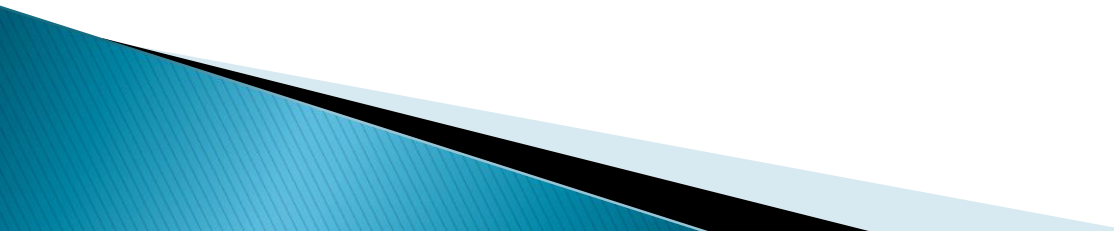


# **A Proficiency Test Provider's Perspective**

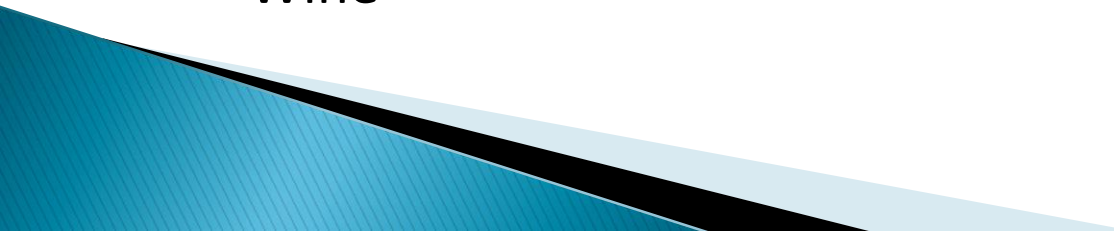
**Collaborative Testing Services, Inc.**

Presentation for National Commission on Forensic Science  
on behalf of The Accreditation and Proficiency Testing  
Subcommittee

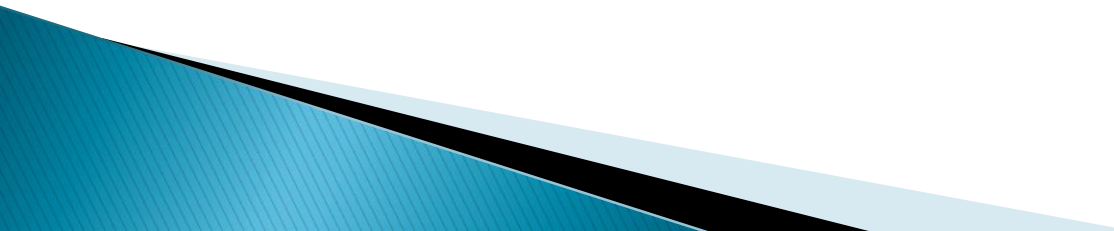
# Overview

1. **History** of CTS and Current Activities
  2. **Differences** between Forensic PT and other industries
  3. **Accreditation** to ISO 17043
  4. **Consensus** based results
  5. **Challenges** for the Forensic PT Provider
  6. **Emerging** areas in Forensic PT
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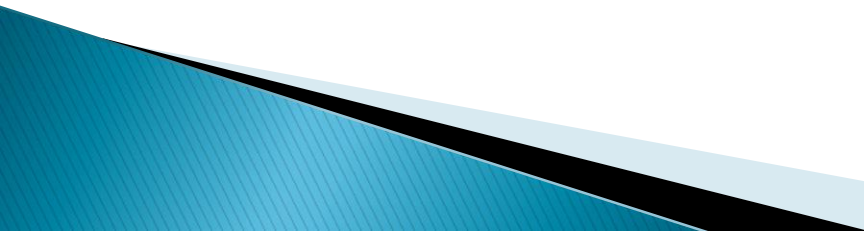
# CTS Current activities

- CTS offers proficiency testing to 9 disparate communities:
    - Agriculture
    - Color & Appearance
    - Corrugated Containers
    - Fasteners & Metals
    - Forensics
    - Paper & Paperboard
    - Plastics
    - Rubber
    - Wine
- 

# CTS Current activities - Forensics

- Offer tests in 9 forensic disciplines
    - Forensic Biology/DNA, Controlled Substances, Crime Scene, Firearms/Toolmarks, Latent Prints & Impressions, Questioned Documents, Digital Forensics, Toxicology and Trace Evidence
  - Provide 61 forensic proficiency tests in 2016
    - Also offering 1 Research Test
  - Ship over 14,000 laboratory tests in 2015
  - Used in over 60 countries
- 

