MedDRA Coding Basics

MedDRA was developed under the auspices of the International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH). The activities of the MedDRA Maintenance and Support Services Organization (MSSO) are overseen by an ICH MedDRA Management Committee, which is composed of the ICH parties, the Medicines and Healthcare products Regulatory Agency (MHRA) of the UK, Health Canada, and the WHO (as Observer).
Disclaimer and Copyright Notice

• This presentation is protected by copyright and may, with the exception of the MedDRA and ICH logos, be used, reproduced, incorporated into other works, adapted, modified, translated or distributed under a public license provided that ICH's copyright in the presentation is acknowledged at all times. In case of any adaption, modification or translation of the presentation, reasonable steps must be taken to clearly label, demarcate or otherwise identify that changes were made to or based on the original presentation. Any impression that the adaption, modification or translation of the original presentation is endorsed or sponsored by the ICH must be avoided.

• The presentation is provided "as is" without warranty of any kind. In no event shall the ICH or the authors of the original presentation be liable for any claim, damages or other liability arising from the use of the presentation.

• The above-mentioned permissions do not apply to content supplied by third parties. Therefore, for documents where the copyright vests in a third party, permission for reproduction must be obtained from this copyright holder.

Course Overview

• Gain knowledge of MedDRA’s scope, structure, and characteristics
• Learn about the MedDRA Term Selection: Points to Consider document
• Learn about the available MedDRA browsers
• Watch a demonstration of a MedDRA browser
• See examples of coding using a MedDRA browser
• Conclude with a question and answer session
MedDRA Overview

MedDRA is a clinically-validated international medical terminology used by regulatory authorities and the regulated biopharmaceutical industry. The terminology is used through the entire regulatory process, from pre-marketing to post-marketing, and for data entry, retrieval, evaluation, and presentation.
Where MedDRA is Used

- Preclinical Testing
- Clinical Phase I
- Clinical Phase II
- Clinical Phase III
- Marketed Product Phase IV

Regulatory Authority and Industry Databases
Individual Case Safety Reports and Safety Summaries
- Clinical Study Reports
- Investigators’ Brochures
- Core Company Safety Information
- Marketing Applications
- Publications
- Prescribing Information
- Advertising

Scope of MedDRA

Not a drug dictionary
Patient demographic terms
Clinical trial study design terms

IN
- Medical conditions
- Indications
- Investigations (tests, results)
- Medical and surgical procedures
- Medical, social, family history
- Medication errors
- Product quality issues
- Device-related issues
- Product use issues
- Pharmacogenetic terms
- Toxicologic issues
- Standardized queries

OUT
- Frequency qualifiers
- Numerical values for results
- Severity descriptors
- Not an equipment, device, diagnostic product dictionary
MedDRA Structure

System Organ Class (SOC) (27)
High Level Group Term (HLGT) (337)
High Level Term (HLT) (1,737)
Preferred Term (PT) (24,289)
Lowest Level Term (LLT) (81,812)

System Organ Classes

- Blood and lymphatic system disorders
- Cardiac disorders
- Congenital, familial and genetic disorders
- Ear and labyrinth disorders
- Endocrine disorders
- Eye disorders
- Gastrointestinal disorders
- General disorders and administration site conditions
- Hepatobiliary disorders
- Immune system disorders
- Infections and infestations
- Injury, poisoning and procedural complications
- Investigations
- Metabolism and nutrition disorders
- Musculoskeletal and connective tissue disorders
- Neoplasms benign, malignant and unspecified (incl cysts and polyps)
- Nervous system disorders
- Pregnancy, puerperium and perinatal conditions
- Product issues
- Psychiatric disorders
- Renal and urinary disorders
- Reproductive system and breast disorders
- Respiratory, thoracic and mediastinal disorders
- Skin and subcutaneous tissue disorders
- Social circumstances
- Surgical and medical procedures
- Vascular disorders
Lowest Level Term

Synonyms, lexical variants, sub-elements

- **SOC** = Cardiac disorders
- **HLGT** = Cardiac arrhythmias
- **HLT** = Rate and rhythm disorders NEC
- **PT** = Arrhythmia

- **LLT** Arrhythmia NOS
- **LLT** Arrhythmia
- **LLT** Dysrhythmias
- **LLT (Non-current) Other specified cardiac dysrhythmias**

Non-Current Terms

- Flagged at the LLT level in MedDRA
- Not recommended for continued use
- Retained to preserve historical data for retrieval and analysis
- Terms that are vague, ambiguous, outdated, truncated, or misspelled
- Terms derived from other terminologies that do not fit MedDRA rules
A Multi-Axial Terminology

