](#)

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SPECIALIST Lexicon

The [SPECIALIST Lexicon](#) is an English language lexicon containing many biomedical terms. The lexicon entry for each word or term records syntactic, morphological, and orthographic information.

Lexical entries may be single or multi-word terms.

View Lexical Records for:

SPECIALIST Lexical Record



UMLS Knowledge Source Server (UMLSKS)

UMLSKS Version 4.2.2 UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB

[Metathesaurus](#)

[Semantic Network](#)

[SPECIALIST Lexicon](#)

[Logout](#)

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Specialist Lexical Record

```
|base=Addison's disease  
entry=E0000160  
cat=noun  
variants=uncount  
variants=reg
```

View "[Addison's disease](#)" in relational format.

UMLS Resources

◆ NLP & Lexical Resources

- MetaMap Transfer (MMTx)
- Word Sense Disambiguation (WSD) Test Collection

◆ Semantic Network

- Semantic Navigator
- Semantic Groups

◆ Metathesaurus

- String Properties

Resources

- ▶ [NLP & Lexical Resources](#)
- ▶ [Semantic Network Resources](#)
- ▶ [Metathesaurus Resources](#)



A screenshot of the UMLS Knowledge Source Server (UMLSKS) website as viewed in a Netscape browser. The browser window title is "Netscape: UMLS Knowledge Source Server (UMLSKS)". The address bar shows the URL "http://umlsks.nlm.nih.gov/kss/Servlet/Turbine/act:". The website header includes the UMLSKS logo (a tree) and the text "UMLS Knowledge Source Server (UMLSKS)" with version information: "UMLSKS Version 4.2.2" and "UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB". Below the header are navigation links for "Metathesaurus", "Semantic Network", and "SPECIALIST Lexicon", along with a "Logout" link. The main content area is divided into several sections: "About the UMLSKS" with links for Home, Overview, Frequently Asked Questions, and Edit Views/Profile; "Downloads" with links for UMLS Knowledge Sources and Developer's API; "Documentation" with links for User's Guide, Developer's Guide, Developer's API Javadocs, and UMLS Documentation Set; "Resources" with links for NLP & Lexical Resources, Semantic Network Resources, and Metathesaurus Resources; "Quick Search" with a "Select UMLS Release" dropdown set to "2004AB" and a search input field containing "Addison's disease"; "Advanced Searches" with links for Metathesaurus Advanced Search and SPECIALIST Lexicon Search; and "What's New" with news items about the 2004AB Metathesaurus and UMLSKS Version 4.3. The browser's status bar at the bottom shows "100%".

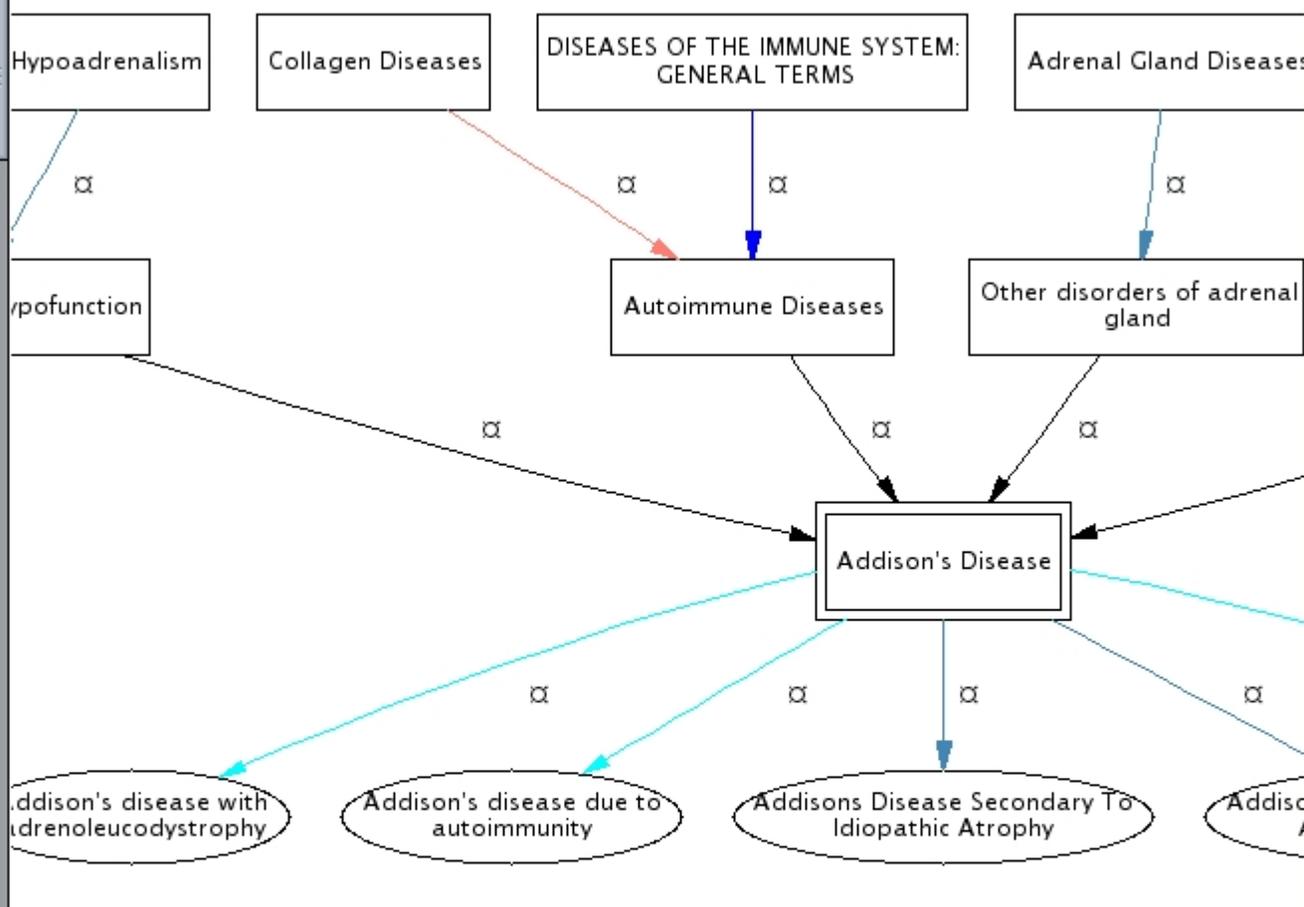
Siblings

Concepts & Ideas

- Clinical Syndromes

Disorders

- Acquired Immunodeficiency Syndrome
- Acute adrenal insufficiency
- Addisonian crisis
- Adrenal atrophy
- Adrenal calcification
- Adrenal hemorrhage
- Adrenal infarction
- Adrenal insufficiency due to adrenal metastasis
- Adrenogenital Syndrome
- Allergic arthritis
- Angelman Syndrome
- Asperger syndrome
- Autoerythrocyte sensitivity



Other Related Concepts

Disorders

- Addisonian crisis
- Autoimmune Syndrome Type II, Polyglandular
- Tuberculosis
- Tuberculosis of adrenal glands
- Tuberculous Addison's disease

(5 other related)

Co-occurring Concepts

Anatomy

- Adrenal Cortex [14]
- Adrenal Glands [17]
- Liver [2]
- Tears body substance [2]
- X Chromosome [3]

Chemicals & Drugs

BCI **Addison's Disease** **LEGEND**

Start again Apply new parameters

Restrict to vocabulary: Show all

Highlight vocabulary: Nothing

UMLS data: UMLS_2002

Type of hierarchical: All Parent/Child only

Similar Concepts

- Adrenal cortical hypofunction

(1 concept)

Closest MeSH Terms

Main Headings

- Addison's Disease

Knowledge Source Server
Application Programming Interface

UMLS KS API basics

- ◆ Remote server at NLM
- ◆ Local application connected through

Java RMI

- ◆ Java-based applications
- ◆ Developer's Guide: Chapter 3
- ◆ Set of Java classes (part of the UMLS KS API download)
- ◆ Detailed *Javadoc* documentation online and with API download

TCP/IP socket

- ◆ XML-based queries
- ◆ Developer's Guide: Chapter 5
- ◆ XML schema
- ◆ Socket server
 - Host: umlsks.nlm.nih.gov
 - Port: 8042

Developer's Guide

UMLS Knowledge Source
UMLSKS Version 4.2.2 UMLS Releases: 2002 2002AB 2002AC 2002AD
Lister...

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This guide describes the installation and use of the UMLS Knowledge Source Server (UMLSKS).

Audience
The audience for this guide is developers of UMLSKS applications using the UMLSKS API.

Release Notes
Please refer to the [Release Bulletin](#) for a detailed list of features, bug fixes, and known problems with this version of the UMLSKS.

How to Use This Guide
This manual contains the following chapters:

- [Chapter 1 - Introduction](#) describes the basic features and architecture of the UMLSKS.
- [Chapter 2 - Installing the UMLSKS](#) provides administrators instructions on installing and tailoring a UMLSKS installation.
- [Chapter 3 - Building UMLSKS Software Applications](#) describes the functions available to developers wanting to interface to the UMLSKS through another Java program.
- [Chapter 4 - Using the XML Query Facility](#) describes how to use the querying facility of the UMLSKS wherein users build XML queries to be executed.
- [Chapter 5 - Using the UMLSKS Socket Server](#) describes how to use the socket server to pass XML formatted commands or command-line type queries (e.g. ks -meta -c aids) that are to be executed by the server with the user-specified host and port.

Documentation

- ▶ [User's Guide](#)
- ▶ [Developer's Guide](#)
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 2. [Installing the UMLSKS](#)
 3. [Building UMLSKS Software Applications](#)
 4. [Using the XML Query Facility](#)
 5. [Using the UMLSKS Socket Server](#)
- ▶ [UMLS Documentation Set](#)

Documentation Java API



UMLS Knowledge Source Server (UMLSKS)

UMLSKS Version 4.2.2

UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB

U.S. National Library of Medicine

Lister Hill National Center for Biomedical Communications (LHNCBC)

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Developer's Guide

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UMLSKS API Download

The following instructions describe the procedures for downloading and installing the UMLSKS API. The sections include

- ◆ [Downloading the UMLSKS API](#)
- ◆ [Building the Example . java Files](#)
- ◆ [Running the Client](#)
- ◆ [Running the ExpertClient](#)
- ◆ [Running the SocketClient](#)
- ◆ [Running the StandardQueryClient](#)
- ◆ [Available Documentation](#)
- ◆ [Sample Output and XML Query Examples](#)

Downloading the UMLSKS API

Documentation Javadocs

The screenshot displays a JavaDoc interface with two main panes. The left pane is titled 'All Classes' and lists various packages and classes. The right pane is titled 'Overview' and shows a table of packages.

Left Pane: All Classes

All Classes

Packages

- [gov.nih.nlm.kss.api](#)
- [gov.nih.nlm.kss.example](#)
- [gov.nih.nlm.kss.models](#)
- [gov.nih.nlm.kss.models.lex](#)
- [gov.nih.nlm.kss.models.meta](#)
- [gov.nih.nlm.kss.models.meta.assoc](#)
- [gov.nih.nlm.kss.models.meta.attr](#)
- [gov.nih.nlm.kss.models.meta.concept](#)
- [gov.nih.nlm.kss.models.meta.context](#)
- [gov.nih.nlm.kss.models.meta.cooccurrence](#)
- [gov.nih.nlm.kss.models.meta.deltas](#)
- [gov.nih.nlm.kss.models.meta.locator](#)
- [gov.nih.nlm.kss.models.meta.meshentry](#)
- [gov.nih.nlm.kss.models.meta.relation](#)
- [gov.nih.nlm.kss.models.sem](#)
- [gov.nih.nlm.kss.models.sem.rels](#)
- [gov.nih.nlm.kss.models.sem.units](#)
- [gov.nih.nlm.kss.query](#)
- [gov.nih.nlm.kss.query.lex](#)

All Classes

- [AdjEntry](#)
- [AdvEntry](#)
- [AssocExprsExecutor](#)
- [AssociatedExp](#)
- [AssociatedExpVector](#)
- [AssociativeRelation](#)
- [AssociativeRelationVector](#)
- [AssociativeRelExistence](#)
- [Attr](#)
- [AttributeContext](#)
- [AttributeValue](#)
- [AttrVector](#)
- [AuxEntry](#)
- [BasicConceptPropsExecutor](#)
- [CatEntry](#)
- [Client](#)
- [ClientV2_1](#)
- [ClientV3_0](#)

Right Pane: Overview

Overview Package Class Use **Tree** Deprecated Index Help

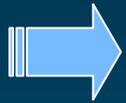
PREV NEXT [FRAMES](#) [NO FRAMES](#)

Packages

gov.nih.nlm.kss.api	
gov.nih.nlm.kss.example	
gov.nih.nlm.kss.models	
gov.nih.nlm.kss.models.lex	
gov.nih.nlm.kss.models.meta	
gov.nih.nlm.kss.models.meta.assocExp	
gov.nih.nlm.kss.models.meta.attribute	
gov.nih.nlm.kss.models.meta.concept	
gov.nih.nlm.kss.models.meta.context	
gov.nih.nlm.kss.models.meta.cooccurrence	
gov.nih.nlm.kss.models.meta.deltas	
gov.nih.nlm.kss.models.meta.locator	
gov.nih.nlm.kss.models.meta.meshentry	
gov.nih.nlm.kss.models.meta.relation	
gov.nih.nlm.kss.models.meta.source	
gov.nih.nlm.kss.models.sem	
gov.nih.nlm.kss.models.sem.rels	
gov.nih.nlm.kss.models.sem.units	
gov.nih.nlm.kss.query	
gov.nih.nlm.kss.query.lex	

Sample XML query (1) Current version

```
<?xml version="1.0"?>  
<getCurrentUMLVersion version="1.0"/>
```



```
<?xml version="1.0"?>  
<CurrentUMLYear version="1.0">  
    2004AB  
</CurrentUMLYear>
```

Sample XML query (2) Concepts by string

```
<?xml version="1.0"?>
<findCUI version="1.0">
  <conceptName>appendectomy</conceptName>
  <language>ENG</language>
  <exact />
  <noSuppressibles />
</findCUI>
```



```
<?xml version="1.0"?>
<ConceptIdCollection version="1.0">
  <release>2004AB</release>
  <conceptId>
    <cui>C0003611</cui>
    <cn>Appendectomy</cn>
  </conceptId>
</ConceptIdCollection>
```



Sample XML query (3) Concepts properties

```
<?xml version="1.0"?>
<getSemanticType version="1.0">
<cui>C0033572</cui>
</getSemanticType>
```



```
<?xml version="1.0"?>
<SemanticTypeCollection version="1.0">
<release>2004AB</release>
<cui>C0033572</cui>
<cn>Prostate</cn>
  <semanticType>
    <tui>T023</tui>
    <sty>Body Part, Organ,
      or Organ Component</sty>
  </semanticType>
</SemanticTypeCollection>
```



Sample XML query (4) Relationships

```
<?xml version="1.0"?>
<getRelations version="1.0">
<cui>C0033572</cui>
<rel>RO</rel>
</getRelations>
```



```
<?xml version="1.0"?>
<RelationCollection version="1.0">
[...
  <relation>
    <rel>RO</rel>
    <cui2>C0005001</cui2>
    <cn2>Benign prostatic hyperplasia</cn2>
    <rela>has_finding_site</rela>
    <sab>SNOMEDCT</sab>
    <s1>SNOMEDCT</s1>
  </relation>
[...]
```

Sample XML query (5) All semantic type IDs

```
<?xml version="1.0"?>  
<listSemTypeIds version="1.0">  
</listSemTypeIds>
```

```
<?xml version="1.0"?>  
<SemNetIdCollection version="1.0">  
  <release>2004AB</release>  
  <semnetId>  
    <name>Acquired Abnormality</name>  
    <ui>T020</ui>  
    <semtype />  
  </semnetId>  
  <semnetId>  
    <name>Activity </name>  
    <ui>T052</ui>  
    <semtype />  
  </semnetId>
```

[...]



