



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

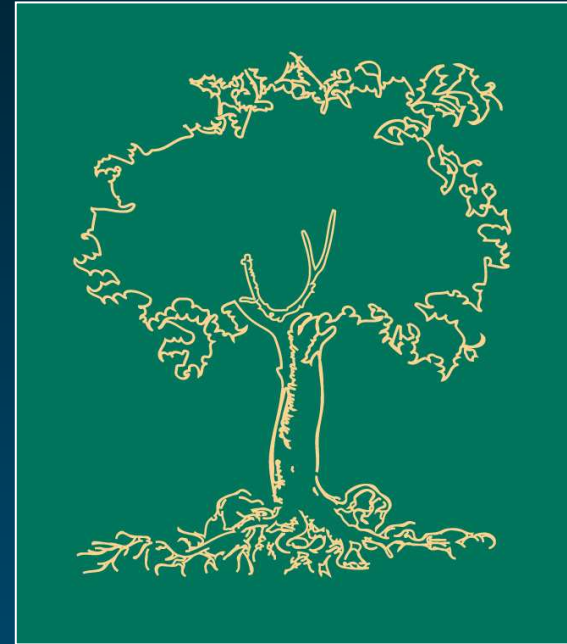
Part I

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

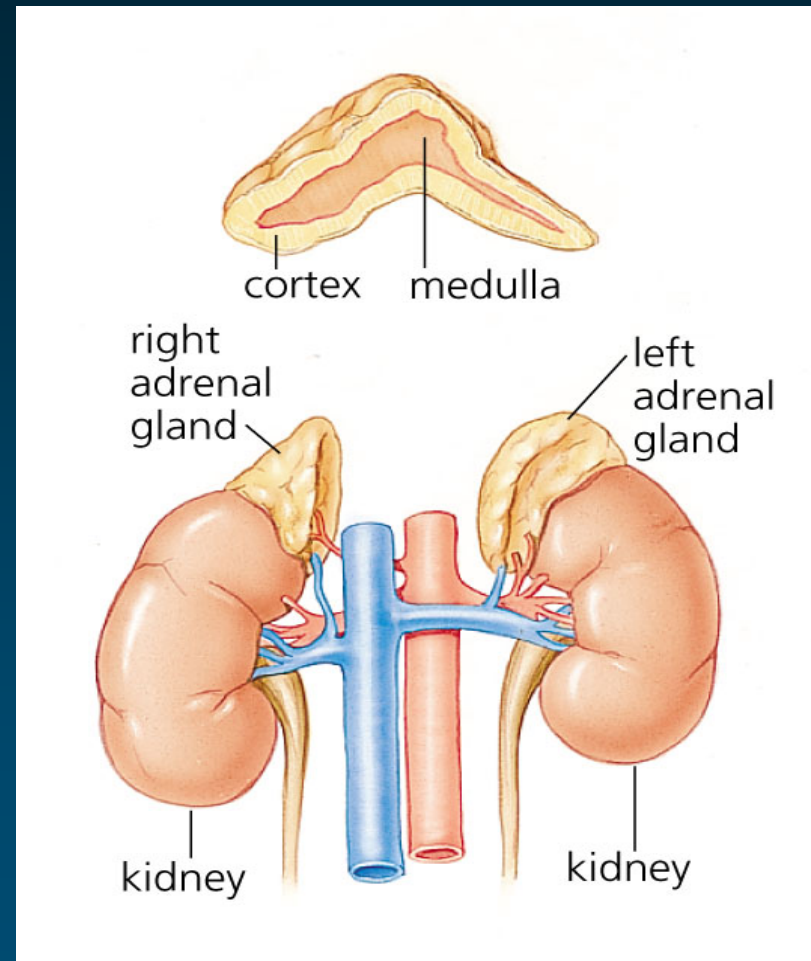
Part I

What is the UMLS?

(2) Overview through an example

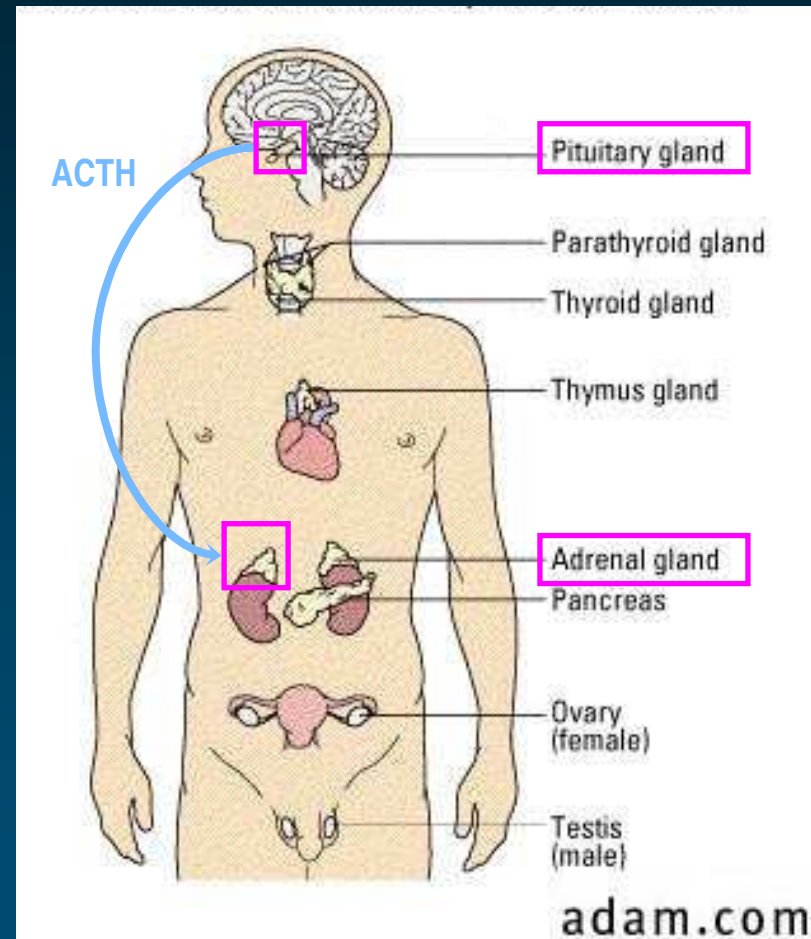
Addison's disease

- ◆ 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 | } | eponym |
| ● Bronzed disease | | |
| ● Addison melanoderma | } | symptoms |
| ● Asthenia pigmentosa | | |
| ● Primary adrenal deficiency | } | clinical
variants |
| ● Primary adrenal insufficiency | | |
| ● Primary adrenocortical insufficiency | | |
| ● Chronic adrenocortical insufficiency | | |

◆ Contexts: different hierarchies



Organize terms

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

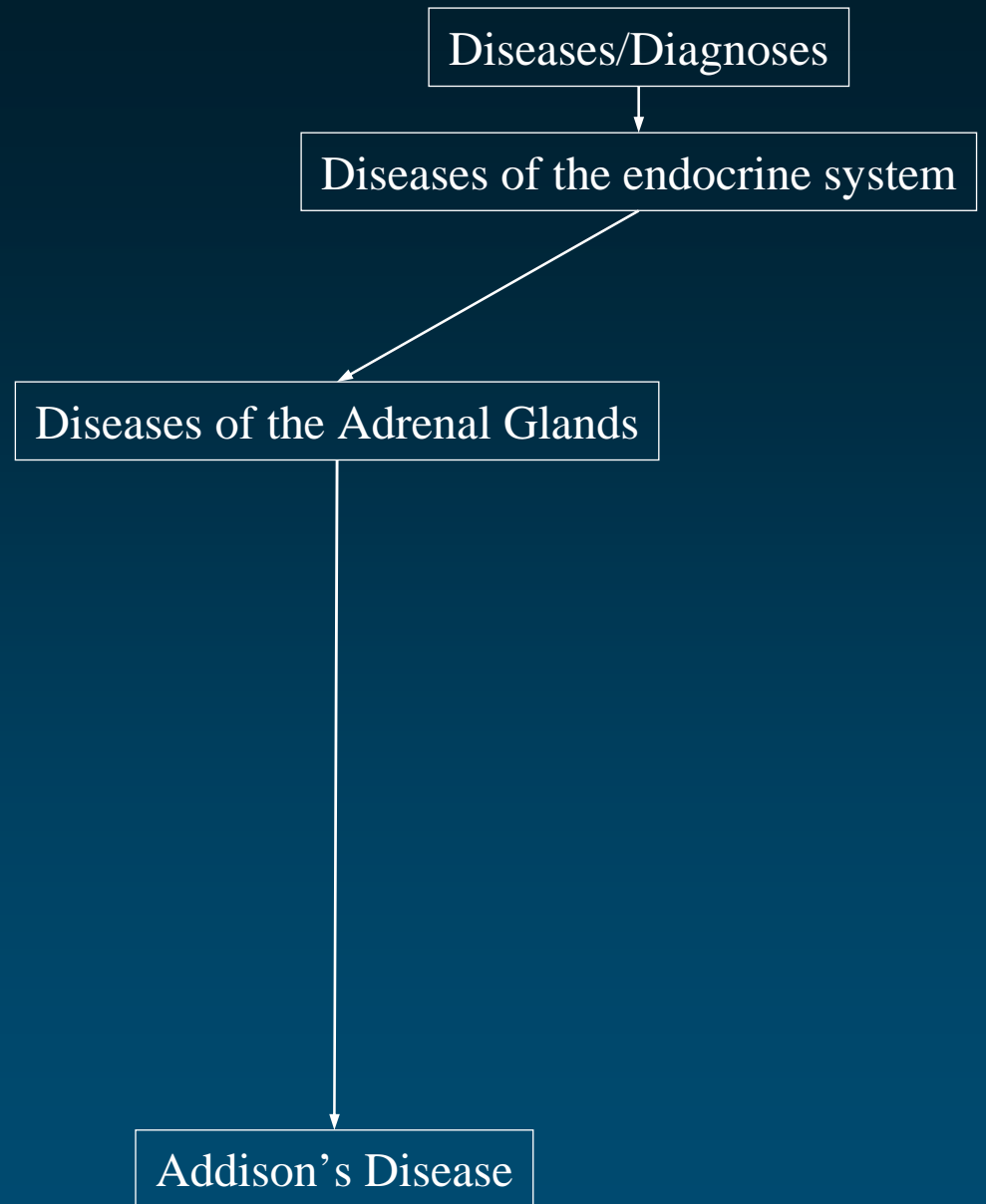
Adrenal gland diseases	MeSH	D000307
Adrenal disorder	AOD	0000005418
Disorder of adrenal gland	Read	C15z.
Diseases of the adrenal glands	SNOMED	DB-70000