- Multi-axial = the representation of a medical concept in multiple SOCs
  - Allows grouping by different classifications
  - Allows retrieval and presentation via different data sets
- All PTs assigned a primary SOC
  - Determines which SOC will represent a PT during cumulative data outputs
  - Prevents “double counting”
  - Supports standardized data presentation
  - Pre-defined allocations should not be changed by users
### A Multi-Axial Terminology (cont)

**SOC** = Respiratory, thoracic and mediastinal disorders (Secondary SOC)

**HLGT** = Respiratory tract infections

**HLT** = Viral upper respiratory tract infections

**PT** = Influenza

**SOC** = Infections and infestations (Primary SOC)

**HLGT** = Viral infectious disorders

**HLT** = Influenza viral infections

---

### Rules for Primary SOC Allocation

- PTs represented in only one SOC are automatically assigned that SOC as primary
- PTs for diseases, signs and symptoms are assigned to prime manifestation site SOC
- Congenital and hereditary anomalies terms have SOC *Congenital, familial and genetic disorders* as Primary SOC
- Neoplasms terms have SOC *Neoplasms benign, malignant and unspecified (incl cysts and polyps)* as Primary SOC
  - **Exception:** Cysts and polyps have prime manifestation site SOC as Primary SOC
- Infections and infestations terms have SOC *Infections and infestations* as Primary SOC
Primary SOC Priority

If a PT links to more than one of the exceptions, the following priority will be used to determine primary SOC:

1<sup>st</sup>: Congenital, familial and genetic disorders
2<sup>nd</sup>: Neoplasms benign, malignant and unspecified (incl cysts and polyps)
3<sup>rd</sup>: Infections and infestations

A Multi-Axial Terminology (cont)

PTs in the following SOCs only appear in that particular SOC and not in others, i.e., they are not multi-axial

- Investigations
- Surgical and medical procedures
- Social circumstances
What are Coding Conventions?

- Written guidelines for coding with MedDRA in your organization
- Support accuracy and consistency
- Common topics
  - Misspellings, abbreviations and acronyms
  - Combination terms and “due to” concepts
  - “Always query” terms, e.g., “Chest pain”
- Should be consistent with the MedDRA Term Selection: Points to Consider document
Why Do We Need Coding Conventions?

- Differences in medical aptitude of coders
- Consistency concerns (many more “choices” to manually code terms in MedDRA compared to older terminologies)
- Even with an autoencoder, may still need manual coding

ICH M1 Points to Consider Working Group (PtC WG)

- Regulators and industry from EU, US, and Japan
- Health Canada, Canada
- MFDS, Republic of Korea
- ANVISA, Brazil
- NMPA, China
- MSSO
- JMO
- WHO (Observer)

November 2017, Geneva, Switzerland
### PtC Documents

<table>
<thead>
<tr>
<th>PtC Category</th>
<th>PtC Document</th>
<th>Purpose</th>
<th>Languages</th>
<th>Release Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term Selection</td>
<td>MedDRA Term Selection: Points to Consider</td>
<td>Promote accurate and consistent coding with MedDRA</td>
<td>English, Japanese, and other selected languages</td>
<td>Updated annually with the March release of MedDRA (starting with MedDRA Version 23.0)</td>
</tr>
<tr>
<td>Data Retrieval and Presentation</td>
<td>MedDRA Data Retrieval and Presentation: Points to Consider</td>
<td>Demonstrate how data retrieval options impact the accuracy and consistency of data output</td>
<td>English, Japanese, and other selected languages</td>
<td>Updated annually with the March release of MedDRA (starting with MedDRA Version 23.0)</td>
</tr>
<tr>
<td>Data Retrieval and Presentation</td>
<td>MedDRA Data Retrieval and Presentation: Points to Consider Condensed Version</td>
<td>Shorter version focusing on general retrieval and analysis principles to promote accurate and consistent use of MedDRA worldwide</td>
<td>All MedDRA languages (except English, Japanese, and other languages with an available translation of the full DRP:PTC document)</td>
<td>Update as needed</td>
</tr>
</tbody>
</table>