# History of Forensic Testing and CTS

- CTS began operation in 1971 from activities already conducted by NBS, now NIST
  - ***LEAA funded FSF program 1974-1977***
  - CTS Forensic Proficiency Testing 1978
  - FSF Program Affiliate until 1992
  - ASCLD Program Affiliate until 1998
  - ***Technically supervised by the PAC, an ASCLD committee 1978-1999***
  - ASCLD/LAB PRC review of results 1993 – present
  - ANAB ISO 17043 Accreditation in 2014 - present
- 

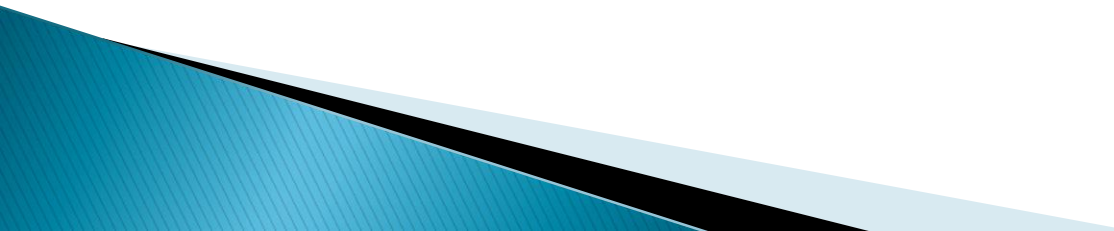
# History of Forensic Testing and CTS

- Original forensic testing schemes were focused on comparing methodologies and approaches
  - Anonymous reporting even to CTS
- Policy became the stronger aspect in mid 1990's
- Conclusions of examination became emphasis to coincide with accreditation
  - Gathering of specific analytical data lost emphasis
  - Minimum burden on laboratory systems
- What is the result of examination?
  - Evaluation by Accreditation Agencies
  - Additional information still gathered but it is very limited
    - Analyses performed, but not specific results
    - Balance may be beginning to shift

# Differences in PT Schemes

- What are the differences between the current state of forensic proficiency testing and PT in other industries?
  - **Test Design** (no subcontracting under ISO 17043)
    - Scenario-based test packages
    - Balance of case-like vs. uniform samples
    - Driven by consensus of individual laboratory policy
  - Standard methods (spectrum of proscription)
  - Numeric not conclusion-based emphasis
  - Level of challenge

# ISO 17043 Accreditation

- Just as ISO 17025 provides assessment for laboratories, ISO 17043 is an accreditation specific to providers of proficiency testing
  - Commonality with ISO 17025 for laboratories is much greater than the differences
  - Is not proscriptive of the type of scheme, accommodates many approaches
  - Many of the most crucial factors are left to the diligence of the Provider
- 



# Consensus-Based Proficiency Testing

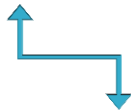
- CTS (mostly) uses a consensus based approach to proficiency testing
  - Most common answer is correct
  - Includes both numeric and conclusion based results: intermediate and final calls
  - Adequate consensus
  - Indicate differences from consensus, not judgment of right and wrong
- Expected associations are very common; not achieving adequate consensus rare

# Consensus-Based Proficiency Testing

- Numeric results are statistically treated similar to common practice in other industries
- Exceptions:
  - Manufacturer's Information supplies **actual source** of test components
  - We are imposing a **non-consensus approach** on some tests, specific to forensics is calibration in breath alcohol

# PT Provider Challenges I

- Balance of case-like scenarios with producing uniform test components
  - PT should mimic laboratory's work; samples are case like
  - Nominally each laboratory receives the same sample
  - Justify the compromises for large-scale production
  - Minimize the impact of the compromises
    - Actual implementation of these compromises on a sample-by-sample basis is among the requirements that demands the highest level of expertise



# PT Provider Challenges II

- Setting the appropriate level of challenge
  - Not achieving a consensus has become indicative of bad test design or an indictment of that segment of the forensic community
  - Samples without a consensus are viewed as poor quality, even if reproduction is true to original
  - Easy tests are favored by the community – High stakes testing
    - Complexity of case-like scenario
    - Level of challenge
  - Discretion of PT Provider, again demands high level of technical expertise
  - External context for challenge level provided by individual interaction, association involvement, accrediting body guidance

# New and Emerging PTs

- Breath Alcohol Calibration PT
  - Reference material samples, target value assigned, not consensus, involve laboratory and reference uncertainties
- Mobile Phone Forensics PT
  - Successful demonstration of test concept in 2014, regular offering in 2015. Novel components like GPS location and social media history
- Crime Scene Research Test
  - Offered preliminary test to CAC. Observation-based test conducted on a physical mock crime scene. Judging satisfaction of requirements in the context of local policy is focus of work

# Concluding Perspective

- PT provides valuable, external, independent assessment of laboratory performance
  - Test design, interaction with individual laboratory policies, and level of challenge are among the most important and nuanced factors that a Provider must consider
  - CTS' Forensic PT Program is ready to assist OSAC work and implement work products
  - Questions?
- 