



Priority Action Report

Toxicology Subcommittee

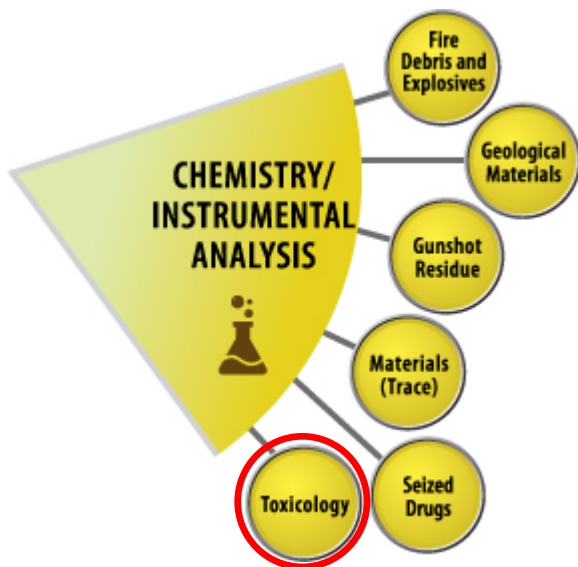
Chemistry / Instrumental Analysis Scientific Area
Committee

Marc A. LeBeau, PhD, F-ABFT

February 14, 2017



Discipline Description



The OSAC Subcommittee on Toxicology will focus on standards and guidelines related to the analysis of biological samples for alcohol, drugs, or poisons, and the interpretation of these results.



Subcommittee Leadership

Position	Name	Organization	Term	Email
Chair	Marc A LeBeau, PhD	FBI	2019	marc.lebeau@ic.fbi.gov
Vice Chair	Melissa Kennedy, MS	ANAB	2017	mkennedy@anab.org
Executive Secretary	Fiona Couper, PhD	WA State Patrol	2019	fiona.couper@wsp.wa.gov



Subcommittee Members



#	Name	Organization	Term	Email
1	Daniel Anderson, MS	CO Bureau of Investigation	2017	daniel.anderson@state.co.us
2	Sabra Botch-Jones, MS	Boston University	2018	sabraj@bu.edu
3	Dan Dunsworth	Intoximeter, Inc.	2019	ddunsworth@intox.com
4	Kenneth Ferslew, PhD	East TN State University	2018	ferslew@etsu.edu
5	Marilyn Huestis, PhD	University of Maryland	2018	marilyn.huestis@gmail.com
6	Robert Johnson, PhD	Tarrant County ME's Office	2017	rdjohnson@tarrantcounty.com
7	Matthew Juhascik, PhD	Montgomery County Coroner's Office	2017	juhascikm@mcoho.org
8	Philip Kemp , PhD	FAA	2017	philip.kemp@faa.gov