### PtC Documents (cont)

<table>
<thead>
<tr>
<th>PtC Category</th>
<th>PtC Document</th>
<th>Purpose</th>
<th>Languages</th>
<th>Release Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>MedDRA Points to Consider Companion Document</td>
<td>More detailed information, examples, and guidance on specific topics of regulatory importance. Intended as a “living” document with frequent updates based on users’ needs. First edition covers data quality and medication errors. New section on product quality is being drafted.</td>
<td>English and Japanese</td>
<td>Updated as needed</td>
</tr>
</tbody>
</table>
MedDRA Term Selection: Points to Consider (MTS:PTC)

- Provides term selection advice for industry and regulatory purposes
- Objective is to promote accurate and consistent term selection to facilitate a common understanding of shared data
- Recommended to be used as basis for individual organization's own coding conventions

MedDRA Term Selection: PTC (cont)

- Developed by a working group of the ICH Management Committee
- Updated annually in step with the March release of MedDRA (starting with MedDRA Version 23.0)
- Available on MedDRA and JMO websites
  - English, Japanese, and other selected languages
  - Word ("clean" and "redlined"), PDF, HTML formats
  - "Redlined" document identifies changes made from previous to current release of document
MTS:PTC Points of Note

• In some cases with more than one option for selecting terms, a “preferred option” is identified but this does not limit MedDRA users to applying that option. Organizations should be consistent in their choice of option.

• Section 4.1 – Versioning (Appendix)
  – 4.1.1 Versioning methodologies
  – 4.1.2 Timing of version implementation

General Term Selection Principles

• Quality of Source Data
• Quality Assurance
• Do Not Alter MedDRA
• Always Select a Lowest Level Term
• Select Only Current Lowest Level Terms
• When to Request a Term
• Use of Medical Judgment in Term Selection
• Selecting More than One Term
• Check the Hierarchy
• Select Terms for All Reported Information, Do Not Add Information
Quality of Source Data
Quality Assurance

- Quality of original information impacts quality of output
- Obtain clarification of data
- Can be optimized by careful design of data collection forms and proper training of staff
- Organizations’ coding guidelines should be consistent with MTS:PTC
- Review of term selection by qualified individuals
- Human oversight of automated coding results

Do Not Alter MedDRA

- MedDRA is a standardized terminology with a pre-defined term hierarchy
- Users must not make *ad hoc* structural alterations, including changing the primary SOC allocation
- If terms are incorrectly placed, submit a change request to the MSSO
Always Select a Lowest Level Term
Select Only Current LLTs

- Lowest Level Term that most accurately reflects the reported verbatim information should be selected
- Degree of specificity may be challenging
  - Example: “Abscess on face” → select “Facial abscess,” not simply “Abscess”
- Select current LLTs only
  - Non-current terms for legacy conversion/historical purposes

When to Request a Term
Use of Medical Judgment

- Avoid company-specific “work-arounds” for MedDRA deficiencies. If concept not adequately represented in MedDRA, submit Change Request to MSSO.
- If no exact match in MedDRA, use medical judgment to match to an existing term that adequately represents the concept
Selecting More than One Term
Check the Hierarchy

• Can select more than one LLT to represent reported information. Document procedures.
  – Selecting one term may lead to loss of specificity
  – Selecting more than one term may lead to redundant counts
• Check the hierarchy above a selected LLT (PT, HLT, HLGT, SOC) to ensure placement accurately reflects meaning of reported term

Select Terms for All Reported Information

• Select terms for every AR/AE reported, regardless of causal association
• Select terms for device-related events, product quality issues, medication errors, medical and social history, investigations and indications as appropriate
Do Not Add Information

- Do not make diagnosis if only signs/symptoms reported

<table>
<thead>
<tr>
<th>Reported</th>
<th>LLT Selected</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal pain, increased serum amylase, and increased serum lipase</td>
<td>Abdominal pain</td>
<td>It is inappropriate to assign an LLT for diagnosis of “pancreatitis”</td>
</tr>
<tr>
<td>Serum amylase increased</td>
<td>Lipase increased</td>
<td></td>
</tr>
</tbody>
</table>

Autoencoder Pitfalls

- Inappropriate terms may be selected by autoencoder
- Review all autoencoding carefully
  - “Allergic to CAT scan” autoencoded as:
    LLT *Allergic to cats*
  - “Myocardial infarction in the fall of 2000” autoencoded as:
    LLT *Myocardial infarction*
    LLT *Fall*
Term Selection Points

• Diagnoses and Provisional Diagnoses with or without Signs and Symptoms
• Death and Other Patient Outcomes
• Suicide and Self-Harm
• Conflicting/Ambiguous/Vague Information
• Combination Terms
• Age vs. Event Specificity
• Body Site vs. Event Specificity
• Location-Specific vs. Microorganism-Specific Information
• Modification of Pre-existing Conditions
• Exposures During Pregnancy and Breast Feeding
• Congenital Terms
• Neoplasms
• Medical and Surgical Procedures
• Investigations