Performing XML queries from UMLSKS

UMLS Knowledge Source Server (UMLSKS)
UMLSKS Version 4.2 UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA
Metathesaurus Semantic Network SPECIALIST Lexicon [Logout](#)

About the UMLSKS

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- [Developer's API Javadocs](#)
- [UMLS Documentation Set](#)

Resources

- [NLP & Lexical Resources](#)
- [Semantic Network Resources](#)
- [Metathesaurus Resources](#)

Metathesaurus Advanced Search Options

[Perform Focused Search](#)

Focused searching allows users to search for a concept that contains either a user entered term name or a concept unique identifier (CUID). The advanced searching option allows user to restrict the results to a set of source vocabularies and may specify the method of matching the entered term name. When searching for a term name, the user may also specify the criteria to be used in matching the entered string to the UMLS contents.

[Perform XML Query](#)

The XML query facility allows users to specify a query using the eXtensible Markup Language (XML) dialect created for the UMLSKS. User's of this searching feature must be familiar with the internal database structures and how table data are related to each other.

[Request ASCII Relational Records](#)

The data tables used to populate the backend Oracle database can be returned to the user that match a user's input term or concept unique identifier.

Users are responsible for compliance with [UMLS copyright restrictions](#)

[Lister Hill National Center for Biomedical Communications](#)
[U.S. National Library of Medicine \(NLM\)](#), 8600 Rockville Pike, Bethesda, MD 20894
[National Institutes of Health \(NIH\)](#)
[Department of Health & Human Services](#)

Error on page. Local intranet

Performing XML queries from UMLSKS

UMLS Knowledge Source Server (UMLSKS)
UMLSKS Version: 4.2.2 UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB

Metathesaurus Semantic Network SPECIALIST Lexicon Logout

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- Semantic Network Resources
- Metathesaurus Resources

Metathesaurus XML Query

The UMLSKS provides a facility for interpreting two forms of XML:

- Standard API commands
- Specialized requests

"Standard" API commands are a set of XML documents in which each of the standard API commands (all but the query) are represented in the XML. For examples on the structure of this type of document, see the [examples](#)

"Specialized" requests are those XML documents that are structured for use with the `KSSretriever.query` method. These types of queries are describe in [Chapter 4](#) of the UMLSKS User's Guide. User's of this type of query must be familiar with the internal database structures and how table data are related to each other.

Either type/paste the XML query into the text entry area or browse your local file system to locate an XML query file to upload to the UMLSKS. Once the query is entered, click the *Find* button to execute the query

Enter the XML query:

```
<?xml version="1.0"?>
<getRelations>
< cui>C0033572</ cui>
< rel>RO</ rel>
</ getRelations>
```

Part II

How to use the UMLS?

*(3) Installing the UMLS locally and
Customizing the Metathesaurus
using MetamorphoSys*

What is MetamorphoSys?

- ◆ Tool distributed with the UMLS
- ◆ Multi-platform Java software
- ◆ The UMLS installation and customization wizard
 - Installs Knowledge Sources to local storage
 - Subsets and customizes a local Metathesaurus

Using MetamorphoSys

- ◆ Simple to use
- ◆ Screens and tabs lead you through process
- ◆ Installs NLM data format files to local storage



Why use MetamorphoSys?

Customize the Metathesaurus

- ◆ To remove terminology that is unhelpful, or even harmful, to your needs and purposes
- ◆ To comply with terms of license agreement

Why use MetamorphoSys?

Changing Default Settings

- ◆ To alter the preferred name
- ◆ To alter suppressibility of specific source term types

Customization is Critical

- ◆ Requires a clear understanding of:
 - Characteristics of source vocabularies
 - License arrangements
 - User's functional requirements
 - User's purpose and perspective
- ◆ Technical expertise

**... and requires a
multidisciplinary technical team**



Machine Requirements

- ◆ A fast CPU – 1 GHz or higher
- ◆ 1 GB RAM recommended (512 MB min.)
- ◆ 6x (or better) DVD drive
- ◆ 22 GB minimum free disk space

- ◆ Runs on Sun Solaris 8 & 9, Windows XP, NT, and 2000, Linux, and Mac
- ◆ 1-10 hours run time on platforms tested

Download from UMLS KS ...

- ◆ High speed Internet connection required
- ◆ Read the README file for the release
- ◆ 2004AB UMLS Files
 - 2004AB.CHK
 - 2004AB.MD5
 - 2004ab-1-meta.nlm
 - 2004ab-2-meta.nlm
 - 2004ab-3-meta.nlm
 - mmsys.zip
 - Copyright_Notice.txt
 - README.txt

Please README!



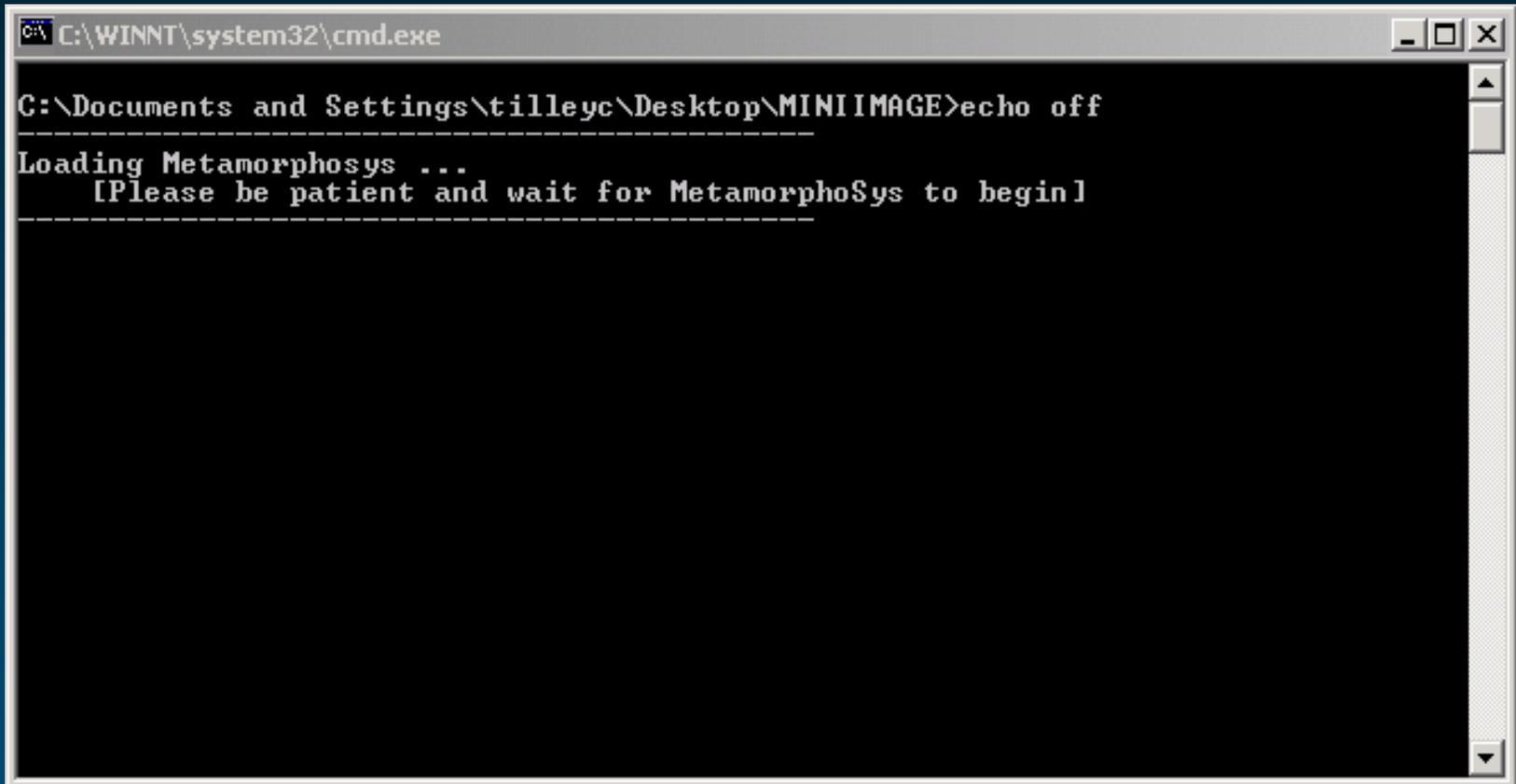
...or DVD?

- ◆ Order at: umls_support@nlm.nih.gov
- ◆ **Include your license number**

- ◆ Run MetamorphoSys from DVD
 - Windows
 - Autorun; or go to root directory and click on “windows_mmsys.bat”

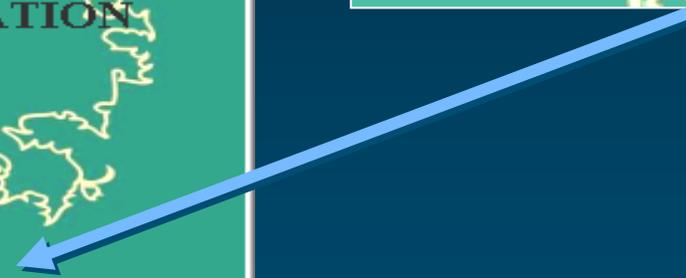
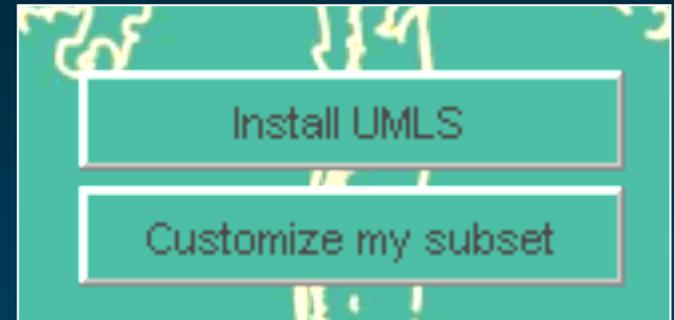
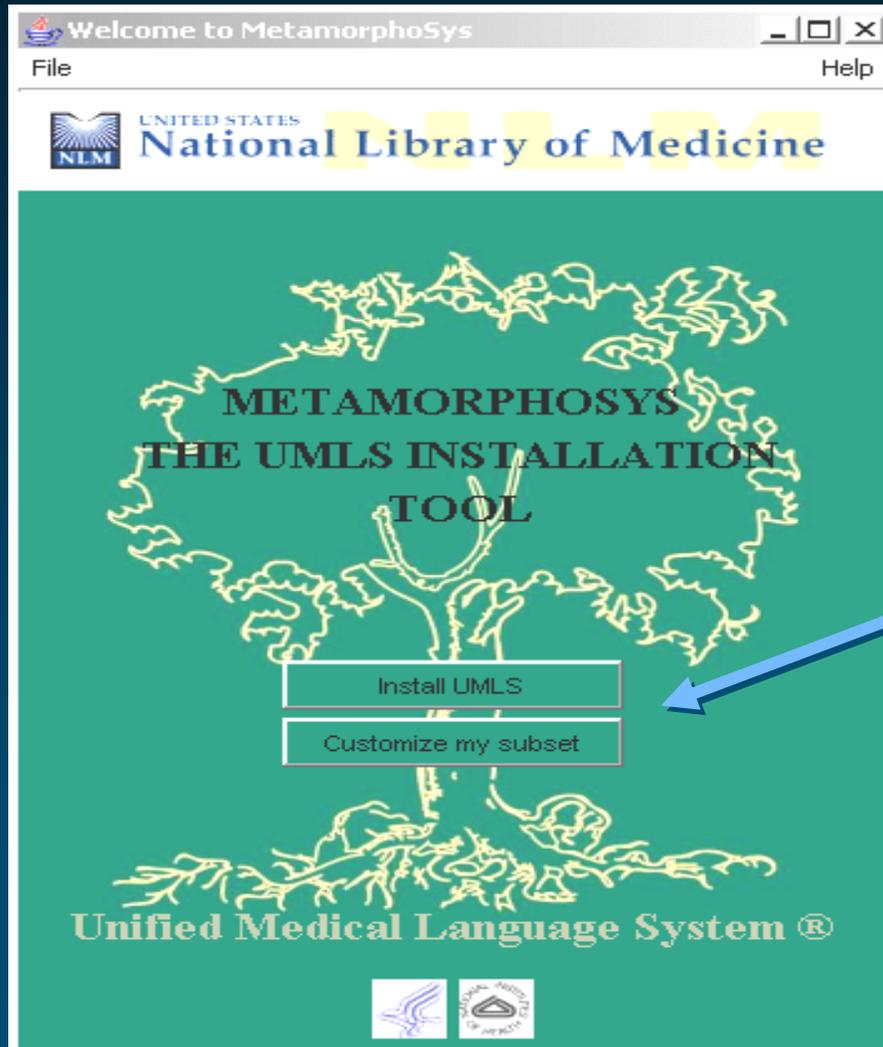
 - Linux, Solaris, Macintosh
 - open a terminal window, change to the root directory and type appropriate command: `./linux_mmsys.sh`, `./solaris_mmsys.sh`, `./macintosh_mmsys.sh`

Be patient! A lot of software must load.

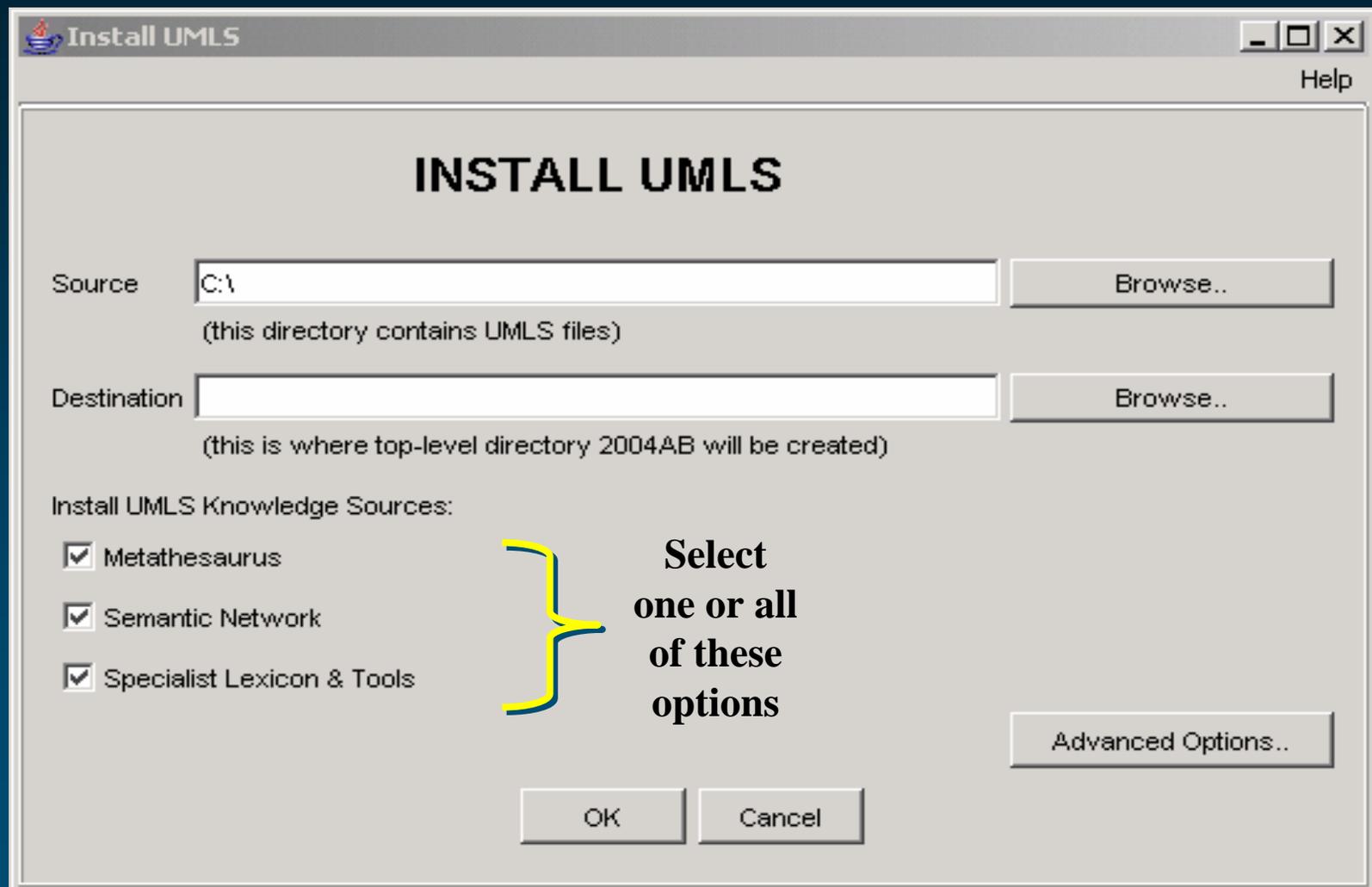


```
C:\WINNT\system32\cmd.exe
C:\Documents and Settings\tilleyc\Desktop\MINIIMAGE>echo off
-----
Loading Metamorphosis ...
  [Please be patient and wait for MetamorphoSys to begin]
-----
```

