OSAC 2022-S-0013 Standard Guide for Testimony by Forensic Science Practitioners Offering Expert Testimony in Seized Drugs Analysis

Seized Drugs Subcommittee
Chemistry: Seized Drugs & Toxicology Scientific Area Committee
Organization of Scientific Area Committees (OSAC) for Forensic Science

Draft OSAC Proposed Standard

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The STRP panel will consist of an independent and diverse panel, including subject matter experts, human factors scientists, quality assurance personnel, and legal experts, which will be tasked with evaluating the proposed standard based on a comprehensive list of science-based criteria.

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Standard Guide for Testimony by Forensic Science Practitioners Offering Expert Testimony in Seized Drugs Analysis

1. Scope

1.1. This standard covers testimony in criminal, civil or regulatory proceedings by forensic science practitioners (FSPs) regarding the analysis of seized drugs.

1.2. This standard includes general recommendations regarding testimony in the seized drugs discipline as well as parameters for testimony training, the evaluation of testimony, and testimony monitoring programs.

1.3. This standard is intended for use by competent forensic science practitioners with the requisite formal education, discipline-specific training (see E2917 and E2326), and demonstrated proficiency to perform forensic casework.

2. Referenced Documents

2.1. ASTM Standards:

2.1.1. E2917 Practice for Forensic Science Practitioner Training, Continuing Education, and Professional Development Programs

2.1.2. E2326 Practice for Seized-Drug Practitioner Training, Continuing Education, and Professional Development Programs

2.1.3. E1732 Terminology Relating to Forensic Science

2.1.4. E2764 Practice for Uncertainty Assessment in the Context of Seized-Drug Analysis

2.2. Other Documents:

2.2.1. Federal Rules of Evidence Rule 702, Article VII opinion and expert testimony

2.2.2. National Commission on Forensic Science Draft - Presentation of Expert Testimony Policy Recommendations. Available at https://www.justice.gov/sites/default/files/pages/attachments/2014/10/20/draft_on_expert_testimony.pdf.

2.2.3. National Commission on Forensic Science Views on Defining Forensic Science and Related Terms (adopted May 1, 2016). Available at https://www.justice.gov/archives/ncfs/page/file/477836/download

2.2.4. Department of Justice Uniform Language for Testimony and Reports for General Forensic Chemistry and Seized Drugs Examinations (General Chemistry ULTR) adopted 03/13/2019. Available at https://www.justice.gov/olp/page/file/1144921/download.

2.2.5. National Research Council, *Strengthening Forensic Science in the United States: A Path Forward* (Washington, DC: National Academies Press, 2009).

2.2.6. President's Council of Advisors on Science and Technology Report, "Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods," Executive Office of the President, September 2016.

2.3. Federal Case Law References:

2.3.1. *Daubert v Merrell Dow Pharmaceuticals Inc.*, 509 U.S. 579, 593 (1993)

2.3.2. *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923)
2.3.3. *Brady v. Maryland*, 373 U.S. 83 (1963)
2.3.4. *Giglio v. United States*, 405 U.S. 150 (1972)
2.3.5. *Melendez-Diaz v. Massachusetts*, 557 U.S. 305 (2009)

3. Terminology

3.1. For definitions of terms used in this standard that are not defined below, refer to ASTM E1732 Standard Terminology Relating to Forensic Science.

3.2. Definitions of terms specific to this standard include:

3.2.1. *Expert testimony*: evidence about a scientific, technical or professional issue given by a person qualified to testify because of knowledge, skill, experience, training, or education. [ASB Technical Report 025, First Edition 2017, FRE Rule 702].

3.2.2. *Lay testimony:* opinion testimony that is (1) rationally based on the witness's perception; (2) helpful to clearly understanding the witness' testimony or to determining a fact in issue; and (3) not based on scientific, technical, or other specialized knowledge. [FRE 701]

3.2.3. *Forensic Science Practitioner (FSP)*: an individual who (1) applies scientific or technical practices to the recognition, collection, analysis, or interpretation of evidence for criminal and civil law or regulatory issues; and (2) issues test results, provides interpretations, or opinions through reports or testimony with respect to such evidence. [NCFS Views on Defining Forensic Science and Related Terms; ASTM E3255-21]

3.2.4. *Forensic Science Service Provider (FSSP):* A forensic science agency or forensic science practitioner providing forensic science services. [NCFS Views on Defining Forensic Science and Related Terms; ASTM E3255-21]

3.2.5. *Moot court*: a fictitious court used as a training and assessment tool in forensic science practitioner testimony training programs.

3.2.6. *Non-technical evaluation:* testimony evaluation limited to aspects of testimony that are neither scientific nor technical, such as the demeanor and candor of the witness and the clarity with which the witness communicates information to the trier of fact.

3.2.7. *Technical evaluation*: testimony evaluation of technical content conducted by an authorized subject matter expert who meets the competency requirements for seized drugs analysis in the methods of analysis and related interpretation that are the subject of the expert testimony.