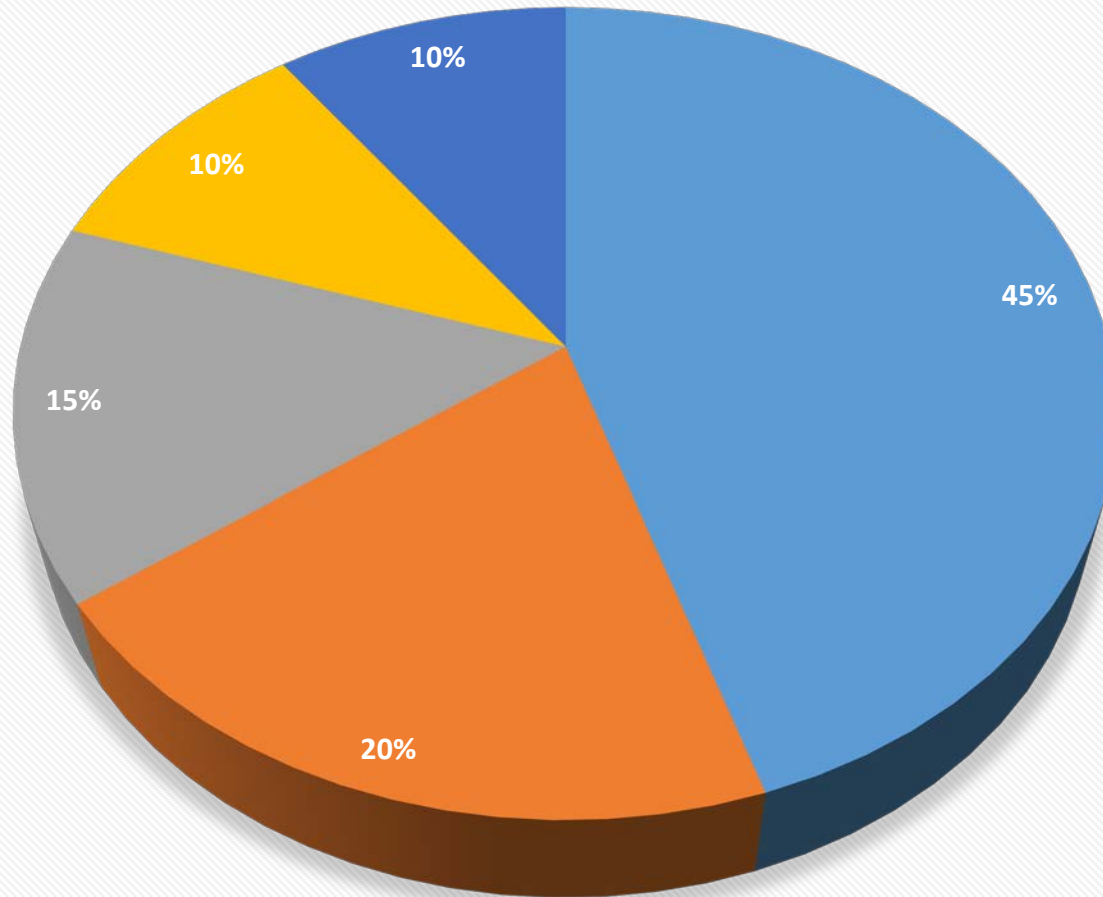
Subcommittee Members



#	Name	Organization	Term	Email
9	Jennifer Limoges, MSFS	NY State Police	2019	jennifer.limoges@troopers.ny.gov
10	Robert Middleberg, PhD	NMS Labs	2019	robert.middleberg@nmslabs.com
11	Madeline Montgomery	FBI	2018	madeline.montgomery@ic.fbi.gov
12	Sumandeep Rana, PhD	Redwood Toxicology Laboratories	2017	srana@redwoodtoxicology.com
13	Jeri Roper-Miller, PhD	RTI International	2019	jerimiller@rti.org
14	Mark Ruefenacht	Private Metrologist	2017	mark@forensicmetrology.com
15	Robert Sears, MS	SC Law Enforcement Division	2019	robsears@sled.sc.gov
16	Ruth Winecker, PhD	NC Office of Chief ME	2018	ruth.winecker@dhhs.nc.gov
17	Dustin Tate Yeatman, MS	Palm Beach County Sheriff	2018	yeatmand@pbso.org



Membership Breakdown



■ State/ Local Practitioners

■ Researchers/Academicians

■ Federal Practitioners

■ Private Practitioners

■ R&D Technology Partners

Affiliates



#	Name	Organization
1	Amanda Black	Washington State Patrol
2	Nichole Bynum	RTI International
3	Dennis Crouch	Consultant
4	Albert Elian	Massachusetts State Police Crime Lab
5	Chris Fontenot	Jefferson County Regional Crime Lab
6	Megan Grabenauer	RTI International
7	Susan Hackworthy	Wisconsin Department of Transportation
8	Curt Harper	Alabama Department of Forensic Sciences
9	Chris Heartsill	Tarrant County Medical Examiner's Office
10	Carrie Kirkton	New York State Police