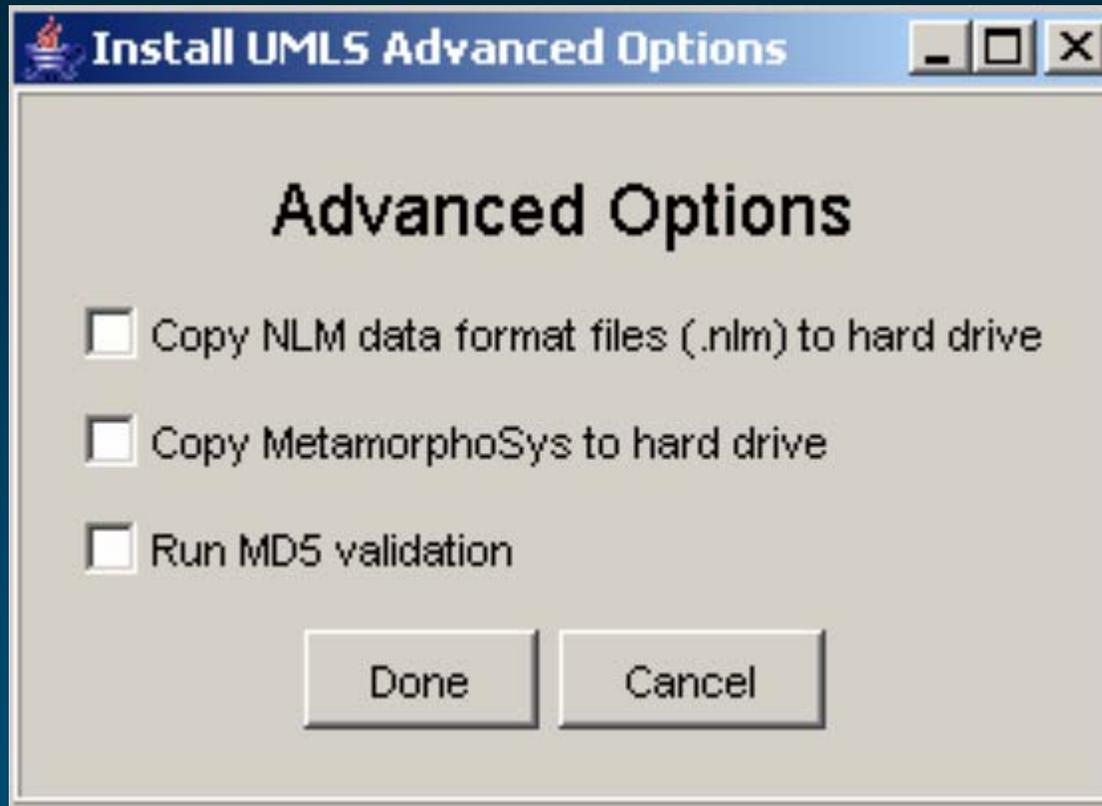
Welcome Screen



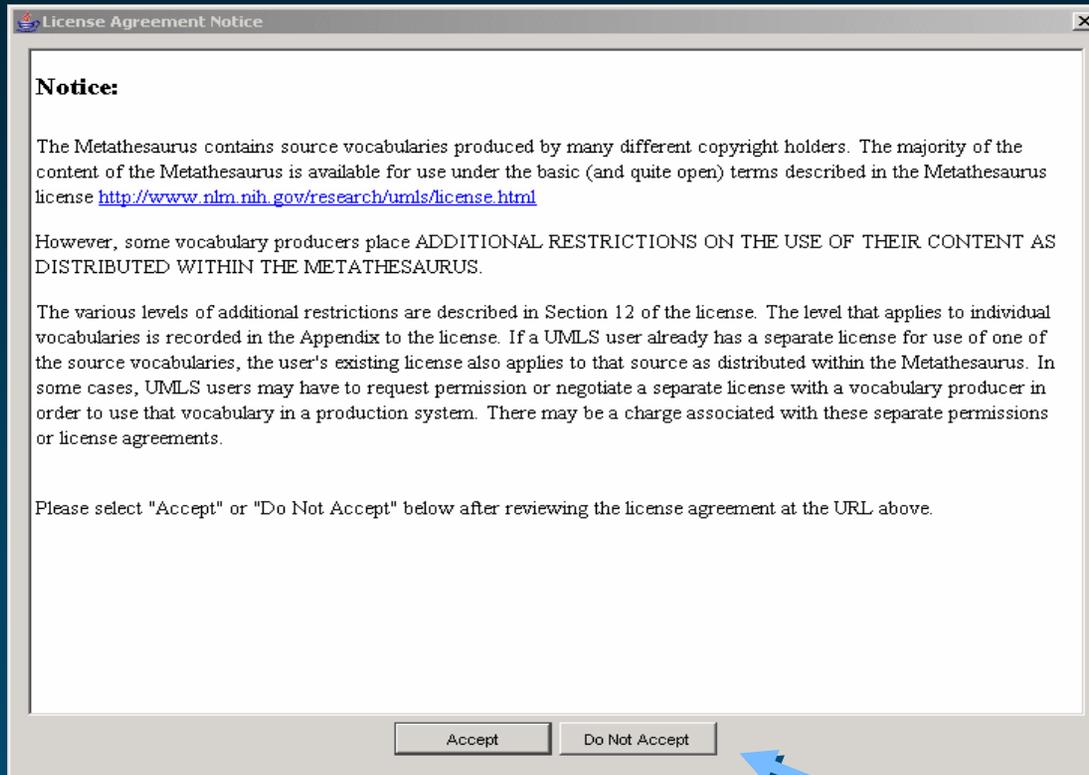
Install UMLS



Install UMLS Advanced Options



UMLS License Notice



License Agreement Notice

Notice:

The Metathesaurus contains source vocabularies produced by many different copyright holders. The majority of the content of the Metathesaurus is available for use under the basic (and quite open) terms described in the Metathesaurus license <http://www.nlm.nih.gov/research/umls/license.html>

However, some vocabulary producers place ADDITIONAL RESTRICTIONS ON THE USE OF THEIR CONTENT AS DISTRIBUTED WITHIN THE METATHESAURUS.

The various levels of additional restrictions are described in Section 12 of the license. The level that applies to individual vocabularies is recorded in the Appendix to the license. If a UMLS user already has a separate license for use of one of the source vocabularies, the user's existing license also applies to that source as distributed within the Metathesaurus. In some cases, UMLS users may have to request permission or negotiate a separate license with a vocabulary producer in order to use that vocabulary in a production system. There may be a charge associated with these separate permissions or license agreements.

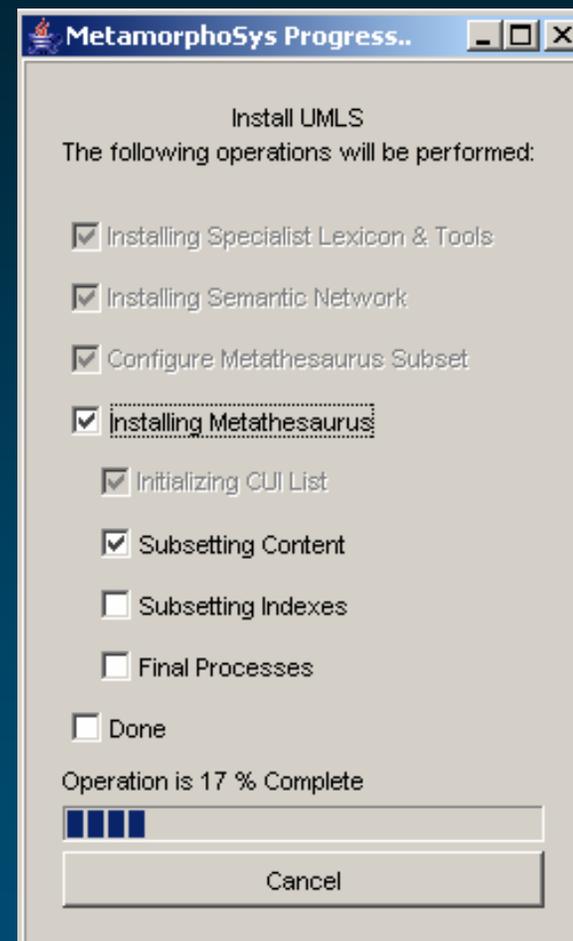
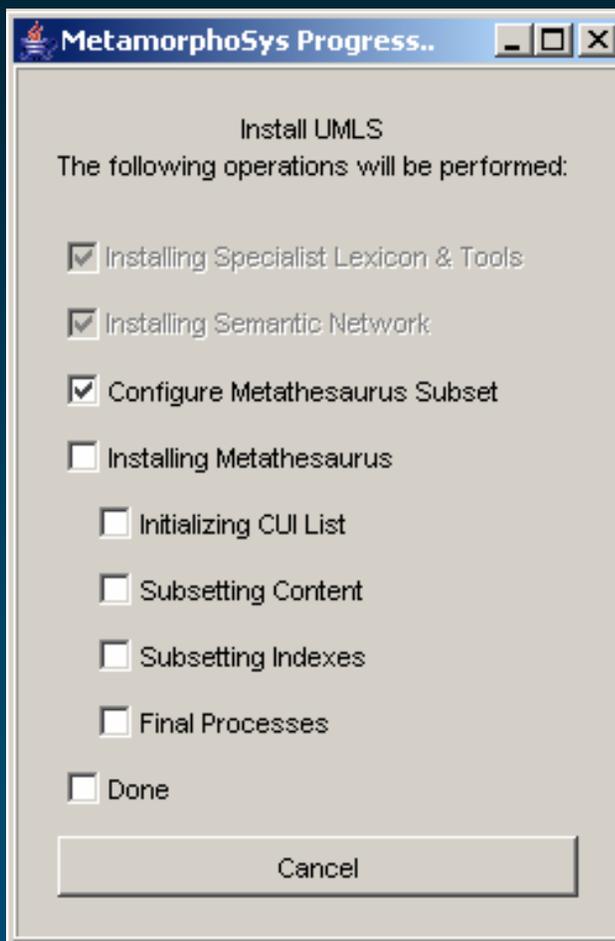
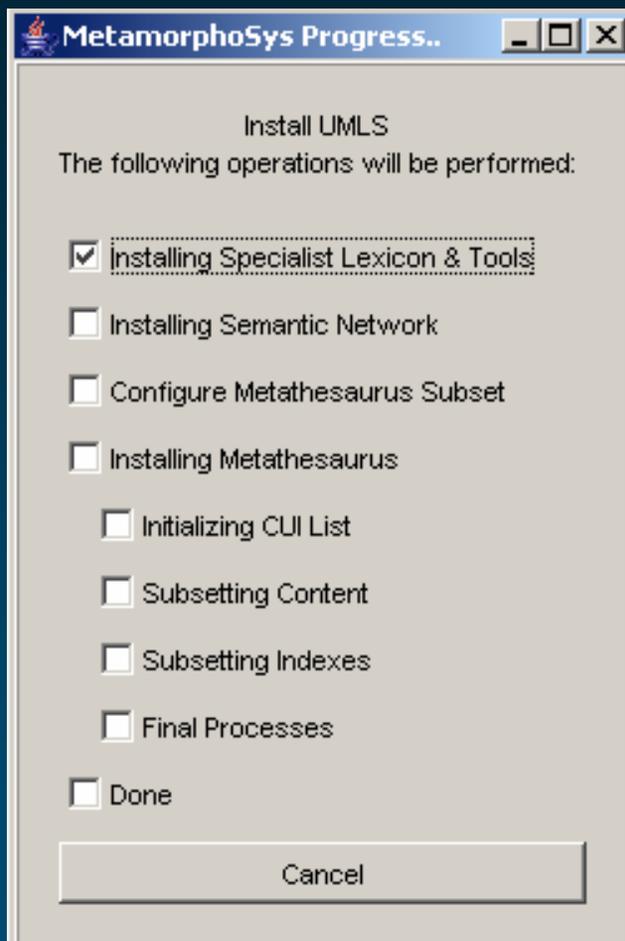
Please select "Accept" or "Do Not Accept" below after reviewing the license agreement at the URL above.