C0001621

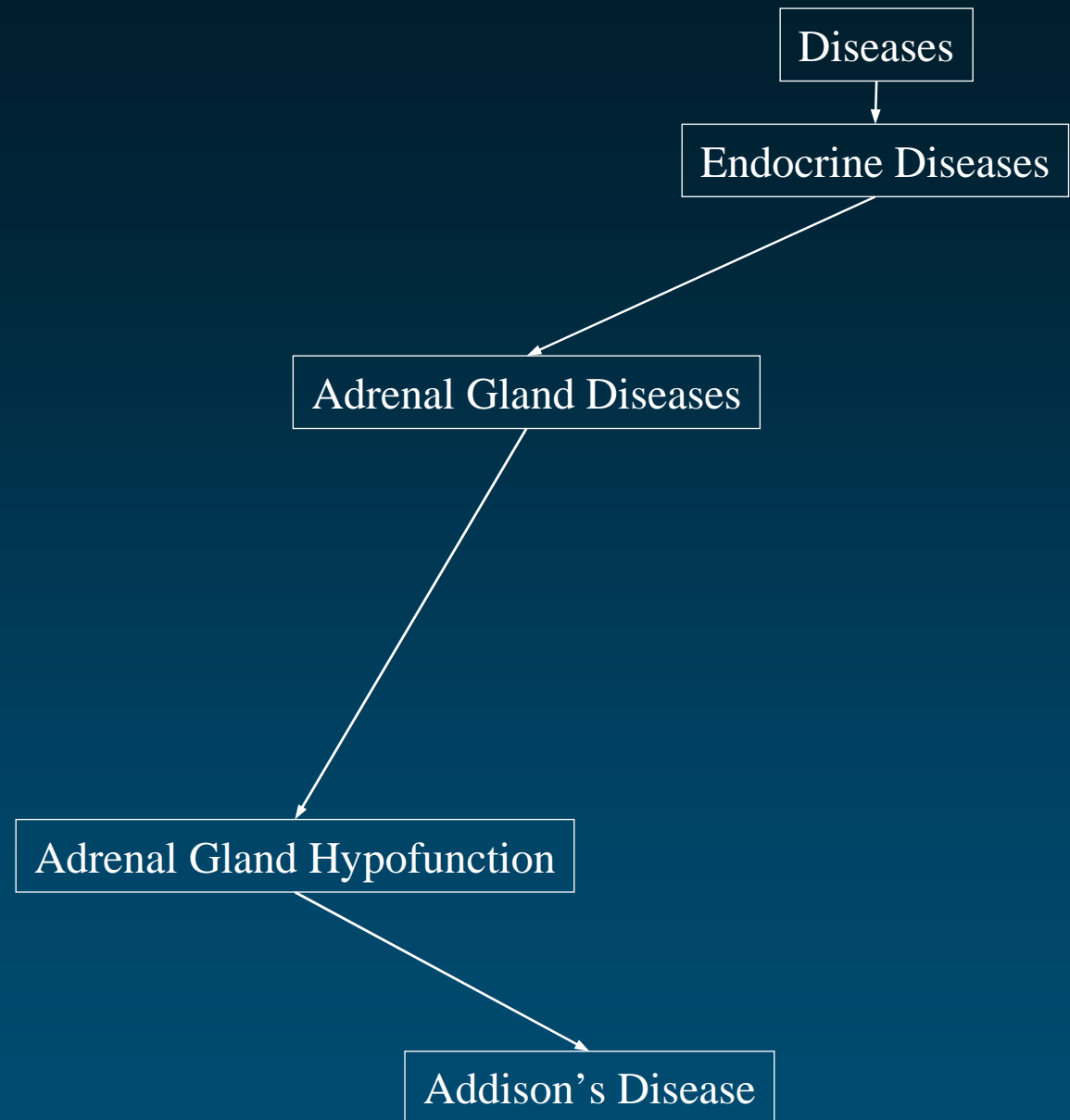
Adrenal Gland Diseases



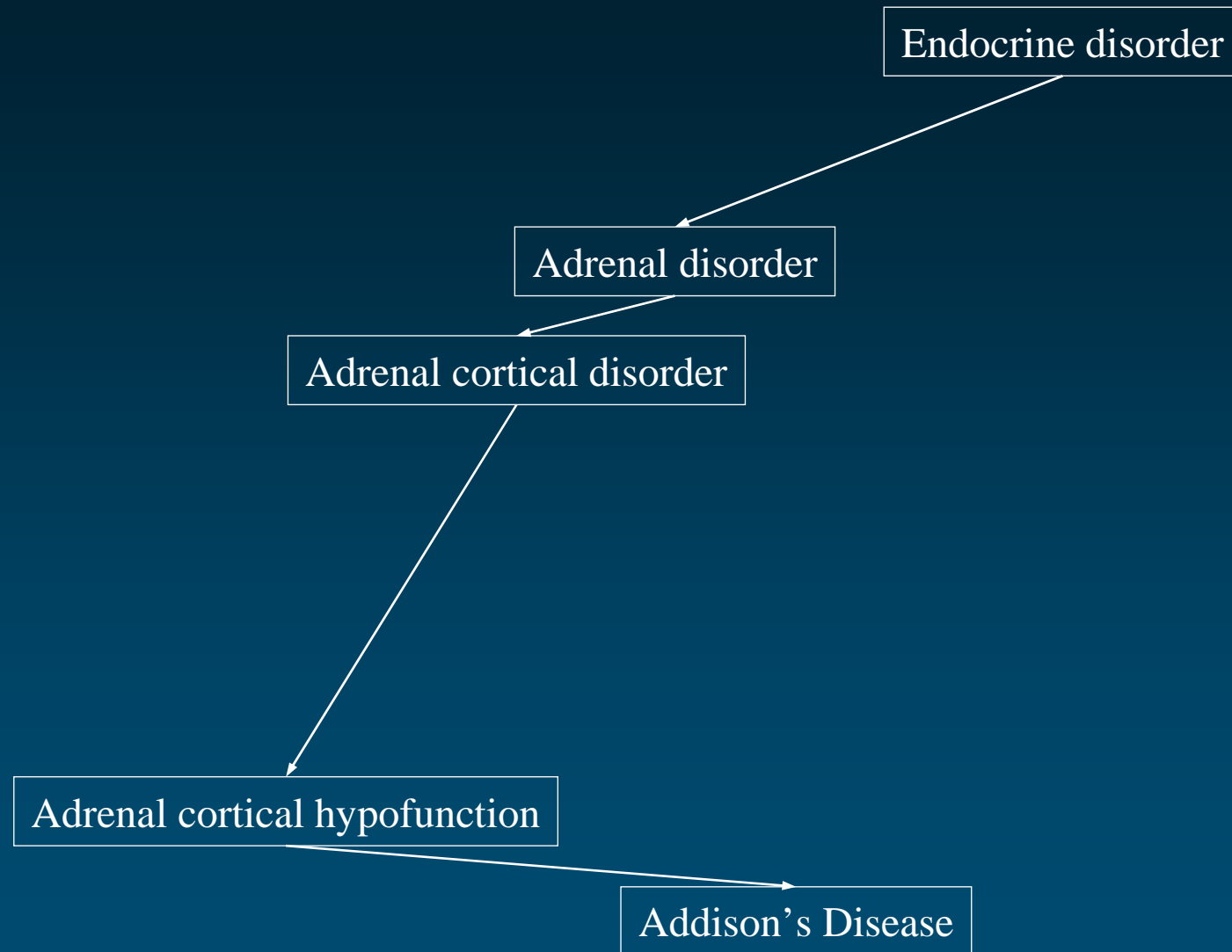
SNOMED International



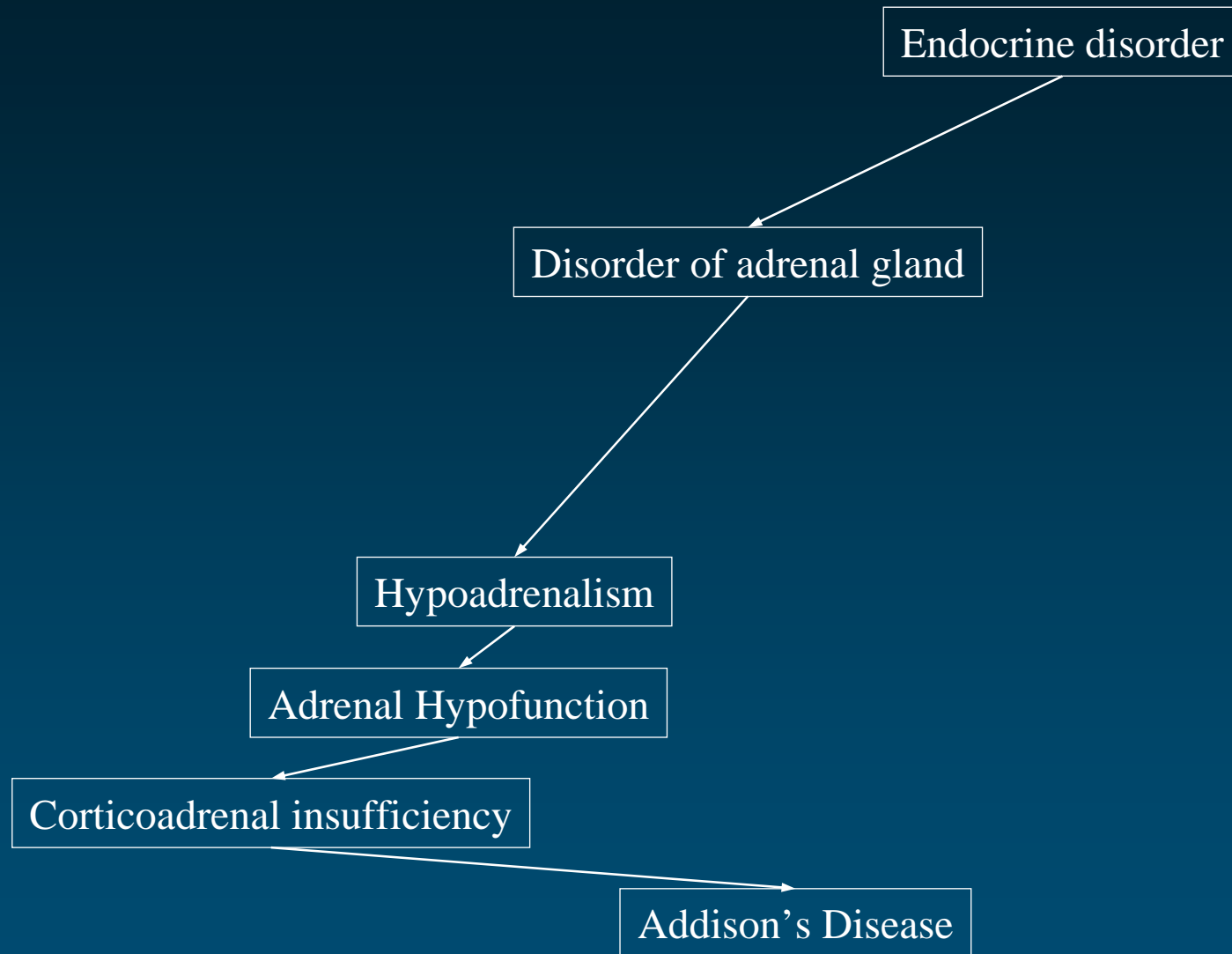
MeSH



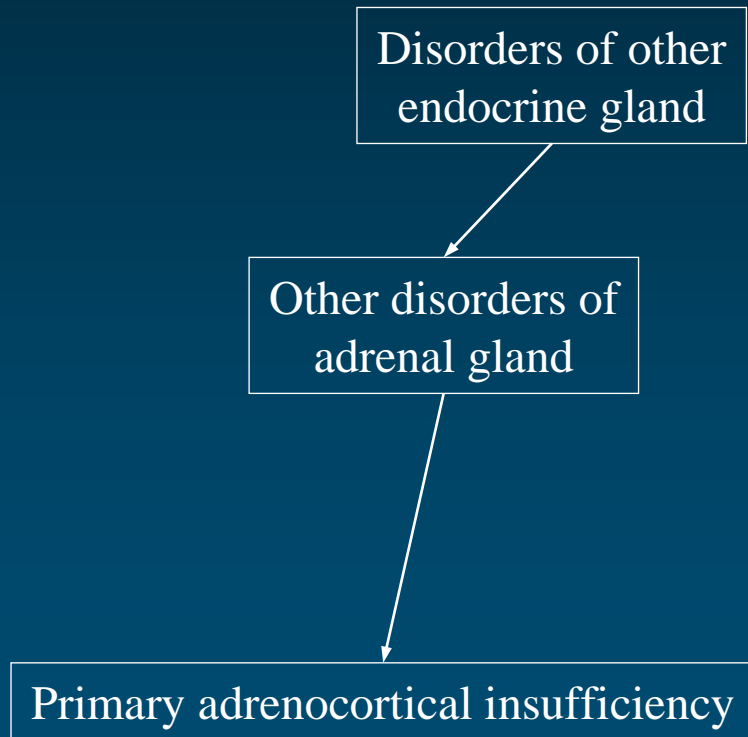
AOD



Read Codes

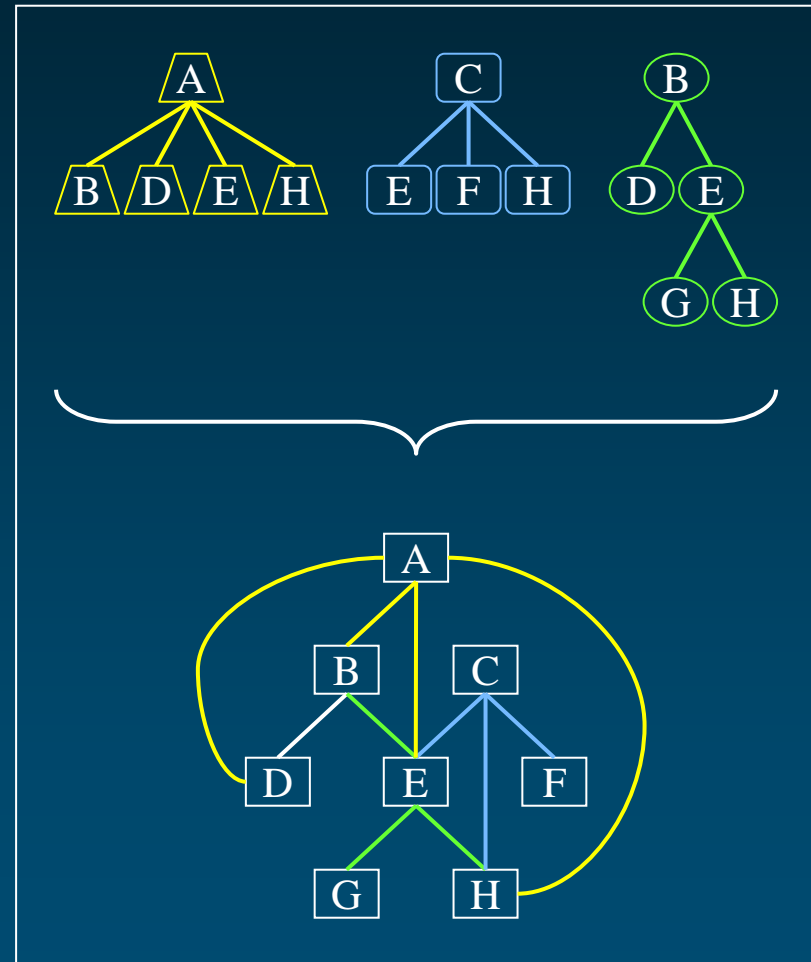


ICD-10



Organize concepts

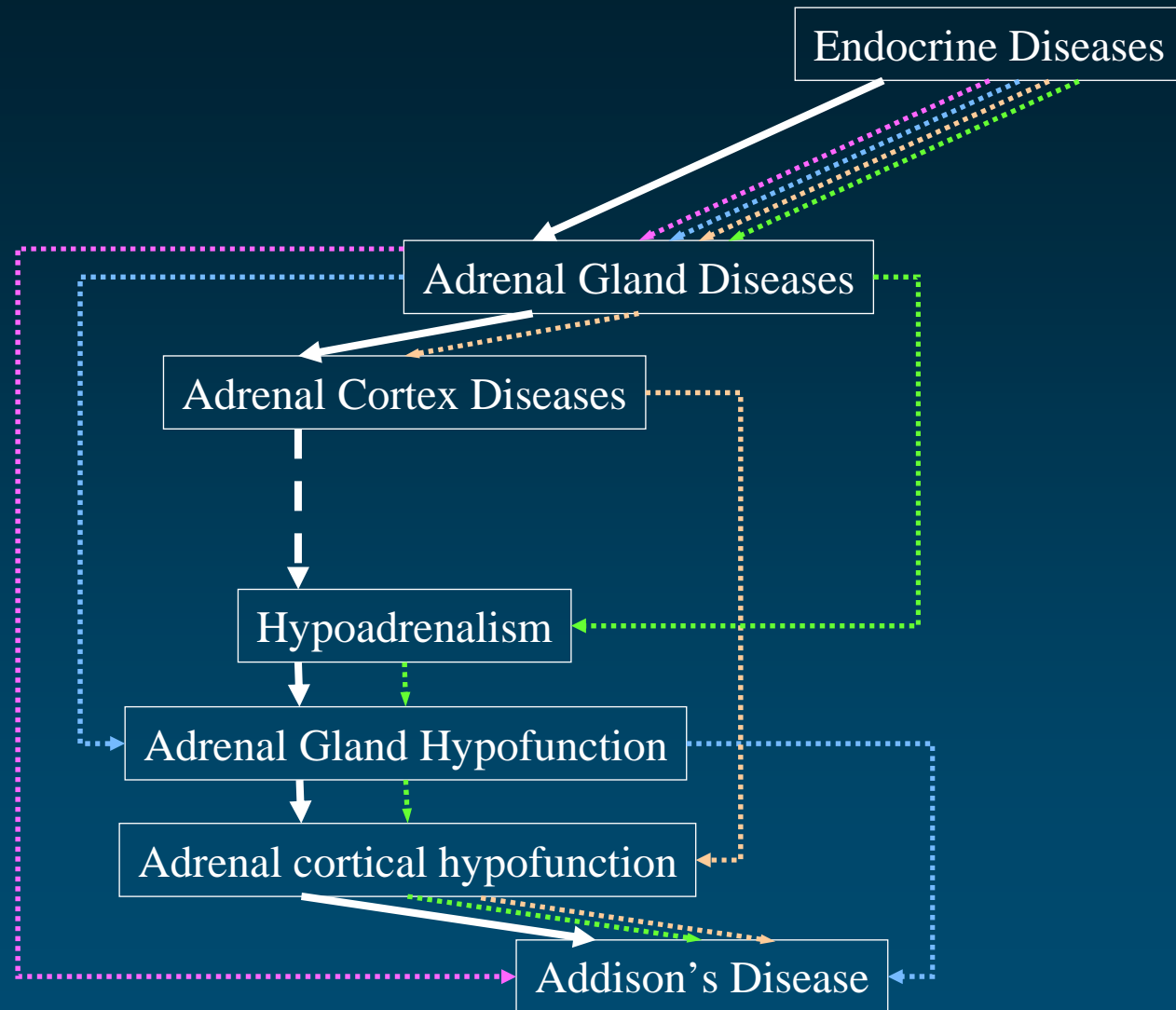
- ◆ Inter-concept relationships: hierarchies from the source vocabularies
- ◆ Redundancy: multiple paths
- ◆ One **graph** instead of multiple **trees** (multiple inheritance)



organize concepts

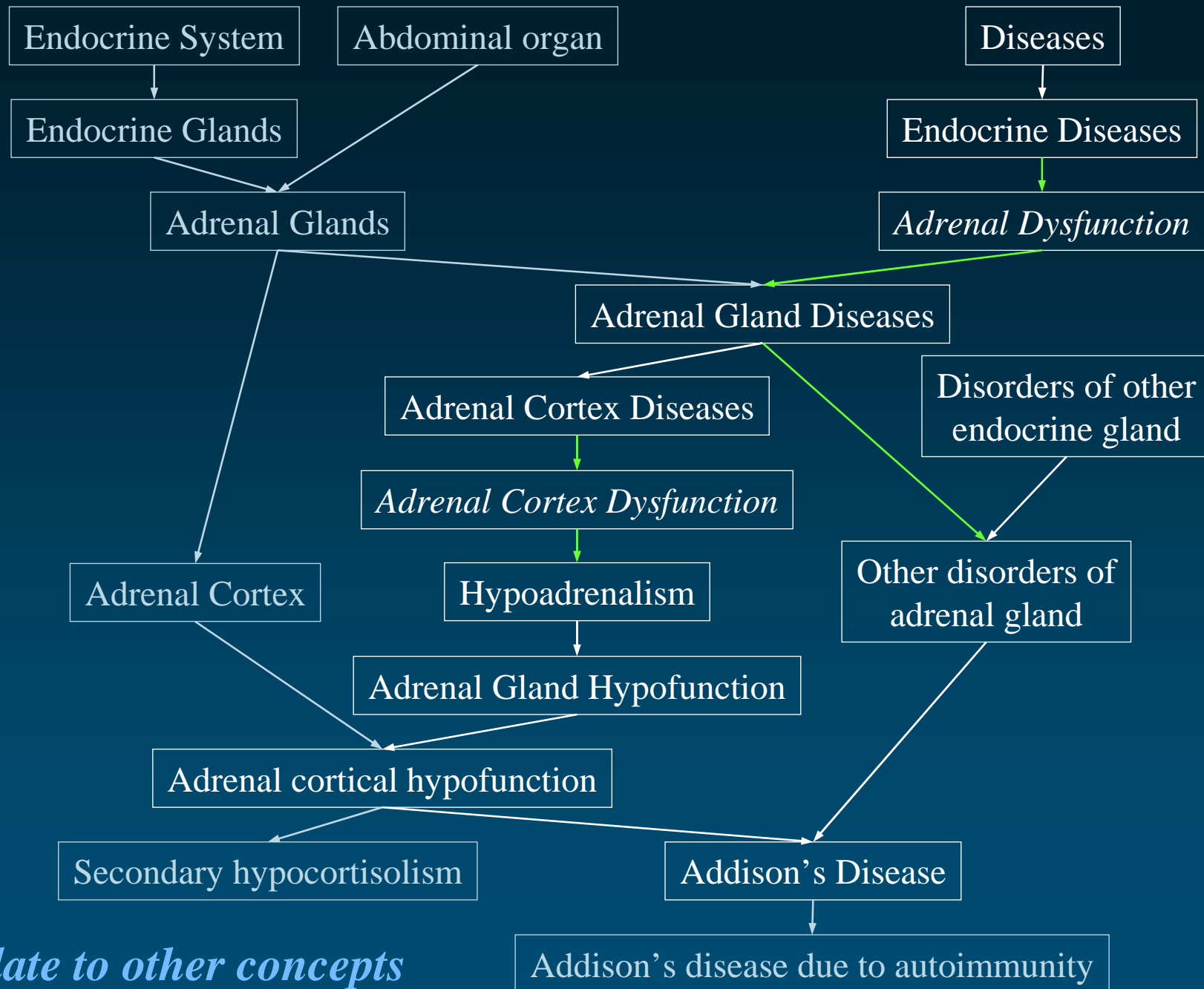
SNOMED
MeSH
AOD
Read Codes

UMLS



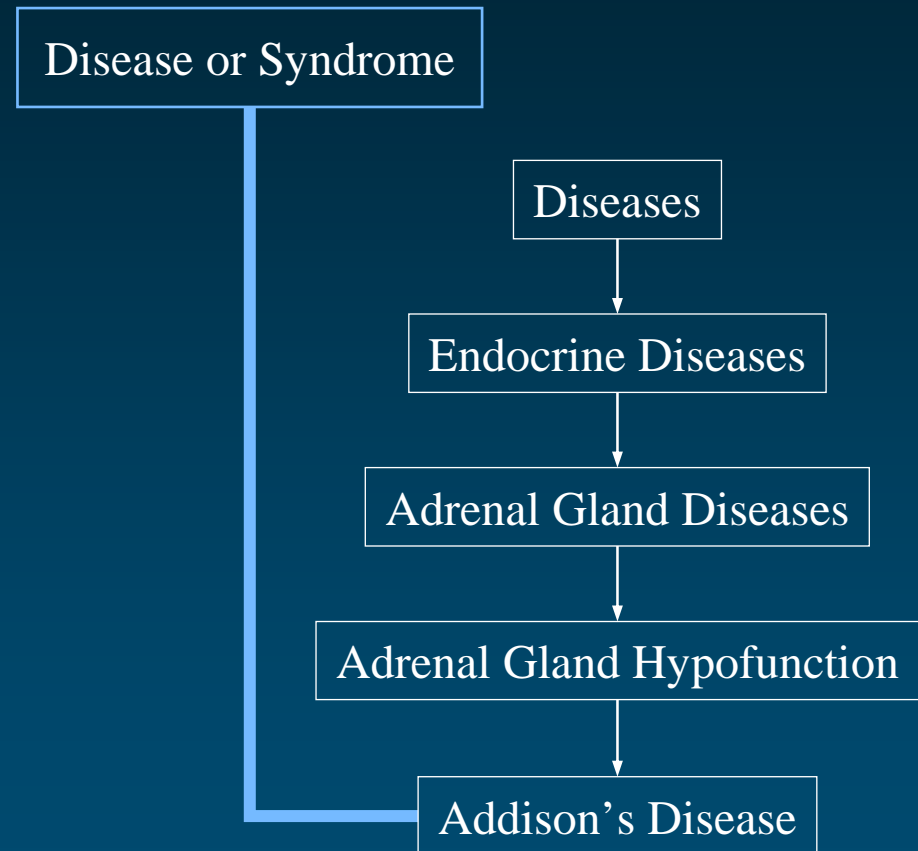
Relate to other concepts

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



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

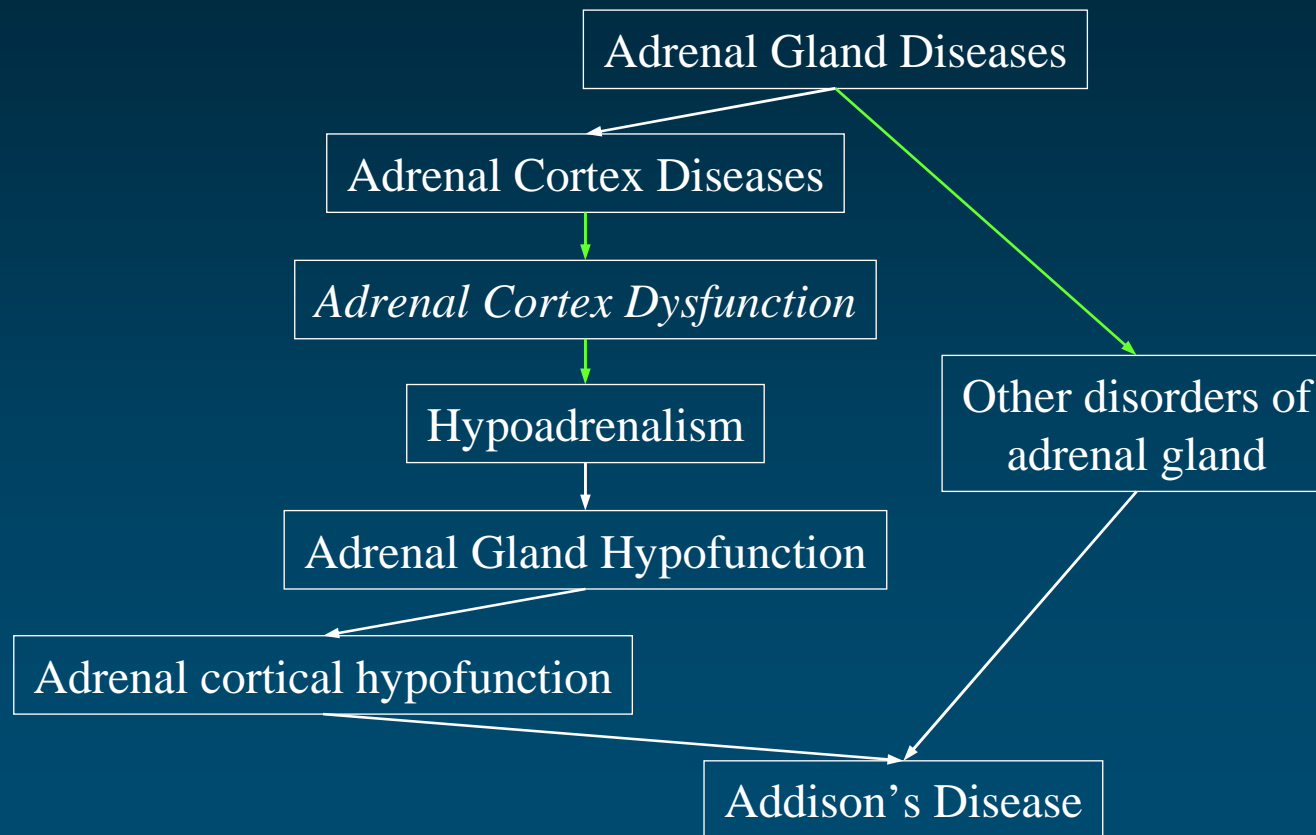
Diseases of the adrenal glands

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

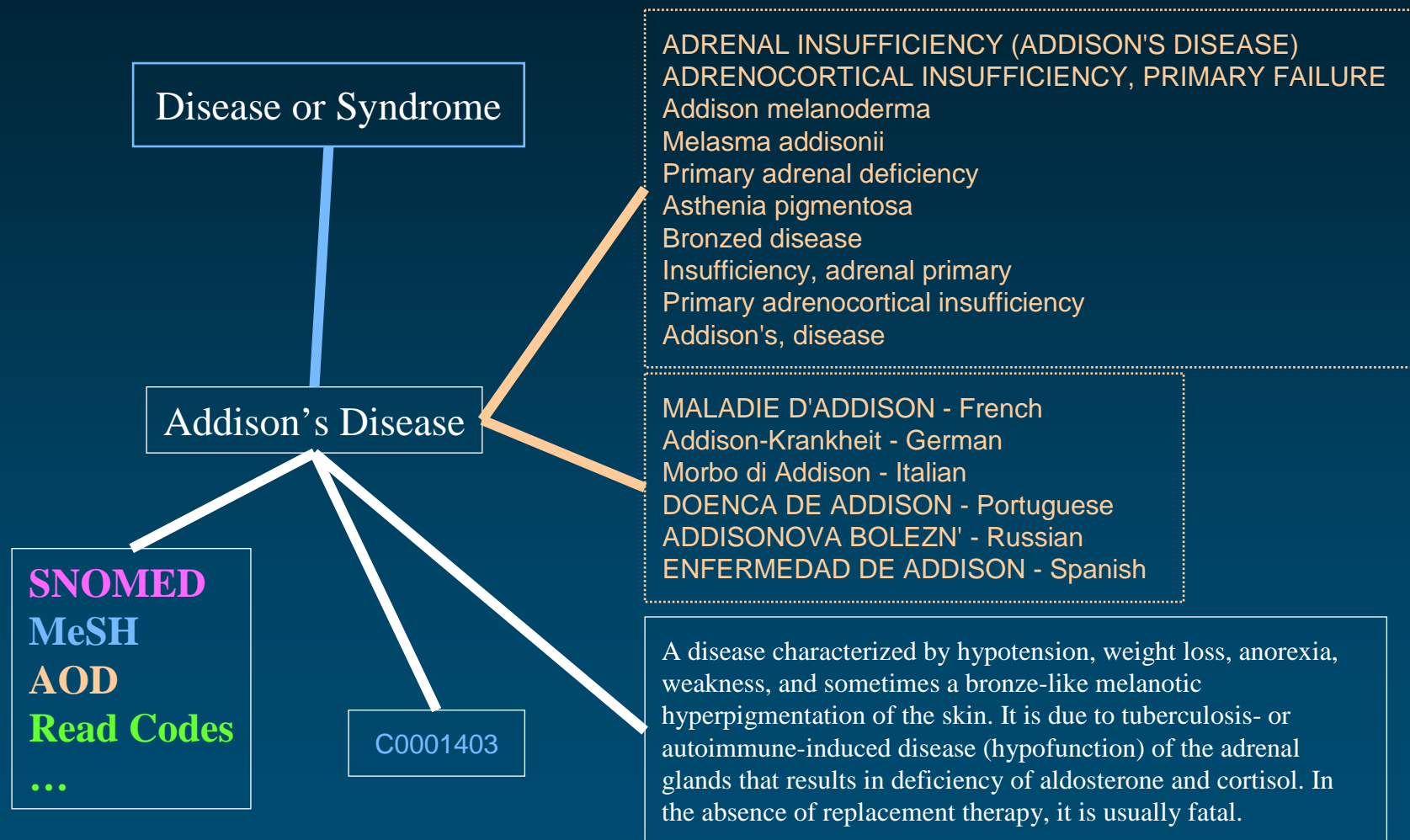
- nursing (NIC, NOC, NANDA, Omaha, PCDS)
- dentistry (CDT)
- oncology (PDQ)
- psychiatry (DSM, APA)
- adverse reactions (COSTART, WHO ART)
- primary care (ICPC)

◆ 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

A0000001 headache (source 1)

A0000002 headache (source 2)

S0000001

A0000003 Headache (source 1)

A0000004 Headache (source 2)

S0000002

L0000001

A0000005 Cephalgia (source 1)

S0000003

L0000002

C0000001



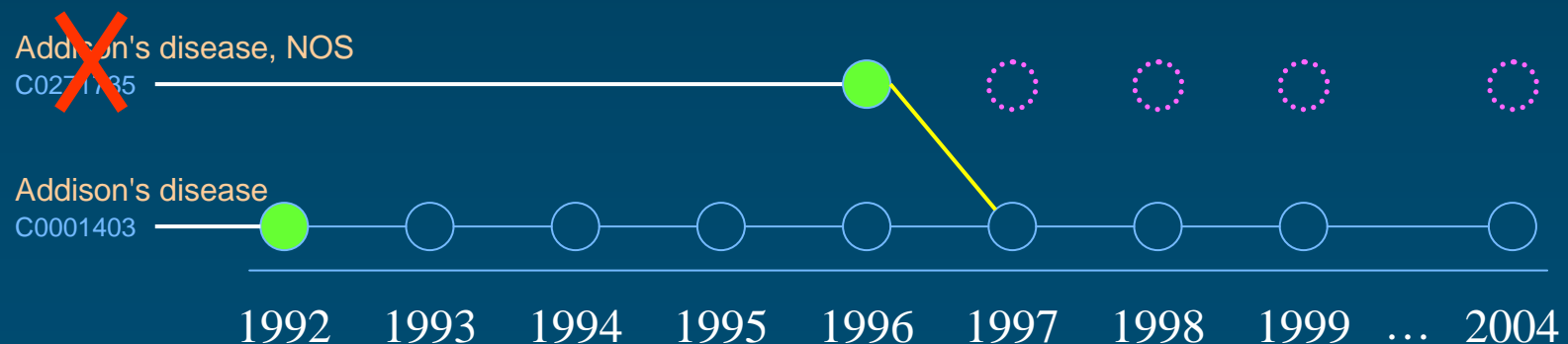
Cluster of synonymous terms

Concept
C0001621

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

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

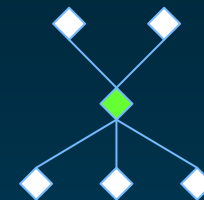
Symbolic relationships Type

◆ 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

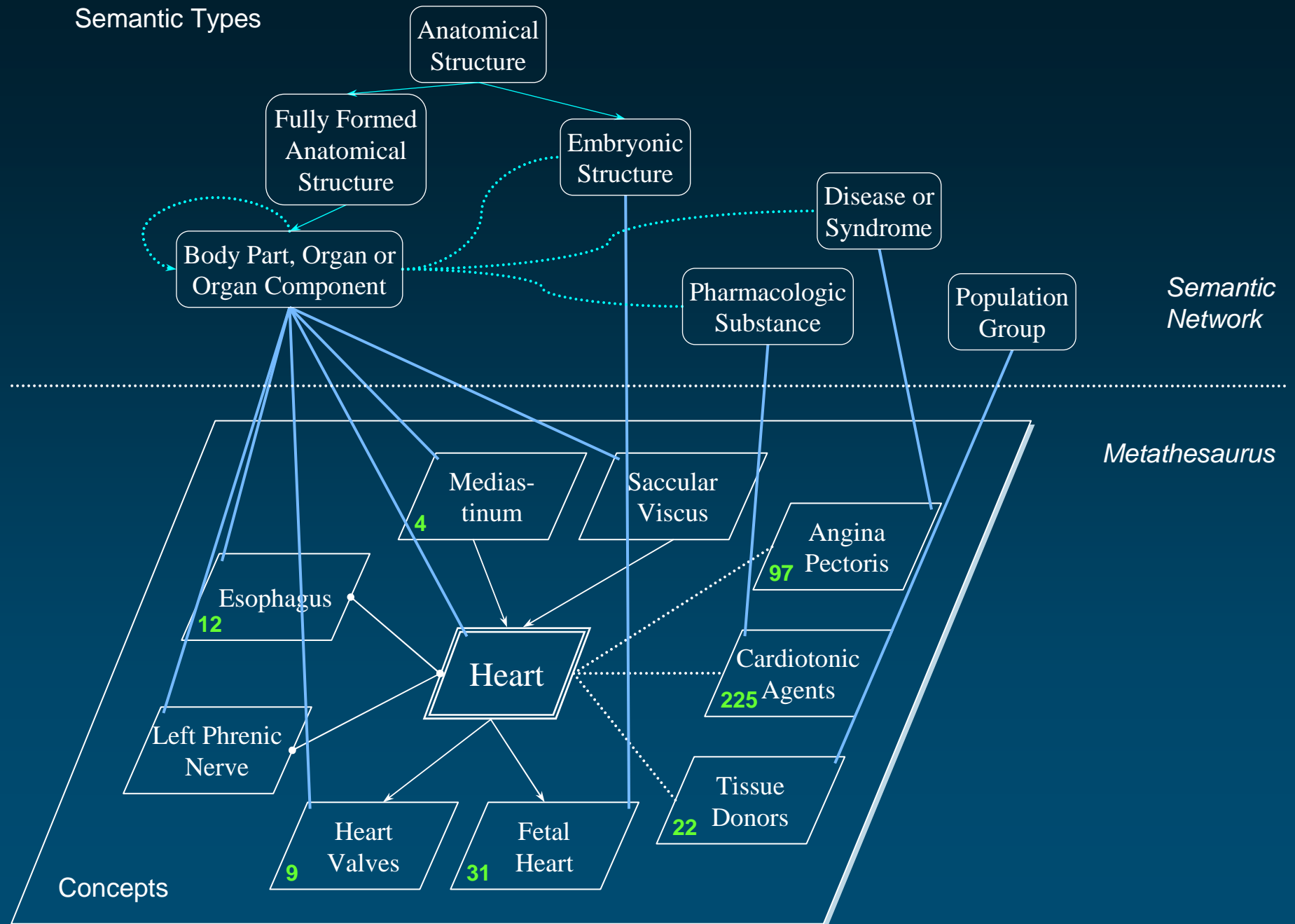
RQ



Symbolic relationships Attribute

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

Semantic Types



UMLS Semantic Network

Semantic Network

◆ Semantic types (135)

