

**SECOND EDITION**

**Handbook of  
Forensic Toxicology for  
Medical Examiners**

**D. Kimberley Molina, MD  
Veronica M. Hargrove, PhD**



Practical Aspects of Criminal and Forensic Investigations Series

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Handbook of Forensic  
Toxicology for Medical  
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# Editor's Note

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This textbook is part of a series titled “Practical Aspects of Criminal and Forensic Investigations.” This series was created by Vernon J. Geberth, a retired New York City Police Department lieutenant commander who is an author, educator, and consultant on homicide and forensic investigations.

This series has been designed to provide contemporary, comprehensive, and pragmatic information to the practitioner involved in criminal and forensic investigations by authors who are nationally recognized experts in their respective fields.





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## Series Editor

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The Series Editor for *Practical Aspects of Criminal and Forensic Investigations* is Lieutenant Commander (retired) Vernon J. Geberth, New York City Police Department, who was the commanding officer of the Bronx Homicide Task Force, which handled more than 400 homicides a year. Commander Geberth has been president of P.H.I. Investigative Consultants, Inc., Marco Island, FL, since 1987. He has more than 47 years of law enforcement experience and has conducted homicide investigation seminars for more than 74,000 attendees from more than 8,000 law enforcement agencies.

Commander Geberth holds dual master's degrees in Clinical Psychology and Criminal Justice. He is a fellow in the American Academy of Forensic Sciences, Colorado Springs, CO, a graduate of the FBI National Academy, Quantico, VA, and the recipient of the Lifetime Achievement Award from the Vidocq Society.

He is an author, educator, and consultant on homicide and forensic investigations. He has published three best-selling books in this series, *Practical Homicide Investigation, Fifth Edition*; *Sex-Related Homicide and Death Investigation: Practical and Clinical Perspectives, Second Edition*; and *Practical Homicide Investigation: Checklist and Field Guide, Second Edition*.

He created, edited, and designed this series of more than 65 publications to provide contemporary, comprehensive, and pragmatic information to the practitioner involved in criminal and forensic investigations by authors who are nationally recognized experts in their respective fields.

He welcomes the opportunity to review new proposals for books covering any area of criminal and forensic investigation and may be reached through his email: [vernongeberth@practicalhomicide.com](mailto:vernongeberth@practicalhomicide.com).



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# List of Abbreviations

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<b>ABFT</b>	American Board of Forensic Toxicology
<b>aceta</b>	acetaminophen
<b>ACh</b>	acetylcholinesterase
<b>ASA</b>	aspirin
<b>BAC</b>	blood alcohol (ethanol) content
<b>bid</b>	twice a day
<b>CNS</b>	central nervous system
<b>CV</b>	cardiovascular
<b>d</b>	day
<b>g</b>	gram
<b>gtts</b>	drops
<b>h</b>	hour
<b>im</b>	intramuscular
<b>iv</b>	intravenous
<b>kg</b>	kilogram
<b>L</b>	liter
<b>mEq</b>	milliequivalent
<b>mg</b>	milligram
<b>min</b>	minute
<b>mL</b>	milliliter
<b>mo</b>	month
<b>NAME</b>	National Association of Medical Examiners
<b>ng</b>	nanogram
<b>NRI</b>	norepinephrine reuptake inhibitor
<b>NSAID</b>	non-steroidal anti-inflammatory drug
<b>OTC</b>	over the counter
<b>ppm</b>	parts per million
<b>po</b>	by mouth (per os)
<b>pr</b>	per rectum
<b>prn</b>	as needed
<b>q</b>	every
<b>qam</b>	in the morning
<b>qd</b>	once a day
<b>qHS</b>	at bedtime
<b>qid</b>	four times a day

<b>SC</b>	subcutaneous
<b>SNRI</b>	serotonin and norepinephrine reuptake inhibitor
<b>SSRI</b>	selective serotonin reuptake inhibitor
<b>supp</b>	suppository
<b>susp</b>	suspension
<b>TCA</b>	tricyclic antidepressant
<b>THC</b>	delta-9-tetrahydrocannabinol
<b>tid</b>	three times a day
<b>V<sub>d</sub></b>	volume of distribution
<b>w/</b>	with
<b>wk</b>	week
<b>yr</b>	year
<b>λ</b>	half-life
<b>μg</b>	microgram