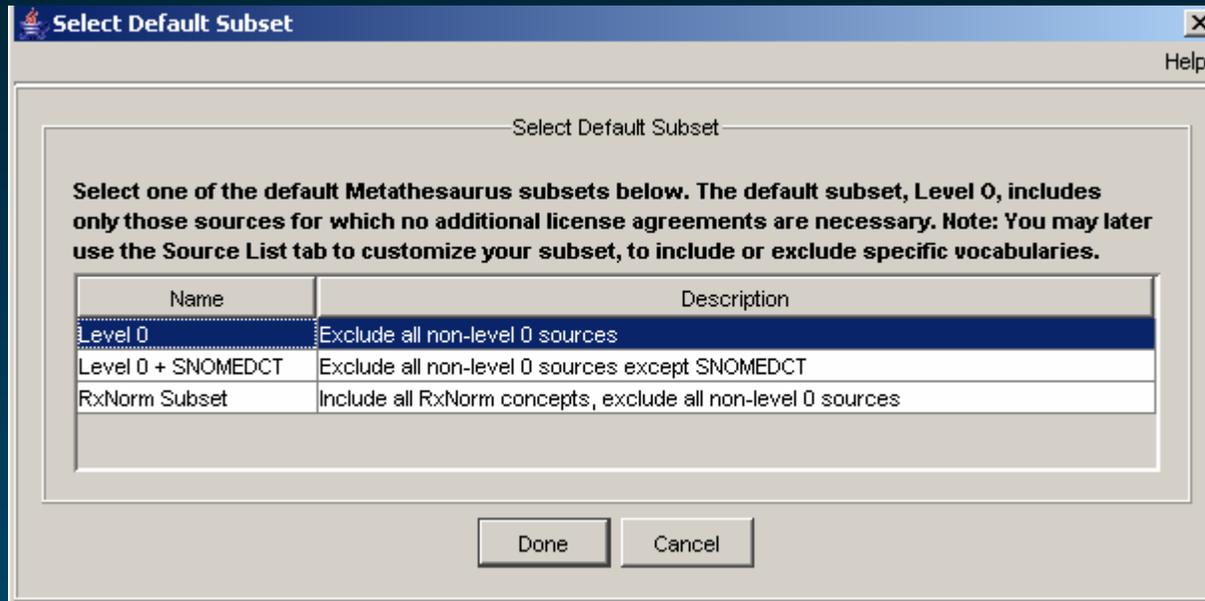
Accept

Do Not Accept

Installation progress monitor



Select a default subset

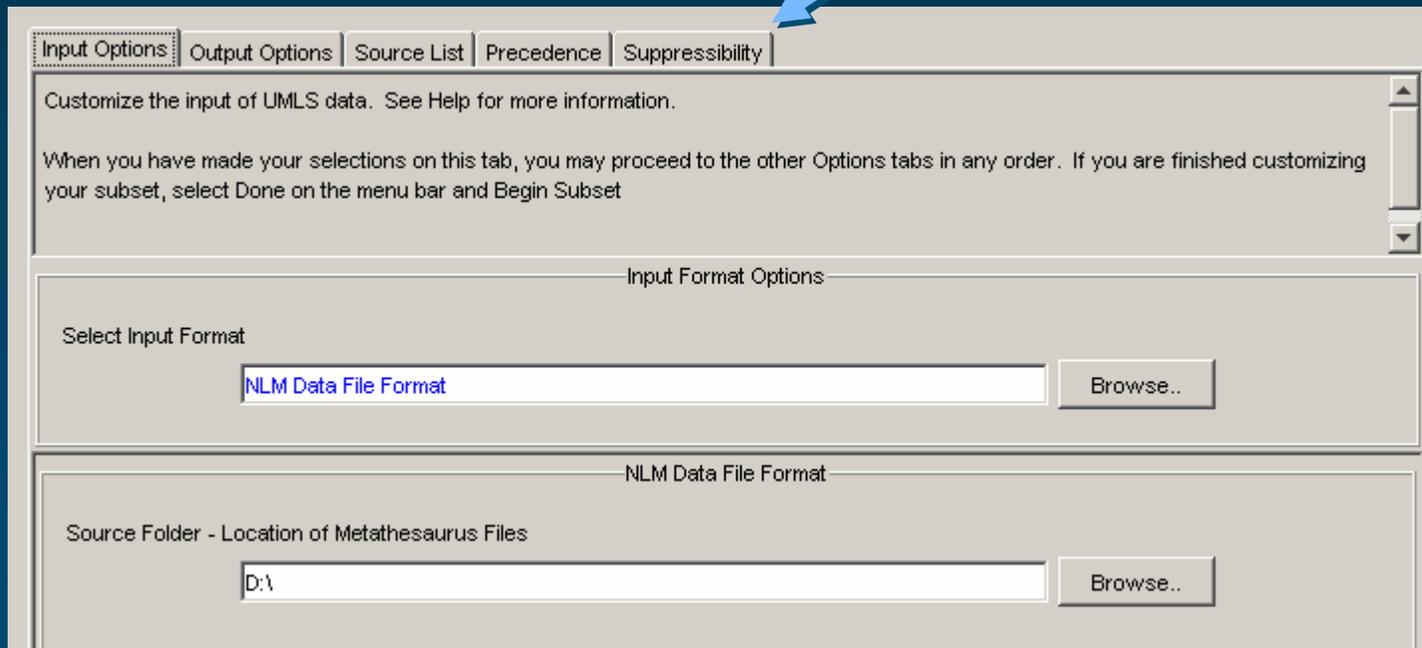
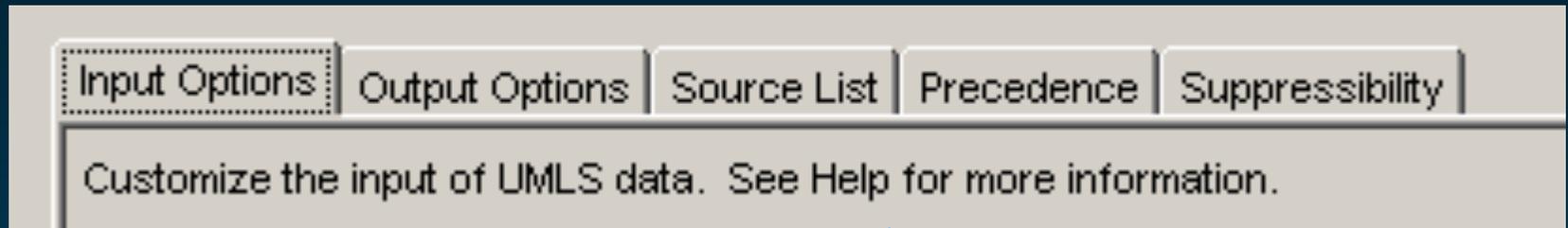


Level 0 → no separate additional license agreements

Level 0 + SNOMEDCT → Non-U.S. users must have separate license agreements

RxNorm → no separate additional license agreements

Input Options Tab



Output Options Tab

Input Options

Output Options

Source List

Precedence

Suppressibility

Select data output options for your local application. See Help for more information.

Select Output Format

Subset Folder - Location of Subset Files

Remove records containing extended UTF-8 characters.

Truncate long fields to characters.

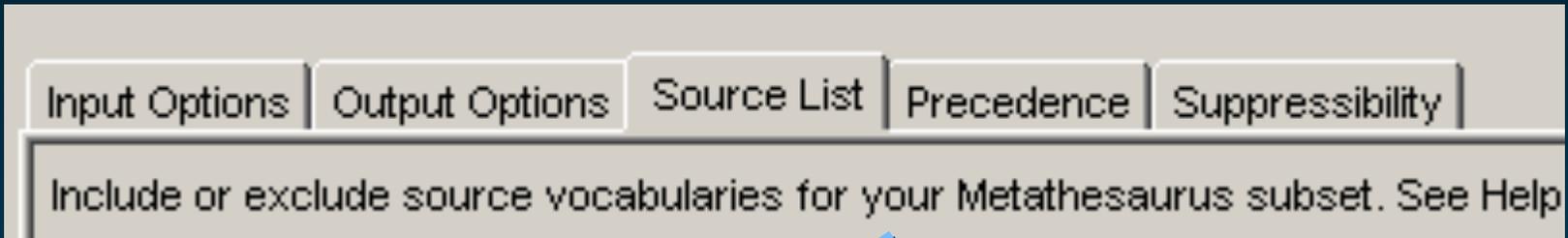
Output versioned source abbreviations rather than versionless source abbreviations.

Exclude MRCXT.RRF from the subset.

Write Oracle load script.

Write Mysql load script.

Source List Tab



Input Options | Output Options | **Source List** | Precedence | Suppressibility

Include or exclude source vocabularies for your Metathesaurus subset. See Help for more information.

Hold down the <Ctrl> key to select multiple rows.

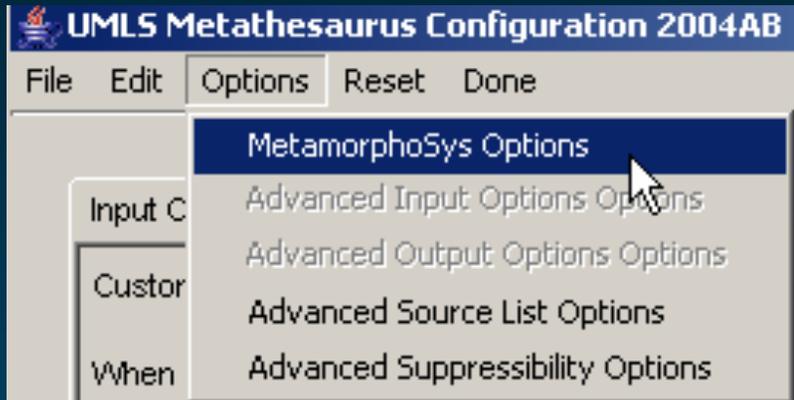
To reset to the default Source List, click on Reset on the menu bar, and select Reset Source List.

Sources to Exclude

Full Source Name	Source Abbreviation	Source Family	Language	Level
AIRHEUM, 1993	AIR93	AIR	ENG	0
Alternative Billing Concepts	ALT2003	ALT	ENG	3
Alcohol and Other Drug Thesaurus, 2000	AOD2000	AOD	ENG	0
Beth Israel Vocabulary, 1.0	BI98	BI	ENG	2
Canonical Clinical Problem Statement System, 1999	CCPSS99	CCPSS	ENG	3
Clinical Classifications Software, 2003	CCS2003	CCS	ENG	0
Current Dental Terminology (CDT), 4	CDT4	CDT	ENG	3

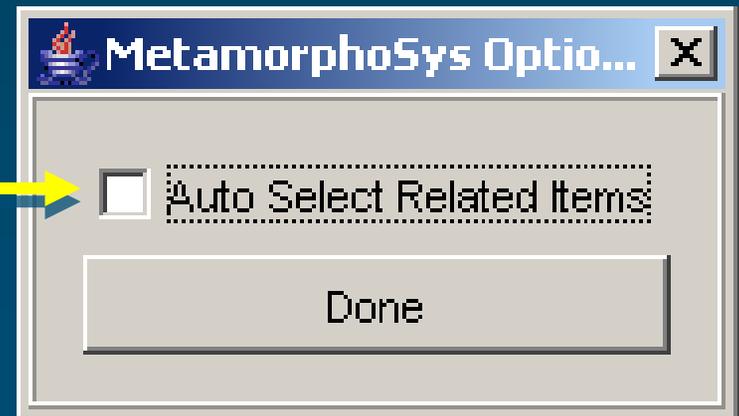
Highlighted rows are excluded from the subset.

MetamorphoSys Option Tab



Source list behavior can be changed using the MetamorphoSys Option Tab

If you wish to Auto Select Related Items check this box



Precedence Tab



- Ranks names by types of terms within sources
- Highest ranking name determines the Preferred Name

Input Options | Output Options | Source List | **Precedence** | Suppressibility

Change the ranking of sources and their associated term types to create concept names that are more useful in your local application. Concept names are determined by the term with highest ranking source/term type.

To move rows, either cut and paste rows, or drag and drop.

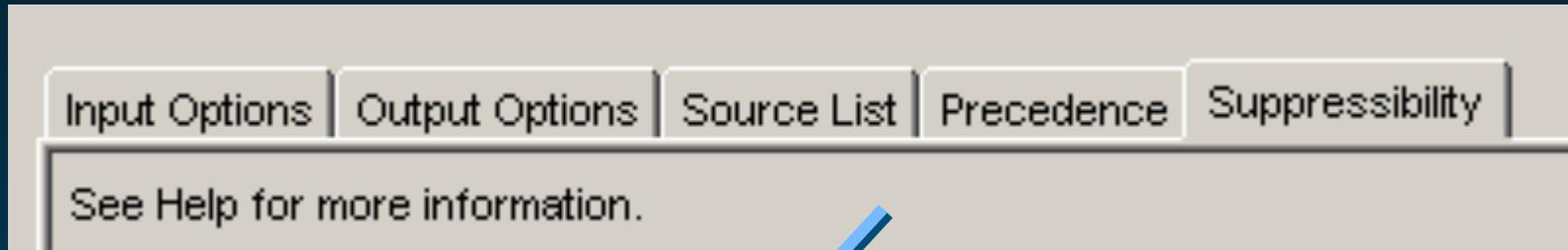
When you have made your selections on this tab, you may proceed to the other Options tabs in any order. If you are finished customizing

Precedence

Full Source Name	Source Abbreviation	Term Type
UMLS Metathesaurus	MTH	PN
Medical Subject Headings, MSH2004_2003_12_12	MSH2004_2003_12_12	MH
Medical Subject Headings, MSH2004_2003_12_12	MSH2004_2003_12_12	TQ
Medical Subject Headings, MSH2004_2003_12_12	MSH2004_2003_12_12	EP
Medical Subject Headings, MSH2004_2003_12_12	MSH2004_2003_12_12	EN
Medical Subject Headings, MSH2004_2003_12_12	MSH2004_2003_12_12	XQ
Medical Subject Headings, MSH2004_2003_12_12	MSH2004_2003_12_12	NM
RXNORM Project, META2004AB	RXNORM_04AB	SCD

Cut and
paste rows
to alter the
preferred
name

Suppressibility Tab



Input Options | Output Options | Source List | Precedence | Suppressibility

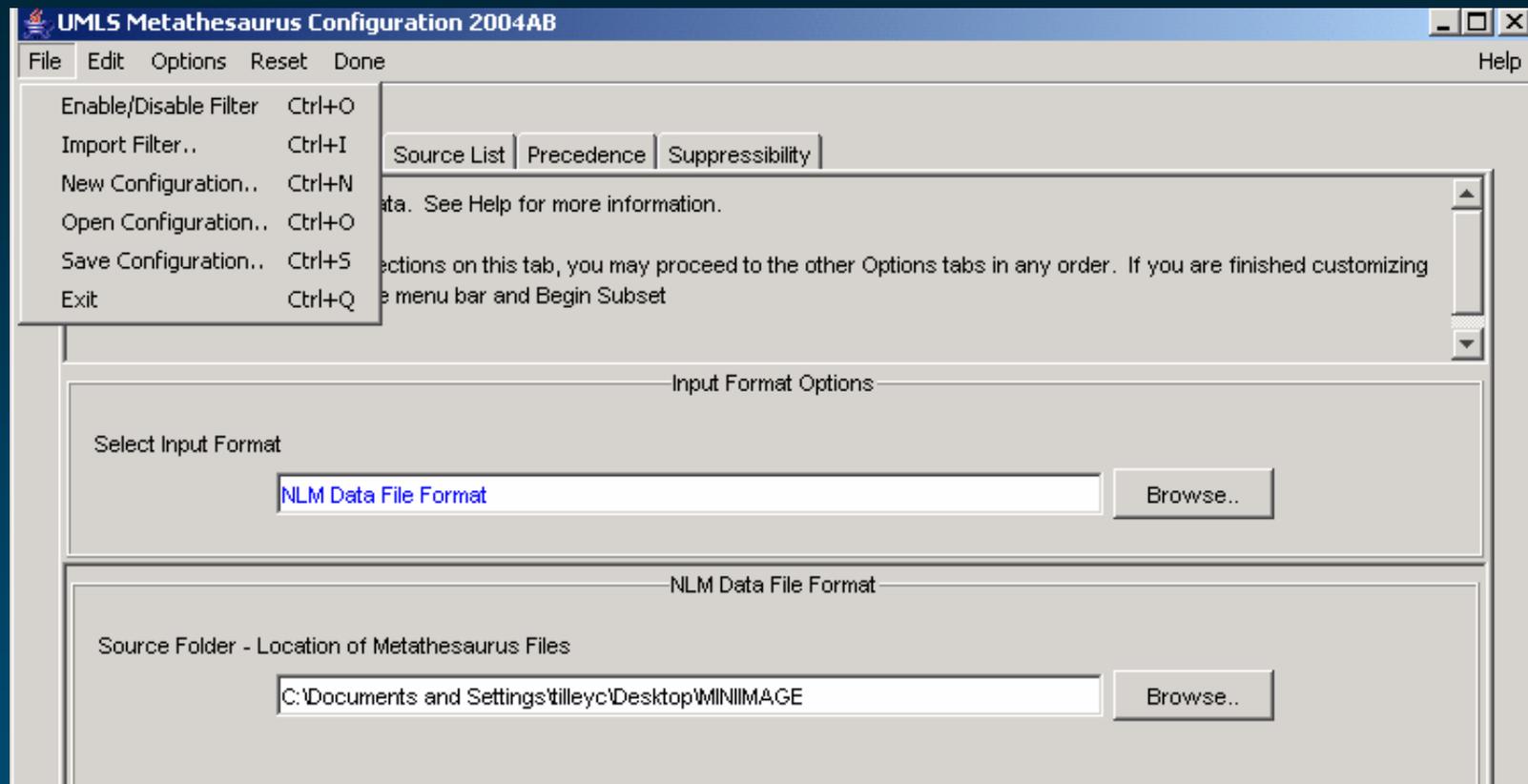
See Help for more information.

When you have made your selections on this tab, you may proceed to the other Options tabs in any order. If you are finished customizing your subset, select Done on the menu bar and Begin Subset.