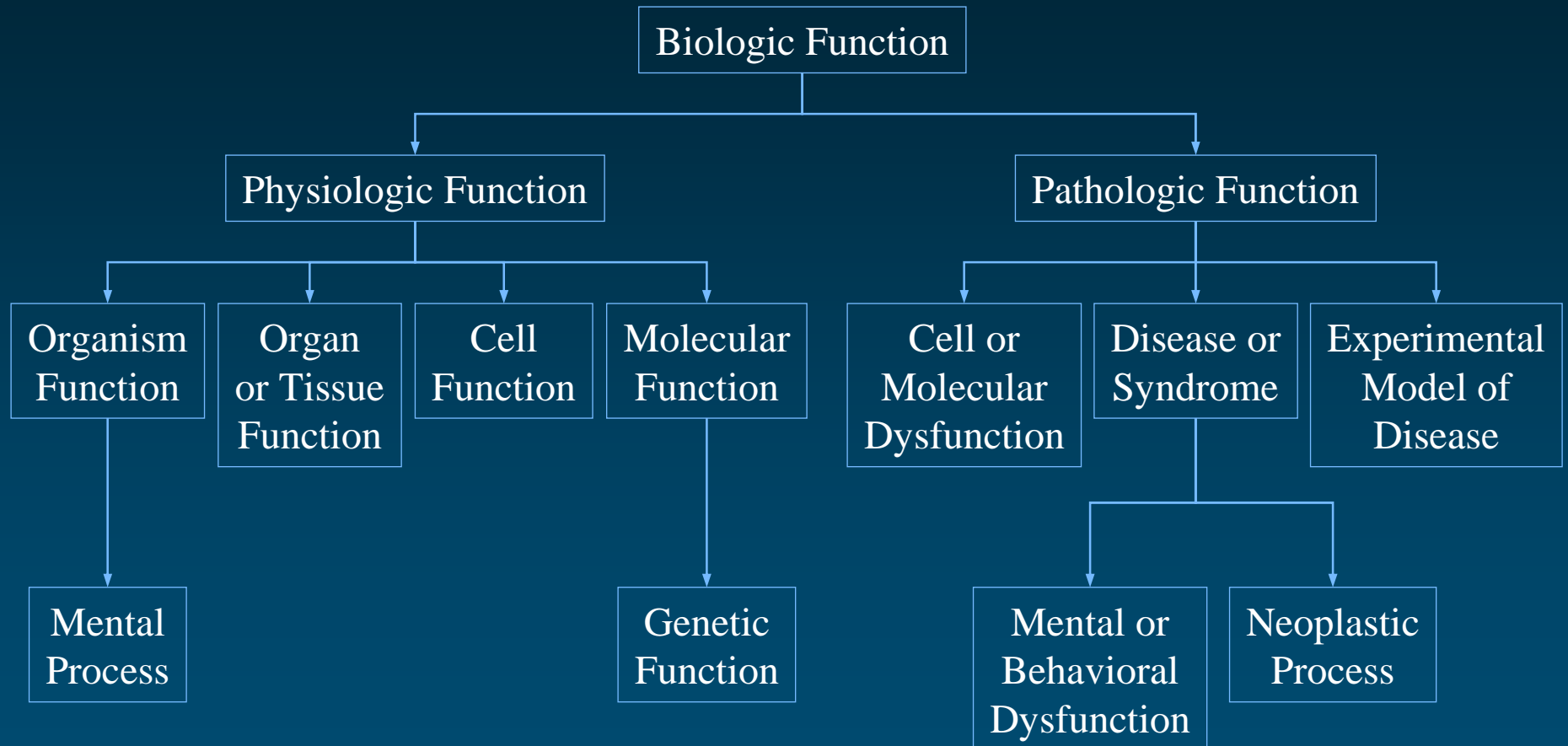
- tree structure
- 2 major hierarchies
 - Entity
 - Physical Object
 - Conceptual Entity
 - Event
 - Activity
 - Phenomenon or Process

Semantic Network

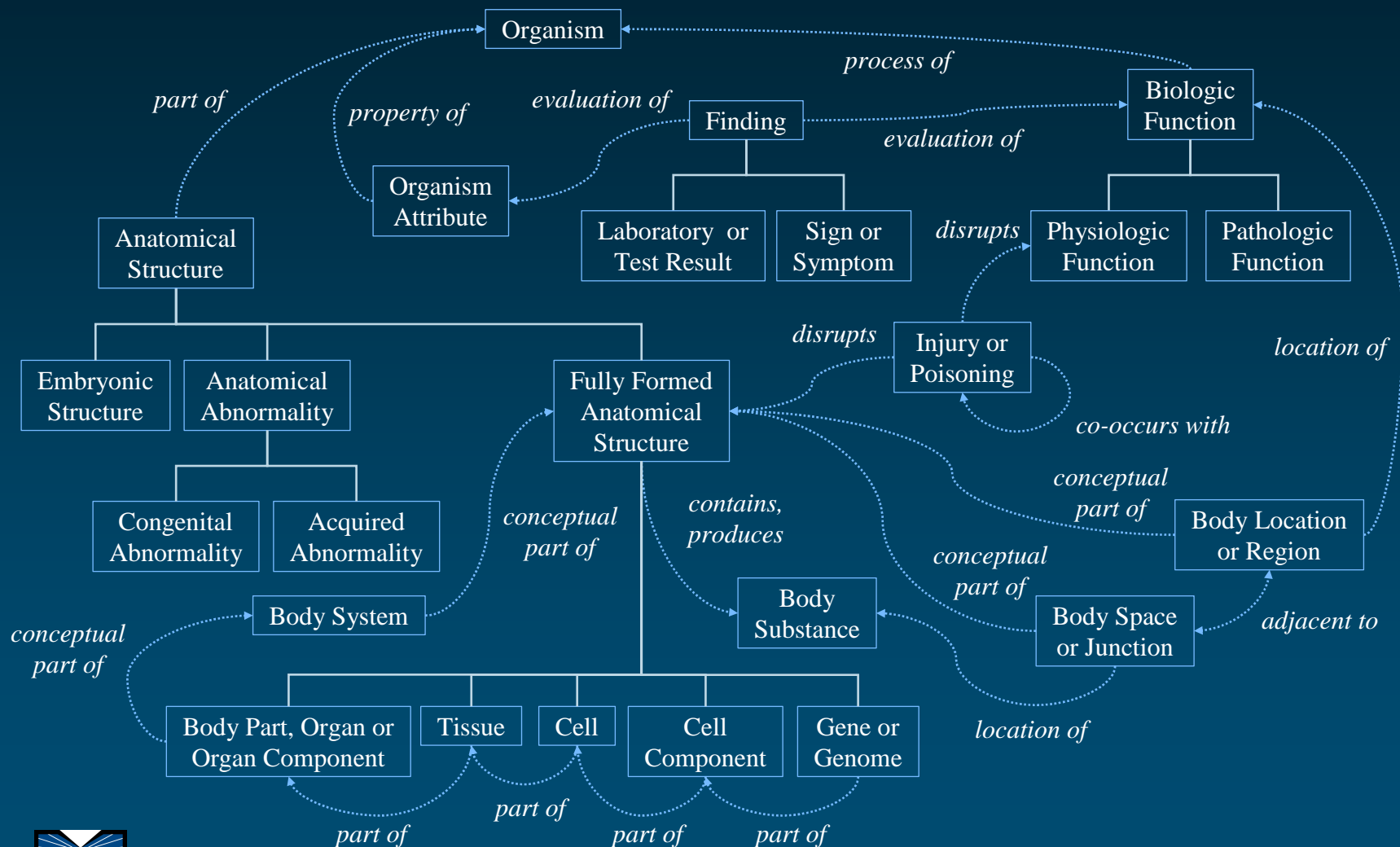
◆ Semantic network relationships (54)

- 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)



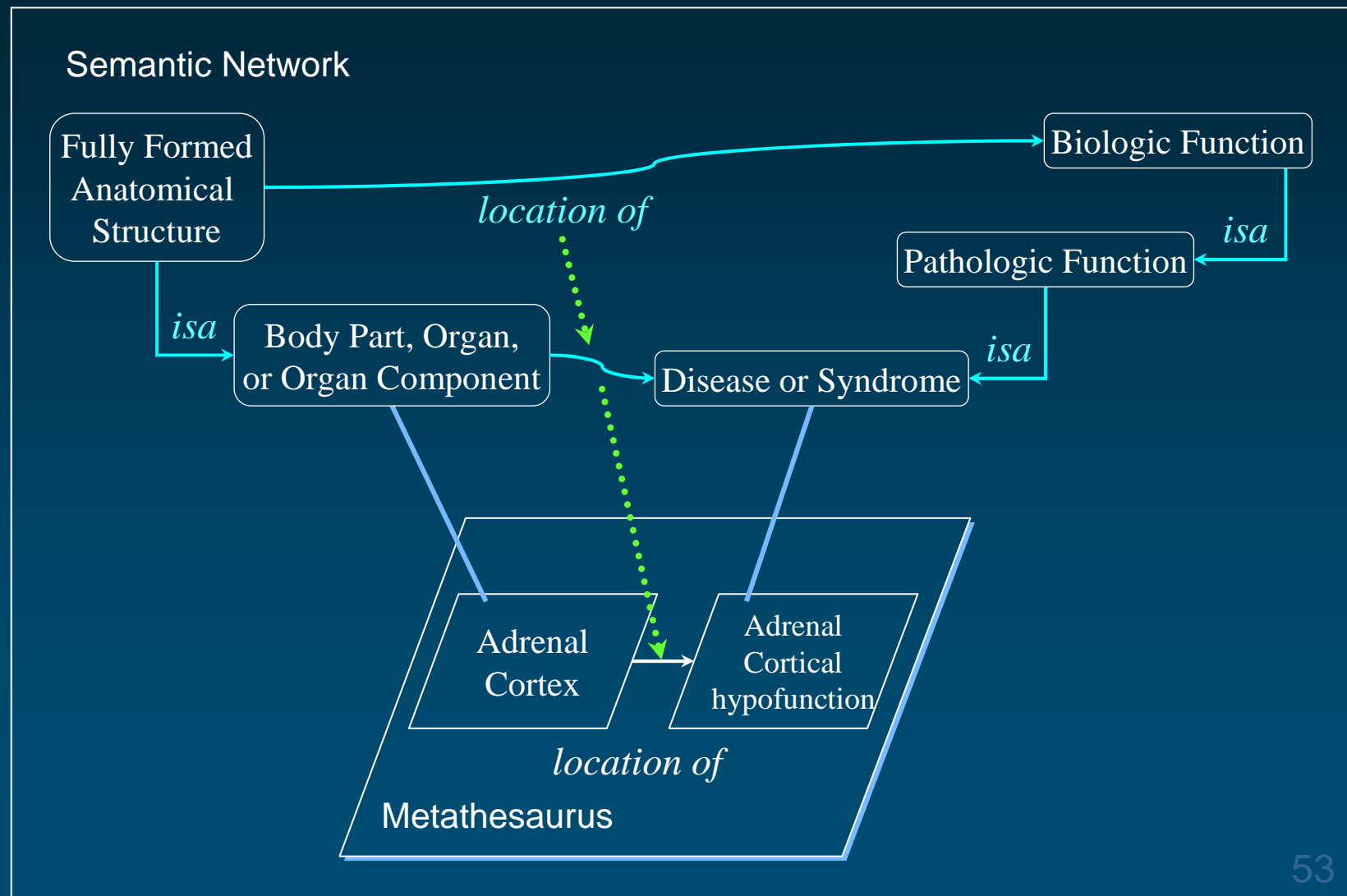
Associative (non-isa) relationships



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

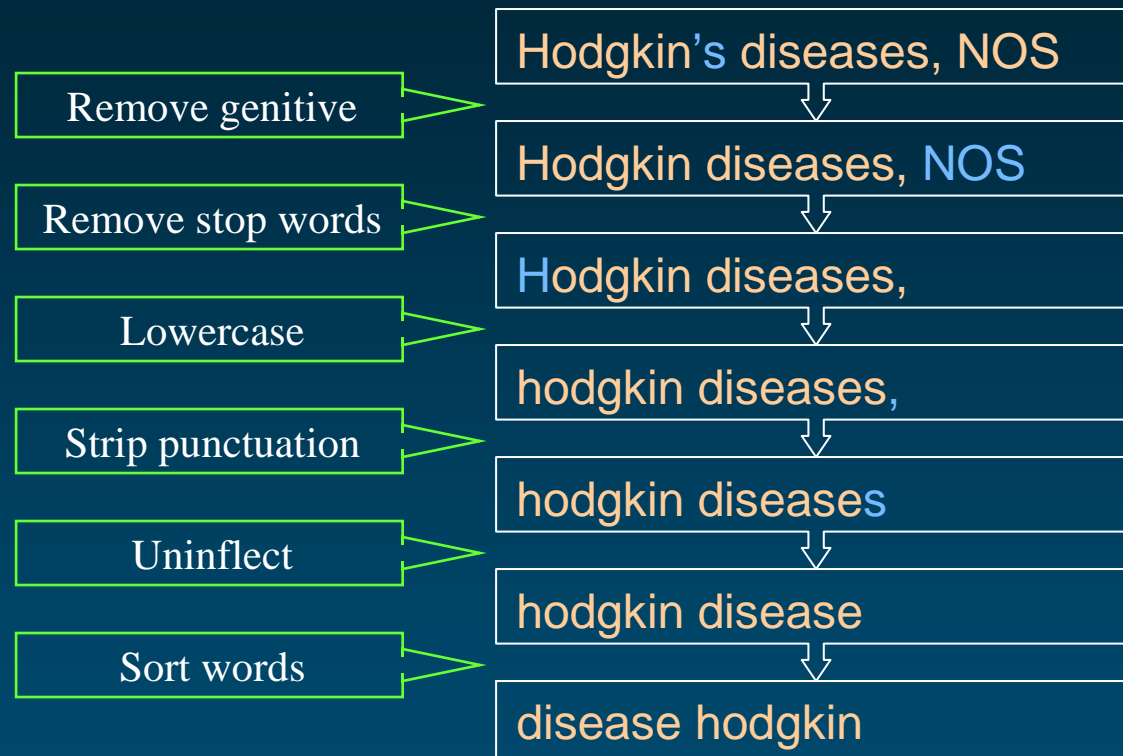
◆ Position for adjectives



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

Accept and continue

Accept


 **Printer-friendly Version**

Submit

- 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)
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new SNOMED category

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Accept and continue

Not accept

Last updated: 26 March 2004

First published: 01 January 1997

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[National Institutes of Health](#), [Health & Human Services](#)

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

Contact: 2025 Mojito; Email: e-mail: chandra@biostat.washington.edu; <http://sigbiostat.washington.edu/projects/adj>

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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- *unrestricted*

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- *negotiate to translate*

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- *negotiate to use in health data creation*

◆ Level 3 (30.6%)

- *negotiate to use in production*
- *Explicitly prohibited to provide Internet access*

◆ Level 4 (39.2%)

- *unrestricted for U.S. use and distribution*

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

UMLSKS Web search interface

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



UMLSKS Web search interface log in

UMLS Knowledge Source Server (UMLSKS)
National Library of Medicine

About the UMLSKS

- [Login](#)
- [Overview](#)
- [Frequently Asked Questions](#)
- [UMLS Metathesaurus®](#)
- [Semantic Network](#)
- [SPECIALIST Lexicon](#)

Documentation

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

UMLSKS Registered Users

Login ID:
Password:

Login
[Forgot your password?](#)

What's New

- UMLSKS Version 4.2 released on 07/12/04. Look [here](#) for a list of new features and bug fixes.
- 2004AA Metathesaurus – including SNOMED CT® – now available to download for those that have signed the new license agreement!
- Existing users may click on the [Forgotten your password link](#) (above) and enter the new license

New UMLSKS Users

The UMLSKS is restricted to registered users. If you are not a registered user and would like to use resources of the UMLS, please read the [UMLS license agreement](#), obtain a UMLS license number, and fill in the form below to request a UMLSKS user account.

Login ID:
Password:
Confirm Password:
First Name:
Last Name:

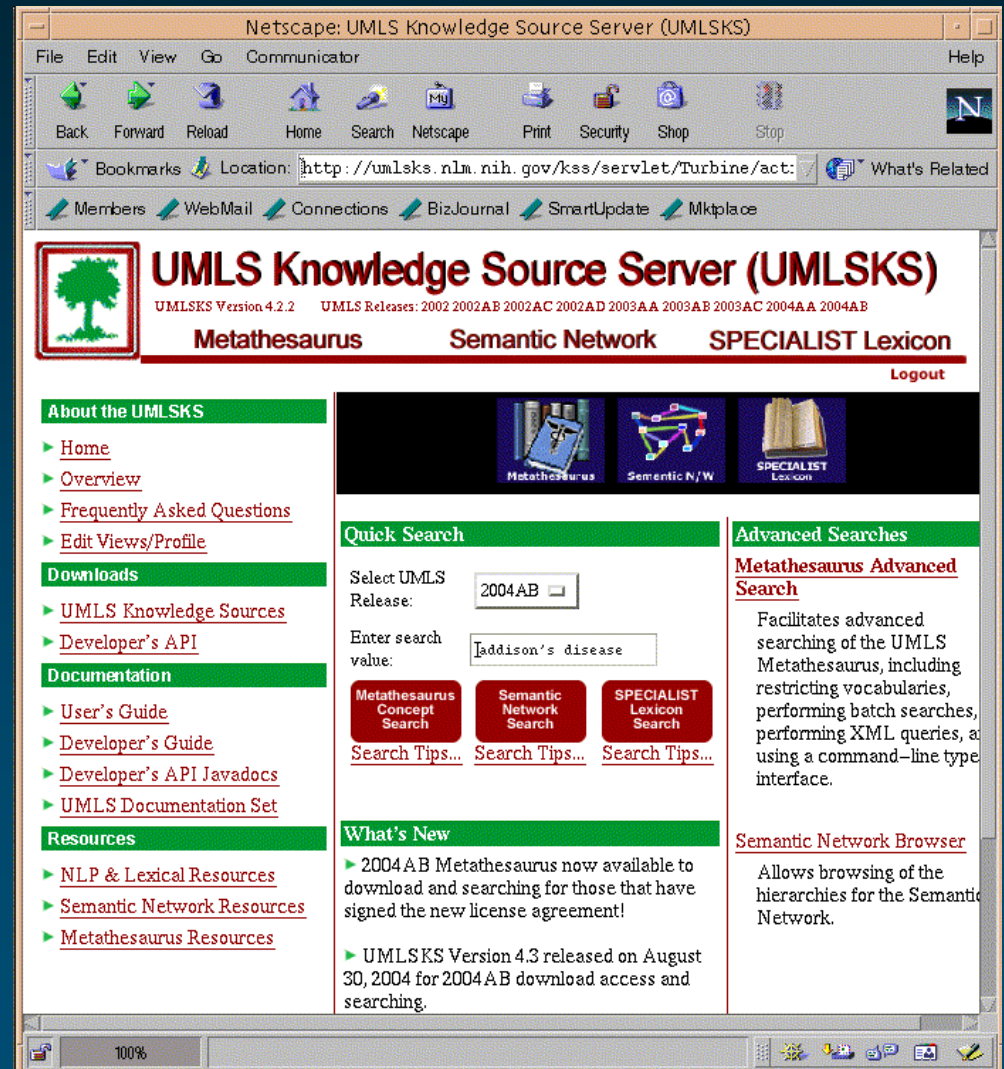
Request Account

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 (UMLSKS)

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

Metathesaurus Semantic Network SPECIALIST Lexicon

[Logout](#)

About the UMLSKS

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- [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.

[Semantic Network Browser](#)

Allows browsing of the hierarchies for the Semantic Network.

What's New

- ▶ 2004AB 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 2004AB download access and searching.

Metathesaurus Basic Search

Addison's disease

The screenshot displays the UMLS Knowledge Source Server (UMLSKS) interface. The header includes the UMLSKS logo, version information (UMLSKS Version 4.2), and release dates (2002, 2002AB, 2002AC, 2002AD, 2003AA, 2003AB, 2003AC, 2004AA). The main navigation bar features links for Metathesaurus, Semantic Network, and SPECIALIST Lexicon, along with a Logout button. The left sidebar contains links for About the UMLSKS, Downloads, Documentation, and Resources. The main content area is divided into sections for Quick Search and Advanced Searches. The Quick Search section includes a dropdown for Select UMLS Release (set to 2004AA) and a text input for Enter search value. The Advanced Searches section includes a dropdown for Select UMLS Release (set to 2004AB) and a text input for Enter search value (containing 'Addison's disease'). Below the search inputs are three buttons: Metathesaurus Concept Search, Semantic Network Search, and SPECIALIST Lexicon Search. Each button has a corresponding 'Search Tips...' link. The bottom status bar shows 'Document: Don'.

