Role of MedDRA® in Healthcare

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Objectives of this Presentation

Role of MedDRA in public health and healthcare:

• Background
• Users
• Examples of Use
Background
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.
• 70K terms arranged hierarchically
• Classification for a wide range of clinical data
• Available in 11 languages
• Rigorously maintained
• Required component for electronic reporting
Scope of MedDRA

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

System Organ Class (SOC) (26)
High Level Group Term (HLGT) (334)
High Level Term (HLT) (1,717)
Preferred Term (PT) (20,307)
Lowest Level Term (LLT) (72,072)

MedDRA Version 16.1
MedDRA Structure (cont)

- **SOC**: Ear and labyrinth disorders
  - **HLT**: Aural disorders NEC
  - **HLT**: Congenital ear disorders (excl deafness)
  - **HLT**: External ear disorders (excl congenital)
  - **HLT**: Hearing disorders
  - **HLT**: Inner ear and VIIIth cranial nerve disorders
    - **HLT**: Inner ear disorders NEC
    - **HLT**: Inner ear infections and inflammations
      - **PT**: Inner ear signs and symptoms
        - **PT**: Cogan's syndrome
        - **PT**: Motion sickness
        - **PT**: Tinnitus
        - **PT**: Vertigo
          - **LLT**: Acute rotatory vertigo
          - **LLT**: Head revolving around
          - **LLT**: Head revolving round
          - **LLT**: Head spinning
          - **LLT**: Other and unspecified peripheral vertigo
          - **LLT**: Other peripheral vertigo
          - **LLT**: Peripheral vertigo, unspecified
          - **LLT**: Room going round
          - **LLT**: Rotatory vertigo
          - **LLT**: Spinning
Users
Regulatory Use

- True international standard for adverse event reporting and analysis
- US FDA
  - Not mandated but *de facto* standard in US
  - Used in several FDA databases
- Japanese Ministry of Health, Labour and Welfare
  - Mandatory use in electronic reporting
- European Union
  - Mandatory use in electronic reporting
  - EudraVigilance database
  - Good Pharmacovigilance Practices (GVP) specifically mention MedDRA
- Biopharmaceutical industry
• US FDA databases using MedDRA
  - Center for Drug Evaluation and Research (CDER)
    • FAERS (drugs and biologics)
  - Center for Biologics Evaluation and Research (CBER)
    • VAERS (vaccines)
  - Center for Food Safety and Applied Nutrition
    • CAERS (food, dietary supplements, cosmetics)
Who Else Uses MedDRA?

- Non-ICH regions
- WHO’s international drug monitoring center (Uppsala Monitoring Centre)
- Academic researchers
- Toxicologists
- Others

More than 3,700 subscribing organizations worldwide in more than 60 countries
Examples of Use
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
How MedDRA is Used

...and by this SOC...

...by this HLGT...

...by this HLT...

All of these reports are represented by this PT...

Report 1: “My head felt like it was revolving on an axis”

Report 2: Patient diagnosed with rotary vertigo

Report 3: “Felt like the room was going around”
Codes and Languages

- Hoofdpijn (Dutch)
- Headache (English)
- Céphalée (French)
- Bolest hlavy (Czech)
- Cefaleia (Portuguese)
- Kopfschmerz (German)
- Fejfájás (Hungarian)
- Cefalea (Italian)
- 頭痛 (Chinese)
- Cefalea (Spanish)

Electronic Submission
ICH E2B Expert Working Group

Implementation Guide for
Electronic Transmission of Individual Case Safety Reports
(ICSRs)

E2B(R3) Data Elements and Message Specification

Version 5.01, 12 April 2013
Use of MedDRA at the FDA

Acknowledgement: Dr. Chuck Cooper, Office of Translational Sciences, CDER, FDA
Standardised MedDRA Queries (SMQs)

• Bring together MedDRA terms from multiple SOCs, all related to a condition of interest

• From a company perspective, these are pre-packaged queries than can be used for safety monitoring, responding to regulatory queries, etc.

• From a regulator perspective, allows a standard terms list for more efficient comparison of safety issues
SMQs in Production - Examples

As of Version 16.1, a total of 94 in production

- Agranulocytosis
- Anaphylactic reaction
- Cerebrovascular disorders
- Convulsions
- Depression and suicide/self-injury
- Hepatic disorders
- Hypersensitivity
- Ischaemic heart disease
- Lack of efficacy/effect
- Osteonecrosis
- Peripheral neuropathy
- Pregnancy and neonatal topics
- Pseudomembranous colitis
- Rhabdomyolysis/myopathy
- Severe cutaneous adverse reactions
- Systemic lupus erythematosus
How to “Run” an SMQ

Clinical Trial Database
Safety Database

"Hit"
Use of SMQs at FDA

<table>
<thead>
<tr>
<th>SMQ name</th>
<th>CPI/r</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyslipidaemia (SMQ)</td>
<td>19 (4.44%)</td>
<td>40 (11.03%)</td>
</tr>
<tr>
<td>Depression and suicide/self-injury (SMQ)</td>
<td>17 (3.97%)</td>
<td>22 (5.06%)</td>
</tr>
<tr>
<td>Peripheral neuropathy (SMQ)</td>
<td>16 (3.74%)</td>
<td>19 (4.37%)</td>
</tr>
<tr>
<td>Malignancies (SMQ)</td>
<td>11 (2.57%)</td>
<td>13 (2.99%)</td>
</tr>
<tr>
<td>Malignant or unspecified tumours (SMQ)</td>
<td>11 (2.57%)</td>
<td>13 (2.99%)</td>
</tr>
<tr>
<td>Haematopoietic cytopenias (SMQ)</td>
<td>12 (2.80%)</td>
<td>10 (2.30%)</td>
</tr>
<tr>
<td>Leukopenia (SMQ)</td>
<td>11 (2.57%)</td>
<td>9 (2.07%)</td>
</tr>
<tr>
<td>Asthma/bronchospasm (SMQ)</td>
<td>2 (0.47%)</td>
<td>6 (1.38%)</td>
</tr>
<tr>
<td>Angioedema (SMQ)</td>
<td>2 (0.47%)</td>
<td>4 (0.92%)</td>
</tr>
<tr>
<td>Acute pancreatitis (SMQ)</td>
<td>1 (0.23%)</td>
<td>4 (0.92%)</td>
</tr>
<tr>
<td>Convulsions (SMQ)</td>
<td>3 (0.70%)</td>
<td>3 (0.69%)</td>
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<tr>
<td>Ischaemic heart disease (SMQ)</td>
<td>0 (0.00%)</td>
<td>3 (0.69%)</td>
</tr>
<tr>
<td>Acute renal failure (SMQ)</td>
<td>0 (0.00%)</td>
<td>2 (0.46%)</td>
</tr>
<tr>
<td>Interstitial lung disease (SMQ)</td>
<td>0 (0.00%)</td>
<td>2 (0.46%)</td>
</tr>
<tr>
<td>Embolic and thrombotic events, arterial (SMQ)</td>
<td>1 (0.23%)</td>
<td>2 (0.46%)</td>
</tr>
<tr>
<td>Embolic and thrombotic events (SMQ)</td>
<td>3 (0.70%)</td>
<td>2 (0.46%)</td>
</tr>
</tbody>
</table>

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Conclusion

MedDRA supports public health by providing:

- Support for safety monitoring of medicinal products
  - Facilitates the collection of data for analysis of potential safety signals
  - An international standard used by regulatory authorities, biopharmaceutical industry and others
Brian J. O’Hare
MedDRA Terminology Maintenance Manager