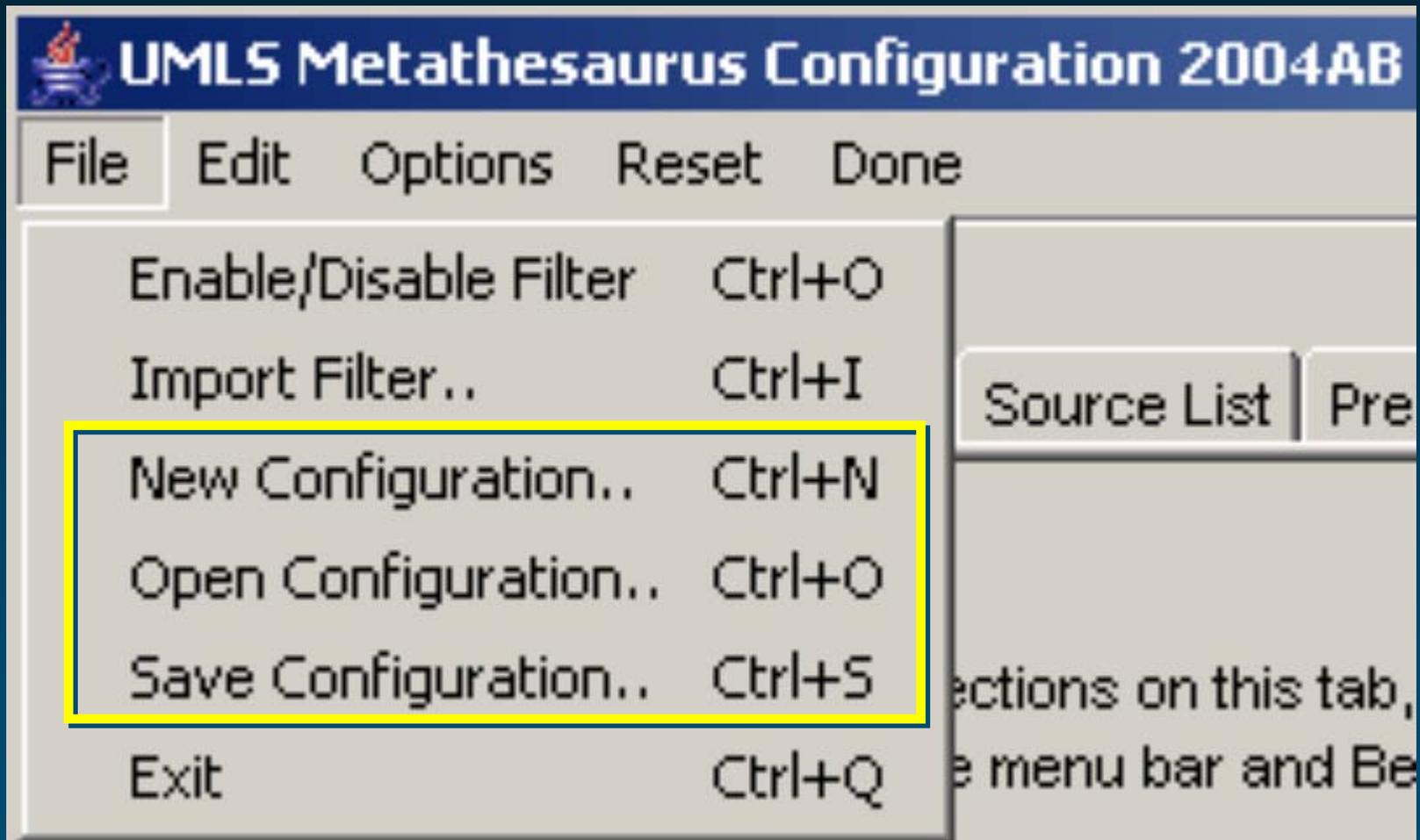
International Classification of Primary Care, 1993	ICPC93	CP
International Classification of Primary Care, 1993	ICPC93	CS
International Classification of Primary Care, 1993	ICPC93	CX
International Classification of Primary Care, 1993	ICPC93	HT
International Classification of Primary Care, 1993	ICPC93	PC
International Classification of Primary Care, 1993	ICPC93	PS
International Classification of Primary Care, 1993	ICPC93	PT
International Classification of Primary Care, 1993	ICPC93	PX
ICPC, Basque Translation, 1993	ICPCBAQ_1993	CP