Affiliates



#	Name	Organization
11	Robert Kronstrand	National Board of Forensic Medicine (Sweden)
12	Scott Larson	Montana State Crime Lab
13	Laura Liddicoat	Centre of Forensic Sciences
14	Dani Mata	Orange County Crime Laboratory
15	Christine Moore	Immunoanalysis
16	Sue Pearing	Santa Clara County Crime Laboratory
17	Karl Scheidweiler	National Institute on Drug Abuse
18	Peter Stout	Houston Forensic Science Center
19	Nicholas Tiscione	Palm Beach County Sheriff's Office
20	Jarrad Wagner	Oklahoma State University
21	Frank Wallace	Ameritox, LLC





August 2017 OSAC Toxicology Subcommittee Meeting
Phoenix, Arizona

Standard versus Guideline

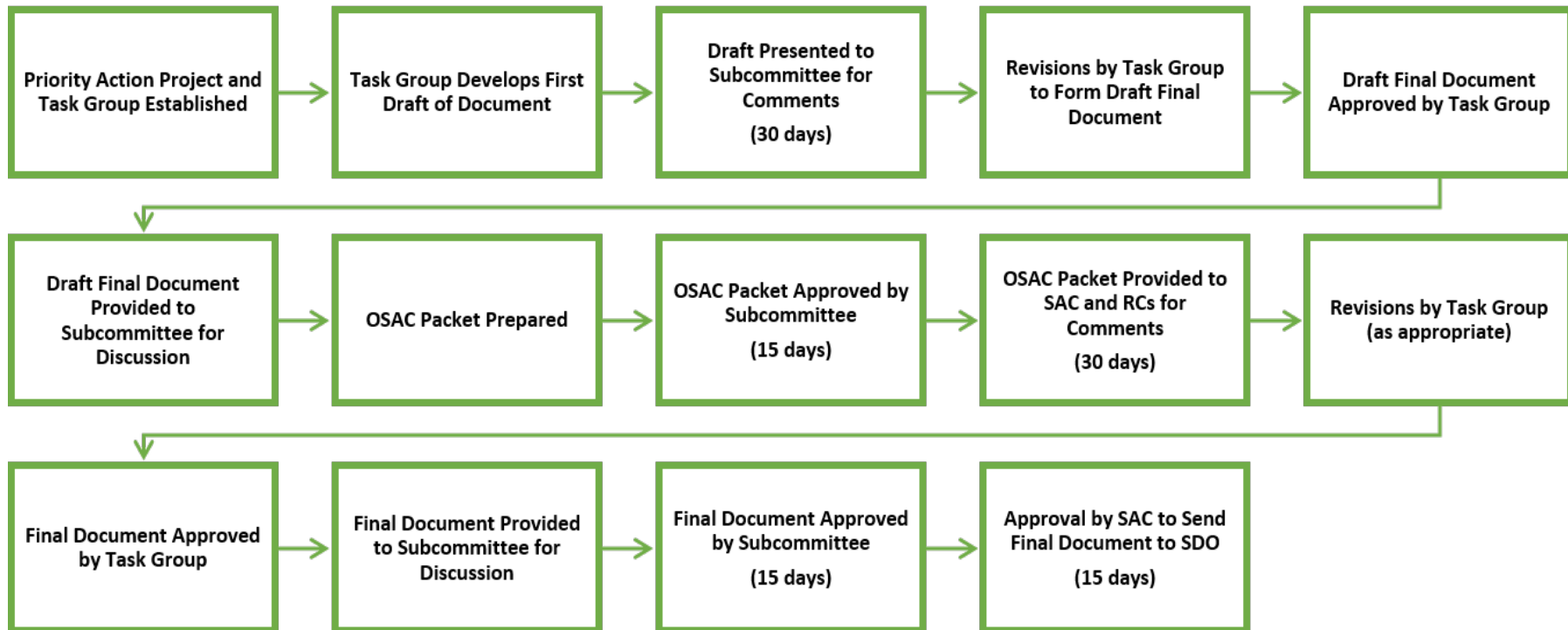
Standards:

- Specify uniform methods, actions, practices, processes, or protocols.
- Mandatory compliance except under unusual circumstances.
- “Minimum expectations”
- Needs to be achievable

Guidelines:

- Strong recommendation of a method, action, practice, or process to consider in the absence of applicable standards or best practices.
- “Best practice”
- May not be achievable today
- Should become a standard at some point

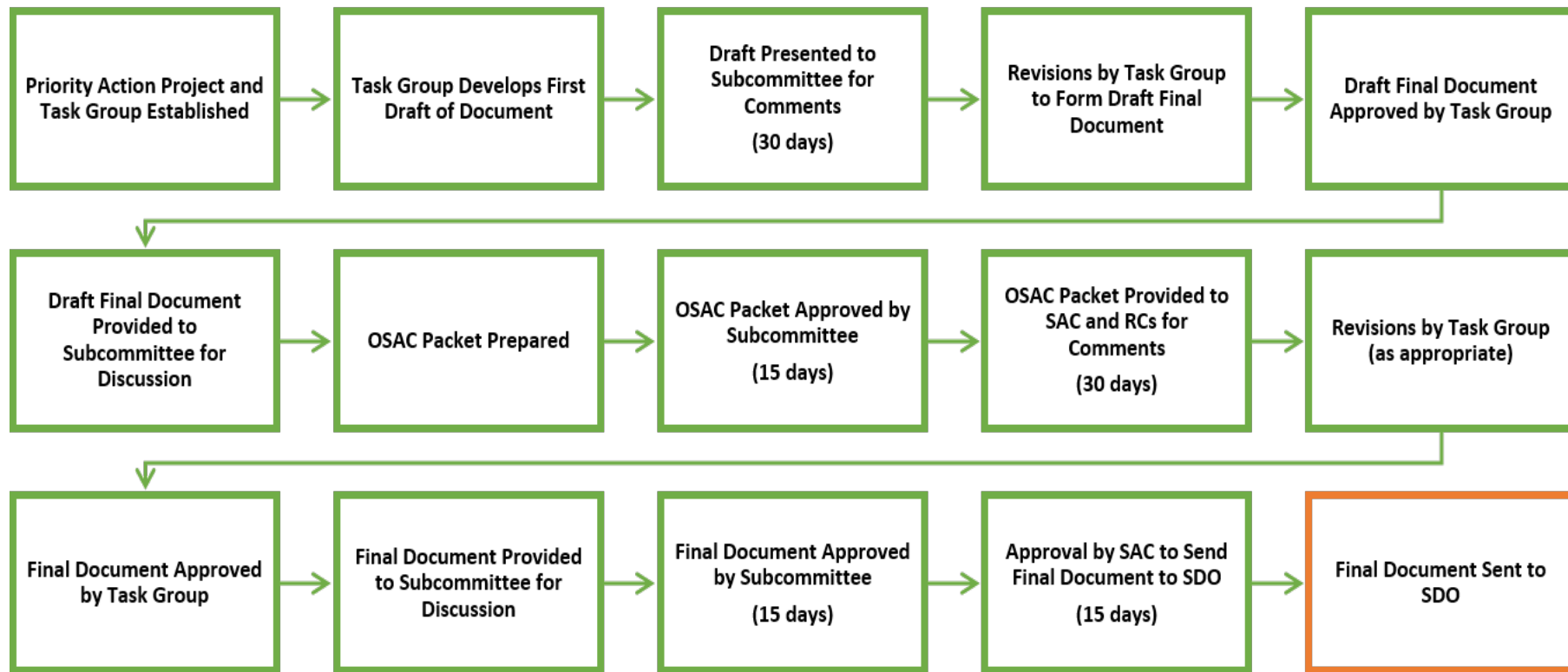
OSAC Review/Approval of Standards of Practice



