



AAFS Biological Methods Subcommittee Progress

Kimberly Murga

February 22, 2016





Subcommittee Leadership

Position	Name	Organization	Term	Email
Chair	Kimberly Murga	Las Vegas Metropolitan Police Department	2	K10140M@lvmpd.com
Vice Chair	Margaret Sanger	Kentucky State Police	2	Margaret.sanger@ky.gov
Executive Secretary	Jason Befus	Maryland State Police	2	Jason.befus@maryland.gov



Subcommittee Members



#	Name	Organization	Term	Email
1	Caroline Zervos	FBI	2	caroline.zervos@ic.fbi.gov
2	Taylor Scott	Illinois State Police	2	taylor_scott@isp.state.il.us
3	Eric Buel	Self Employed, Forensic Consultant	2	eric.buel.vt@gmail.com
4	Peter Vallone	NIST	2	peter.vallone@nist.gov
5	Susan Greenspoon	Virginia Dept. of Forensic Science	3	Susan.Greenspoon@dfs.Virginia.gov
6	Eugene Lien	NYC Office of Chief Medical Examiner	3	ELien@ocme.nyc.gov
7	Elisa Wurmbach	NYC Office of Chief Medical Examiner	3	ewurmbach@ocm.nyc.gov
8	Sean Oliver	Armed Forces DNA Identification Laboratory	3	robert.s.oliver28.ctr@mail.mil
9	Stacy McDonald	Dallas County Southwestern Institute of Forensic Sciences	3	smcdonald@dallascounty.org
10	Amy McGuckian	Palm Beach County Sheriff's Office	3	amy.mcguckiana@pbso.org
11	Amy Jeanguenat	BODE Technology	3	amy.jeanguenat@bodetech.com
12	Steven Weitz	Bureau of Alcohol, Tobacco, Firearms and Explosives	4	Steven.witz@atf.gov
13	Daniele Podini	The George Washington University	4	podini@gwu.edu
14	Ann Gross	MN Bureau of Criminal Apprehension	4	ann.gross@state.mn.us
15	Debra Glidewell	DoD/Defense Forensic Science Center	4	Debra.e.glidewell.civ@mail.mil
16	Bruce McCord	Florida International University	4	mccordb@fiu.edu
17	Kristine Kadash	Jefferson County Regional Crime Lab	4	kkadash@co.Jefferson.co.us



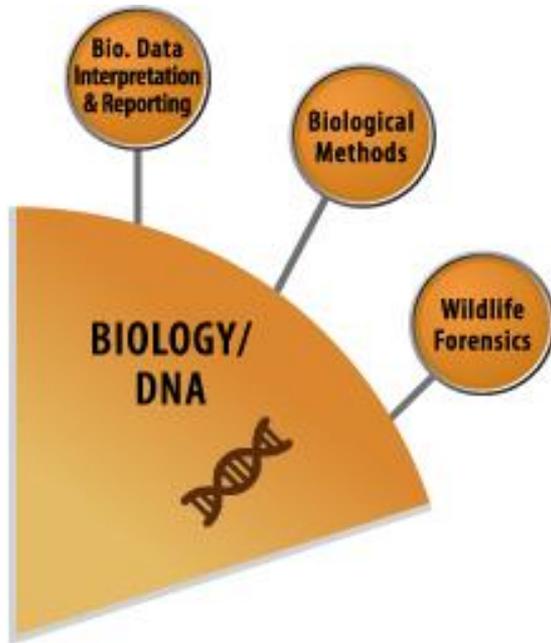
Subcommittee Affiliates



#	Name	Organization	Email
1	Melissa Suddeth	Florida Department of Law Enforcement	melissasuddeth@fdle.state.fl.us
2	Bill Gartside	San Bernardino County Sheriff's Department	bgartside@sbcasd.org
3	Jeffrey Nye	State of Michigan Department of State Police Forensic Science Division	nyej1@michigan.gov
4	David Foran	Michigan State University	foran@msu.edu



Discipline Description



Biological Methods

The Biological Methods Subcommittee will focus on establishing standards and guidelines that support molecular and biochemical methods used to analyze evidence and reference items.

- This encompasses everything from serology through loading samples on a Genetic Analyzer. This subcommittee does not cover anything related to interpretation (serology interpretation or DNA interpretation)



Monthly Telephonic Meetings Held

- 4 Task Groups
 - Terminology (being overseen at Biology/DNA SAC Level)
 - Validation and Method Development
 - Education /Training/Competency/Certification (ETCC)
 - Serological Examination of Biological Evidence





Topic 1: Forensic Biology Terminology

Priority Level: High

Description: To develop a standardized list of terms with definitions applicable across the forensic biology disciplines.