Highlighted source term types will be marked as suppressible

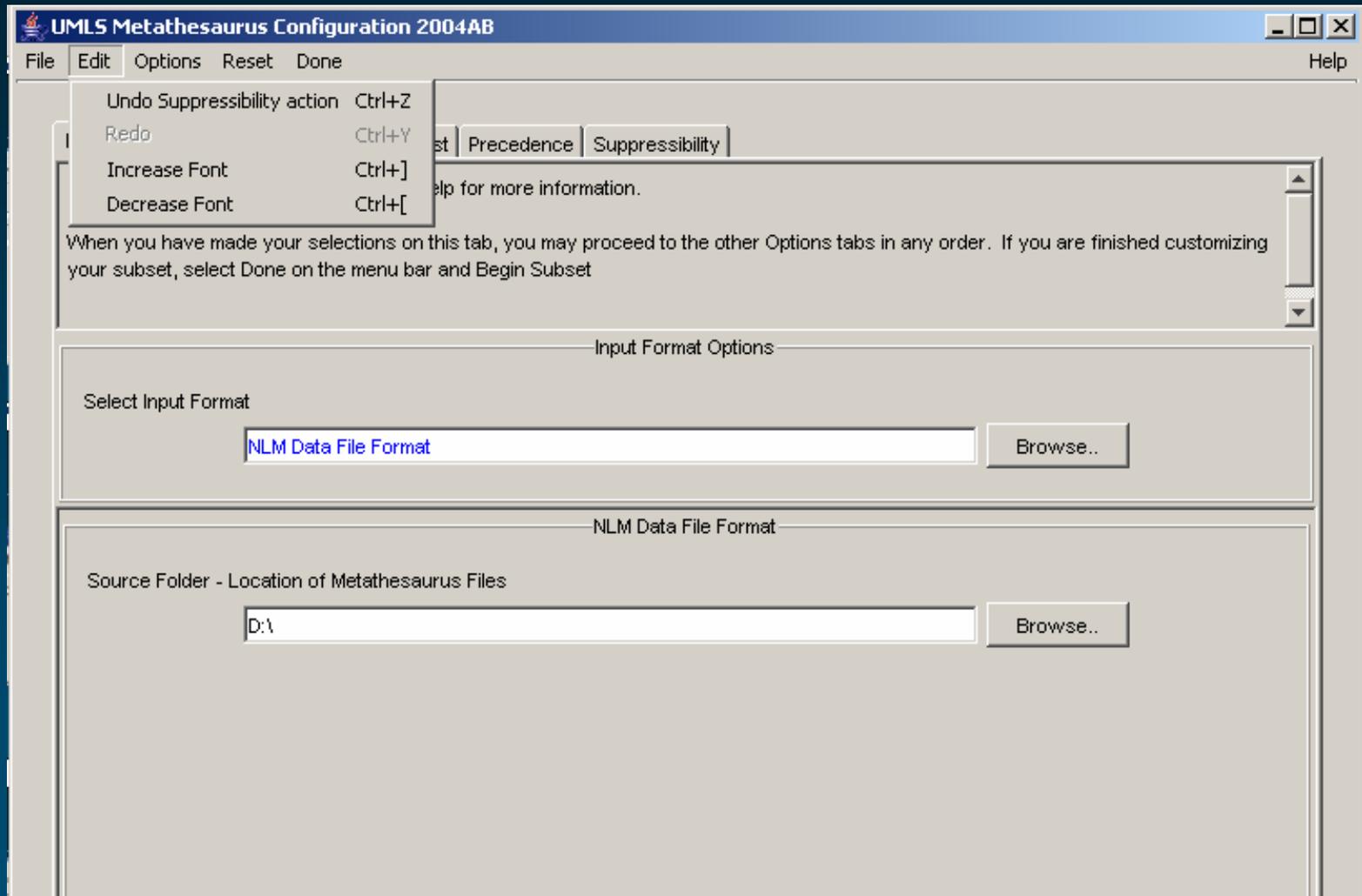
File menu



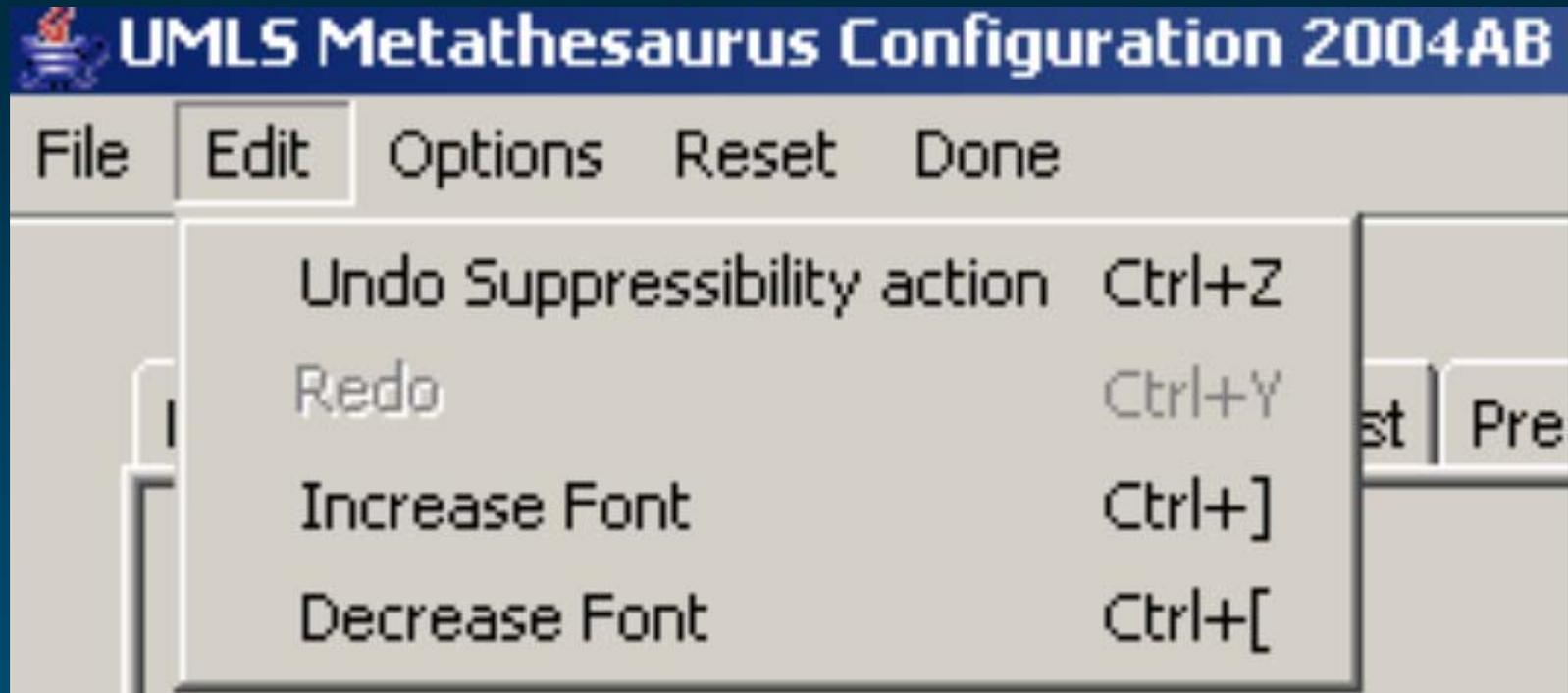
File menu



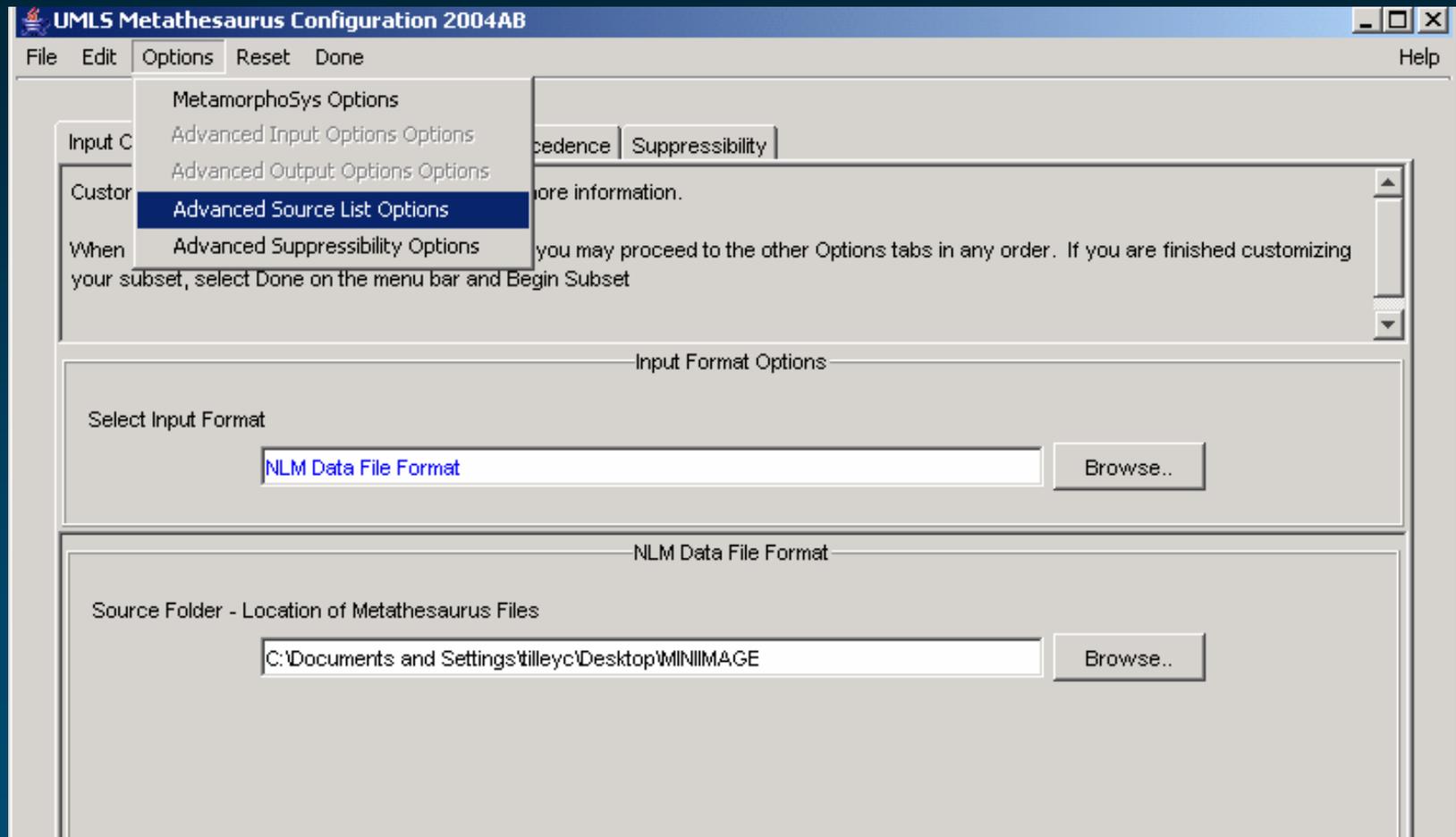
Edit menu



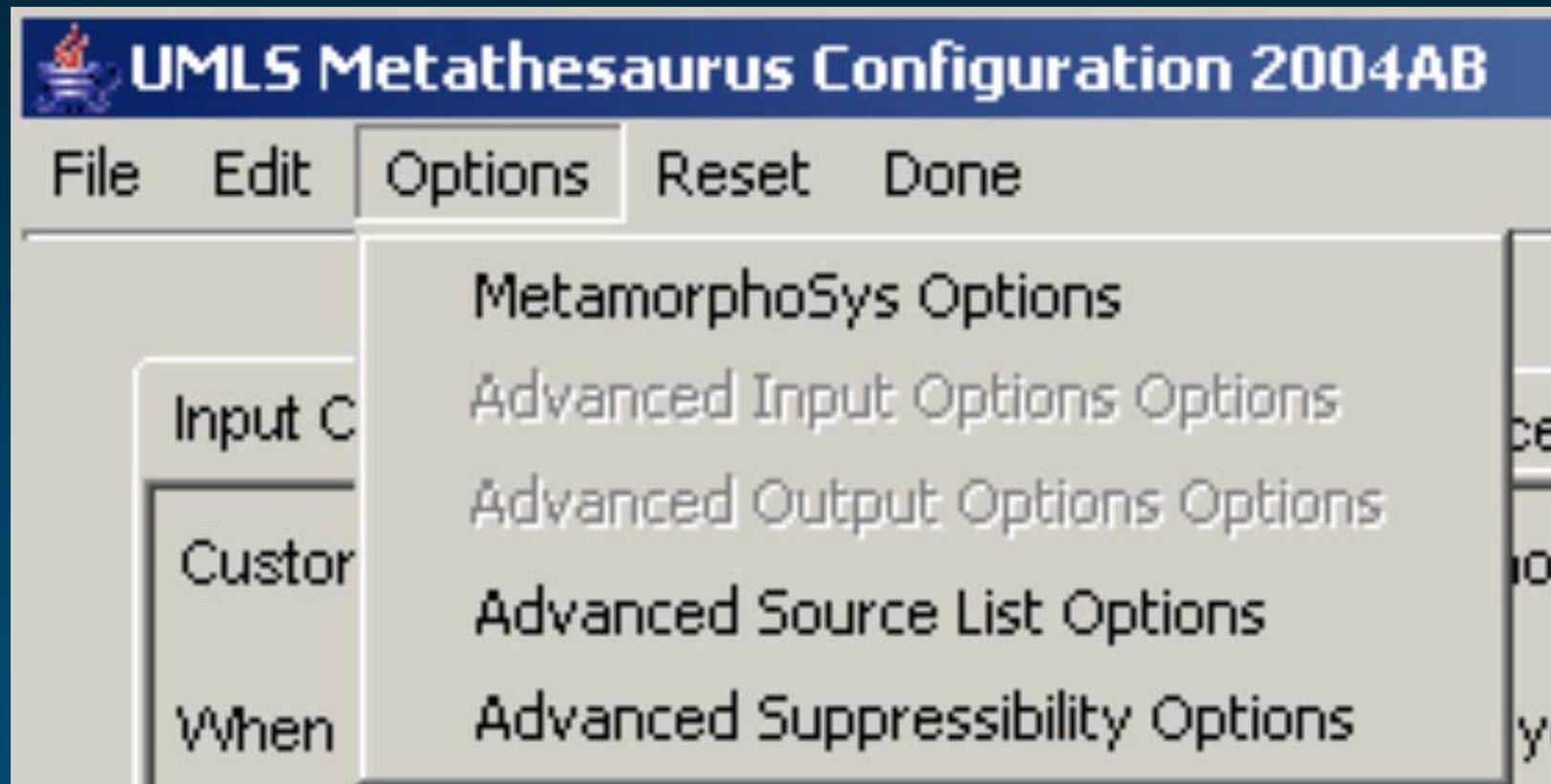
Edit menu



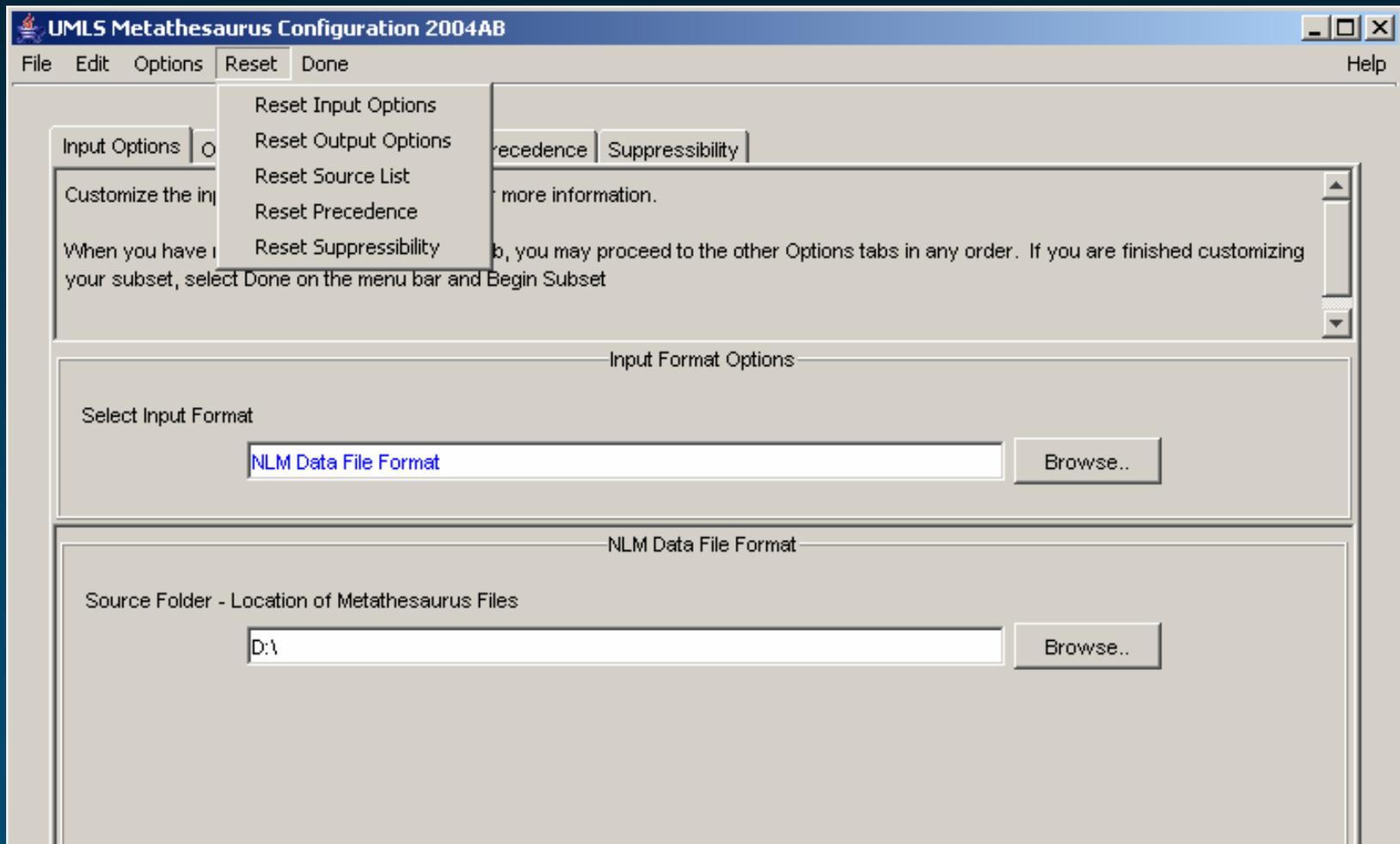
Options menu



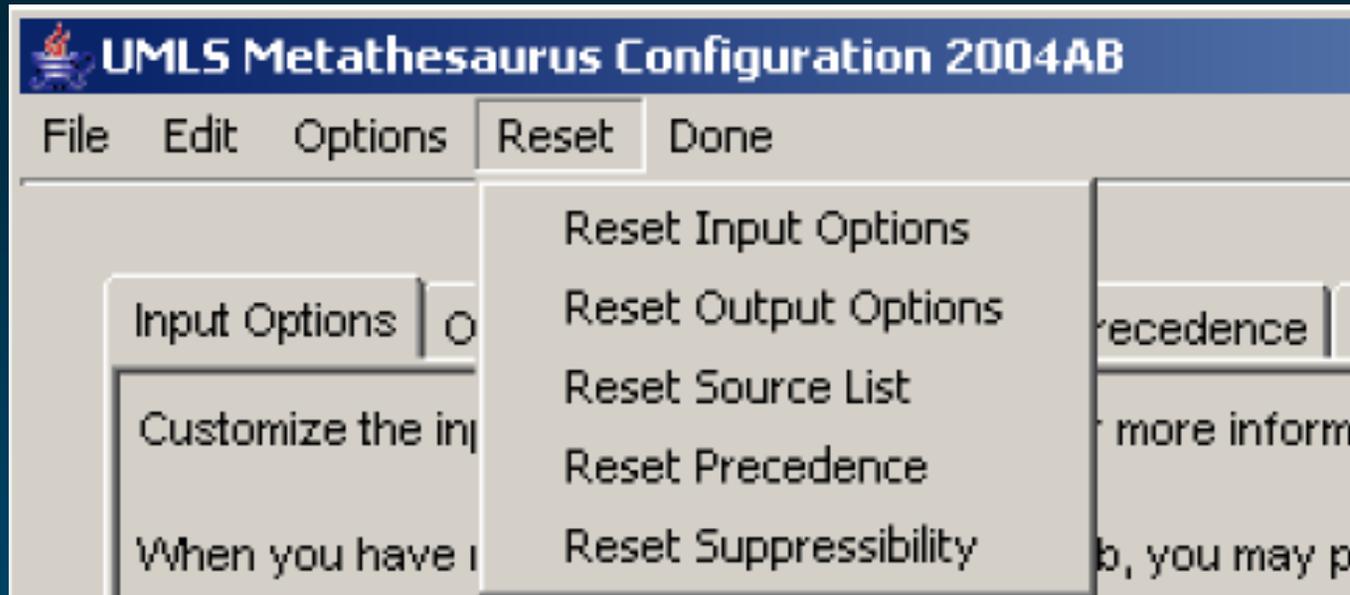
Options menu



Reset menu

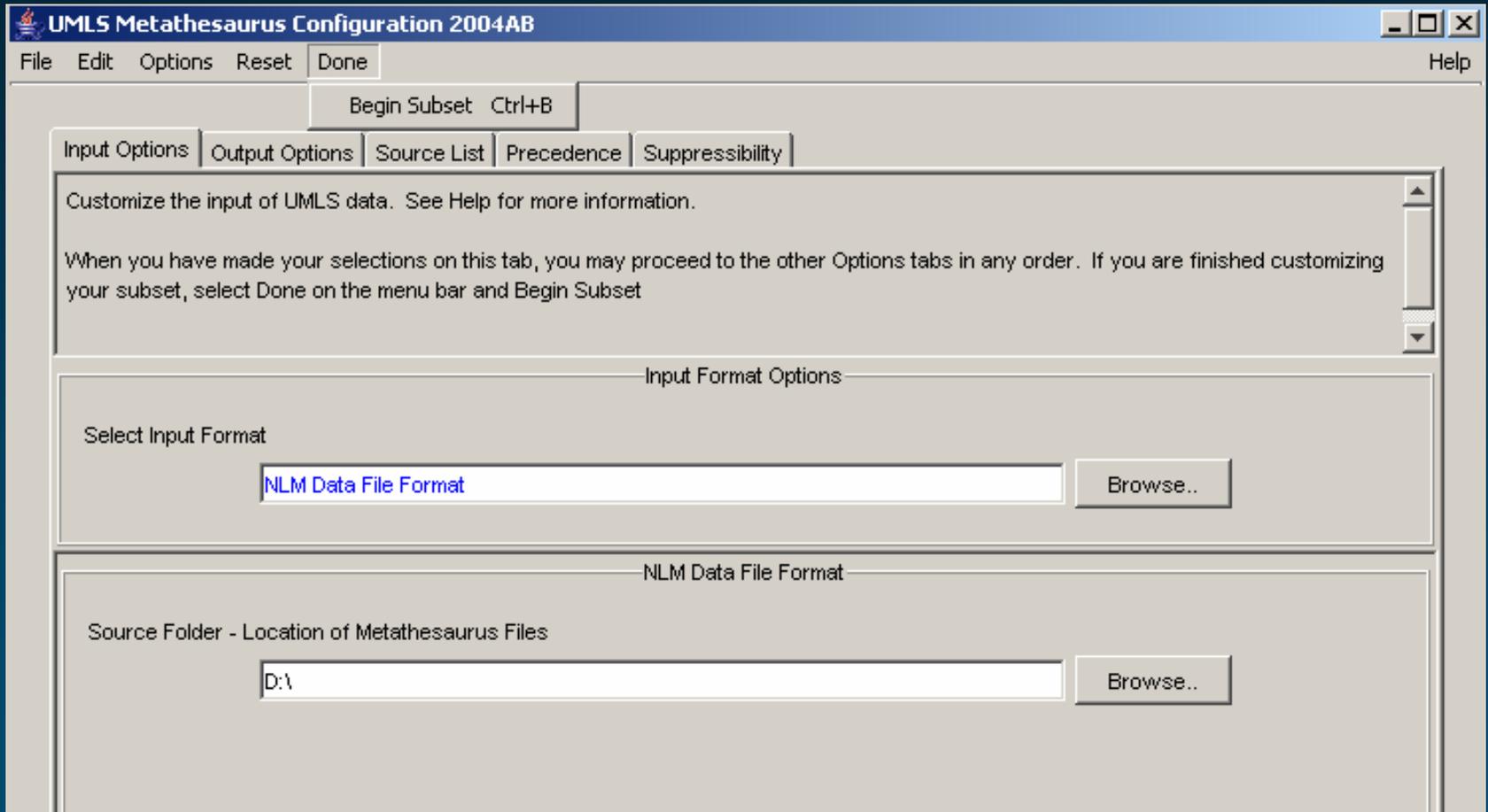


Reset menu



- ◆ Returns all filters to default selections
- ◆ Default selections in “mmsys.prop.default file” in config folder
- ◆ mmsys.prop.default contains properties in last run

Done – Begin Subset



Done – Begin Subset



- ◆ Compete configuration options
- ◆ Done menu
- ◆ Begin Subset

How MetamorphoSys Works

- ◆ Removes all information from relational files in excluded vocabularies
 - atoms, strings, relationships, attributes, mappings, etc.
- ◆ Applies additional options selected by user
 - such as adding source term suppressibility or altering precedence
- ◆ Produces a full set of Metathesaurus files
 - relational files with customized data
 - reflecting other user criteria

MetamorphoSys log

```
mmsys.log - Notepad
File Edit Format View Help
MetamorphoSys Version:.....5.21
MetamorphoSys Build Date:.....2004_08_30_14_47_11
UMLS Build Date:.....2004_07_12_09_57_26
Release Version:.....2004AB
Release Date:.....20040720
Release Description:.....July 2004 Release
Metathesaurus Source paths:.....C:\UMLS\DVDIMAGE
subsetted Metathesaurus folder:.....C:\UMLS\DVDIMAGE\2004AB\META
Start at:.....Wed Sep 01 13:04:18 EDT 2004
Initialize CUI List completed:.....Wed Sep 01 13:06:20 EDT 2004
Subset Metathesaurus completed:.....Wed Sep 01 14:13:02 EDT 2004
Subset Index Files completed:.....Wed Sep 01 14:21:11 EDT 2004
Subset Release Metadata completed:.....Wed Sep 01 14:21:17 EDT 2004
Finished at:.....Wed Sep 01 14:22:48 EDT 2004
Concepts in source:.....1078246
Concepts in subset:.....1078246
Time elapsed:.....01:18:29
```

MetamorphoSys log

mmsys.log - Notepad

File Edit Format View Help

Metathesaurus Output: Rich Release Format

Long fields were not truncated.

Source Abbreviations were written out with a versionless (root) representation.

Fields containing UTF-8 characters were not removed.

Excluded Sources

<none>

Kept Sources

AI/RHEUM, 1993

Alternative Billing Concepts

Alcohol and Other Drug Thesaurus, 2000

Beth Israel Vocabulary, 1.0

Canonical Clinical Problem Statement System, 1999

Clinical Classifications software, 2003

Current Dental Terminology (CDT), 4

COSTAR, 1989-1995

Medical Entities Dictionary, 2003

Physicians' Current Procedural Terminology, spanish translation,...