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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Overview
Frequently Asked Questions
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UMLS Knowledge Sources
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Documentation
User's Guide
Developer's Guide
Developer's API Javadocs
UMLS Documentation Set

Resources
NLP & Lexical Resources
Semantic Network Resources
Metathesaurus Resources

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

Advanced Searches
Metathesaurus Advanced Search
Facilitates advanced searching of the UMLS Metathesaurus including restricting

Select UMLS Release: 2004AB
Enter search value: Addison's disease

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*

The screenshot shows the UMLS Knowledge Source Server (UMLSKS) interface. The header includes the UMLSKS logo, version 4.2.2, and release information. The main navigation bar contains 'Metathesaurus', 'Semantic Network', and 'SPECIALIST Lexicon'. The search results for 'Addison's disease' in UMLS Release 2004AB are displayed. The left sidebar contains filters for 'Concept', 'Context', and 'Relations'. The main content area shows the following information:

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

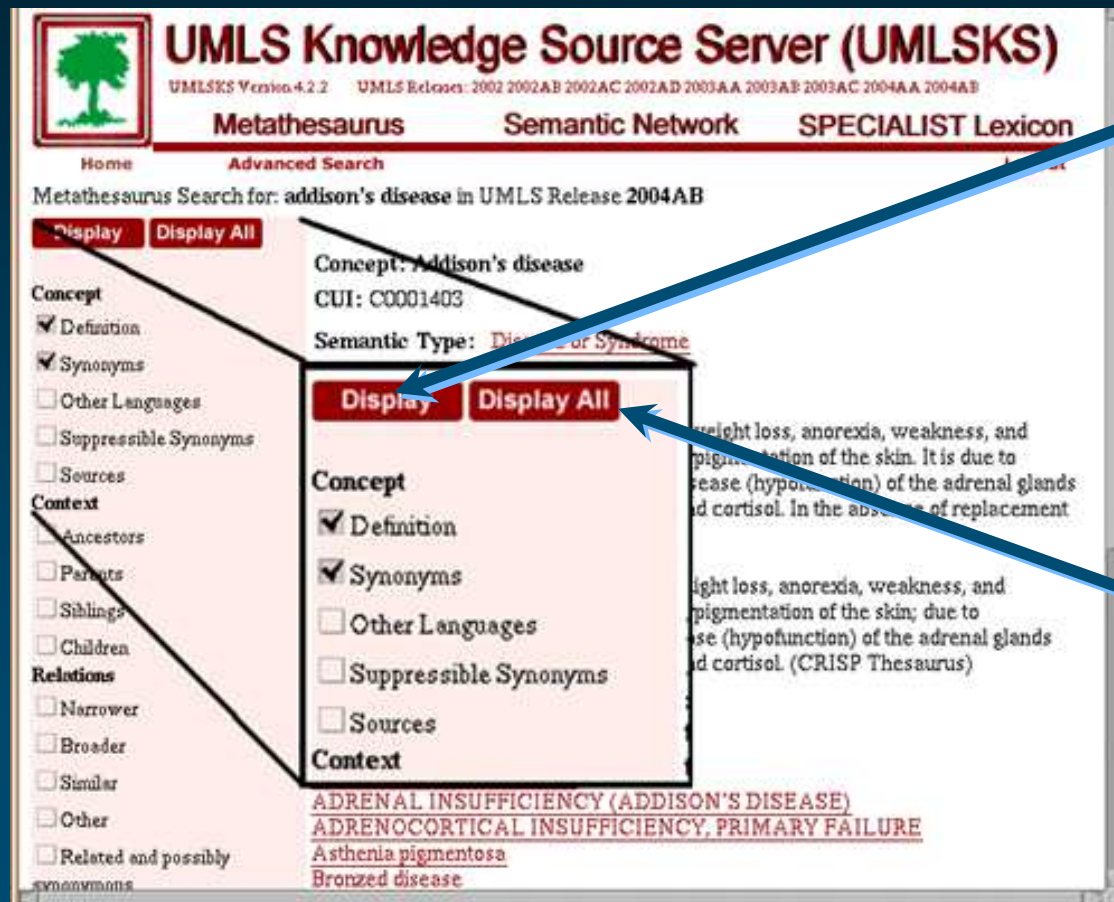
Concept Name
/CUI

Semantic
Type(s)

Definition(s)

Synonyms

Display All



“Display”
shows results
for selected
options

“Display All”
shows results
for all available
options

Metathesaurus Basic Search

Adrenal gland insufficiency

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

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 inssuficiency

Perform Concept Search

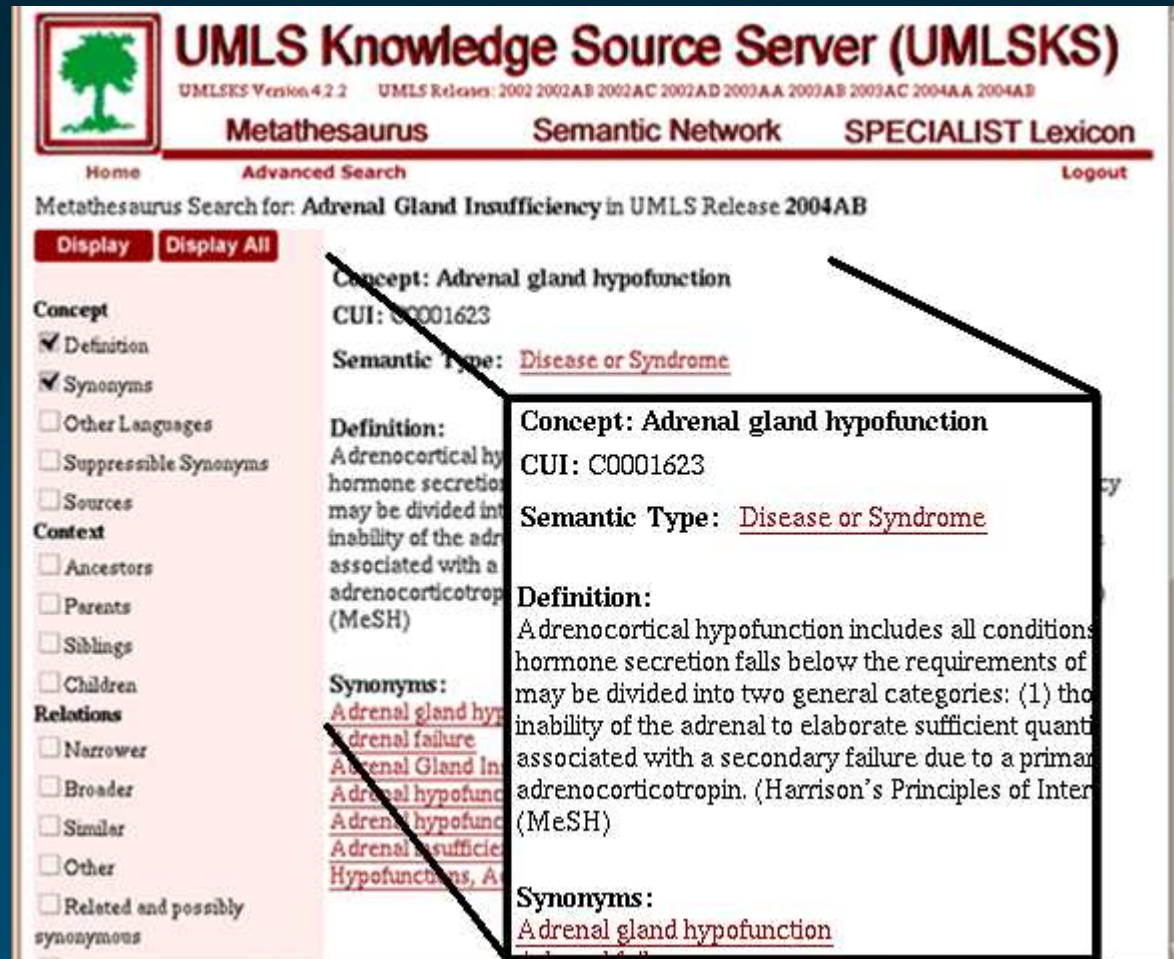
1. The normalized string index is searched for the input string (English only).
2. If not found, then the normalized word index is searched for the input string (English only).
3. If not found, then a spelling check is performed on the input string.

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. The header includes the UMLSKS logo, version information (4.2.2), release dates (2002AB, 2002AC, 2002AD, 2003AA, 2003AB, 2003AC, 2004AA, 2004AB), and navigation links for Metathesaurus, Semantic Network, and SPECIALIST Lexicon. A search for 'Adrenal Gland Insufficiency' in UMLS Release 2004AB is shown. The left sidebar contains filters for Concept (Definition, Synonyms, Other Languages, Suppressible Synonyms, Sources), Context (Ancestors, Parents, Siblings, Children), and Relations (Narrower, Broader, Similar, Other, Related and possibly synonymous). The main content area shows the concept 'Adrenal gland hypofunction' with CUI: C0001623 and Semantic Type: Disease or Syndrome. A definition is provided: '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; (2) the inability of the adrenal to elaborate sufficient quantities of hormone associated with a secondary failure due to a primary defect of the hypothalamic-pituitary axis. (Harrison's Principles of Internal Medicine, 14th ed.) (MeSH)'. A list of synonyms is also shown: Adrenal gland hypofunction, Adrenal failure, Adrenal Gland Insufficiency, Adrenal hypofunction, Adrenal insufficiency, Adrenal insufficiency, Hypofunctions, Adrenal.

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: Adrenal Gland Insufficiency in UMLS Release 2004AB
Display Display All

Concept
☒ Definition
☒ Synonyms
☐ Other Languages
☐ Suppressible Synonyms
☐ Sources

Context
☐ Ancestors
☐ Parents
☐ Siblings
☐ Children

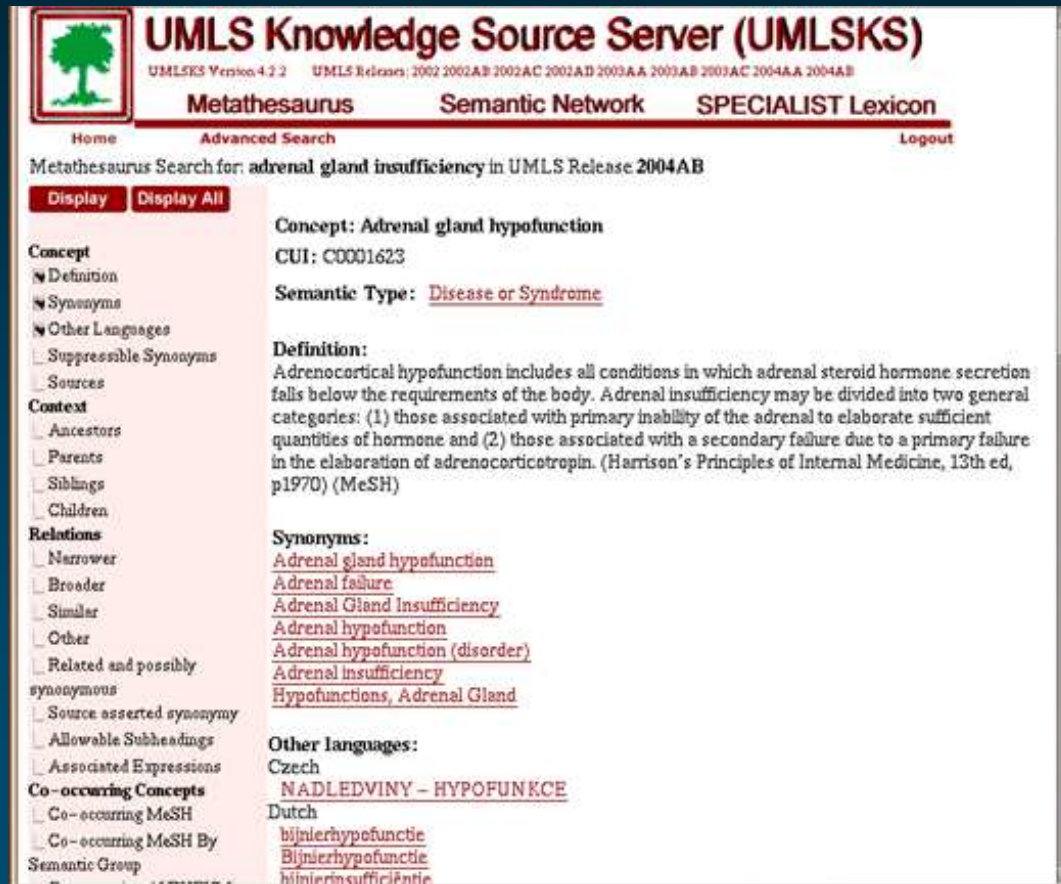
Relations
☐ Narrower
☐ Broader
☐ Similar
☐ Other
☐ Related and possibly synonymous

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; (2) the inability of the adrenal to elaborate sufficient quantities of hormone associated with a secondary failure due to a primary defect of the hypothalamic-pituitary axis. (Harrison's Principles of Internal Medicine, 14th ed.) (MeSH)

Synonyms:
Adrenal gland hypofunction
Adrenal failure
Adrenal Gland Insufficiency
Adrenal hypofunction
Adrenal insufficiency
Adrenal insufficiency
Hypofunctions, Adrenal

Concept Report Display All *Adrenal Gland Insufficiency*



The screenshot displays the UMLS Knowledge Source Server (UMLSKS) interface. The header includes the UMLSKS logo, version information (4.2.2), release dates (2002, 2003, 2004), and navigation links for Metathesaurus, Semantic Network, and SPECIALIST Lexicon. The search results show the concept 'Adrenal gland hypofunction' with CUI: C0001623 and Semantic Type: Disease or Syndrome. The definition states: '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 listed include 'Adrenal gland hypofunction', 'Adrenal failure', 'Adrenal Gland Insufficiency', 'Adrenal hypofunction', 'Adrenal hypofunction (disorder)', 'Adrenal insufficiency', and 'Hypofunctions, Adrenal Gland'. Other languages shown are Czech ('NADLEDVINY - HYPOFUNKCE') and Dutch ('bijnierhypofunctie', 'Bijnierhypofunctie', 'bijnierinsufficiëntie'). The left sidebar contains navigation links for Concept, Definition, Synonyms, Other Languages, Suppressible Synonyms, Sources, Context, Ancestors, Parents, Siblings, Children, Relations, Narrower, Broader, Similar, Other, Related and possibly synonymous, Source asserted synonymy, Allowable Subheadings, Associated Expressions, Co-occurring Concepts, Co-occurring MeSH, Co-occurring MeSH By Semantic Group, and Home.

- ◆ 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



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 НЕДОСТАТОЧНОСТЬ

Spanish
hipofuncion adrenal
hipofunción adrenal
Hipofunción de las Glándulas Suprarrenales
hipofuncion suprarrenal
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

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

Concept Report Display All (continued)

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 disorders
- Adrenal gland disorders
- Adrenal cortex disorders
- Adrenal insufficiency

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

- Metabolism and nutrition disorders
- Metabolic disorders
- Metabolic diseases
- Adrenal disorders

NCI Thesaurus

- 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:]
Hypoaldosteronism (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:]
Hypoaldosteronism (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 web interface for a concept report. On the left is a large, empty pink rectangular area. To its right, a list of terms is displayed in red, underlined text: psychology, radiography, radionuclide imaging, radiotherapy, rehabilitation, surgery, therapy, urine, veterinary, ultrasonography, and virology. Below this list, the text "Associated Expressions: None found." is visible. Further down, the section "Co-occurring MeSH Terms:" is shown. It contains a list of terms with numbers in brackets to their left: [64] Corticotropin, [57] Hydrocortisone, [38] Glucocorticoids, [31] Esophageal achalasia, [30] Dog Diseases, [28] Adrenal Glands, [27] Anti-Inflammatory Agents, [26] DNA-Binding Proteins, [25] Repressor Proteins, [25] TRANSCRIPTION, [24] Retinoic Acid Receptors, [23] Pituitary-Adrenal Axis, [21] Lacrimal Apparatus, [20] Hypothalamic Hypophyseal Region, [19] Postoperative Complications, and [18] Adrenal Gland Neoplasms. A black rectangular box highlights the terms from [64] to [28]. A black line points from the word "Co-occurrence" in the text on the left to this highlighted box.

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

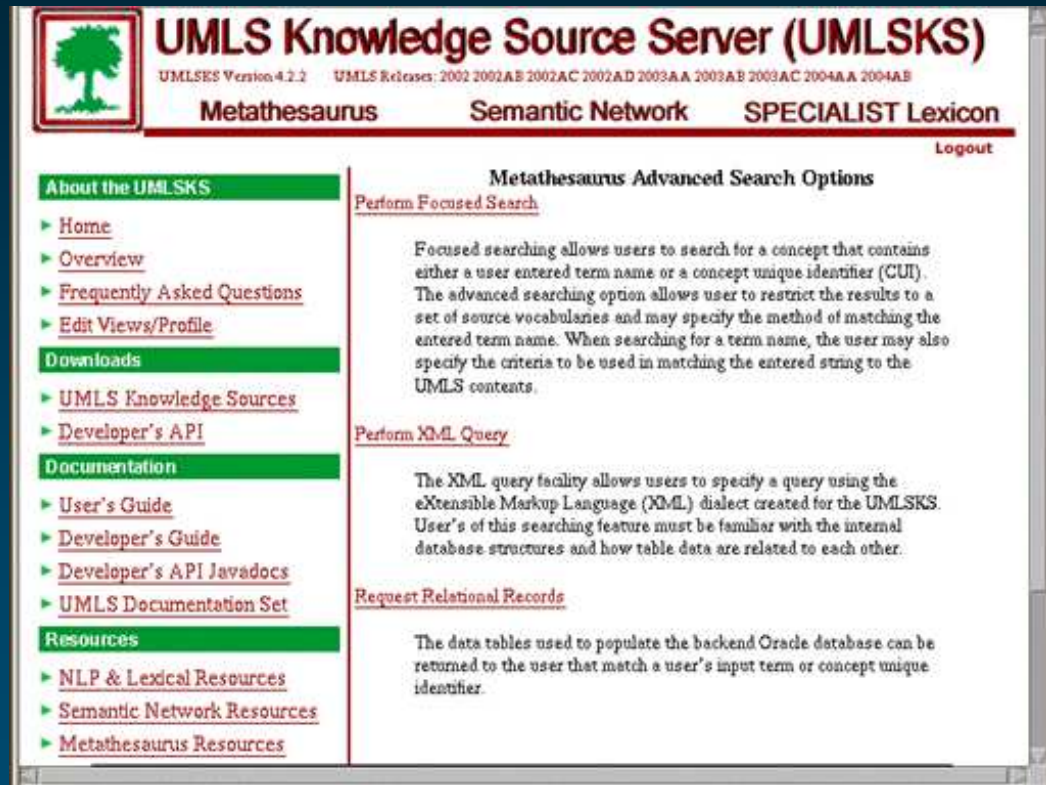
Associated Expressions: None found.

Co-occurring MeSH Terms:

[64] Corticotropin
[57] Hydrocortisone
[38] Glucocorticoids
[31] Esophageal achalasia
[30] Dog Diseases
[28] Adrenal Glands
[27] Anti-Inflammatory Agents
[26] DNA-Binding Proteins
[25] Repressor Proteins
[25] TRANSCRIPTION
[24] Retinoic Acid Receptors
[23] Pituitary-Adrenal Axis
[21] Lacrimal Apparatus
[20] Hypothalamic Hypophyseal Region
[19] Postoperative Complications
[18] Adrenal Gland Neoplasms

Metathesaurus Advanced Search Options

- ◆ Focused Search
- ◆ Raw Relational Records



The screenshot displays the UMLS Knowledge Source Server (UMLSKS) interface. The header includes the UMLSKS logo, version information (UMLSKS Version 4.2.2), release dates (2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB), and navigation links for Metathesaurus, Semantic Network, and SPECIALIST Lexicon. A 'Logout' link is also present.

The main content area is titled 'Metathesaurus Advanced Search Options' and is divided into two columns. The left column contains a sidebar with links for 'About the UMLSKS' (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), and 'Resources' (NLP & Lexical Resources, Semantic Network Resources, Metathesaurus Resources).

The right column contains three sections:

- Perform Focused Search:** Describes focused searching, which allows users to search for a concept containing a user-entered term name or a concept unique identifier (CUI). It also mentions that the advanced searching option allows users to restrict results to a set of source vocabularies and specify the method of matching the entered term name. When searching for a term name, users may also specify criteria for matching the entered string to the UMLS contents.
- Perform XML Query:** Describes the XML query facility, which allows users to specify a query using the eXtensible Markup Language (XML) dialect created for the UMLSKS. It notes that users must be familiar with the internal database structures and how table data are related to each other.
- Request Relational Records:** Describes the facility to return data tables used to populate the backend Oracle database, matching a user's input term or concept unique identifier.

Metathesaurus Advanced Search Feature

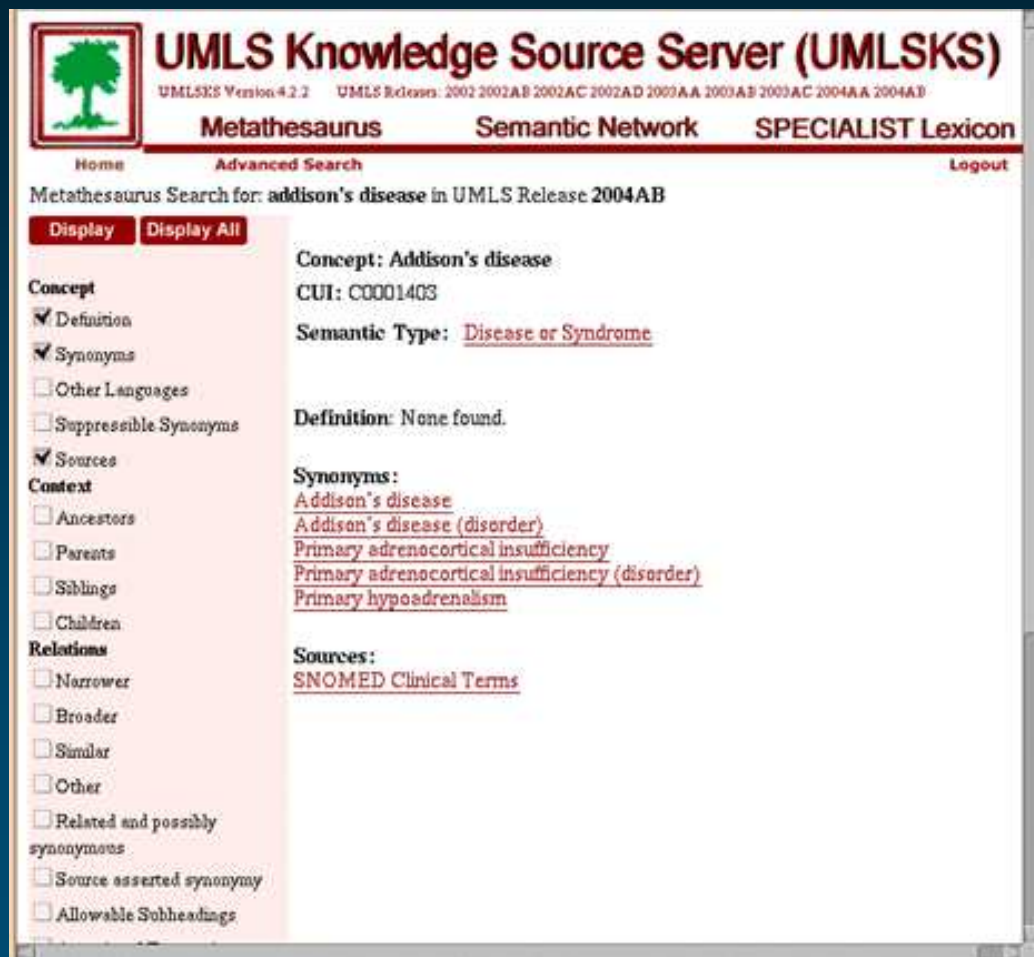
Focused Search

The screenshot shows the UMLS Knowledge Source Server (UMLS KS) Focused Search interface. The header includes the UMLS KS logo, version information (UMLS Version 4.2.2, UMLS Release 2002AB, 2002AC, 2002AD, 2003AA, 2003AB, 2003AC, 2004AA, 2004AB), and navigation links for Metathesaurus, Semantic Network, and SPECIALIST Lexicon. A sidebar on the left contains links for About the UMLS KS, Downloads, Documentation, and Resources. The main search area is titled 'Metathesaurus Focused Search:' and contains five numbered steps: 1) Select UMLS Release (2004AB), 2) Enter a term or a concept unique identifier (CUI) (I), 3) Restrict source vocabulary (All Source Vocabularies), 4) String Matching Criteria (Normalized string index), and 5) Language (English). There are two red buttons at the bottom: 'Perform Concept Search' and 'Perform Term Search'. A footer 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

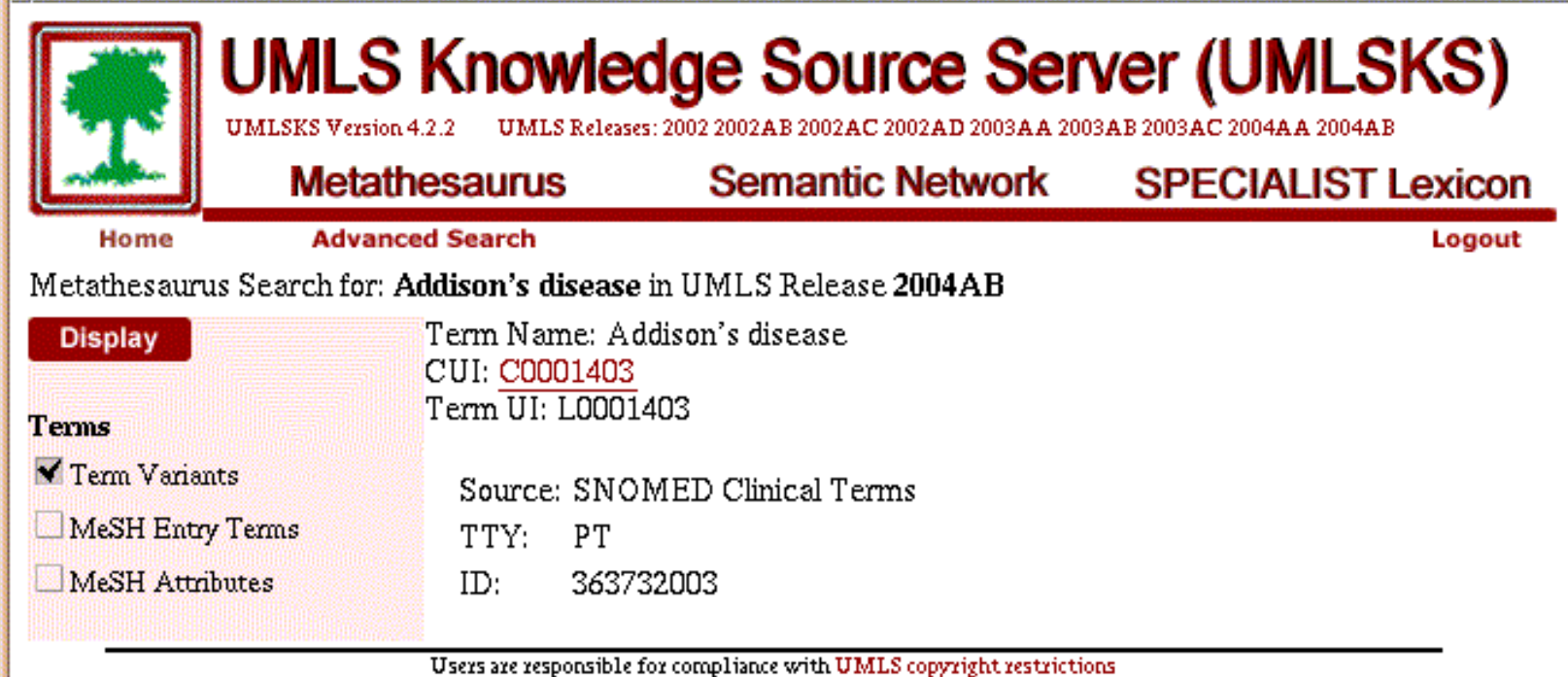


The screenshot displays the UMLS Knowledge Source Server (UMLSKS) interface. At the top, the header includes the UMLSKS logo, version 4.2.2, and release information (2002, 2002AB, 2002AC, 2002AD, 2003AA, 2003AB, 2003AC, 2004AA, 2004AB). Navigation links for Home, Advanced Search, and Logout are present. The main search area shows the results for 'addison's disease' in UMLS Release 2004AB. On the left, a sidebar contains checkboxes for various options: Concept (Definition, Synonyms, Other Languages, Suppressible Synonyms, Sources), Context (Ancestors, Parents, Siblings, Children), Relations (Narrower, Broader, Similar, Other, Related and possibly synonyms), and Source asserted synonymy/Allowable Subheadings. The main content area displays the following information: 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, and 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



The screenshot shows the UMLS Knowledge Source Server (UMLSKS) interface. At the top, there is a logo of a tree and the title "UMLS Knowledge Source Server (UMLSKS)". Below the title, it says "UMLSKS Version 4.2.2" and "UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB". There are three main navigation links: "Metathesaurus", "Semantic Network", and "SPECIALIST Lexicon". Below these, there are links for "Home", "Advanced Search", and "Logout". The main content area shows a search result for "Addison's disease" in UMLS Release 2004AB. A "Display" button is visible. The search results show the Term Name: Addison's disease, CUI: C0001403, and Term UI: L0001403. There are also checkboxes for "Term Variants", "MeSH Entry Terms", and "MeSH Attributes". The source is listed as "SNOMED Clinical Terms", the TTY is "PT", and the ID is "363732003". At the bottom, a disclaimer states: "Users are responsible for compliance with UMLS copyright restrictions".