3.2.8. *Testimony evaluation:* the process of listening to or reading testimony by a forensic science practitioner and providing observations regarding the strengths and areas for improvement in the testimony.

3.2.9. *Testimony monitoring:* program used by a forensic science service provider to regularly evaluate the quality of testimony by its forensic science practitioners.

3.2.10. *Verification:* provision of objective evidence that a given item fulfills specified requirements. [ISO/IEC 17025:2017]
DISCUSSION: Verification is a term used for three different processes in

this standard.

(1) Method verification refers to the process of confirming through empirical testing and evaluation of objective evidence that a previously validated method performs as expected. [ASTM E2549 in preparation]

(2) Instrument performance verification refers to the process of evaluating equipment through testing and evaluation of objective evidence against pre-defined requirements that the equipment is operating within specifications and in compliance with quality standards. [Modified from Mettler-Toledo]

(3) Reference material verification refers to the process of demonstrating through testing and evaluation of objective evidence that the material is fit for the intended purpose.

3.2.11. *Voir dire*: a preliminary examination to determine whether the witness is qualified as an expert.

4. Significance and Use

4.1. This standard provides minimum recommendations for testimony, training, evaluation, and monitoring programs for FSPs offering expert testimony regarding seized drug analysis, results, and opinions; it applies to criminal, civil or regulatory proceedings.

4.1.1. This standard applies to all portions of testimony including, but not limited to, pretrial hearings, direct examination, cross examination, redirect, recross, and depositions.

4.1.2. This standard applies to testimony and depositions provided in person, remotely, or in writing.

4.2. This standard provides guidance regarding statements that could constitute inappropriate or misleading responses by an FSP.

5. Testimony Training

5.1. FSPs offering expert testimony in the analysis of seized drugs shall complete testimony training and be evaluated for expert testimony competency.

5.1.1. Testimony training and expert testimony competency evaluation is one component of an FSP's overall technical training program.

5.1.2. FSPs shall not provide expert testimony in a seized drugs case without having first successfully completed a seized drugs technical training program.

NOTE: See Practice E2917 and Practice E2326 for an understanding of other elements of technical and scientific training for FSPs in the seized drugs discipline.

5.2. Testimony training subject areas include, at a minimum:

5.2.1. Operation of the courtroom, such as:

- Oath,
- Sequestering of witnesses,
- Legal terminology likely to be heard during trial such as: objections (sustained, overruled), stipulation

- Examination (qualifying questions (voir dire), court acceptance as qualified FSP, direct, cross, and redirect),
- Chain of custody, and
- Recognition of evidence

5.2.2. Documents allowed while testifying

5.2.3. Types of subpoenas

5.2.4. Discovery requests

5.2.5. Preparing a curriculum vitae

5.2.6. Applicable Codes of Professional Responsibility (accrediting body guiding principles, individual certification rules of professional conduct, applicable state or federal rules governing the conduct of FSPs, etc.)

5.2.7. Appropriate courtroom demeanor

5.2.8. Courtroom presentation and the importance of clear communication

5.2.9. An understanding of cognitive bias or the class of effects by which an individual's preexisting beliefs, expectations, motives, and situational context may influence their collection, perception, or interpretation of information, or their resulting judgments, decisions, or confidence.[1] For purposes of fulfilling this standard particular attention should be given to the situational context of testifying in the adversarial system and the potential impact on testimony.

5.2.10. Ensuring the question is understood before responding

5.2.11. An awareness of legal and policy issues which can include, as applicable:

- Standards for the admissibility of scientific techniques and testimony under *Daubert* (and *Frye* for those states that choose to follow *Frye*) as well as applicable state case law
- The Federal Rules of Evidence and related state rules governing the admissibility of expert testimony
- The Federal Controlled Substances Act
- State and local controlled substance laws and regulations
- Case law relevant to seized drugs in the applicable jurisdiction
- Sentencing guidelines
- United States Supreme Court cases including *Brady v. Maryland* and *Giglio v. United States*, as well as all applicable state statutes, case law and rules governing the obligation to disclose exculpatory, impeachment, or mitigating information
- The legal and professional implications of *Brady* violations and violations of related laws governing the disclosure of exculpatory, impeachment, or mitigating information
- Confrontation Clause as construed by the United States Supreme Court in *Melendez-Diaz v. Massachusetts.*

[1] This definition is mostly from Kassin, Dror, & Kukucka, 2013, p. 45, but modified by the first author after conversations with Itiel Dror.

- National Research Council, *Strengthening Forensic Science in the United States: A Path Forward* (Washington, DC: National Academies Press, 2009).
- President's Council of Advisors on Science and Technology Report, "Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods," Executive Office of the President, September 2016.