Summary of Standards/Guidelines Under Draft by OSAC Toxicology Subcommittee

- Standard for Uncertainty of Measurement in Forensic Toxicology
 - Define minimum requirements for establishing measurement uncertainty in forensic toxicology
- Standard for Mass Spectrometry Data Evaluation in Forensic Toxicology
 - Establish minimum standard for setup of mass spectrometry analyses and evaluation of mass spectral data
- Standard for Minimum Testing Requirements in Forensic Toxicology
 - Define minimum expectations for testing in different subdisciplines of forensic toxicology
- Standard for Identification Criteria in Forensic Toxicology
 - Establish an identification point system to allow forensic toxicology laboratories to any combination of validated methods to confidently identify analytes
- Standard for Breath Alcohol Measuring Instrument Calibration
 - Delineate minimum standard for calibrating breath alcohol measuring instruments for evidentiary purposes

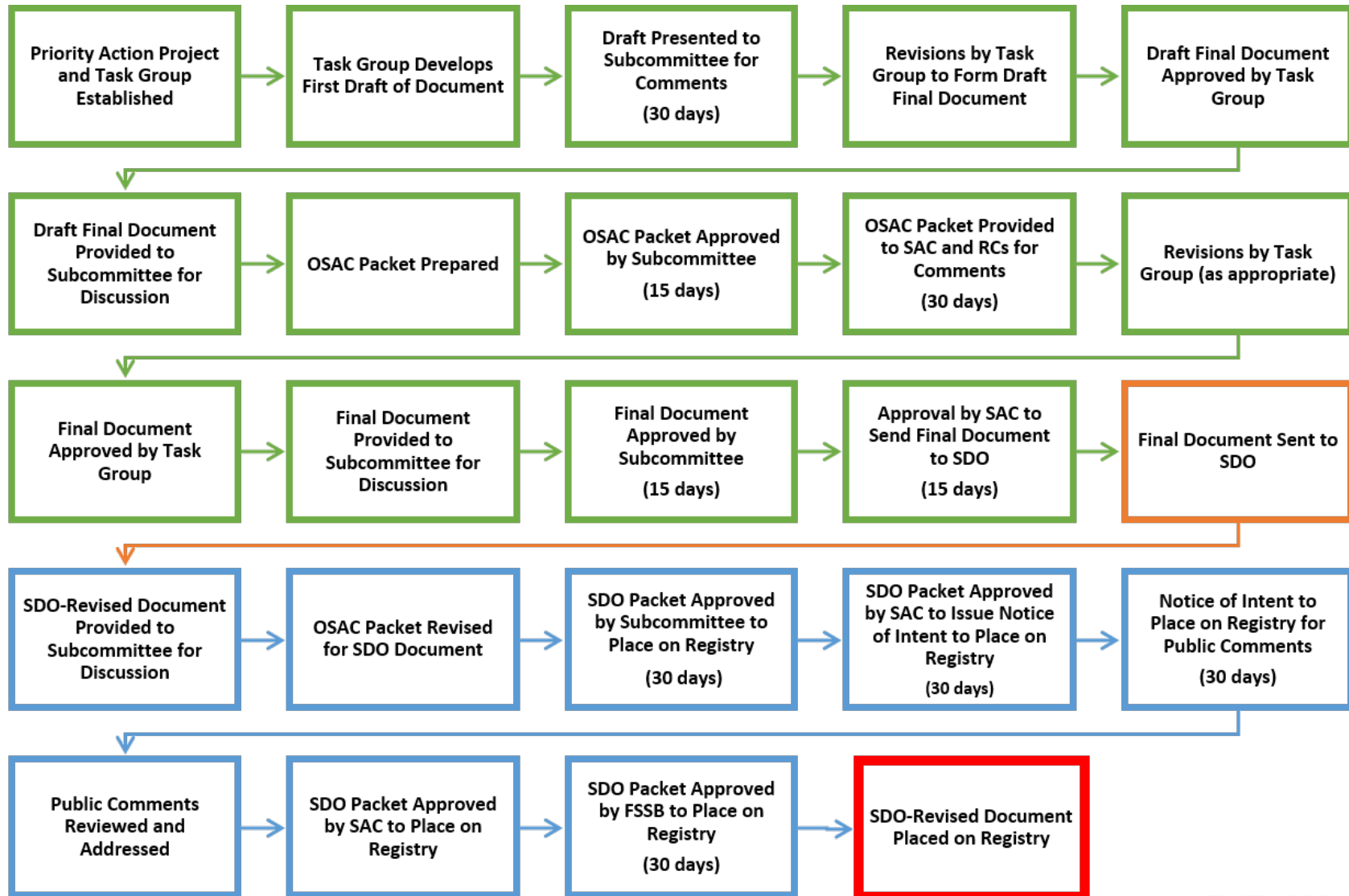
OSAC Review/Approval of Standards of Practice