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

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

The screenshot shows 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", with a "Logout" link on the right.

On the left side, there is a sidebar with several sections:

- About the UMLSKS**
 - 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

The main content area is titled "Metathesaurus Relational Records Request:". It contains two steps:

- 1) Enter a term or concept unique identifier (CUI):
- 2) Select the UMLS table whose raw records are to be returned:

A dropdown menu is shown next to the second step, listing the following tables: **mrconso**, mrdet, mrsty, mrcd, mrrel, mrset, and mrcoc. A red button labeled "Perform Concept Search" is positioned to the left of the dropdown.

Below the dropdown, there is a paragraph: "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."

At the bottom, another paragraph states: "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 MRCONSO.RRF

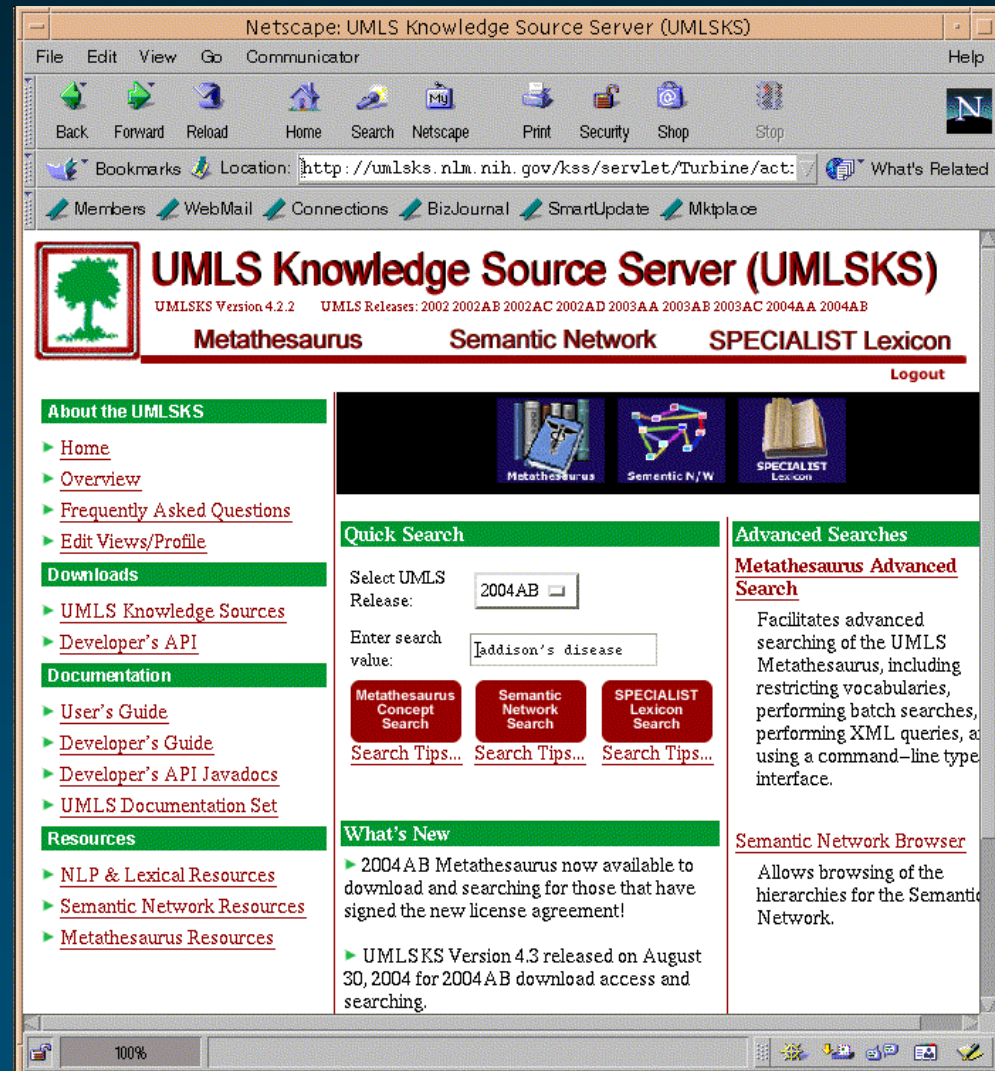
```

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||

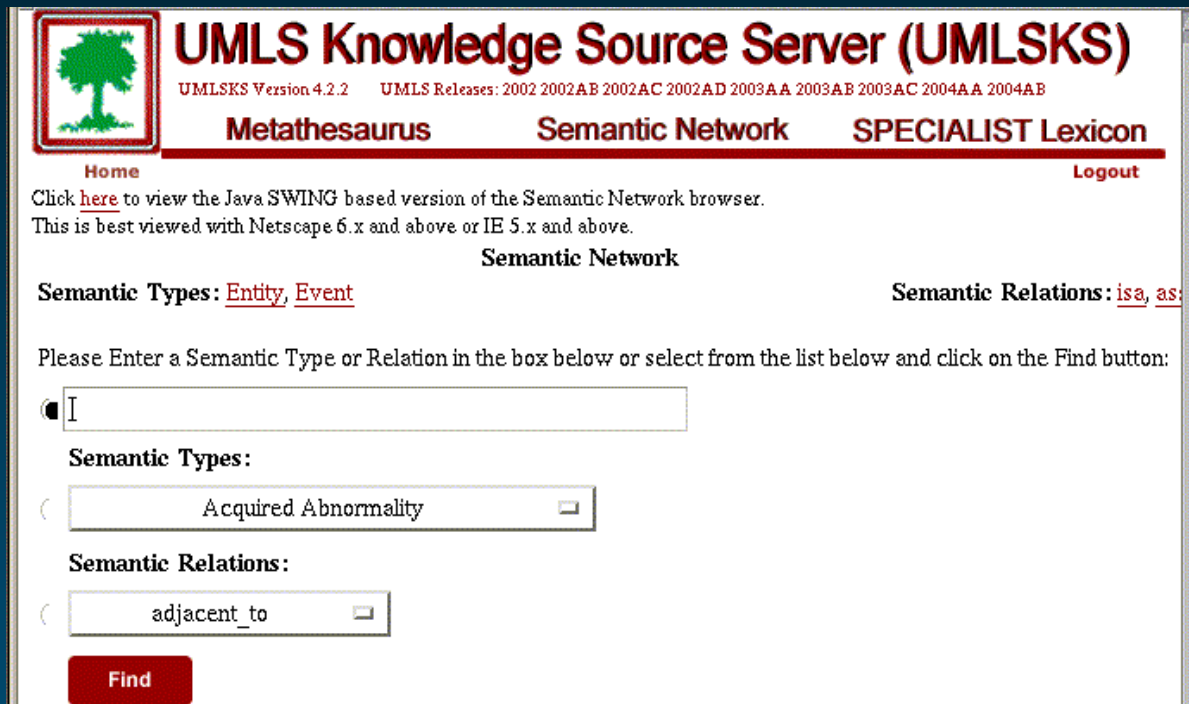
```


Semantic Network Searching

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



Semantic Network Search



The screenshot shows 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 links for "Home" and "Logout".

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.

Semantic Network

Semantic Types: [Entity](#), [Event](#) Semantic Relations: [isa](#), [as](#)

Please Enter a Semantic Type or Relation in the box below or select from the list below and click on the Find button:

Semantic Types:

()

Semantic Relations:

()

- ◆ 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. Below these, 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." A "Logout" link is also present.

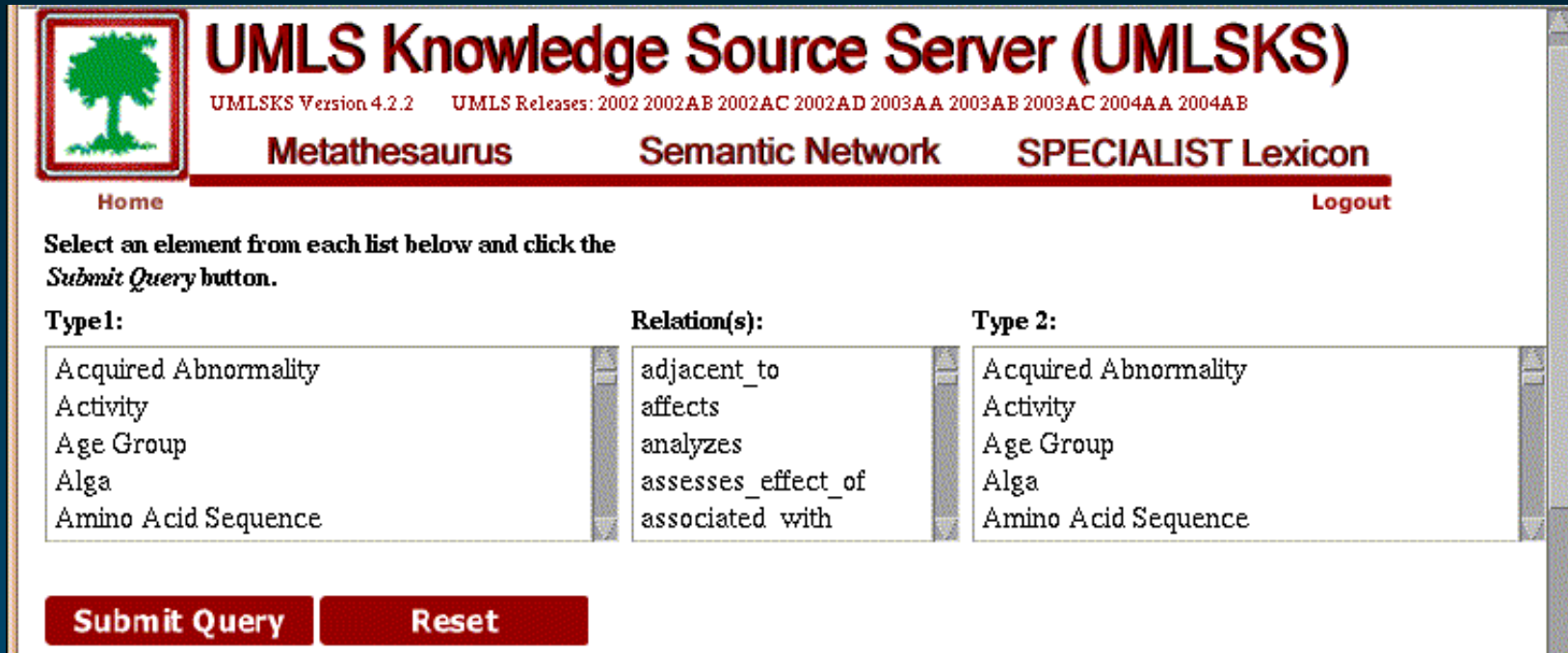
The main content area is titled "Semantic Types: [Entity](#), [Event](#)". Below this, a prompt says "Please Enter a Semantic Type or Relation in the". There are two input fields: "Semantic Types:" and "Semantic Relations:". The "Semantic Relations:" field has a dropdown menu with "adjacent_to" selected. A red "Find" button is located below the input fields.

On the left side, there is a hierarchical list of Semantic Types: [Entity](#), [Physical Object](#), [Organism](#), [Plant](#), [Alga](#), [Fungus](#), [Virus](#), [Rickettsia or Chlamydia](#), [Bacterium](#), [Animal](#), [Invertebrate](#), [Vertebrate](#), [Amphibian](#), [Bird](#), [Fish](#), [Reptile](#), and [Mammal](#).

Two pop-up windows are shown, both displaying the "Semantic Type: Clinical Drug" (TUI: T200). The top pop-up has tabs for "Meta Concepts", "Relations", and "Raw Records". The bottom pop-up also has these tabs. Both pop-ups show the following definition: "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."

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

Show Relations Between Types



The image shows a screenshot of the UMLS Knowledge Source Server (UMLSKS) web interface. At the top, there is a logo of a tree and the title "UMLS Knowledge Source Server (UMLSKS)". Below the title, it says "UMLSKS Version 4.2.2" and "UMLS Releases: 2002 2002AB 2002AC 2002AD 2003AA 2003AB 2003AC 2004AA 2004AB". There are three main navigation links: "Metathesaurus", "Semantic Network", and "SPECIALIST Lexicon". Below these, there are links for "Home" and "Logout". The main content area has a heading "Select an element from each list below and click the Submit Query button." Below this, there are three columns: "Type 1:", "Relation(s):", and "Type 2:". Each column contains a list of semantic types. The "Type 1" and "Type 2" lists are identical and include: "Acquired Abnormality", "Activity", "Age Group", "Alga", and "Amino Acid Sequence". The "Relation(s)" list includes: "adjacent_to", "affects", "analyzes", "assesses_effect_of", and "associated with". At the bottom, there are two buttons: "Submit Query" and "Reset".

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](#) [Logout](#)

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

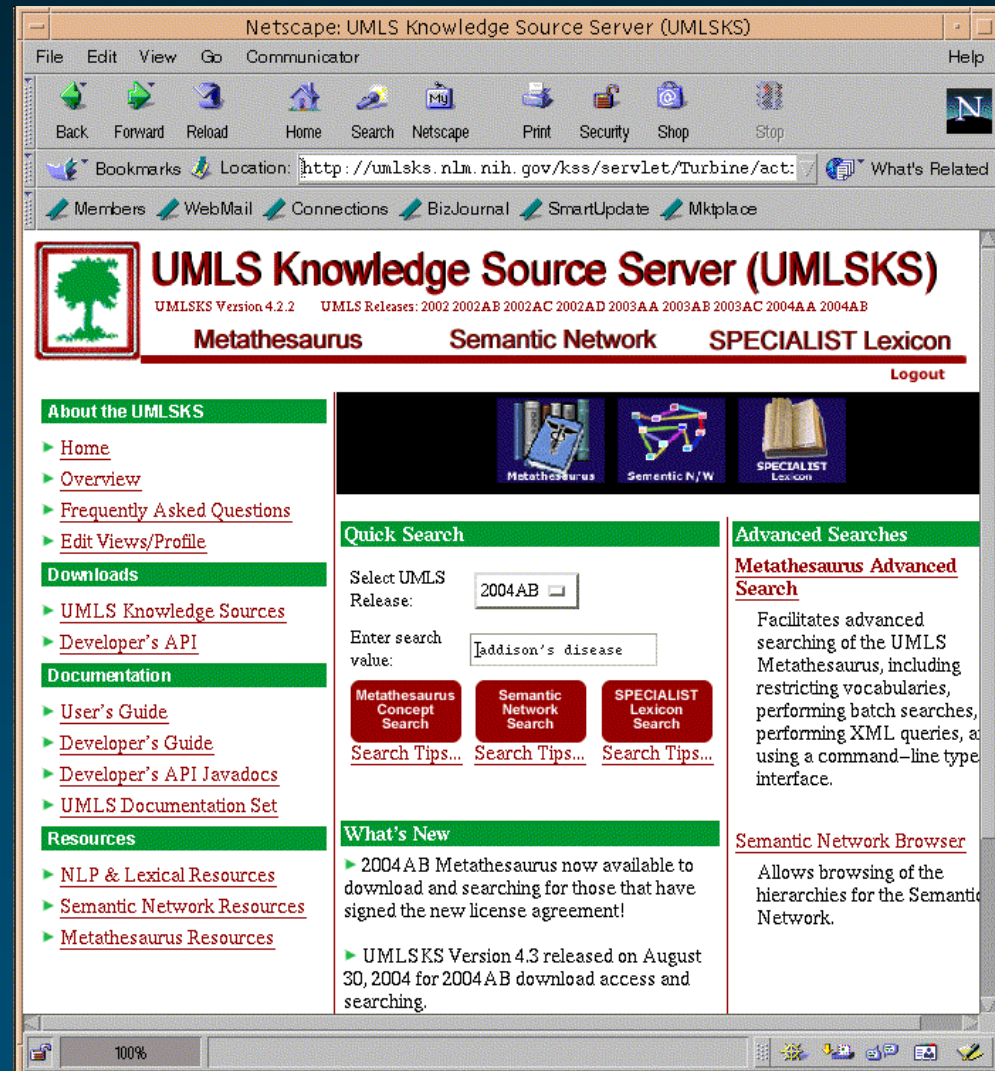
Type 1:	Relation(s):	Type 2:
Acquired Abnormality	adjacent_to	Acquired Abnormality
Activity	affects	Activity
Age Group	analyzes	Age Group
Alga	assesses_effect_of	Alga
Amino Acid Sequence	associated with	Amino Acid Sequence

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



SPECIALIST Lexicon Search



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](#)

About the UMLSKS

- ▶ [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](#)


