

# EVS Resources

This section outlines the EVS terminology content and tools whose use is described in the subsequent sections of the EVS Use and Collaborations document. The following resources are described.

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Associated downloads are being made available on the [EVS Downloads](#) web page.

## Controlled Terminology

EVS produces two major reference resources, NCI Thesaurus and NCI Metathesaurus, in collaboration with a range of partners. EVS also produces, licenses, processes and makes available a wide range of other terminology content.

### NCI Thesaurus (NCIt)

NCIt is NCI's reference terminology and core biomedical ontology. It covers some 120,000 key biomedical concepts with a rich set of terms, codes, 115,000 textual definitions, and over 400,000 inter-concept relationships, and is used to code most NCI metadata and models. More than 500 concepts are added each month, and many more existing concepts are updated, in response to user requests and the requirements of dependent systems and applications. Many of these concepts include content created and maintained jointly with NCI's partners, making NCIt a shared coding and semantic infrastructure resource (see Shared Terminology Development section).

### NCI Metathesaurus (NCIm)

NCIm currently consists of more than 85 biomedical terminologies whose 6,700,000 terms are mapped to 2,800,000 concepts representing their shared meanings; there are more than 31,000,000 cross-links between content elements. NCIm is updated approximately six times a year, growing by some 100,000 concepts annually. This growth involves adding new terminologies, and updated versions of existing terminologies, to meet the requirements of EVS users for specific terminologies and for mappings between them. NCIm also provides a rich reference resource for a broad range of users seeking definitions, synonyms, codes, and other information.

### Other Terminologies

EVS licenses, processes and makes available many other terminologies through standardized application and browser interfaces, and frequently through various data file formats as well. EVS has helped create, harmonize with, and publish several of these terminologies. Currently available are:

- ChEBI: Chemical Entities of Biological Interest
- CTCAE: Common Terminology Criteria for Adverse Events
- GO: Gene Ontology
- HGNC: Human Genome Organisation (HUGO) Gene Nomenclature Committee
- HL7: Health Level 7 RIM V3
- ICD-9-CM: International Classification of Diseases, Ninth Revision, Clinical Modification
- ICD-10: International Classification of Diseases, Tenth Revision
- ICD-10-CM: International Classification of Diseases, Tenth Revision, Clinical Modification
- LOINC: Logical Observation Identifiers Names and Codes
- MA: Adult Mouse Anatomy
- MedDRA: Medical Dictionary for Regulatory Activities Terminology
- MGED Ontology: Microarray Gene Expression Data Ontology
- NDF-RT: National Drug File Reference Terminology Public Inferred Edition
- NPO: NanoParticle Ontology
- OBI: Ontology for Biomedical Investigations
- PDQ: Physician Data Query
- RadLex: Radiology Lexicon
- SNOMED CT: Systematized Nomenclature of Medicine-Clinical Terms
- UMLS SemNet: UMLS Semantic Network
- Zebrafish: Zebrafish Model Organism Database

### Terminology Value Sets

Value sets provide a standardized representation of selected values from these terminologies, following the [Common Terminology Services Release 2 \(CTS 2\) specification](#). More than 700 value sets are currently defined in the EVS LexEVS 6 server, covering a range of standards from CDISC, FDA, NCPDP, NDF-RT, NICHD, and others.

## Terminology Mappings

Mappings between several supported terminologies have also been published:

- GO to NCI Mapping
- Mouse Anatomy (MA) to NCI Mapping
- NCI to ChEBI Mapping
- NCI to HGNC Mapping
- NCI to SwissProt Mapping
- PDQ to NCI Mapping
- ICD-O-3.1 to NCI Mapping

## EVS Terminology Tools

### LexEVS

LexEVS is a set of software and services to load, publish, and access vocabulary and ontology resources. EVS has supported and migrated to LexEVS, developed by the Mayo Clinic, as an open source tool that is freely sharable and that is now being deployed at a number of other partner organizations such as MD Anderson, Stanford, Emory, Ohio State University Medical Center, Georgetown University, Washington University, and National Cancer Research Institute (NCRI)/UK CancerGrid, as well as by commercial vendors such as IBM and GE Healthcare.

### EVS Terminology Browsers

EVS has developed two cross-linked, user-friendly terminology browsers: NCI Term Browser and NCI Metathesaurus Browser. These browsers are designed to meet NCI's internal and public information needs across the full range of EVS content, and also provide important support for collaborative content and standards development. EVS browsers are heavily used from both NCI servers and non-NCI adopter sites. The browsers are freely available as open source software.

### NCI Protégé

EVS editing software has been based on Stanford's open source Protégé tool, widely used for editing biomedical terminology and ontologies. NCI extensively customized Protégé to meet EVS requirements and business rules, contributing its code back to the community to help support Protégé development. The most demanding use is as the editing software for NCI, but Protégé is also used locally for CTCAE and other editing work, and by NanoParticle Ontology (NPO) (see Nanotechnology user profile).

### EVS Value Set Editor

The Value Set Editor is used to create and maintain CTS 2 value set and pick list definitions for loading into the LexEVS server, which resolves the definitions against referenced terminologies. The Editor was initially developed to support internal EVS operational requirements, and is used to generate the value sets currently published by EVS (see [NCI Term Browser](#)). Source code is available for community contributions and reuse.

### EVS Mapping Tool

The Mapping Tool supports mapping between term lists, value sets, terminology subsets or whole terminologies. EVS has long had frequent requests and operational requirements for such mappings, and has done extensive requirements gathering. EVS has created an initial release to support internal operations; it provides a mix of automated and manual features for creating, editing and publishing mappings, connecting to LexEVS for terminologies available there and producing XML mapping representations that can be loaded into and accessed through LexEVS.

### Term Suggestion

EVS Term Suggestion software is used extensively – both standalone and integrated into the EVS terminology browsers – to get community feedback and contributions to both NCI and EVS partner terminology products.

### EVS Report Writer

EVS Report Writer is standalone software that connects to the LexEVS servers. It is used internally to generate many value sets and other reports, and is available for use by others.

### LexWiki and BiomedGT Semantic Media Wiki

The BiomedGT wiki was initially developed by Apelon as a platform for collaborative vocabulary development by EVS and its partners. Independently, the Mayo Clinic was developing LexWiki, a similar tool based on Media Wiki. Interactions and cross-fertilization of ideas between the two groups led to a number of enhancements in the production version of the BiomedGT wiki used by EVS, as well in LexWiki in use at Mayo. Both LexWiki and BiomedGT wiki are published as open source by the Mayo Clinic, through the Vocabulary Knowledge Center. BiomedGT Semantic Media Wiki has been used for NCI terminology such as CTCAE and BiomedGT, as well as partner efforts such as the NanoParticle Ontology (NPO) based at Washington University, but has not won broader adoption.