Physicians' Current Procedural Terminology, 2004

CRISP Thesaurus, 2004

COSTART, 1995

Diseases Database, 2000

German translation of ICD10, 1995

German translation of UMDNS, 1996

AIR93

ALT2003

AOD2000

BI98

CCPSS99

CCS2003

CDT4

COSTAR_89-95

CPM2003

CPT01SP

CPT2004

CSP2004

CST95

DDB00

DMDICD10_1995

DMDUMD_1996

Output directory contents

Name	Size	Type ▲
 CHANGE		File Folder
 indexes		File Folder
 release.dat	1 KB	DAT File
 config.prop	8 KB	PROP File
 AMBIGLUI.RRF	1,225 KB	RRF File
 AMBIGSUI.RRF	955 KB	RRF File
 MRCOC.RRF	809,207 KB	RRF File
 MRCOLS.RRF	21 KB	RRF File
 MRCONSO.RRF	596,528 KB	RRF File
 MRGUI.RRF	9,221 KB	RRF File
 MRCXT.RRF	9,391,778 KB	RRF File
 MRDEF.RRF	17,172 KB	RRF File
 MRDOC.RRF	88 KB	RRF File
 MRFILES.RRF	4 KB	RRF File
 MRHIER.RRF	899,786 KB	RRF File
 MRHIST.RRF	70,843 KB	RRF File
 MRMAP.RRF	9,362 KB	RRF File

Summary

UMLS Overview

- ◆ UMLS = 3 Knowledge Sources
 - Metathesaurus
 - Semantic Network
 - SPECIALIST Lexicon and Lexical Tools
- ◆ MetamorphoSys
 - installs
 - customizes
- ◆ UMLSKS
 - remote access
 - resources and documentation

Questions

Documentation and Support

UMLS documentation and support

- ◆ UMLS homepage <http://umlsinfo.nlm.nih.gov/>
 - with links to all other UMLS information
- ◆ UMLSKS homepage <http://umlsks.nlm.nih.gov/>
 - with links to the User's and Developer's guides
- ◆ Email address for support custserv@nlm.nih.gov

Appendix 1

UMLS files in
Rich Release Format

MRCONSO (sample rows 1..5)

(2004AB)

	1	2	3	4	5	6	7	8	9	10	11
	CUI	LAT	TS	LUI	STT	SUI	ISPRF	AUI	SAUI	SCUI	SDUI
1	C0001403	ENG	P	L0001403	PF	S0354372	Y	A4367951			
2	C0001403	ENG	P	L0001403	PF	S0354372	N	A2922421	485624014	363732003	
3	C0001403	ENG	P	L0001403	VC	S0010794	Y	A0019740		M0000346	D000224
4	C0001403	ENG	S	L0494851	PF	S2164152	N	A2018589			
5	C0001403	FRE	P	L3246333	PF	S3773545	Y	A3996251			D000224

	12	13	14	15	16	17	18
	SAB	TTY	CODE	STR	SRL	SUPPRESS	CVF
1	MTH	PN	NOCODE	Addison's disease	0	N	
2	SNOMEDCT	PT	363732003	Addison's disease	4	N	
3	MSH	MH	D000224	Addison's Disease	0	N	
4	MDR	LT	10052381	Primary adrenal insufficiency	3	N	
5	MSHFRE	MH	D000224	Addison, maladie	3	N	



MRCONSO (sample rows 6..10)

(2004AB)

	1	2	3	4	5	6	7	8	9	10	11
	CUI	LAT	TS	LUI	STT	SUI	ISPRF	AUI	SAUI	SCUI	SDUI
6	C0001403	FRE	S	L1272481	PF	S1514427	Y	A1464383			
7	C0001403	GER	P	L1229627	PF	S1471573	Y	A4030156			D000224
8	C0001403	GER	S	L1239271	PF	S1481217	Y	A4034094			D000224
9	C0001403	JPN	P	L3437833	PF	S3965327	Y	A4264008			D000224
10	C0001403	JPN	S	L3465347	PF	S3992841	Y	A4291522			D000224

	12	13	14	15	16	17	18
	SAB	TTY	CODE	STR	SRL	SUPPRESS	CVF
6	WHOFRE	IT	0410	MALADIE D'ADDISON	2	N	
7	MSHGER	MH	D000224	Addison-Krankheit	3	N	
8	MSHGER	SY	D000224	Bronzehautkrankheit	3	N	
9	MSHJPN	MH	D000224	Addison病	3	N	
10	MSHPJN	SY	D000224	副腎性黒皮症	3	N	



MRCONSO (sample rows 11-13)

(2004AB)

	1	2	3	4	5	6	7	8	9	10	11
	CUI	LAT	TS	LUI	STT	SUI	ISPRF	AUI	SAUI	SCUI	SDUI
11	C0001403	POR	P	L3302998	PF	S3831123	N	A6382080			
12	C0001403	RUS	P	L3336992	PF	S3864473	Y	A4157629			
13	C0001403	SPA	P	L1226877	PF	S1468823	Y	A1419475			

	12	13	14	15	16	17	18
	SAB	TTY	CODE	STR	SRL	SUPPRESS	CVF
11	MDRPOR	LT	1001130	Doença de Addison	3	N	
12	MSHRUS	MH	D000224	АДДИСОНОВА БОЛЕЗНЬ	3	N	
13	WHOSPA	IT	0410	ADDISON, ENFERMEDAD	3	N	



MRHIER (sample rows)

(2004AB)

	1	2	3	4	5	6
	CUI	AUI	CXN	PAUI	SAB	RELA
1	C0001403	A0019740	1	A0020270	MSH	
2	C0001403	A0019740	2	A0028022	MSH	
3	C0001403	A0019743	3	A1988358	PSY	member_of_cluster
4	C0001403	A2922421	1	A3307650	SNOMEDCT	isa
5	C0001403	A2922421	2	A3307650	SNOMEDCT	isa

	7	8	9
	PTR	HCD	CVF
1	A0434168.A2367943.A2366890.A0135391.A0054194.A0020267.A0020270	C19.053.264.263	
2	A0434168.A2367943.A2366890.A0135391.A0072566.A0028022	C20.111.163	
3	A0449751.A1988279.A1988358		
4	A3684559.A3886745.A2880798.A3398606.A3399335.A3398961.A2872359. A2872360.A3307650		
5	A3684559.A3886745.A2880798.A3398606.A3399335.A3398961.A2872359. A2933400.A2989549.A3307650		



MRREL (sample rows)

(2004AB)

	1	2	3	4	5	6	
	CUI1	AUI1	STYPE1	REL	CUI2	AUI2	STYPE2
1	C0001403		CUI	RB	C0001621		CUI
2	C0001403	A0019738	AUI	SY	C0001403	A0049628	AUI
3	C0001403	A2922421	SCUI	CHD	C0085859	A2977940	SCUI
4	C0001403	A6326321	SCUI	RO	C0688490	A6339383	SCUI
5	C0001403	A0019743	AUI	PAR	C0935495	A1988358	AUI

	7	8	9	10	11	12	13	14	15
	RELA	RUI	SRUI	SAB	SL	RG	DIR	SUPPRESS	CVF
1		R02837989		MTH			N	N	
2		R18849683		MSH	MSH			N	
3	isa	R19859511	1658795027	SNOMEDCT	SNOMEDCT	0	Y	N	
4	may treat	R27600039		NDFRT	NDFRT			N	
5	has member	R08110401		PSY	PSY			N	



MRDEF

(2004AB)

CUI	AUI	ATUI	SATUI	SAB	DEF	SUPPRESS	CVF
C0001403	A0019740	AT15061584		MSH	A disease characterized by hypotension, weight loss, anorexia, weakness, and sometimes a bronze-like melanotic hyperpigmentation of the skin. It is due to tuberculosis- or autoimmune-induced disease (hypofunction) of the adrenal glands that results in deficiency of aldosterone and cortisol. In the absence of replacement therapy, it is usually fatal.	N	



MRSAT (sample rows)

(2004AB)

	1	2	3	4	5	
	CUI	LUI	SUI	METAUI	STYPE	CODE
1	C0001403	L0001403	S0010792	A0019738	AUI	D000224
2	C0001403	L0001403	S0010794	A6326321	SCUI	C712
3	C0001403	L0001403	S0354372	A2922421	SAUI	363732003
4	C0001403			R15742591	SRUI	
5	C0001403				CUI	

	7	8	9	10	11	14	15
	ATUI	SATUI	ATN	SAB	ATV	SUPPRESS	CVF
1	AT15321482		DID	MSH	D000224	N	
2	AT33411754		MESH UI	NDFRT	D000224	N	
3	AT24166602		DESCRIPTION STATUS	SNOMEDCT	0	N	
4	AT27438950		REFINABILITY	SNOMEDCT	0	N	
5	AT02925340		ST	MTH	R	N	



MRSTY

(2004AB)

CUI	TUI	STN	STY	ATUI	CVF
C0001403	T047	B2.2.1.2.1	Disease or Syndrome	AT17683850	



MRHIST (sample rows)

(2004AB)

	1	2	3	4	5
	CUI	SOURCEUI	SAB	SVER	CHANGETYPE
1	C0001403	1198962018	SNOMEDCT	20020731	0
2	C0001403	1212124016	SNOMEDCT	20020731	0
3	C0001403	1490869013	SNOMEDCT	20030131	0
4	C0001403	363732003	SNOMEDCT	20020129	0
5	C0001403	373662000	SNOMEDCT	20020731	0



	6	7	8	9
	CHANGEKEY	CHANGEVAL	REASON	CVF
1	DESCRIPTIONSTATUS	0		
2	DESCRIPTIONSTATUS	0		
3	DESCRIPTIONSTATUS	0		
4	CONCEPTSTATUS	0		
5	CONCEPTSTATUS	0		



Appendix 2

UMLS files in
Original Release Format

MRCON Concepts

(2003AA)

CUI	LAT	TS	LUI	STT	SUI	STR	LRL
C0001403	ENG	P	L0001403	PF	S0010794	Addison's Disease	0
C0001403	ENG	P	L0001403	VC	S0352253	ADDISON'S DISEASE	0
C0001403	ENG	P	L0001403	VO	S0010792	Addison Disease	0
C0001403	ENG	P	L0001403	VO	S0033587	Disease, Addison	0
C0001403	ENG	P	L0001403	VO	S0469271	Addison's disease, NOS	3
C0001403	ENG	S	L0278071	PF	S0352321	ADRENAL INSUFFICIENCY (ADDISON'S DISEASE)	0
C0001403	ENG	S	L0278422	PF	S0352329	ADRENOCORTICAL INSUFFICIENCY, PRIMARY FAILURE	0
C0001403	ENG	S	L0367999	PF	S0469267	Addison melanoderma	3
C0001403	ENG	S	L0368000	PF	S0496840	Melasma addisonii	3
C0001403	ENG	S	L0368398	PF	S0506528	Primary adrenal deficiency	3
C0001403	ENG	S	L0373744	PF	S0471237	Asthenia pigmentosa	3
C0001403	ENG	S	L0377831	PF	S0473611	Bronzed disease	3
C0001403	ENG	S	L0494940	PF	S0718028	Primary adrenocortical insufficiency	3
C0001403	ENG	S	L0494937	PF	S0718027	Primary adrenocortical insuff	3
C0001403	FIN	P	L1510041	PF	S1805950	Addisonin tauti	3
C0001403	FRE	S	L1272481	PF	S1514427	MALADIE D'ADDISON	2
C0001403	GER	P	L1229627	PF	S1471573	Addison-Krankheit	3
C0001403	GER	S	L1288823	PF	S1530769	Primaere Nebennierenrindeninsuffizienz	1
C0001403	ITA	P	L1276837	PF	S1518783	Morbo di Addison	3
C0001403	POR	P	L0324623	PF	S0432928	DOENCA DE ADDISON	2
C0001403	RUS	P	L0889403	PF	S1093220	ADDISONOVA BOLEZN'	3
C0001403	SPA	P	L0342625	PF	S0450930	ENFERMEDAD DE ADDISON	3

[...]



MRSO Sources

(2003AA)

CUI	LUI	SUI	SAB	TTY	SCD	SRL
C0001403	L0001403	S0010792	MSH	EN	D000224	0
C0001403	L0001403	S0010794	MSH	MH	D000224	0
C0001403	L0001403	S0010796	MSH	PM	D000224	0
C0001403	L0001403	S0010796	PSY	PT	00810	3
C0001403	L0001403	S0033587	MSH	PM	D000224	0
C0001403	L0001403	S0220088	MSH	PM	D000224	0
C0001403	L0001403	S0352252	CCPSS	PT	0022753	3
C0001403	L0001403	S0352252	DXP	SY	NOCODE	0
C0001403	L0001403	S0352253	CST	GT	ADREN INSUFFIC	0
C0001403	L0001403	S0352253	WHO	IT	0410	2
C0001403	L0001403	S0354372	AOD	DE	000005430	0
C0001403	L0001403	S0354372	CSP	PT	0060-3321	0
C0001403	L0001403	S0354372	LCH	PT	U000061	0
C0001403	L0001403	S0354372	MDR	LT	10001130	3
C0001403	L0001403	S0354372	RCD	PT	C1541	3
C0001403	L0001403	S0354372	SNM	SY	D-2332	3
C0001403	L0001403	S0365923	CST	GT	ADREN INSUFFIC	0
C0001403	L0001403	S0469271	SNMI	PT	DB-70620	3
C0001403	L0001403	S1619433	MDR	LT	10001130	3
C0001403	L0001403	S1911394	ICPC2P	PT	T99002	3
C0001403	L0001403	S1921523	MTHICD9	ET	255.4	0
C0001403	L0001403	S1932462	ICPC2P	SF	T99002	3

[...]



MRDEF Definitions

(2003AA)

CUI SAB DEF

C0001403|MSH|A disease characterized by hypotension, weight loss, anorexia, weakness, and sometimes a bronze-like melanotic hyperpigmentation of the skin. It is due to tuberculosis- or autoimmune-induced disease (hypofunction) of the adrenal glands that results in deficiency of aldosterone and cortisol. In the absence of replacement therapy, it is usually fatal.|

[...]

MRSTY Semantic Types

(2003AA)

CUI	TUI	STY
C0001400	T040	Organism Function
C0001403	T047	Disease or Syndrome
C0001406	T083	Geographic Area
C0001407	T114	Nucleic Acid, Nucleoside, or Nucleotide
C0001407	T123	Biologically Active Substance
[...]		

MRATX Associated Expressions (2003AA)

CUI SAB REL ATX

Closed fracture of malar and maxillary bones, NOS

C0009045|MSH|RB|<Zygomatic Fractures> OR <Maxillary Fractures>|

Unilateral congenital dislocation of hip

C0009702|MSH|RB|<Hip Dislocation, Congenital> AND <Femur Head>/<abnormalities>|

Suture of bladder

C0010700|MSH|RB|<Bladder>/<surgery>|

Corneal abrasion

C0010032|MSH|RO|<Cornea>/<injuries>|

CORRECTIVE LENS PROBLEM

C0010099|MSH|RO|<Contact Lenses>/<adverse effects>|

Chronic cough

C0010201|MSH|SY|<Cough> AND <Chronic Disease>|

Cyst and pseudocyst of pancreas

C0010623|MSH|SY|<Pancreatic Cyst> OR <Pancreatic Pseudocyst>|

Cystitis

C0010692|LCH|RU|<Bladder>/<Inflammation>|

[...]