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

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

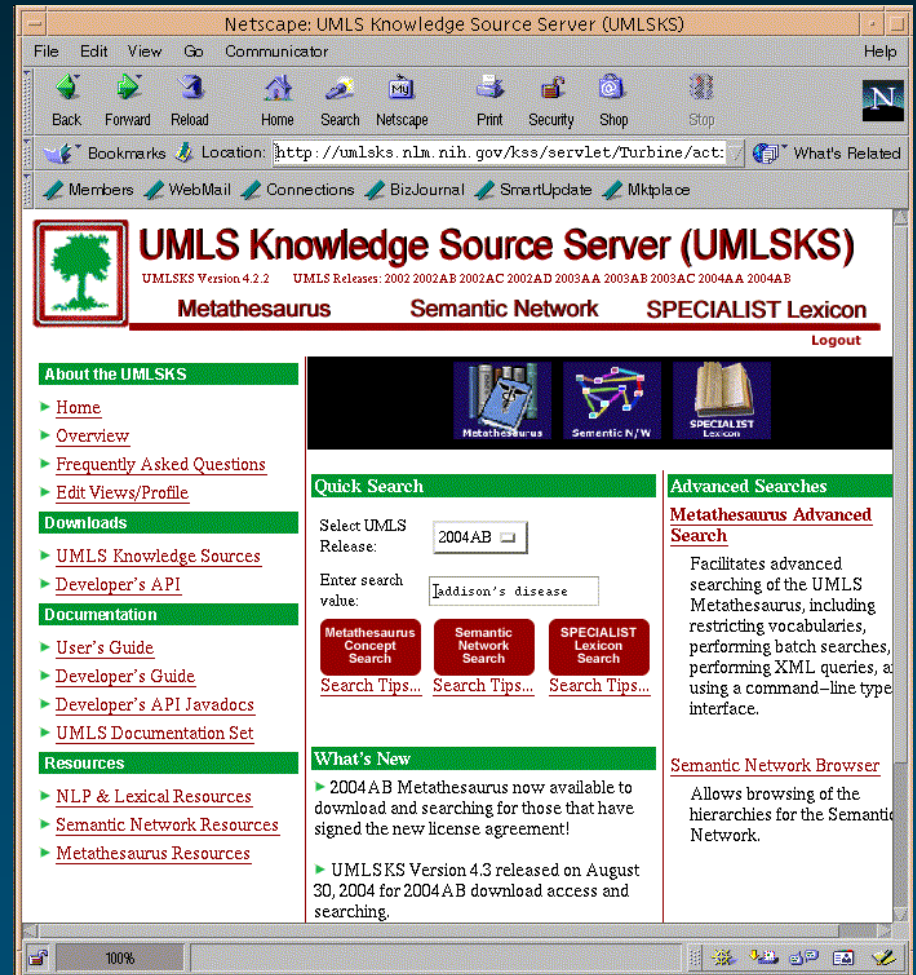
◆ Metathesaurus

- String Properties



Resources

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



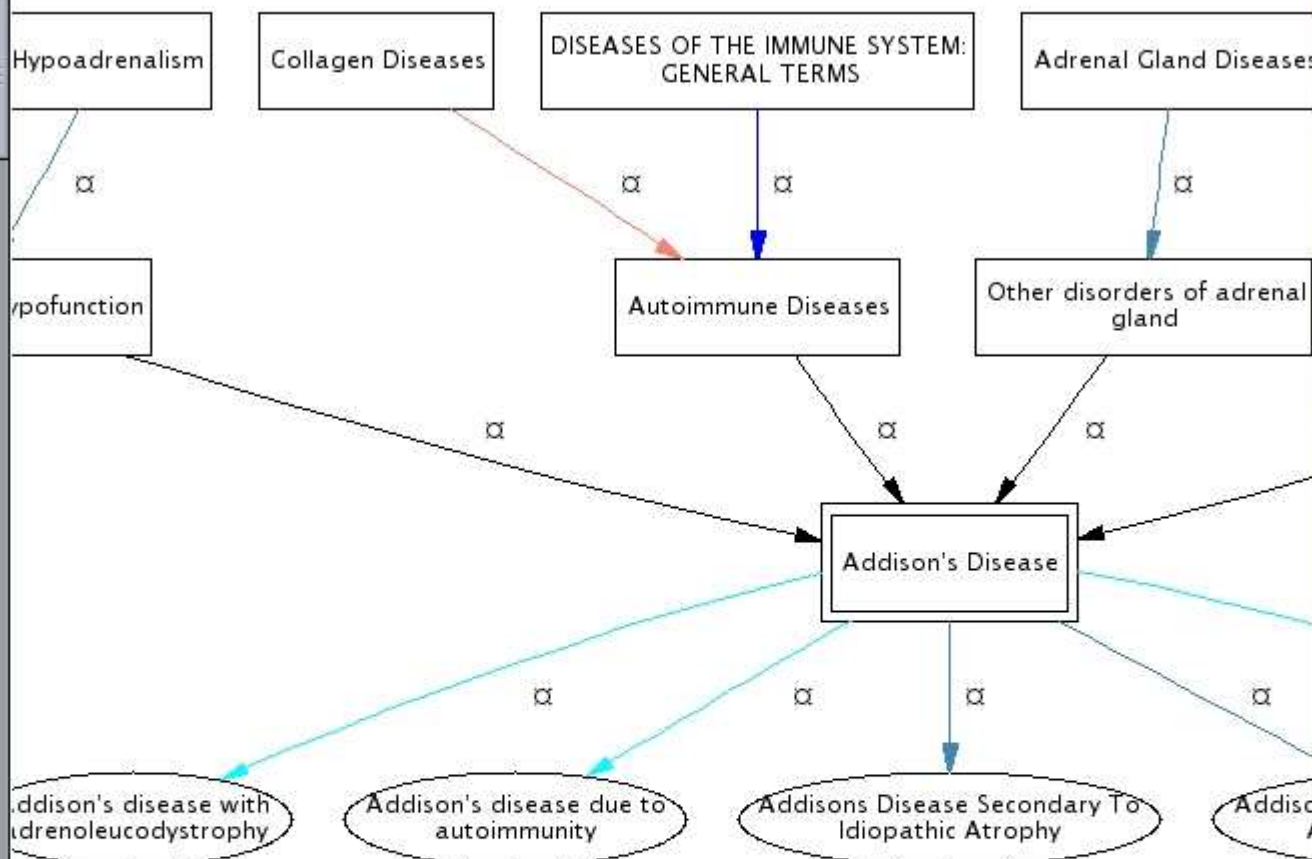
Siblings

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

UMLSKS API basics

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

Java RMI

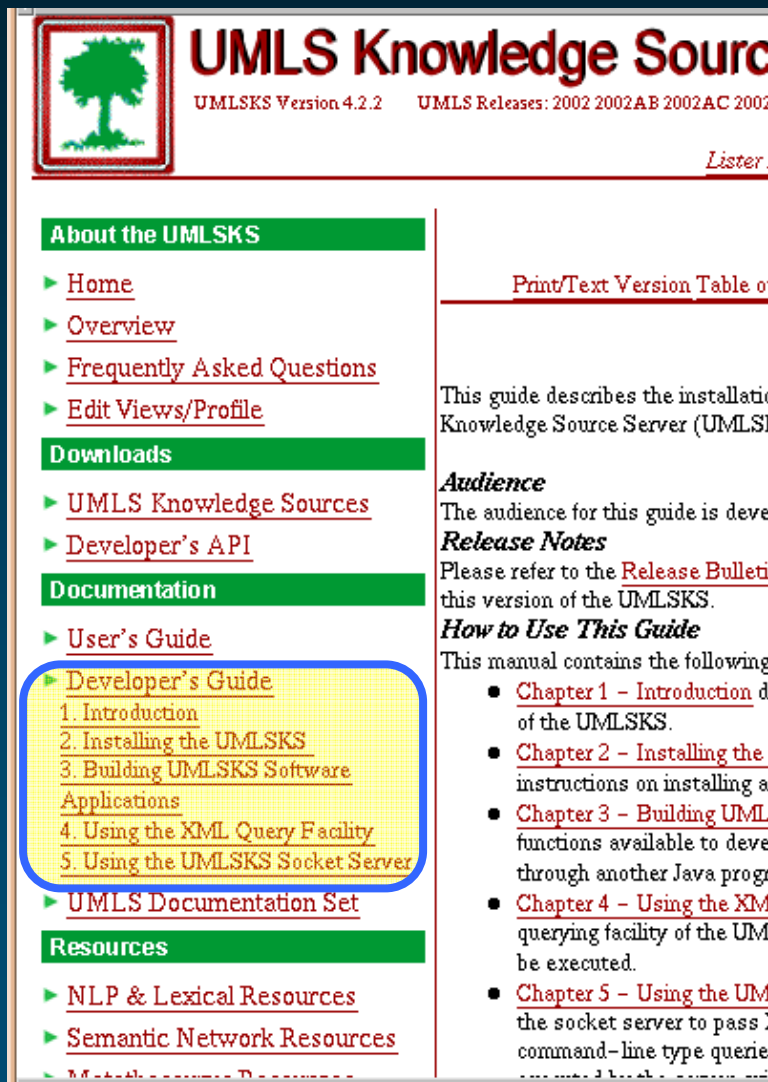
- ◆ Java-based applications
- ◆ Developer's Guide: Chapter 3
- ◆ Set of Java classes (part of the UMLSKS API download)
- ◆ Detailed *Javadoc* documentation online and with API download

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



The screenshot shows the UMLS Knowledge Source website. At the top, there is a logo of a tree and the text "UMLS Knowledge Source". Below this, it says "UMLS Version 4.2.2" and "UMLS Releases: 2002 2002AB 2002AC 2002AD". The main navigation menu on the left includes sections like "About the UMLS", "Downloads", "Documentation", and "Resources". The "Documentation" section is highlighted, and the "Developer's Guide" is selected, showing a list of chapters: 1. Introduction, 2. Installing the UMLS, 3. Building UMLS Software Applications, 4. Using the XML Query Facility, and 5. Using the UMLS Socket Server. The "Developer's Guide" is circled in blue.

UMLS Knowledge Source
UMLS Version 4.2.2 UMLS Releases: 2002 2002AB 2002AC 2002AD

About the UMLS

- Home
- Overview
- Frequently Asked Questions
- Edit Views/Profile

Downloads

- UMLS Knowledge Sources
- Developer's API

Documentation

- User's Guide
- Developer's Guide**
 - 1. Introduction
 - 2. Installing the UMLS
 - 3. Building UMLS Software Applications
 - 4. Using the XML Query Facility
 - 5. Using the UMLS Socket Server
- UMLS Documentation Set

Resources

- NLP & Lexical Resources
- Semantic Network Resources
- Meta-thesaurus Documents

Documentation

- ▶ User's Guide
- ▶ Developer's Guide
 - 1. Introduction
 - 2. Installing the UMLS
 - 3. Building UMLS Software Applications
 - 4. Using the XML Query Facility
 - 5. Using the UMLS Socket Server
- ▶ UMLS Documentation Set

This guide describes the installation of the Knowledge Source Server (UMLS)

Audience

The audience for this guide is developers of UMLS applications using the UMLS 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 UMLS.

How to Use This Guide

This manual contains the following chapters:

- [Chapter 1 - Introduction](#) describes the basic features and architecture of the UMLS.
- [Chapter 2 - Installing the UMLS](#) provides administrators instructions on installing and tailoring a UMLS installation.
- [Chapter 3 - Building UMLS Software Applications](#) describes the functions available to developers wanting to interface to the UMLS through another Java program.
- [Chapter 4 - Using the XML Query Facility](#) describes how to use the querying facility of the UMLS wherein users build XML queries to be executed.
- [Chapter 5 - Using the UMLS 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, which then returns the results back to the client.

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)*

About the UMLSKS

- [Home](#)
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- [Edit Views/Profile](#)

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 - [3. Building UMLSKS Software Applications](#)
 - [4. Using the XML Query Facility](#)
 - [5. Using the UMLSKS Socket Server](#)

Developer's Guide

[Print/Text Version](#) [Table of Contents](#) [About This Guide](#)

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 web interface with two main panels. The left panel contains a sidebar with 'All Classes' and 'All Packages' lists. The right panel shows the 'Overview' page for the 'gov.nih.nlm.kss' package, featuring a table of sub-packages and classes.

Left Panel: All Classes

- [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.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](#)

Right Panel: Overview

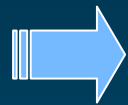
Navigation: [PREV](#) [NEXT](#) [FRAMES](#) [NO FRAMES](#)

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

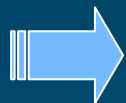
```
<?xml version="1.0"?>  
<getCurrentUMLVersion version="1.0"/>
```



```
<?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>
```

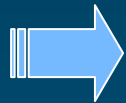


```
<?xml version="1.0"?>
<SemanticTypeCollection version="1.0">
<release>2004AB</release>
<cui>C0033572</cui>
<cn>Prostate</cn>
  <semanticType>
    <tui>T023</tui>
    <sty>Body Part, Organ,
      or Organ Component</sty>
  </semanticType>
</SemanticTypeCollection>
```



Sample XML query (4) Relationships

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

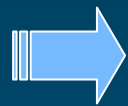


```
<?xml version="1.0"?>
<RelationCollection version="1.0">
  [...]
    <relation>
      <rel>RO</rel>
      <cui2>C0005001</cui2>
      <cn2>Benign prostatic hyperplasia</cn2>
      <rela>has_finding_site</rela>
      <sab>SNOMEDCT</sab>
      <sl>SNOMEDCT</sl>
    </relation>
  [...]
</RelationCollection>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



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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Downloads

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- [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 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 (CUI). 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. Users 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](#)

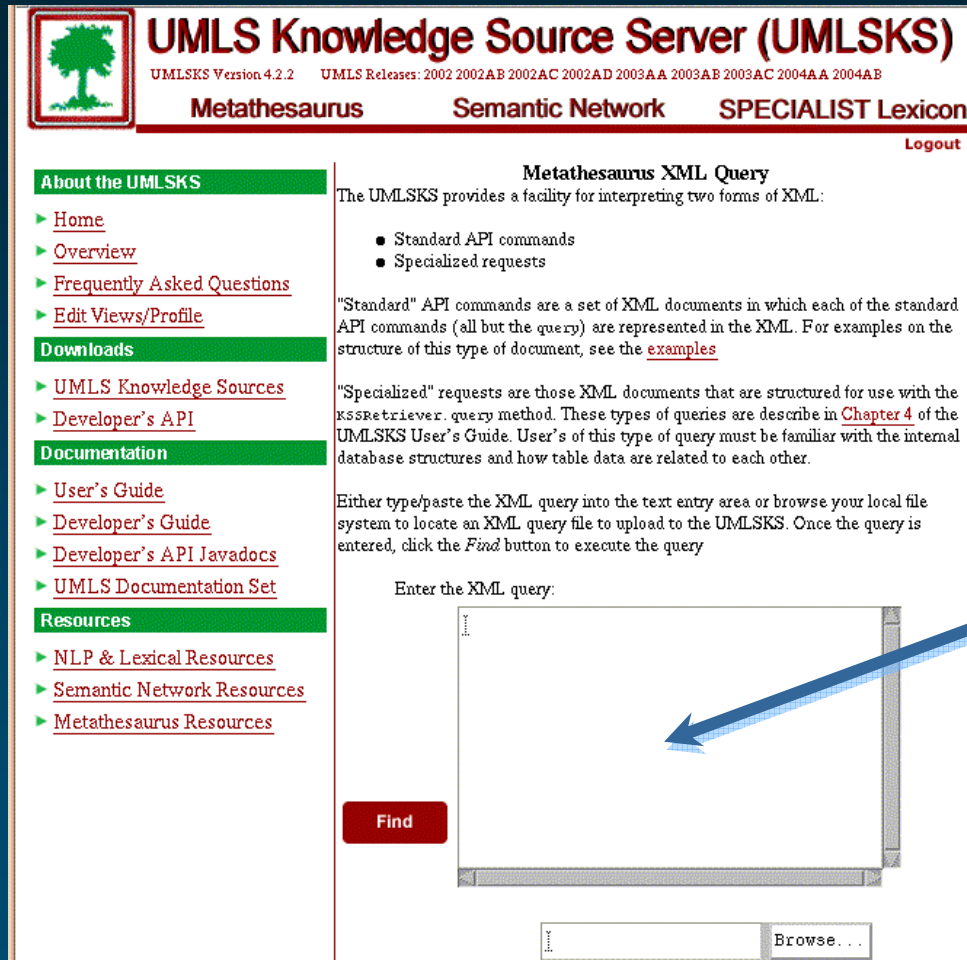
The data tables used to populate the backend Oracle database can be returned to the user that match a user's input term or concept unique identifier.

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



The screenshot shows the UMLS Knowledge Source Server (UMLSKS) interface. The header includes the UMLSKS logo, version information (4.2.2), release dates (2002-2004), and navigation links for Metathesaurus, Semantic Network, and SPECIALIST Lexicon. A left sidebar contains links for About the UMLSKS, Downloads, Documentation, and Resources. The main content area is titled 'Metathesaurus XML Query' and explains the facility for interpreting XML. It lists two types of queries: Standard API commands and Specialized requests. Below the text is a large text entry area labeled 'Enter the XML query:' with a 'Find' button and a 'Browse...' button for file selection.

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

About the UMLSKS

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- Edit Views/Profile

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- UMLS Documentation Set

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- 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 `xssRetriever.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:

Find

Browse...

```
<?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 UMLSKS ...

- ◆ 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!

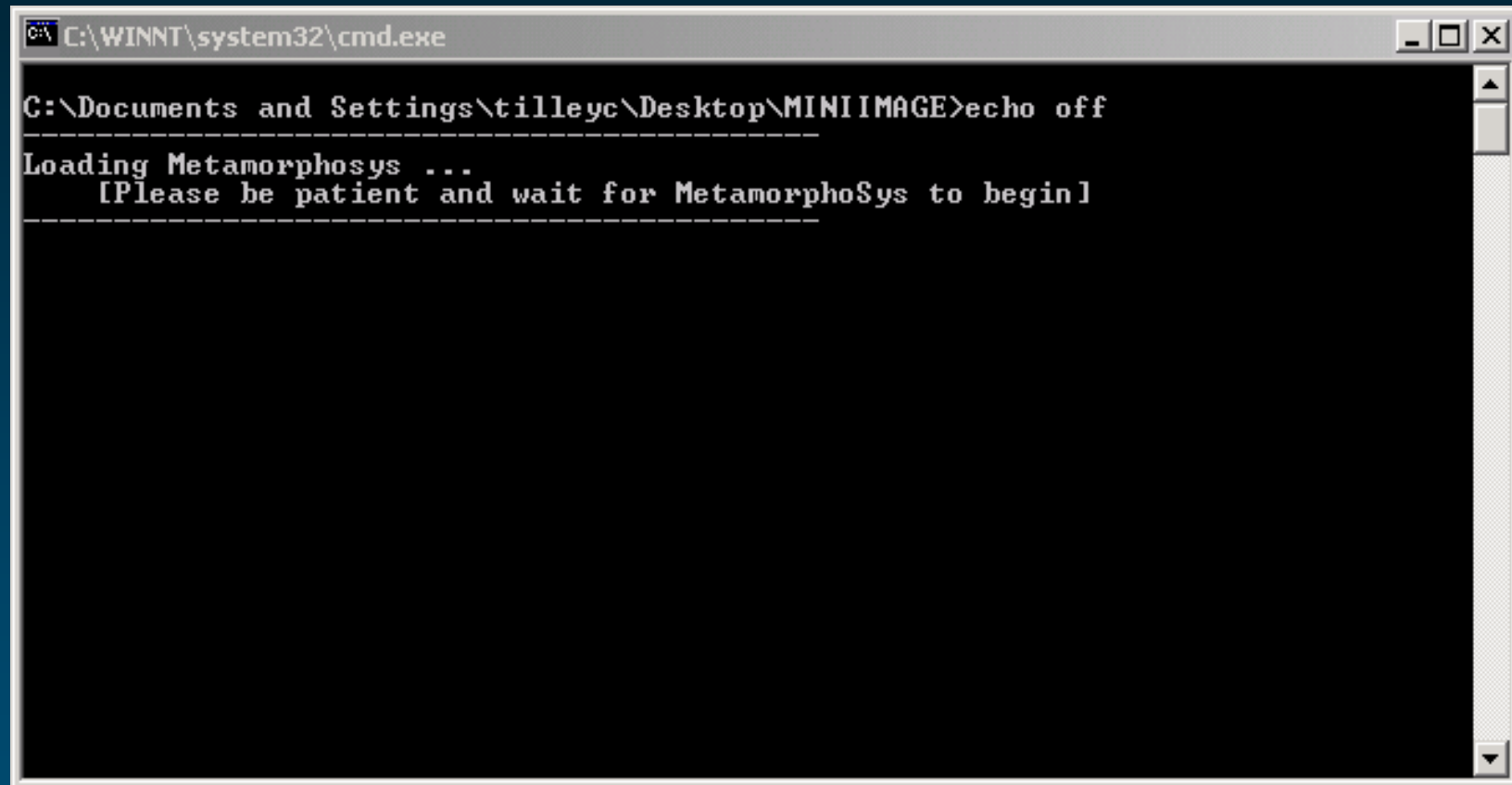


...or DVD?

- ◆ 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`

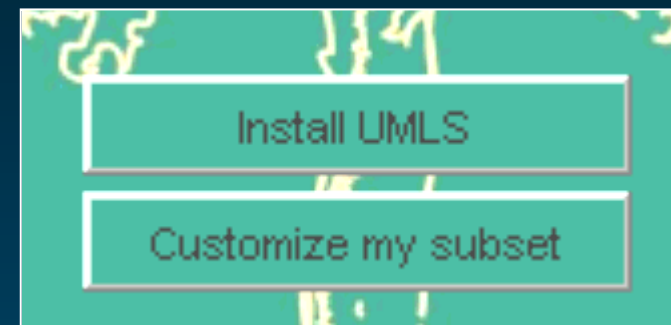
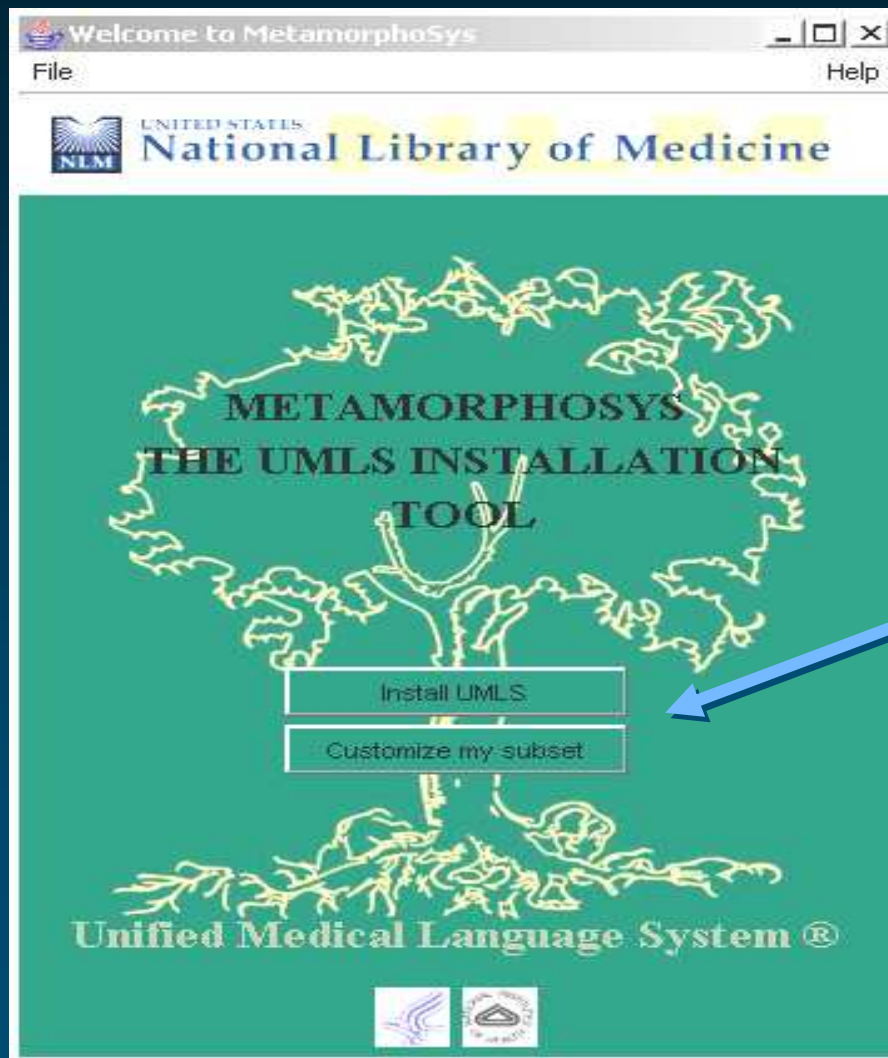


Be patient! A lot of software must load.



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

Welcome Screen



Install UMLS

Install UMLS

Source:
(this directory contains UMLS files)

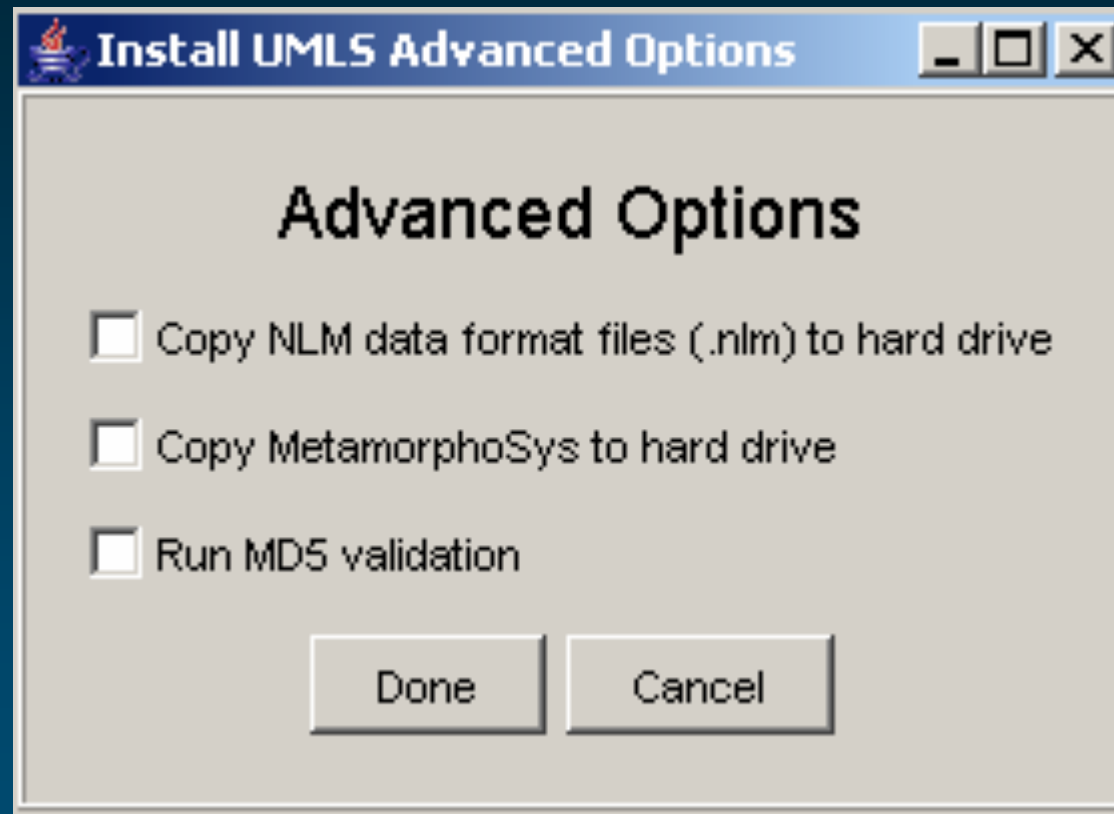
Destination:
(this is where top-level directory 2004AB will be created)

Install UMLS Knowledge Sources:

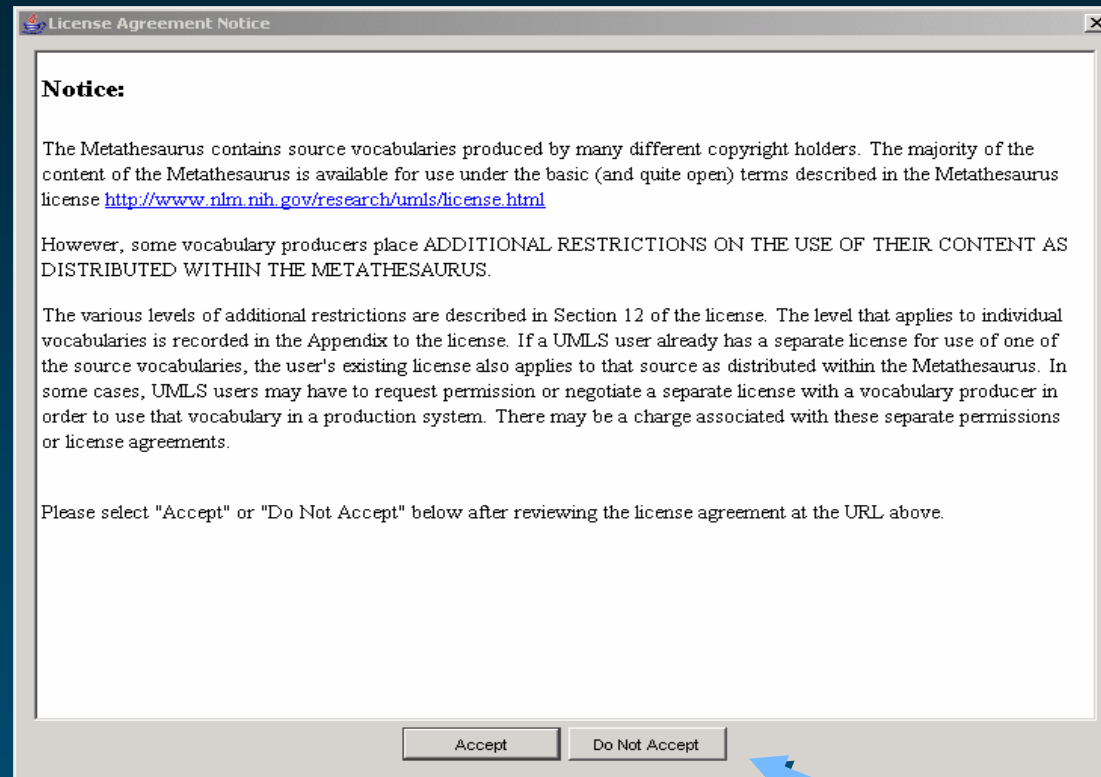
- ☒ Metathesaurus
- ☒ Semantic Network
- ☒ Specialist Lexicon & Tools

