



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.

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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

Graphic 1: Category and corresponding key data elements to be included in a forensic community drug database.



Table 1: An example of the information that would be entered for methamphetamine.

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

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

- 1 Davis, G. G., Cadwallader, A. B., Fligner, C. L., Gilson, T. P., Hall, E. R., Harshbarger, K. E., Kronstrand, R., Mallak, C. T., McLemore, J. L., Middleberg, R. A., Middleton, O. L., Nelson, L. S., Rogalska, A., Tonsfeldt, E., Walterscheid, J. P., & Winecker, R. E. (2020). Position paper: Recommendations for the investigation, diagnosis, and certification of deaths related to opioid and other drugs. *American Journal of Forensic Medicine and Pathology*, 41(3), 152–159. <https://doi.org/10.1097/PAF.0000000000000550>. 
2. Vernon, E., Sorrell, C., Shute, R., & Ropero-Miller, J. D. (2022). *A landscape study of electronic case management systems (CMS) for medical examiners and coroners*. Research Triangle Park, NC: RTI International. <https://forensiccoe.org/private/654822fb67fb7>. 



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