MRCXT Contexts

(2003AA)

```
CUI          SUI          SAB   SCD      CXN  CXL  RNK   CXS          CUI2          HCD  REL  XC
C0001403|S0469271|SNMI|DB-70620|1|ANC|1|SNOMED International|C1140118|||
C0001403|S0469271|SNMI|DB-70620|1|ANC|2|DISEASES/DIAGNOSES|C0338067|||
C0001403|S0469271|SNMI|DB-70620|1|ANC|3|DISEASES OF THE END. SYSTEM|C0014130|||
C0001403|S0469271|SNMI|DB-70620|1|ANC|4|DISEASES OF THE ADRENAL GLANDS|C0001621|||
C0001403|S0469271|SNMI|DB-70620|1|CCP|Addison's disease, NOS|C0001403|DB-70620||

(* = C0001403|S0718028|ICD10)
*|E27.1|1|ANC|1|ICD..., Tenth Revision (ICD-10)|C1140143|||
*|E27.1|1|ANC|2|Endocrine, nutritional and metabolic diseases|C0694452|E00-E90.9||
*|E27.1|1|ANC|3|Disorders of other endocrine glands|C0178257|E20-E35.9||
*|E27.1|1|ANC|4|Other disorders of adrenal gland|C0494313|E27||
*|E27.1|1|CCP|Primary adrenocortical insufficiency|C0001403|E27.1||

(* = C0001403|S0010794|MSH)
*|D000224|1|ANC|1|MeSH|C1135584|||
*|D000224|1|ANC|2|MeSH Descriptors|C1135587|||
*|D000224|1|ANC|3|Index Medicus Descriptor|C1135589|||
*|D000224|1|ANC|4|Diseases (MeSH Category)|C0012674|C||
*|D000224|1|ANC|5|Endocrine Diseases|C0014130|C19||
*|D000224|1|ANC|6|Adrenal Gland Diseases|C0001621|C19.53||
*|D000224|1|ANC|7|Adrenal Gland Hypofunction|C0001623|C19.53.264||
*|D000224|1|CCP|Addison's Disease|C0001403|C19.53.264.263||
*|D000224|1|SIB|Adrenoleukodystrophy|C0001661|C19.53.264.270||
*|D000224|1|SIB|Hypoadosteronism|C0020595|C19.53.264.480||
```



MRSAT Simple concept attributes (2003AA)

CUI	LUI	SUI	SCD	ATN	SAB	ATV
C0001403	L0001403	S0010792	D000224	DID	MSH	D000224
C0001403	L0001403	S0010792	D000224	EV	MSH	ADDISON DIS
C0001403	L0001403	S0010792	D000224	MUI	MSH	M0000346
C0001403	L0001403	S0010792	D000224	TH	MSH	UNK (19XX)
C0001403	L0001403	S0010794	D000224	AN	MSH	an autoimmune dis with adrenal hypofunction
C0001403	L0001403	S0010794	D000224	AQL	MSH	BL CF CI CL CN CO DH DI DT EC EH EM EN ...
C0001403	L0001403	S0010794	D000224	DC	MSH	1
C0001403	L0001403	S0010794	D000224	DID	MSH	D000224
C0001403	L0001403	S0010794	D000224	EV	MSH	ADDISON DIS
C0001403	L0001403	S0010794	D000224	MDA	MSH	19990101
C0001403	L0001403	S0010794	D000224	MED1963	NLM-MED	*2
C0001403	L0001403	S0010794	D000224	MED1963	NLM-MED	2
[...]						
C0001403	L0001403	S0010794	D000224	MED2002	NLM-MED	*19
C0001403	L0001403	S0010794	D000224	MED2002	NLM-MED	23
[...]						
C0001403	L0001403	S0010794	D000224	MN	MSH	C19.53.264.263
C0001403	L0001403	S0010794	D000224	MN	MSH	C20.111.163
[...]						
C0001403	L0001403	S0469271	DB-70620	SIC	SNMI	255.4
[...]						
C0001403				DA	MTH	19900930
C0001403				MR	MTH	20021026
C0001403				ST	MTH	R



MRRANK Name Ranking

(2003AA)

```
RANK  SAB  TTY  SUPRES
0401 | MTH | PN | N |
0400 | MTH | MM | N |
0399 | MSH | MH | N |
0398 | MSH | TQ | N |
0397 | MSH | EP | N |
0396 | MSH | EN | N |
0395 | MSH | XQ | N |
0394 | MSH | NM | N |
0393 | RXNORM | SCD | N |
0392 | RXNORM | SCDC | N |
0391 | DSM4 | PT | N |
0390 | DSM3R | PT | N |
0389 | SNMI | PT | N |
0388 | SNMI | PX | Y |
0387 | SNMI | HT | N |
0386 | SNMI | HX | Y |
0385 | VANDF | CD | N |
0384 | VANDF | HT | N |
0383 | VANDF | IN | N |
0382 | MDDB | CD | N |
0381 | MMX | CD | N |
0380 | MMX | IN | N |
0379 | RCDSA | PT | N |
[...]
```



MRREL Inter-concept Relationships

(2003AA)

CUI1	REL	CUI2	RELA	SAB	SL	MG
C0001403	AQ	C0348026	MSH	MSH		
C0001403	CHD	C0342477	RCD	RCD		
C0001403	CHD	C0546992	RCD	RCD		
C0001403	PAR	C0001621	PSY	PSY		
C0001403	PAR	C0001621	SNMI	SNMI		
C0001403	PAR	C0001623	MSH	MSH		
C0001403	PAR	C0935495	has_member	PSY	PSY	
C0001403	RB	C0001621	PSY	PSY		
C0001403	RB	C0001623	MTH	MTH		
C0001403	RB	C0004364	CSP	CSP		
C0001403	RB	C0004364	MTH	MTH		
C0001403	RL	C0405580	mapped_from	SNMI	SNMI	
C0001403	RN	C0518933	MTH	MTH		
C0001403	RN	C0518934	MTH	MTH		
C0001403	RO	C0152889	associated_with	SNMI	SNMI	
C0001403	RO	C0546992	MTH	MTH		
C0001403	RQ	C0020615	clinically_associated_with	CCPSS	CCPSS	
C0001403	RQ	C0151467	clinically_similar	RAM	RAM	
C0001403	RQ	C0300942	classifies	MDR	MDR	
C0001403	RQ	C0405580	mapped_from	CST	CST	
C0001403	RQ	C0405580	mapped_to	HLREL	HLREL	
C0001403	RQ	C0740740	inverse_isa	CCPSS	CCPSS	
C0001403	SIB	C0001206	MDR	MDR		

[...]



MRCOC Co-occurrences

(2003AA)

```
CUI1      CUI2      SOC COT COF COA
C0001403 | C0000727 | MED | L | 1 | CO=1,DI=1,ME=1 |
C0001403 | C0000737 | MBD | L | 1 | CO=1,DI=1 |
C0001403 | C0000833 | MED | L | 2 | MI=2,DT=1,RA=1 |
C0001403 | C0001175 | MBD | L | 1 | CO=1 |
C0001403 | C0001418 | MED | L | 1 | ET=1 |
C0001403 | C0001430 | MBD | L | 1 | BL=1,CO=1 |
C0001403 | C0001551 | MED | L | 3 | DT=3 |
C0001403 | C0001613 | MBD | L | 6 | ET=2,IM=2,CL=1,CN=1,DI=1,PA=1,PP=1 |
C0001403 | C0001613 | MED | L | 6 | IM=4,PP=3,CO=2,BL=1,DI=1,TH=1 |
C0001403 | C0001614 | MBD | L | 1 | BL=1,CI=1 |
C0001403 | C0001617 | MBD | L | 1 | BL=1 |
C0001403 | C0001618 | MBD | L | 2 | BL=2,CO=1,ET=1 |
C0001403 | C0001618 | MED | L | 1 | CO=1,PA=1 |
[... ]
C0018099 | C0151373 | AIR | KP | | |
C0018099 | C0151407 | AIR | KP | | |
C0018099 | C0151463 | CCPSS | PP | 1 | | |
C0018099 | C0205082 | CCPSS | MP | 1 | | |
C0018099 | C0205090 | CCPSS | MP | 8 | | |
C0018099 | C0205091 | CCPSS | MP | 2 | | |
C0018099 | C0221598 | AIR | KP | | |
[... ]
```



MRCON Suppressible synonyms (2003AA)

CUI	LAT	TS	LUI	STT	SUI	STR	LRL
C0001403	ENG	P	L0001403	PF	S0010794	Addison's Disease	0
C0001403	ENG	P	L0001403	VC	S0352253	ADDISON'S DISEASE	0
C0001403	ENG	P	L0001403	VO	S0010792	Addison Disease	0
C0001403	ENG	P	L0001403	VO	S0033587	Disease, Addison	0
C0001403	ENG	P	L0001403	VO	S0469271	Addison's disease, NOS	3
C0001403	ENG	S	L0278071	PF	S0352321	ADRENAL INSUFFICIENCY (ADDISON'S DISEASE)	0
C0001403	ENG	S	L0278422	PF	S0352329	ADRENOCORTICAL INSUFFICIENCY, PRIMARY FAILURE	0
C0001403	ENG	S	L0367999	PF	S0469267	Addison melanoderma	3
C0001403	ENG	S	L0368000	PF	S0496840	Melasma addisonii	3
C0001403	ENG	S	L0368398	PF	S0506528	Primary adrenal deficiency	3
C0001403	ENG	S	L0373744	PF	S0471237	Asthenia pigmentosa	3
C0001403	ENG	S	L0377831	PF	S0473611	Bronzed disease	3
C0001403	ENG	S	L0494940	PF	S0718028	Primary adrenocortical insufficiency	3
C0001403	ENG	S	L0494937	PF	S0718027	Primary adrenocortical insuff	3
C0001403	FIN	P	L1510041	PF	S1805950	Addisonin tauti	3
C0001403	FRE	S	L1272481	PF	S1514427	MALADIE D'ADDISON	2
C0001403	GER	P	L1229627	PF	S1471573	Addison-Krankheit	3
C0001403	GER	S	L1288823	PF	S1530769	Primaere Nebennierenrindeninsuffizienz	1
C0001403	ITA	P	L1276837	PF	S1518783	Morbo di Addison	3
C0001403	POR	P	L0324623	PF	S0432928	DOENCA DE ADDISON	2
C0001403	RUS	P	L0889403	PF	S1093220	ADDISONOVA BOLEZN'	3
C0001403	SPA	P	L0342625	PF	S0450930	ENFERMEDAD DE ADDISON	3

[...]

MRCUI Concept history

(2003AA)

CUI1	VER	CREL	CUI2	MAPIN
C0241779	1996AA	SY	C0001403	Y
C0271735	1996AA	SY	C0001403	Y
[...]				

MRSAB Source information

(2003AA)

VCUI RCUI VSAB RSAB SON SF SVER MSTART MEND IMETA RMETA SLC SCC SRL TFR

C1140103|C1140104|INS2002|INS|French translation of the Medical Subject Headings, 2002|MSH|2002|2002_04_11||2002AB||Dr. Annie Advocat; e-mail: advocat@inserm-dicdoc.u-strasbg.fr|Dr. Annie Advocat; e-mail: advocat@inserm-dicdoc.u-strasbg.fr|3|30883|20692||MH,SY||FRE|ISO646-US|Y|Y|

C1140132|C1140133|BRMP2002|BRMP|Portuguese translation of the Medical Subject Headings, 2002|MSH|2002|2001_12_04||2002AA||Elenice de Castro; e-mail: elenice@brm.bireme.br|Elenice de Castro; e-mail: elenice@brm.bireme.br|3|41853|27195||EP,MH,SY||POR|ISO646-US|Y|Y|

C1140297|C1140298|DUT2001|DUT|Dutch Translation of the Medical Subject Headings, 2001|MSH|2001|2001_12_04||2002AB||A.J.P.M.Overbeke, overbeke@ntvg.nl, * 20 662 0150|A.J.P.M.Overbeke, overbeke@ntvg.nl, * 20 662 0150|3|35705|17733||EP,MH,SY||DUT|ISO646-US|Y|Y|

C1142630|C1135584|MSH2003_2002_10_24|MSH|Medical Subject Headings, 2002_10_24|MSH|2003_2002_10_24|2002_11_05||2003AA||Stuart Nelson, M.D., Head, MeSH Section; e-mail: nelson@nlm.nih.gov|Stuart Nelson, M.D., Head, MeSH Section; e-mail: nelson@nlm.nih.gov|0|516015|231458|FULL-MULTIPLE|CE,EN,EP,HS,HT,MH,N1,NM,PM,TQ,XQ|AN,AQL,CX,DC,DID,DQ,DS,DX,EC,EV,FR,FX,HM,HN,II,LT,MDA,MMR,MN,MUI,OL,PA,PI,PM,QA,QE,QS,RN,RR,SOS,SRC,TH|ENG|ISO646-US|Y|Y|



SRDEF Basic information

(2003AA)

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RT  TUI  STY/RL  STN/RTN  DEF      EX      UN      NH      ABR      RIN
STY|T001|Organism|A1.1|Generally, a living individual, including all plants and
animals.|Homozygote; Radiation Chimera; Sporocyst||||
STY|T002|Plant|A1.1.1|An organism having cellulose cell walls, growing by
synthesis of inorganic substances, generally distinguished by the presence of
chlorophyll, and lacking the power of locomotion. Plant parts are included here
as well.|Pollen; Potatoes; Vegetables||||
STY|T003|Alga|A1.1.1.1|A chiefly aquatic plant that contains chlorophyll, but does
not form embryos during development and lacks vascular tissue.|Chlorella;
Laminaria; Seaweed||||
STY|T004|Fungus|A1.1.2|A eukaryotic organism characterized by the absence of
chlorophyll and the presence of a rigid cell wall. Included here are both slime
molds and true fungi such as yeasts, molds, mildews, and mushrooms.|Aspergillus
clavatus; Blastomyces; Helminthosporium; Neurospora||||
[...]
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RL|T132|physically_related_to|R1|Related by virtue of some physical attribute or
characteristic.|||PR|physically_related_to|
RL|T133|part_of|R1.1|Composes, with one or more other physical units, some larger
whole. This includes component of, division of, portion of, fragment of, section
of, and layer of.|||PT|has_part|
[...]
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RL|T186|isa|H|The basic hierarchical link in the Network. If one item "isa"
another item then the first item is more specific in meaning than the second
item.|||IS|inverse_isa|
[...]
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SRSTR Structure

(2003AA)

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STY/RL          RL          STY/RL          LS
Biologic Function|affects|Organism|D|
Biologic Function|isa|Natural Phenomenon or Process|D|
Biologic Function|process_of|Organism|D|
Biologic Function|produces|Biologically Active Substance|D|
Biologic Function|produces|Body Substance|D|
[...]
Disease or Syndrome|conceptually_related_to|Experimental Model of Disease|DNI|
Disease or Syndrome|isa|Pathologic Function|D|
Disease or Syndrome|produces|Tissue|D|
[...]
Medical Device|isa|Manufactured Object|D|
Medical Device|prevents|Injury or Poisoning|D|
Medical Device|prevents|Pathologic Function|D|
Medical Device|treats|Anatomical Abnormality|D|
Medical Device|treats|Injury or Poisoning|D|
Medical Device|treats|Pathologic Function|D|
Medical Device|treats|Sign or Symptom|D|
[...]
Mental Process|process_of|Plant|B| blocks Biologic Function|process_of|Organism|D|
[...]
part_of|isa|physically_related_to|D|
[...]
```

SRSTRE2 Structure (expanded)

(2003AA)

STY	RL	STY		STY
Disease or Syndrome	isa	Pathologic Function		Pathologic Function isa Biologic Function
Disease or Syndrome	isa	Biologic Function		Biologic Function isa Natural Phen. or Process
Disease or Syndrome	isa	Natural Phen. or Pr.		Natural Phen. or Process isa Phen. or Process
Disease or Syndrome	isa	Phenomenon or Process		Phenomenon or Process isa Event
Disease or Syndrome	isa	Event		
Disease or Syndrome	affects	Alga		from Biologic Function affects Organism D
Disease or Syndrome	affects	Amphibian		
Disease or Syndrome	affects	Animal		
Disease or Syndrome	affects	Archaeon		
Disease or Syndrome	affects	Bacterium		
Disease or Syndrome	affects	Biologic Function		
Disease or Syndrome	affects	Bird		
Disease or Syndrome	affects	Cell Function		
Disease or Syndrome	affects	Cell or Molecular Dysfunction		
[...]				