Forensic Community Drug Database Conceptualization

Introduction

Medicolegal death investigations commonly encounter drugs, drug metabolites, and other related substances. Public health and safety agencies are tasked with tracking drugs and related outcomes, including fatal and nonfatal overdoses. To accomplish this task in an accurate and timely manner, there is a need for the standardization of drug names and nomenclature, as well as classification and taxonomy. In addition, there is a need for a collective and comprehensive resource, such as a forensic community drug database, that the medicolegal death investigation community can use to learn about drugs, linking associated chemical information, published articles, and other literature. Developing a system that would allow the forensic community and other collaborators to determine which drug terms are the same (i.e., synonyms) and the relationship between the drugs (e.g., metabolite, precursor), would benefit the death investigation, public health, and public safety communities, as well as forensic science research.

Target Database Users

The target users of the database include the following:

- Medical examiners/coroners
- Forensic scientists
- Toxicologists
- Chemists
- Pharmacologists
- Public health officials including epidemiologists
- Clinicians
- Public safety officials
- Law enforcement
- International agencies
- Researchers
- Policymakers
Table 1: An example of the information that would be entered for methamphetamine.

<table>
<thead>
<tr>
<th>Preferred name</th>
<th>Biological Effect</th>
<th>Drug Class</th>
<th>Origin/Use</th>
<th>Pharmacology Activity</th>
<th>Structural Class</th>
<th>Catch-All Terms</th>
<th>Slang Terms</th>
<th>Related Names</th>
<th>Drug Type</th>
<th>Control Classification (U.S. Federal)</th>
<th>Control (International)</th>
<th>T-Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methamphetamine</td>
<td>Stimulant</td>
<td>Stimulant</td>
<td>Synthetic</td>
<td>Agonist</td>
<td>Amphetamine</td>
<td>Drug of Abuse</td>
<td>Meth Ice</td>
<td>Desoxyn</td>
<td>Parent</td>
<td>Schedule II</td>
<td>Schedule II</td>
<td>T43.6</td>
</tr>
</tbody>
</table>

Other items of interest to incorporate into the database include analytical data (e.g., MS, IR, NMR), chemical data (e.g., melting point, boiling point, retention index), pharmacology (e.g., potency, activity), toxicology data (e.g., PM, DUID, clinical), patent literature, and other sources. Other considerations include sub-pages or sub-sections for salt forms and isomers, among other descriptors, as well as common drug combinations, therapeutic range/fatal concentrations, and desired effects/negative side effects.
Recommendations

Laboratories and public health agencies should consider the following:

Medical Examiner/Coroner Offices:

- Know what the preferred drug name is for inclusion on the death certificate.
- Use linked published literature to gain insights about the drug or substance.
- Utilize pharmacology and toxicology resources, as necessary, during case interpretation and death certification.

Forensic Toxicology Laboratories:

- Know what the preferred drug name is for inclusion on the toxicology report.
- Use linked published literature to gain insights about the drug or substance.
- Utilize current pharmacology and toxicology resources during case interpretation and for informing expert opinions.
- Consult analytical data and references for data comparison.
- Use chemical information for assistance with laboratory work.

Seized Drug Laboratories:

- Know what the preferred drug name is for inclusion on the seized drug report.
- Use linked published literature to gain insights about the drug or substance.
- Utilize relevant resources, as necessary, during case interpretation.
- Consult analytical data and references for data comparison.
- Use chemical information for assistance with laboratory work.

Public Health Agencies:

- Know what the preferred drug name is that is included on various forensic reports.
- Use linked published literature to gain insights about the drug or substance.
- Understand drug nomenclature, taxonomy, and classification and utilize the information as a framework for data cleansing, manipulation, and interpretation.
References


Disclaimer

The NIJ FTCOE, led by RTI International, is supported through a Cooperative Agreement from the NIJ (15PNIJ-21-GK-02192-MUMU), Office of Justice Programs, U.S. Department of Justice. Neither the U.S. Department of Justice nor any of its components are responsible for, or necessarily endorse, this document. NIJ is the research, development, and evaluation agency of the U.S. Department of Justice. NIJ is dedicated to improving knowledge and understanding of crime and justice issues through science. NIJ provides objective and independent knowledge and tools to inform the decision-making of the criminal and juvenile justice communities to reduce crime and advance justice, particularly at the state and local levels. The NIJ Office of Investigative and Forensic Sciences (OIFS) is the federal government’s lead agency for forensic science research and development. OIFS’s mission is to improve the quality and practice of forensic science through innovative solutions that support research and development, testing and evaluation, technology, information exchange, and the development of training resources for the criminal justice community.

Public Domain Notice

All material appearing in this publication is in the public domain and may be reproduced or copied without permission from the U.S. Department of Justice (DOJ). However, this publication may not be reproduced or distributed for a fee without the specific, written authorization of DOJ. Citation of the source is appreciated.

Citation of the source is appreciated. Electronic copies of this publication can be downloaded from the FTCOE website at https://www.forensiccoe.org/.

Suggested Citation


FTCOE Contact

Jeri Ropero-Miller, PhD, F-ABFT
Principal Scientist, FTCOE
jerimiller@rti.org

NIJ Contact

Danielle McLeod-Henning, MFS
Physical Scientist
Office of Investigative and Forensic Sciences
danielle.mcleod-henning@usdoj.gov

Photo Credit:

WWW.FORENSICCOE.ORG