Select one or all of these options

Install UMLS Advanced Options



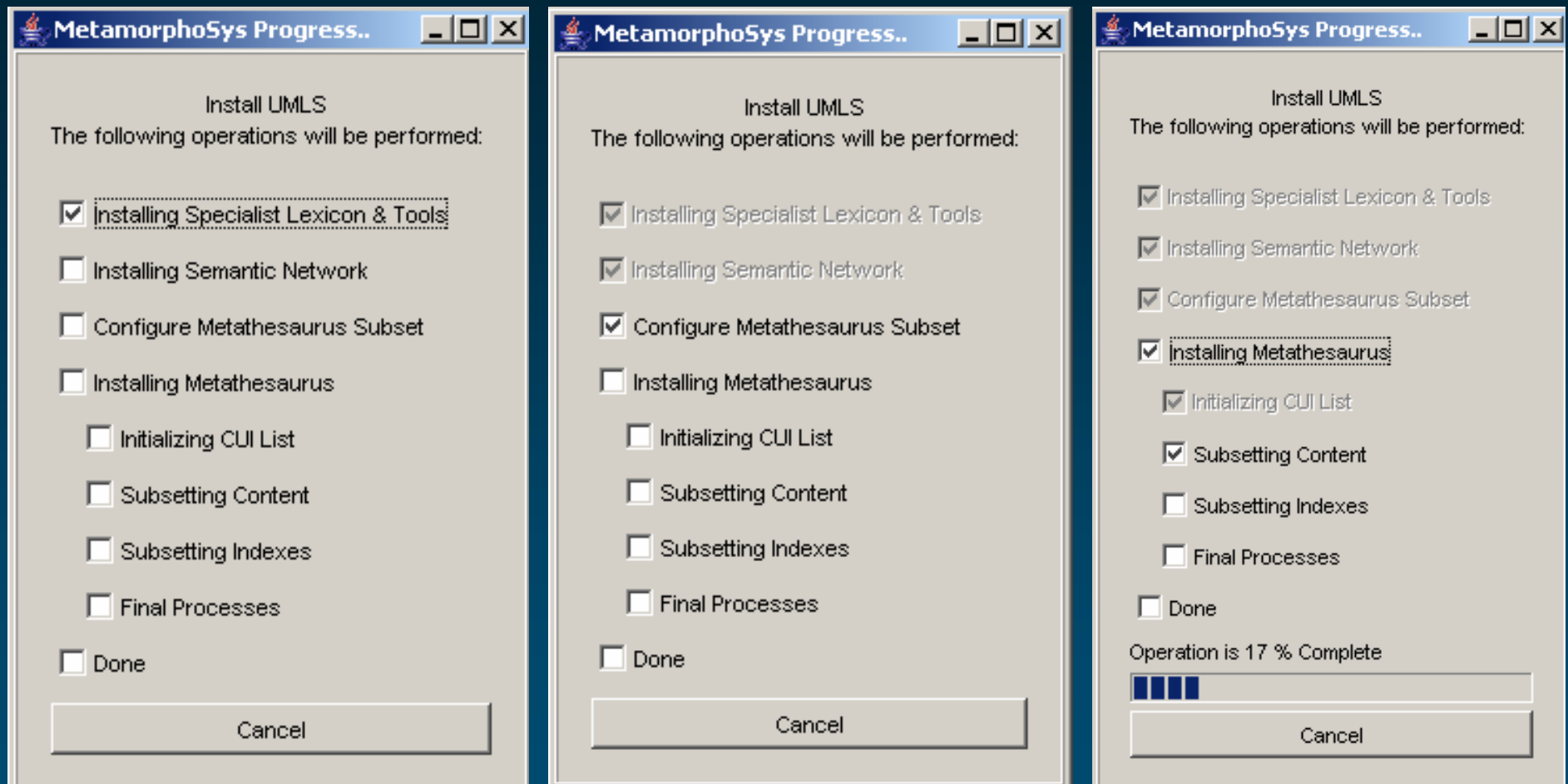
UMLS License Notice



Accept

Do Not Accept

Installation progress monitor



The image displays three sequential screenshots of the 'MetamorphoSys Progress..' dialog box, illustrating the progress of the UMLS installation. Each window has a title bar with the text 'MetamorphoSys Progress..' and standard window controls. The main content area lists the following operations: 'Installing Specialist Lexicon & Tools', 'Installing Semantic Network', 'Configure Metathesaurus Subset', 'Installing Metathesaurus', 'Initializing CUI List', 'Subsetting Content', 'Subsetting Indexes', 'Final Processes', and 'Done'. The progress is indicated by the number of checked checkboxes. In the first screenshot, only 'Installing Specialist Lexicon & Tools' is checked. In the second, 'Installing Specialist Lexicon & Tools', 'Installing Semantic Network', 'Configure Metathesaurus Subset', and 'Installing Metathesaurus' are checked. In the third, all operations except 'Done' are checked. The third screenshot also includes a progress bar showing 17% completion and a 'Cancel' button.

Install UMLS
The following operations will be performed:

- ☒ Installing Specialist Lexicon & Tools
- ☐ Installing Semantic Network
- ☐ Configure Metathesaurus Subset
- ☐ Installing Metathesaurus
- ☐ Initializing CUI List
- ☐ Subsetting Content
- ☐ Subsetting Indexes
- ☐ Final Processes
- ☐ Done

Cancel

Install UMLS
The following operations will be performed:

- ☒ Installing Specialist Lexicon & Tools
- ☒ Installing Semantic Network
- ☒ Configure Metathesaurus Subset
- ☒ Installing Metathesaurus
- ☐ Initializing CUI List
- ☐ Subsetting Content
- ☐ Subsetting Indexes
- ☐ Final Processes
- ☐ Done

Cancel

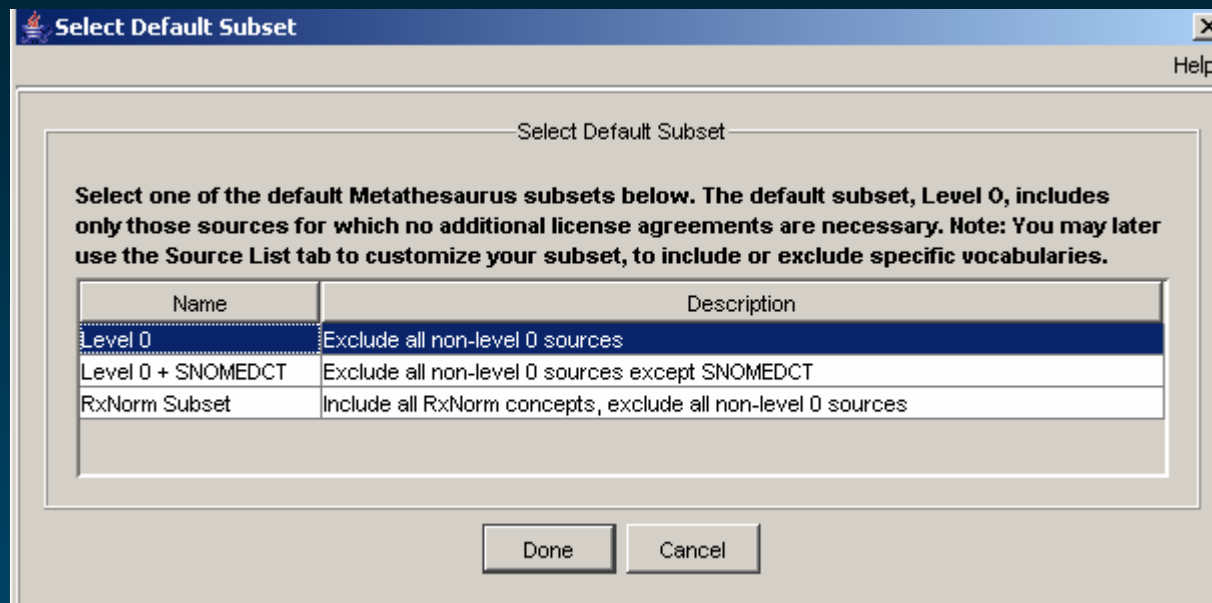
Install UMLS
The following operations will be performed:

- ☒ Installing Specialist Lexicon & Tools
- ☒ Installing Semantic Network
- ☒ Configure Metathesaurus Subset
- ☒ Installing Metathesaurus
- ☒ Initializing CUI List
- ☒ Subsetting Content
- ☐ Subsetting Indexes
- ☐ Final Processes
- ☐ Done

Operation is 17 % Complete

Cancel

Select a default subset

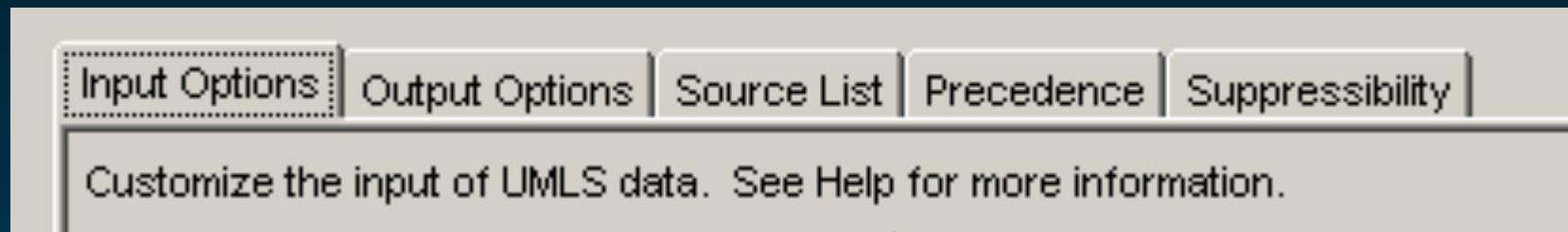


Level 0 → no separate additional license agreements

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

RxNorm → no separate additional license agreements

Input Options Tab



The main screenshot shows the 'Input Options' dialog box with a blue arrow pointing to the 'Input Options' tab. The dialog box contains the following elements:

- Input Options** | Output Options | Source List | Precedence | Suppressibility
- Customize the input of UMLS data. 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
- Input Format Options**
- Select Input Format
- NLM Data File Format
- Browse..
- NLM Data File Format**
- Source Folder - Location of Metathesaurus Files
- D:\
- Browse..

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.

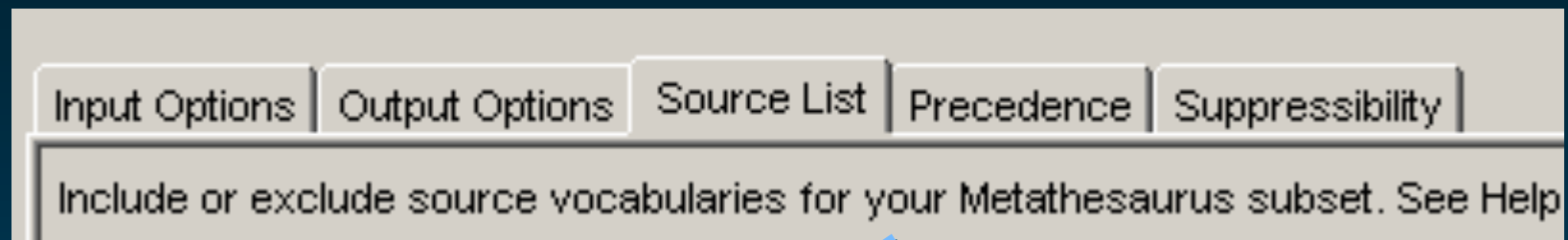
☐ Output versioned source abbreviations rather than versionless source abbreviations.

☐ 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.

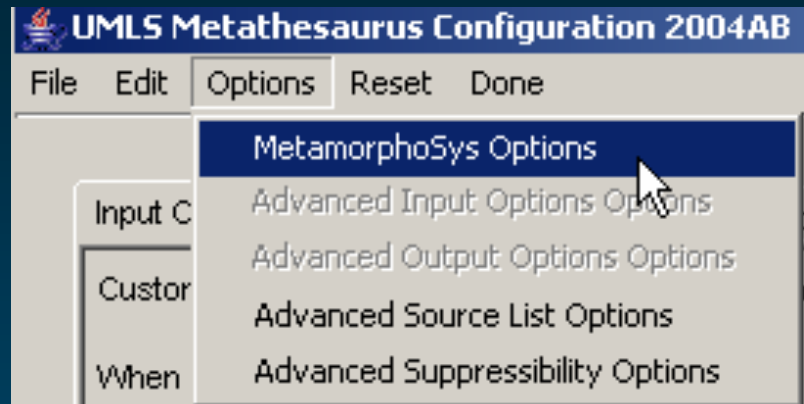
To reset to the default Source List, click on Reset on the menu bar, and select Reset Source List.

Sources to Exclude

Full Source Name	Source Abbreviation	Source Family	Language	Level
AIR/RHEUM, 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

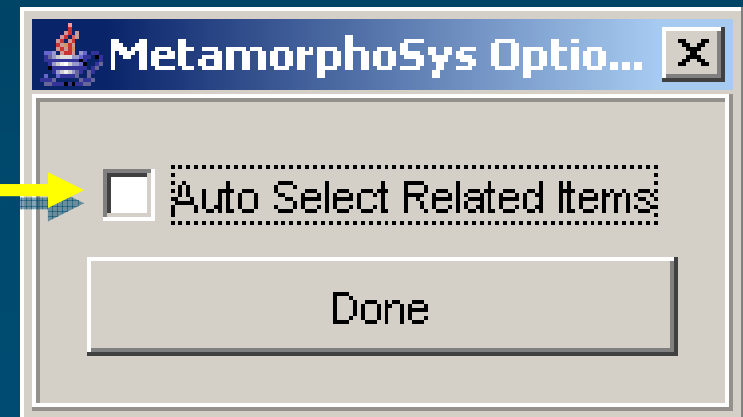
Highlighted rows are excluded from the subset.

MetamorphoSys Option Tab

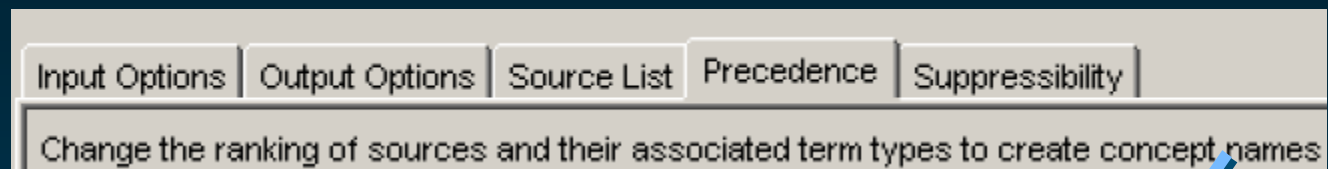


Source list behavior can be changed using the MetamorphoSys Option Tab

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.


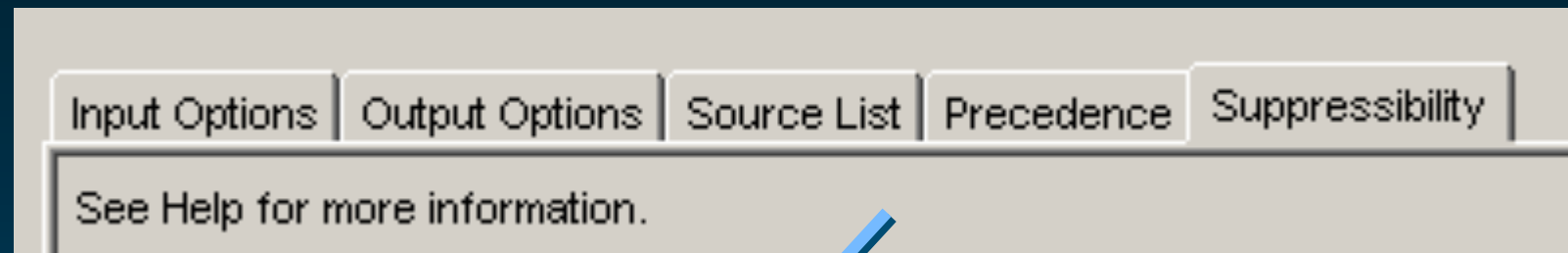
When you have made your selections on this tab, you may proceed to the other Options tabs in any order. If you are finished customizing

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

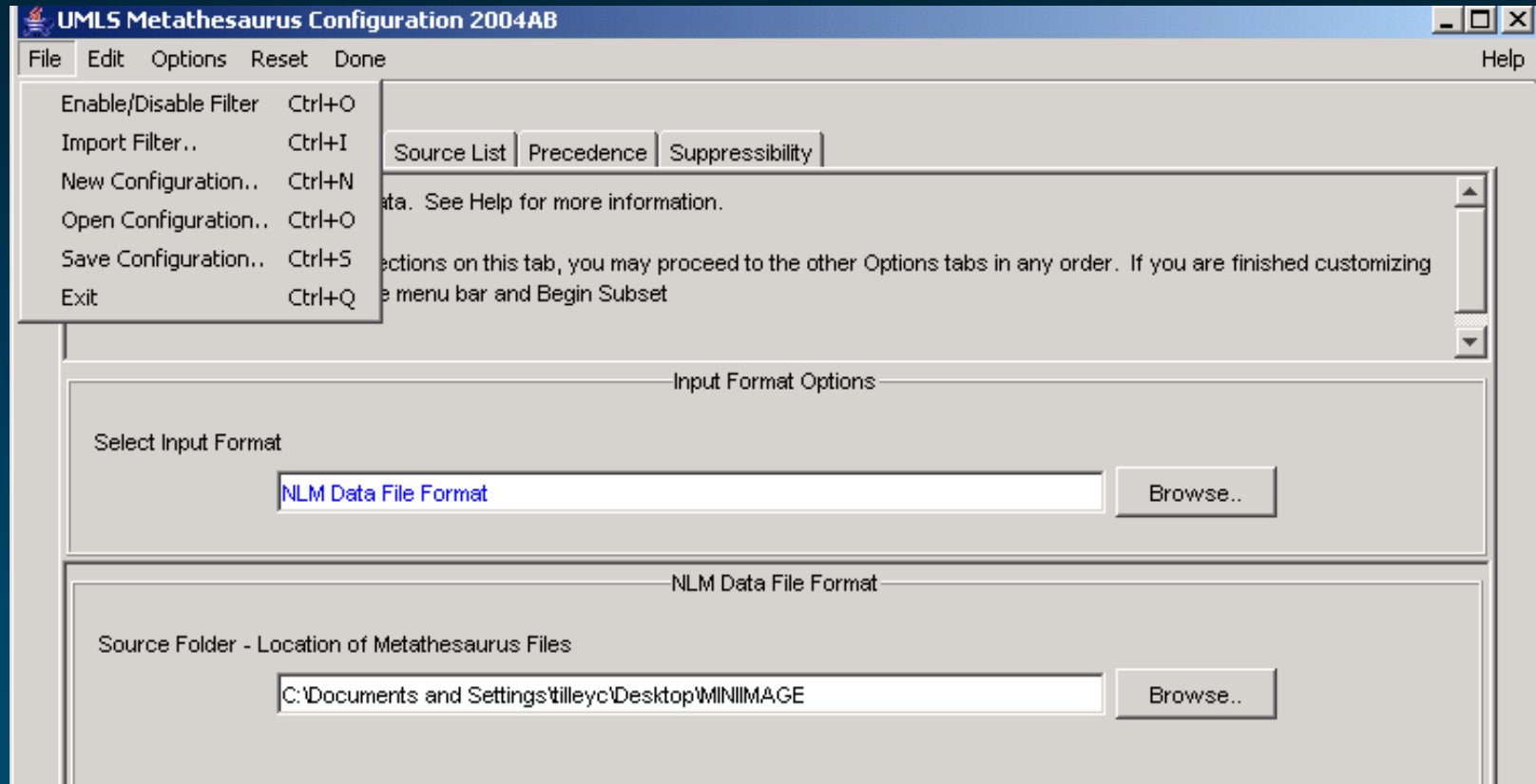
See Help for more information.

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.