Summary of Standards/Guidelines Drafted by OSAC Toxicology Subcommittee and Forwarded to ASB

- Standard Practices for Measurement Traceability in Forensic Toxicology
 - Minimum requirements for establishing measurement traceability in forensic toxicology laboratories
- Standard Practices for Method Validation in Forensic Toxicology
 - Minimum standards of practice for validating analytical methods in the field of forensic toxicology
- Standard Practices for a Quality Control Program in Forensic Toxicology Laboratories
 - Minimum standards of practice for quality control in forensic toxicology laboratories
- Standard for Report Content in Forensic Toxicology
 - Minimum requirements for forensic toxicology report content
- Guidelines for Opinions and Testimony in Forensic Toxicology
 - Guidance on practices in forensic toxicology opinions and testimony

OSAC Review/Approval of Standards of Practice



Summary of Standards/Guidelines Finalized by ASB and Proposed for OSAC Registry



Other Standards/Guidelines to be Drafted by OSAC Toxicology Subcommittee

- Standard for Content of Forensic Toxicology Standard Operating Procedures
- Guideline for Specimen Collection and Storage in Forensic Toxicology
- Standard for Proficiency Testing in Forensic Toxicology
- Guidelines for Education and Training in Forensic Toxicology Laboratories
- Guidelines for Accrediting Bodies of Forensic Toxicology Laboratories
- Standard for Breath Alcohol Instrumentation Specifications
- Standard for Blood Alcohol Calculations

Research Gaps Identified

- Emerging Drugs of Abuse and Therapeutic Agents
 - *Develop analytical methods, evaluate existing and novel sample preparation techniques, epidemiological studies, metabolite identification, post-mortem distribution, pharmacodynamics/pharmacokinetic studies*
- Herbal and Dietary Supplements and Plant-based Toxins
 - *Develop analytical methods, improve understanding of toxicity*



Research Gaps Identified

- Human Factors Impact on Forensic Toxicology
 - *Determine whether cognitive and contextual biases impact how cases are analyzed and conclusions made, impacts of motivational issues, fitness for duty (e.g. fatigue, visual acuity), scientific culture, group dynamics and error management*
- Postmortem Distribution and Redistribution
 - *Comprehensive tissue distribution studies to provide data on relationship between tissue and blood drug/metabolite concentrations, further characterization of chemical/biological mechanisms of PMR, specific chemical markers to provide evidence of PMR, development of mathematical relationships to evaluate PMR*

Wrap Up

- Get Involved!
 - Sign up for OSAC
 - Volunteer for OSAC Task Groups
 - Review and comment on SDO documents
 - Support the process