Draft Documents Created: 2 Lists, work is in progress

Task Group Chair Name: Eric Buel

Task Group Chair Contact Information: eric.buel.vt@gmail.com





Committee Action Plan

Priority	Planned Actions	Approx. Deadline	Assignee
1	Evaluate current lists of terms and focus on biology-specific terms (move non-biology terms to a separate list)	March, 2016	Terminology Task Group
2	Complete drafts for subcommittee evaluation and feedback	April, 2016	Terminology Task Group
3	Incorporate feedback and modify list of terms as appropriate	June, 2016	Terminology Task Group
4	List(s) of biology-specific terms completed for review by Biology/DNA SAC	July, 2016	Terminology Task Group





Topic 2: Validation and Method Development

Description: To Create Standards and Guidelines for the Validation of Standard Operating Procedures

Draft Standards and Guidelines Created: In progress

Task Group Chair Name: Steven Weitz

Task Group Chair Contact Information: steven.weitz@atf.gov



Topic 2: Validation and Method Development

- Content: SWGDAM and QAS inspired standards and guidelines
 - Definitions
 - Standards related to:
 - Developmental Validation
 - Internal Validation
 - Material Modification
 - Performance Check
 - Software



Committee Action Plan

Priority	Planned Actions	Approx. Deadline	Assignee
1	Develop a guideline related to validation and method development with best practices	March 2016	Validation Task Group
2	Develop standards related to internal and developmental validations associated with: <ul style="list-style-type: none"> 1) DNA Extraction 2) Quantitation 3) STRs 4) Capillary Electrophoresis 5) High Throughput Sequencing (NGS) 	May 2016	Validation Task Group
3	Present guidelines and standards to Subcommittee for review/comments	June 2016	Validation Task Group
4	Present guidelines and standards to Biology/DNA SAC for review/comments	July 2016	Validation Task Group





Topic 3: Education/Training/ Competency/Certification (ETCC)

Description: This group's focus is to establish standards and guidelines for training, education, competency, and certification that impact forensic practitioners, laboratory personnel, and the legal community.

Draft Standards and Guidelines Created: In progress

Task Group Chair Name: Kristine Kadash

Task Group Chair Contact Information: kkadash@co.Jefferson.co.us



Topic 3: Education/Training/ Competency/Certification (ETCC)

- Content: QAS Inspired Includes:
 - Detailed educational requirements
 - DNA training modules
 - Laboratory tasks and topics to include statistics, CODIS, validation, review, lab policies, interpretation guidelines, and reporting guidelines
 - Assessment/final evaluation requirements

Topic 3: Education/Training/ Competency/Certification (ETCC)



Committee Action Plan

Priority	Planned Actions	Approx. Deadline	Assignee
1	Consider comments from SAC on format of the draft Training Standard document and devise a plan to address them.	January 2016	Task Group
2	Divide single document into the following sections for elaboration: 1) Guidance document for Education Requirements 2) Guidance document for General Laboratory Issues 3) Training Standard for DNA Isolation and Purification Methods 4) Training Standard for Real-Time PCR Quantification Methods 5) Training Standard for STR Typing via Capillary Electrophoresis 6) Training Standard for Mitochondrial DNA Sequencing Analysis	February 2016	Daniele Podini/David Foran Kristine Kadash Kristine Kadash Daniele Podini Stacy McDonald Ann Marie Gross
3	Monthly conference calls (frequency may be changed based on need)	March 2016	Task Group
4	Submit drafts of one or more documents to SAC and ASB	August 2016	Task Group





Topic 4: Serology Standards

Description: These standards focus on serology, body fluid ID, sample identification and collection. Includes sexual assault kits, serological methods, evidence screening, body fluid/tissue identification and contamination prevention.

Draft Document Created: Standards for the Collection and Serological Examination of Biological Evidence

Task Group Chair Name: Caroline Zervos

Task Group Chair Contact Information: caroline.zervos@ic.fbi.gov



Topic 4: Standards for the Collection and Serological Examination of Biological Evidence

- Content: SWGDAM Inspired
- Includes
 - Definitions
 - Training Requirements
 - Serological Testing Fundamentals
 - Proficiency Testing Requirements
 - Evidence Control
 - Contamination Prevention
 - Validation Requirements
 - Equipment Calibration and Maintenance
 - Reporting and Reviews
 - Corrective Action

Topic 4: Standards for the Collection and Serological Examination of Biological Evidence