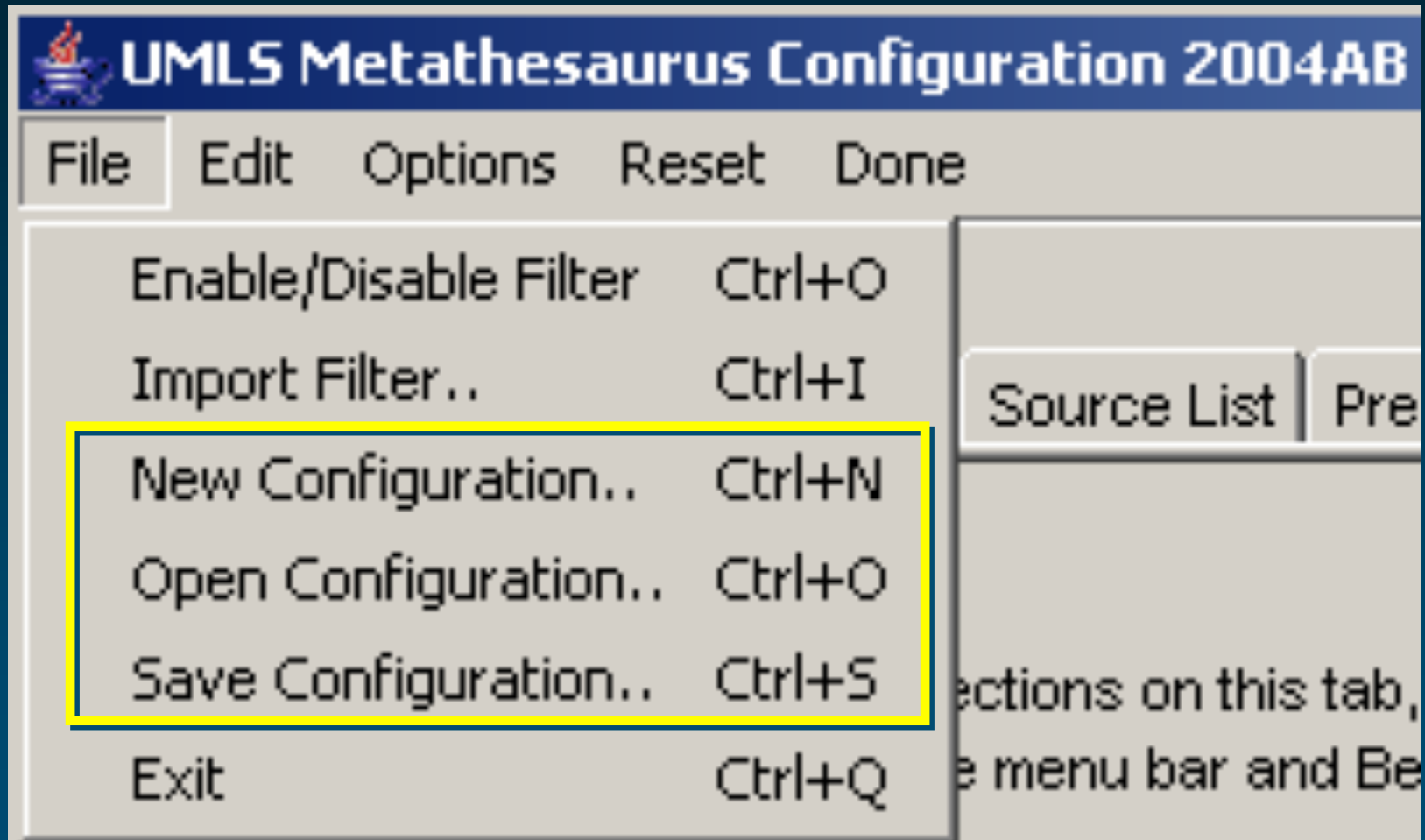
International Classification of Primary Care, 1993	ICPC93	CP
International Classification of Primary Care, 1993	ICPC93	CS
International Classification of Primary Care, 1993	ICPC93	CX
International Classification of Primary Care, 1993	ICPC93	HT
International Classification of Primary Care, 1993	ICPC93	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

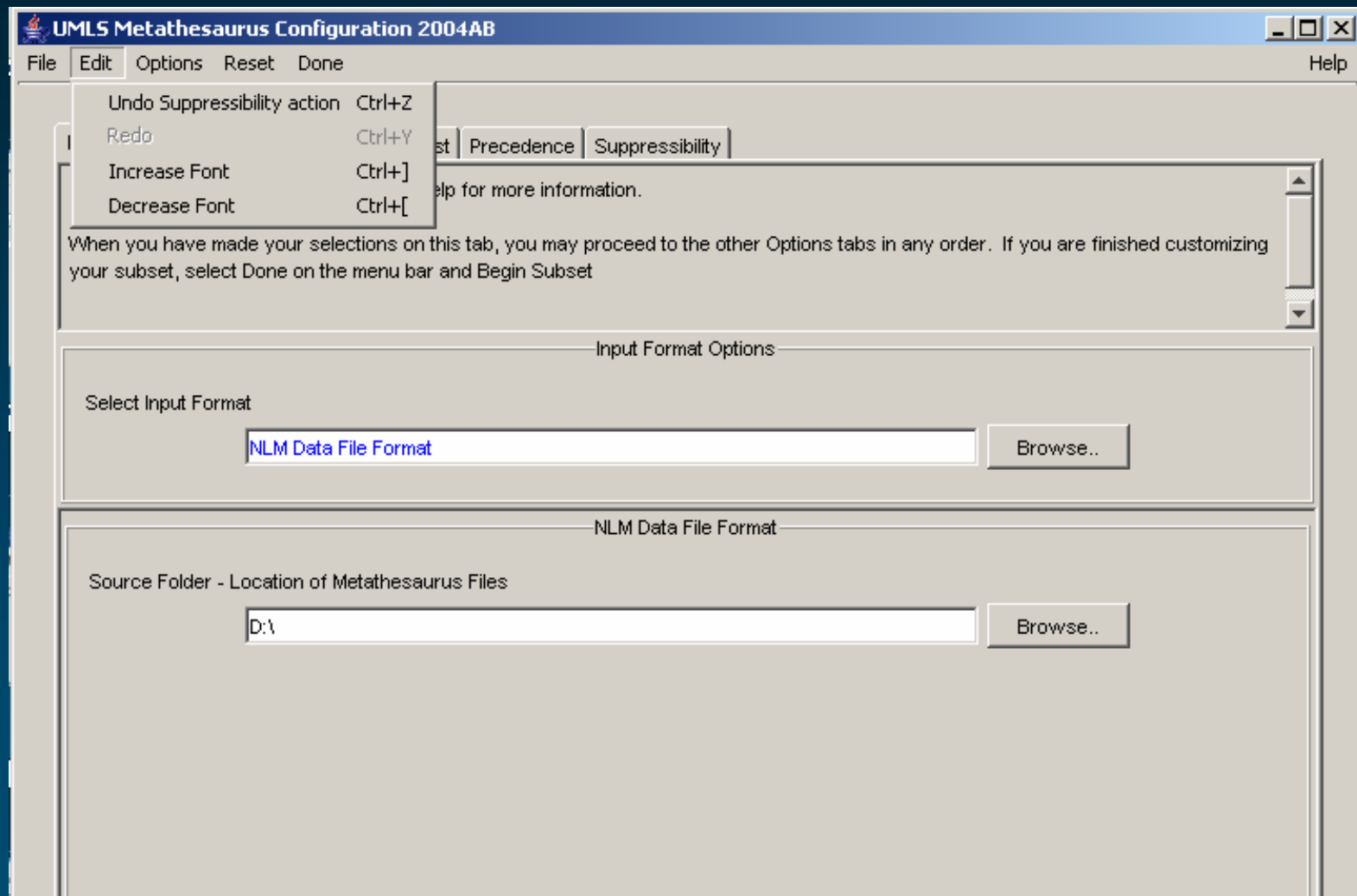
File menu



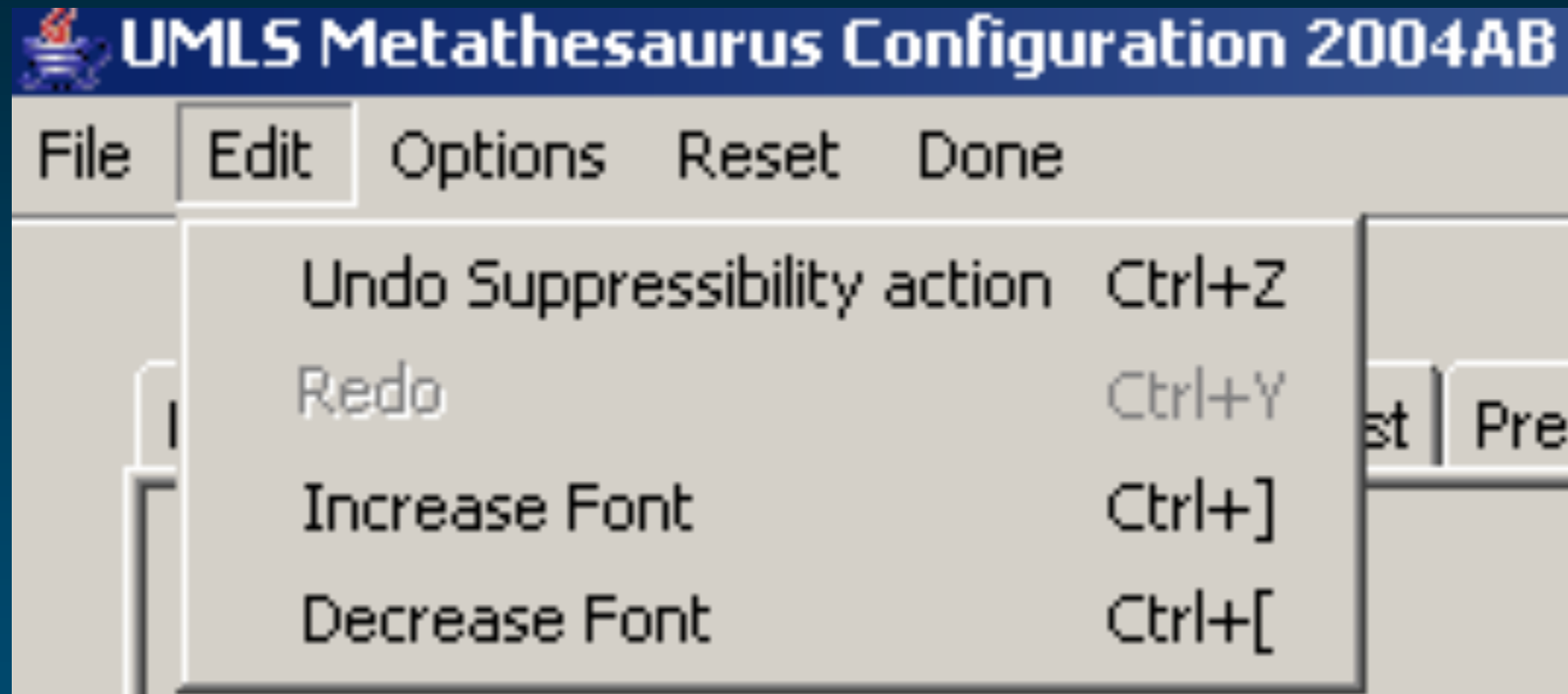
File menu



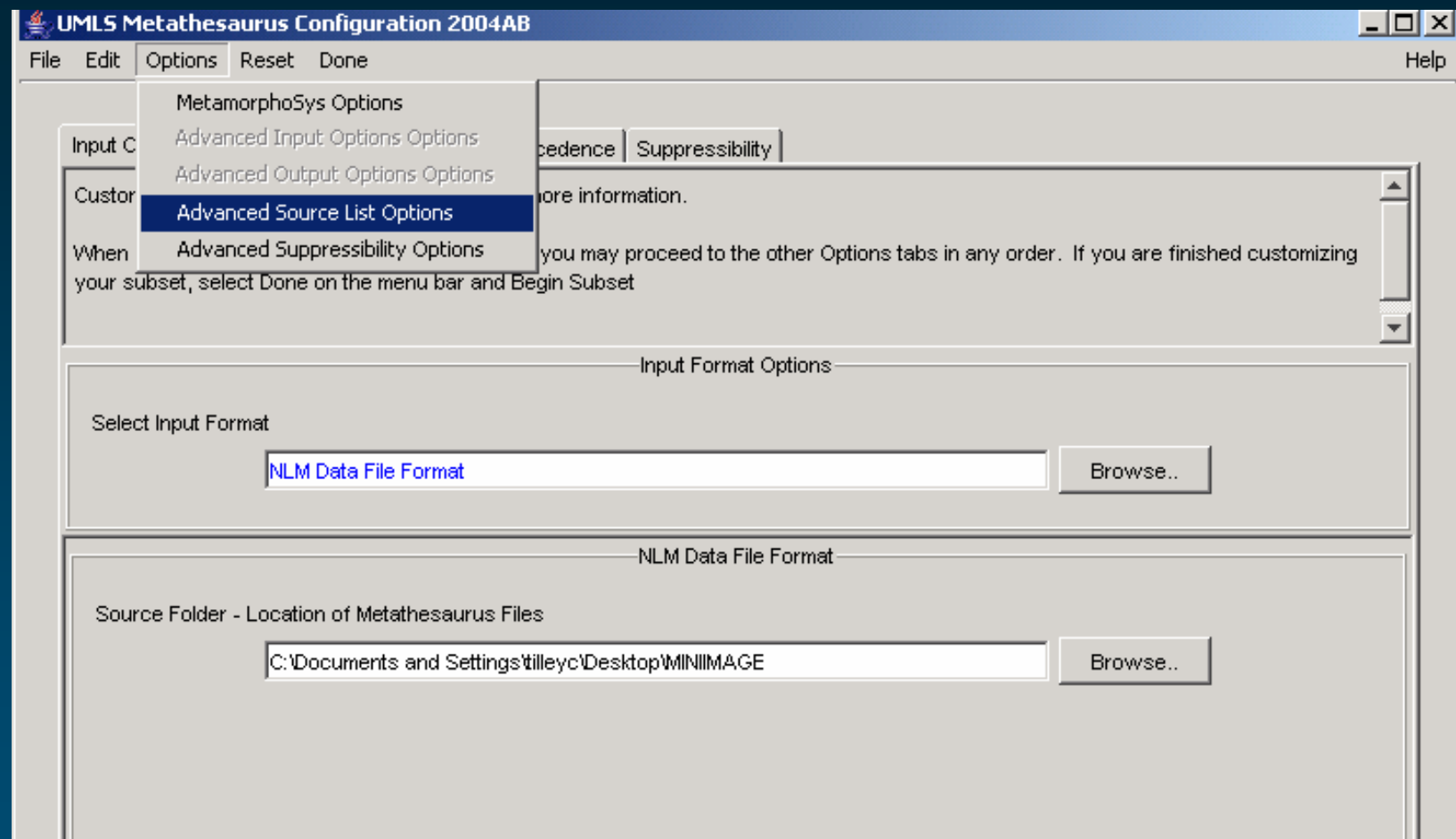
Edit menu



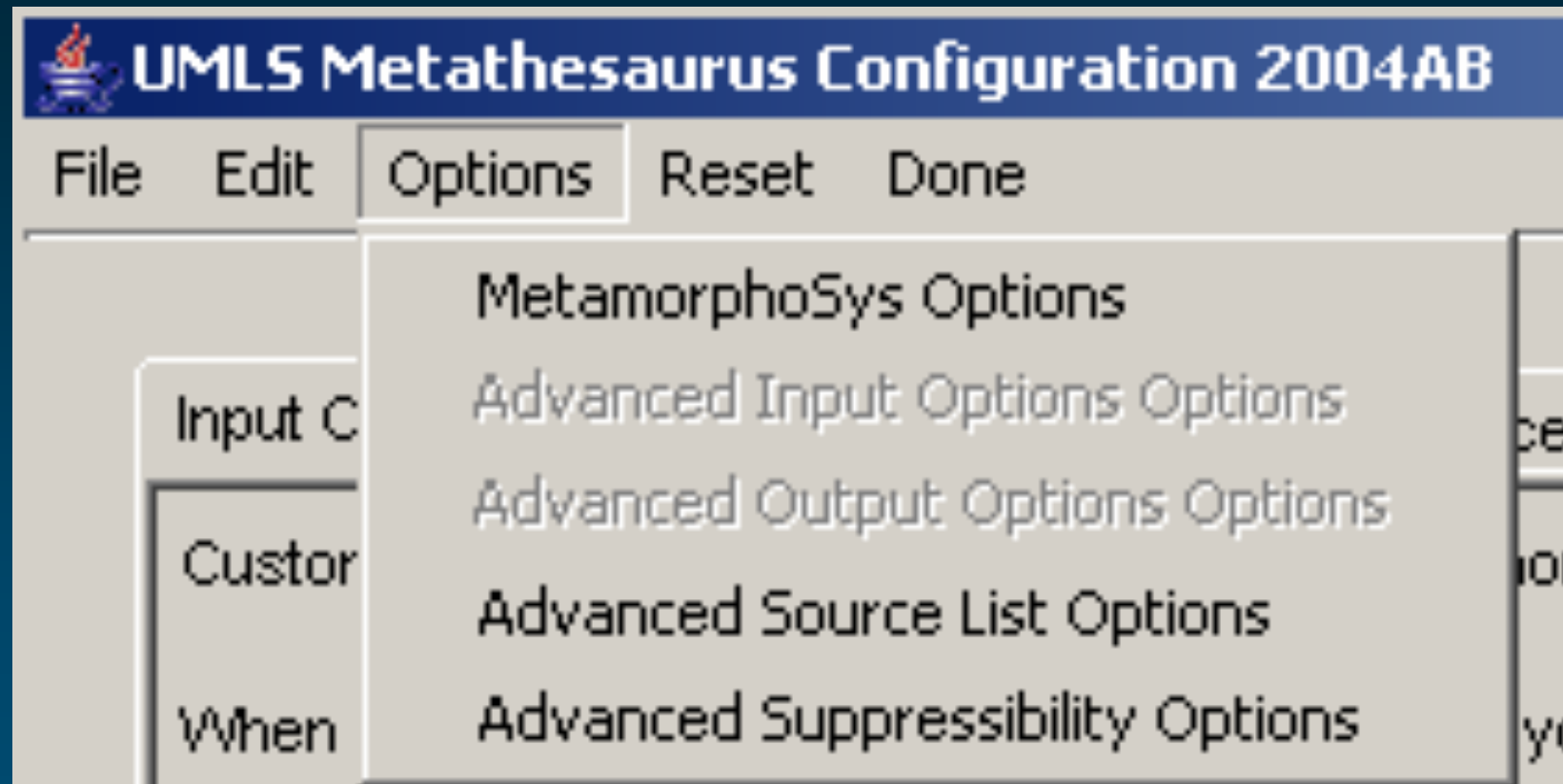
Edit menu



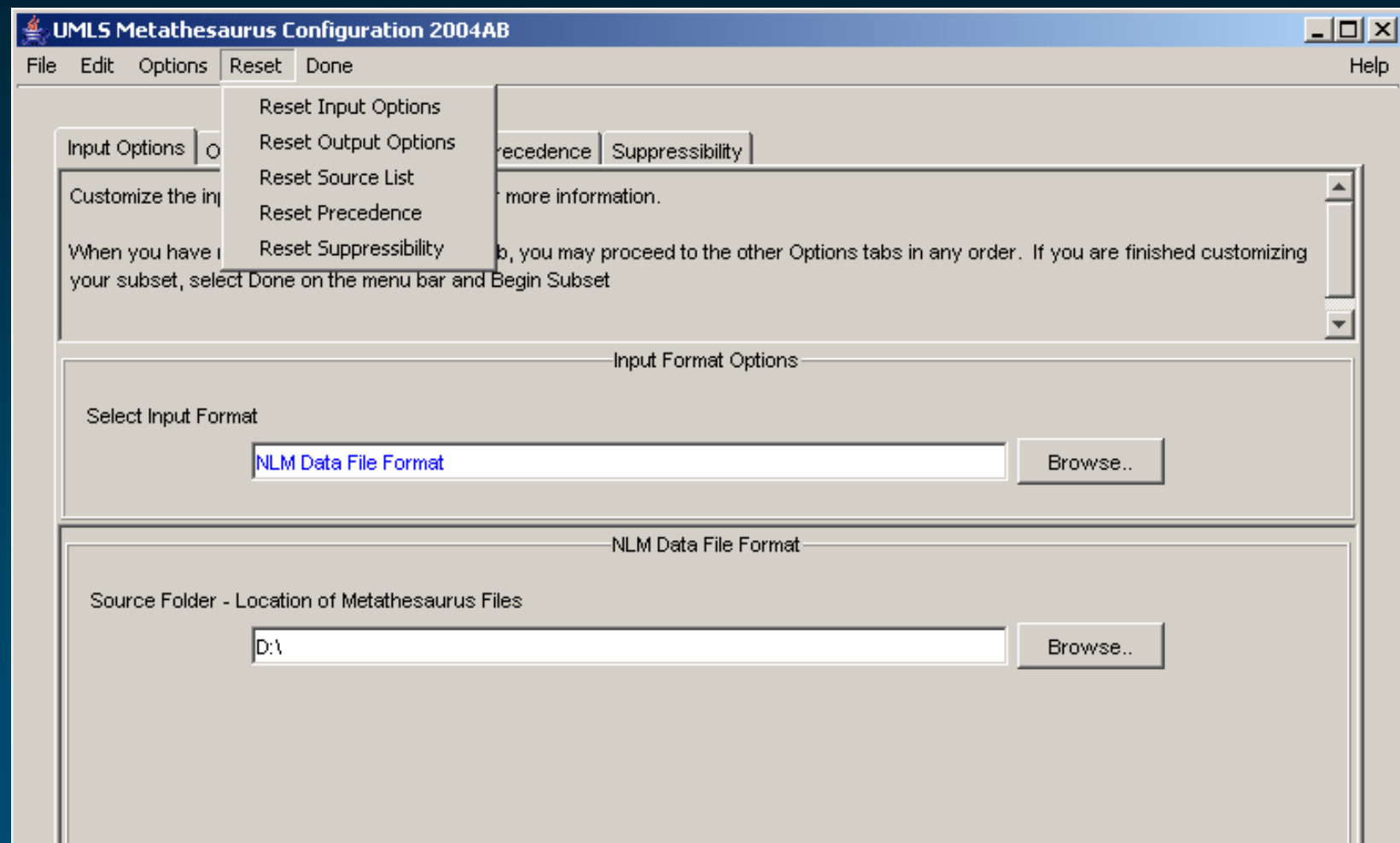
Options menu



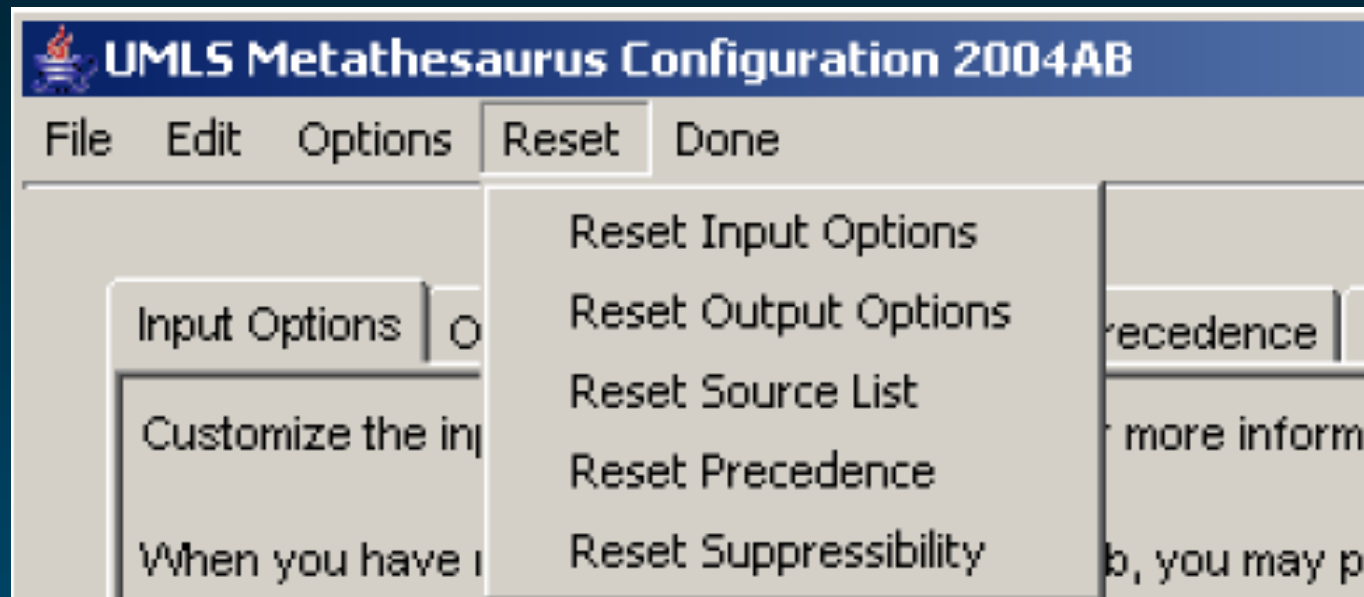
Options menu



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

The screenshot shows a Windows-style dialog box titled "UMLS Metathesaurus Configuration 2004AB". The "Done" button is highlighted in the menu bar. Below the menu bar, the "Begin Subset Ctrl+B" tab is selected. The dialog has several sub-tabs: "Input Options", "Output Options", "Source List", "Precedence", and "Suppressibility". The "Input Options" sub-tab is active, displaying instructions: "Customize the input of UMLS data. See Help for more information." and "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". Below the instructions, there are two main sections. The first section, "Input Format Options", contains a "Select Input Format" label, a text box with "NLM Data File Format", and a "Browse.." button. The second section, "NLM Data File Format", contains a "Source Folder - Location of Metathesaurus Files" label, a text box with "D:\", and another "Browse.." button.

UMLS Metathesaurus Configuration 2004AB

File Edit Options Reset Done Help

Begin Subset Ctrl+B

Input Options Output Options Source List Precedence Suppressibility

Customize the input of UMLS data. 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

Input Format Options

Select Input Format

NLM Data File Format Browse..

NLM Data File Format

Source Folder - Location of Metathesaurus Files

D:\ Browse..

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	AIR93
Alternative Billing Concepts	ALT2003
Alcohol and Other Drug Thesaurus, 2000	AOD2000
Beth Israel Vocabulary, 1.0	BI98
Canonical Clinical Problem Statement System, 1999	CCPSS99
Clinical Classifications Software, 2003	CCS2003
Current Dental Terminology (CDT), 4	CDT4
COSTAR, 1989-1995	COSTAR_89-95
Medical Entities Dictionary, 2003	CPM2003
Physicians' Current Procedural Terminology, Spanish Translation,...	CPT01SP
Physicians' Current Procedural Terminology, 2004	CPT2004
CRISP Thesaurus, 2004	CSP2004
COSTART, 1995	CST95
Diseases Database, 2000	DDB00
German translation of ICD10, 1995	DMDICD10_1995
German translation of UMDNS, 1996	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
 MRCUI.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	ISPREF	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-Krankheit	3	N	
10	MSHPJN	SY	D000224	Bronzehautkrankheit	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	0000005430	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 | | Hypoaldosteronism | 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)

```
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)

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
Disease or Syndrome	isa	Pathologic Function
Disease or Syndrome	isa	Biologic Function
Disease or Syndrome	isa	Natural Phen. or Pr.
Disease or Syndrome	isa	Phenomenon or Process
Disease or Syndrome	isa	Event
Disease or Syndrome	affects	Alga
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
[...]		

Diagram illustrating the structure of SRSTRE2 relational files (ORF) with yellow arrows pointing from the left column to the right column:

- Pathologic Function |isa| Biologic Function|
- Biologic Function|isa| Natural Phen. or Process|
- Natural Phen. or Process|isa| Phen. or Process|
- Phenomenon or Process|isa| Event|

from Biologic Function|affects| Organism|D|