Term Selection Points (cont)

• Medication Errors, Accidental Exposures and Occupational Exposures
• Misuse, Abuse and Addiction
• Transmission of Infectious Agent via Product
• Overdose, Toxicity and Poisoning
• Device-related Terms
• Drug Interactions
• No Adverse Effect and “Normal” Terms
• Unexpected Therapeutic Effect
• Modification of Effect
• Social Circumstances
• Medical and Social History
• Indication for Product Use
• Off Label Use
• Product Quality Issues
Introduction to the MedDRA Browsers

MSSO’s MedDRA Browsers

• MedDRA Desktop Browser (MDB)
  – Download MDB and release files from MedDRA website
• MedDRA Web-Based Browser (WBB)
  – https://tools.meddra.org/wbb/
• Mobile MedDRA Browser (MMB)
  – https://mmb.meddra.org

• Features
  – Each require MedDRA ID and password
  – View/search MedDRA and SMQs
  – Support for all MedDRA languages
  – Language specific interface
  – Ability to export search results and Research Bin to local file system (MDB and WBB only)
MDB and WBB Special Features

• Preview upcoming (supplemental) changes in next release*
• View primary and secondary link information
• Upload terms to run against SMQs
• Advanced search options (e.g., NOT, OR)

*Supplemental view not available on MDB

MedDRA Browser Demonstration
Approaches to Finding the Best LLT

Assessing the Reported Information

• Consider what is being reported. Is it a:
  – Clinical condition - Diagnosis, sign or symptom?
  – Indication?
  – Test result?
  – Injury?
  – Procedure?
  – Medication error?
  – Product use issue?
  – Product quality issue?
  – Social circumstance?
  – Device issue?
  – Procedural complication?

  – Is it a combination of these?

The type of report will influence the way you search for a suitable LLT. It may indicate in which SOC you expect to find the closest match.
Coding Example 1

Specificity

The patient suffered from an allergic reaction to an antibiotic

Coding Example 2

Symptoms

The patient states she has been experiencing cold sweats
Coding Example 3

**Investigations**

Lab results indicate the patient has increased troponin and increased CPK-MB.

Coding Example 4

**Medication errors**

Patient accidentally took drug Y instead of drug X and became short of breath.
Coding Example 5

Patient demographics

A 2 day old baby was noted to have a mild fever

Coding Example 6

Indications

A 35 year old woman was taking Drug X to prevent relapses of multiple sclerosis
Coding Example 7

Specificity

She had a pathologic fracture of the neck of the left femur.

Coding Example 8

Specificity

Following the procedure, the patient experienced several days of constipation.
Coding Example 9

Death and other patient outcomes

The 66 year old man died from a ruptured aortic aneurysm

Coding Example 10

Product quality issues

It was determined that the product was counterfeit
Coding Example 11

Social circumstances

The patient was confined to a wheelchair.

Coding Example 12

Medication errors/Product use errors and issues

The pharmacist made a mistake in compounding the medication.
Coding Example 13

Narrative vignette

A 75-year-old male receiving Drug X for rheumatoid arthritis developed symptomatic aortic valve stenosis. The patient’s medical history is significant for colon cancer and cigarette smoking. He underwent an aortic valve replacement and developed a sternal wound infection three days post-surgery.

Summary

In this course, we:

• Reviewed the scope, structure, and characteristics of MedDRA

• Were introduced to the MedDRA Term Selection: Points to Consider document and some of its specific principles

• Were introduced to the MedDRA browsers and saw some examples of how a browser is used for coding
MSSO Contacts

- Website
  - www.meddra.org

- Email
  - mssohelp@meddra.org

- Frequently Asked Questions
  - www.meddra.org/faq

- MedDRA Browsers
  - https://www.meddra.org/meddra-desktop-browsers (Desktop Browser)
  - https://tools.meddra.org/wbb/ (Web-Based Browser)
  - https://mmb.meddra.org (Mobile Browser)

MSSO Contacts (cont)

- Self-Service Application
  - https://www.meddra.org/meddra-self-service-application

- Training Schedule
  - https://www.meddra.org/training/schedule

- Change Request Submission
  - https://www.meddra.org/how-to-use/change-requests

- MedDRA Support Documentation
  - https://www.meddra.org/how-to-use/support-documentation
Question and Answer Session