Committee Action Plan



Priority	Planned Actions	Approx. Deadline	Assignee
1	Review ASTM Standards/ASB formatting	February 2016	Task Group
2	Break up document into three main areas: Training/Proficiency Tests Validation Analytical Procedures	February 2016	Task Group
3	Submit to Subcommittee vote	March 2016	Amy Jeanguenat
4	Submit to Biology/DNA Scientific Area Committee	March 2016	Caroline Zervos
5	Identify specific focus documents to establish best practices	April 2016	Task Group

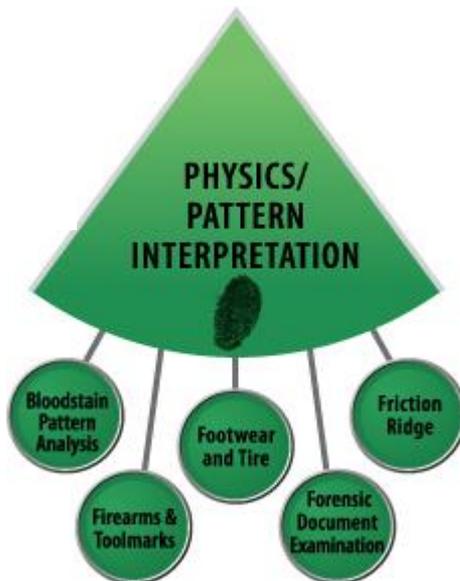
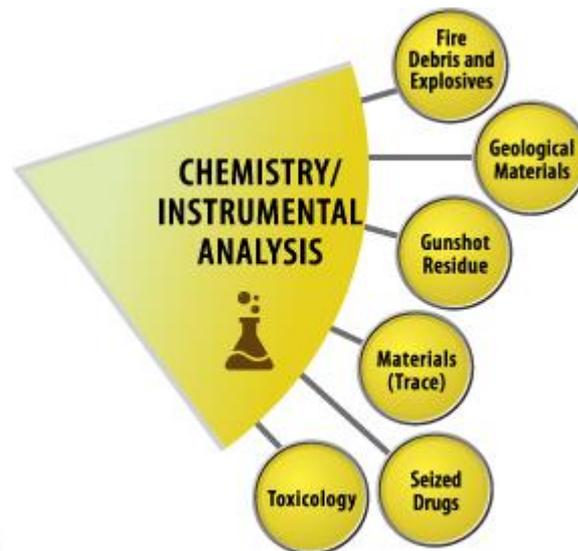
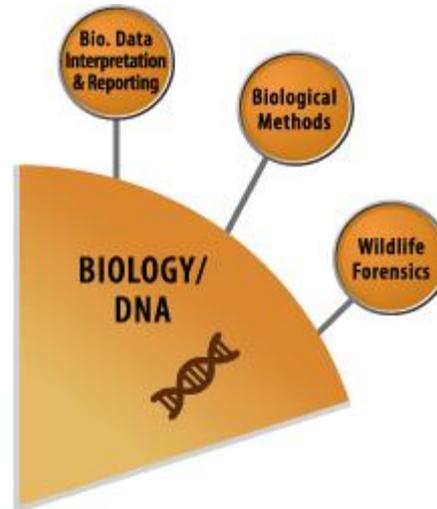
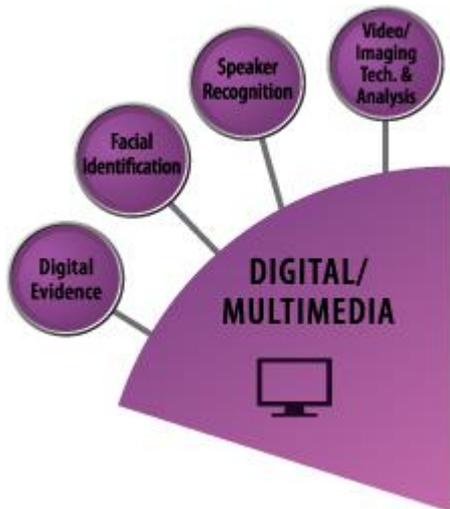


Research Needs and Gaps Identified

- Improving the analysis of serological evidence for the identification of body fluids
 - Considerable research has been conducted to improve DNA analysis techniques, but little has changed during serological analysis of evidence
 - It would be beneficial to add methods which would streamline and decrease the serological analysis time on time-intensive items like sheets, clothing, etc.
- Probabilistic genotyping of low copy number samples
 - Low copy number DNA analysis involves the presence of mixtures
 - Interpretation is difficult due to effects of stochastic amplification, allele dropout and allele drop-in
 - An expert system for this analysis would assist in the development of applications for this procedure

What's Next for Biological Methods Subcommittee?

- Task Groups are refining draft documents based upon extensive discussions and feedback during the January 2016 OSAC meeting
 - Adding more details, content, etc.
- Gain OSAC approval to submit documents to an Standards Development Organization for approval





Thank You!