5.2.12. Testifying to technical content including:
- Qualitative analytical results, including any limitations
- Analytical scheme
- Method validation and method verification
- Quality assurance measures
- Measurement uncertainty
- Error rates (false positives and false negatives)

5.2.13. Testifying to technical content, when applicable:
- Quantitative analytical results, including any limitations
- Sample selection
- Statistical sampling plans including the relevant statistical theory supporting how the sampling plan was derived
- Chemical structural similarity, analogues, and isomers

5.3. Testimony training methods include:

5.3.1. Direct observation of testimony, either in-person or virtually, when possible,

5.3.2. Reviewing references in the form of published articles, and responding to study questions and practical exercises regarding technical and legal issues impacting seized drugs testimony,

5.3.3. Reviewing transcripts containing examples of appropriate testimony by experts regarding the analysis of seized drugs, or observing testimony, sworn or moot, in the discipline performed by a competent practitioner.

5.3.4. Reviewing transcripts containing examples of inappropriate testimony by experts in seized drugs analysis or other disciplines with analogous concepts, and discussing the reasons why the testimony was inappropriate, and

5.3.5. Moot court testimony by the trainee.

5.4. Evaluate the testimony competence of the trainee through:

5.4.1. Written exam(s)

5.4.1.1. Written exam(s) can cover technical content the FSP could be asked to testify to, but can be different from the written competency exam for analysis.

5.4.2. Practical exercises (verbal or written)

5.4.3. Moot court testimony

5.4.3.1. The trainee shall successfully complete at least one moot court exercise.
- It is recommended that moot court exercises encompass a variety of analyses, sampling approaches, instrumentation,

and complexity of sample types that cover the scope of the testing conducted by the FSSP.

- It is recommended that FSSPs include a diverse group of participants (e.g., seized drugs FSPs, lawyers, and judges) in moot court exercises, whenever possible.

5.4.3.2. Evaluate moot court testimony per section 6.4 and 6.5

5.4.3.3. Review results of testimony evaluation with the trainee

5.4.3.4. Evaluators should include seized drugs experts and non-seized drugs experts so that testimony can be evaluated both for scientific accuracy as well as for understanding by legal professionals and laypersons.

5.4.3.5. Recording and reviewing testimony is a helpful means for self-evaluation and should be utilized wherever possible

5.5. Conduct ongoing testimony training at least annually.

5.5.1. Ongoing training can include a review of professional responsibility and legal disclosure principles, additional moot courts or moot court-style questioning (especially for those who need additional practice or for those who have not had the opportunity to testify in a live court proceeding during the prior year), and the discussion of challenging or complex scientific questions.

5.5.2. Evaluate any changes to methodology, jurisdictional, or other legal issues and provide additional testimony training as needed.

5.5.3. Incorporate any areas of concerns detected in the testimony monitoring program into the ongoing training.

6. Testimony Monitoring and Evaluation

6.1. Testimony of currently employed FSPs shall be periodically evaluated, at least annually, by the FSSP according to a written monitoring program.

6.1.1. A testimony monitoring program describes the frequency of and criteria for the periodic evaluation of FSP testimony.

6.1.2. New practitioners should be evaluated at their first testimony opportunity.

6.1.3. A testimony monitoring program recognizes that all FSPs benefit from regular testimony evaluation regardless of their experience level; an FSP's experience level does not necessarily equate to a higher quality of testimony.

6.1.4. In the event an FSP did not have the opportunity to testify during the evaluation period, evaluate their next testimony.

6.2. Testimony evaluation can be technical, non-technical, or both.

6.2.1. The purpose of testimony evaluation is to encourage continuous improvement and to identify strengths, areas for correction, and opportunities for development.

6.2.2. Technical evaluation is completed by authorized individuals who meet the competency requirements for seized drugs analysis.

6.2.3. Non-technical evaluation can be completed by technical experts or non-technical evaluators (judge, attorney, non-seized drugs discipline laboratory employees, etc.)

6.2.4. Non-technical testimony evaluation shall be conducted in addition to (not in lieu of) periodic technical testimony evaluation.

6.2.5. Self-evaluation can be done in addition to, but not in lieu of, periodic testimony evaluation by another individual per 6.2.2. and 6.2.3.

6.3. Testimony evaluation and review methods can consist of the following:

6.3.1. Direct observation of testimony, either in-person or virtually.

6.3.2. Review of written transcript, video, or audio recording of testimony.

6.4. The following criteria are considered during non-technical testimony evaluation:

6.4.1. Professional attire

6.4.2. Courtroom demeanor

6.4.3. Ability to accurately describe qualifications and job duties

6.4.4. Ability to communicate scientific concepts clearly, effectively, and concisely to a layperson

6.4.5. Ability to remain impartial throughout testimony

6.4.6. Ability to maintain composure throughout testimony

6.5. Technical testimony evaluation includes all items from 6.4 as well as evaluating that the FSP:

6.5.1. Appropriately described evidence handling and testing procedures

6.5.2. Conveyed accurate and comprehensive technical content

6.5.3. Communicated in an understandable manner

6.5.4. Accurately conveyed results, opinions, and interpretations within the limits of the FSP's expertise and consistent with the report, FSSPs policies and procedures

6.5.5. Conveyed in a straightforward manner appropriate, scientifically supported results and limitations

NOTE: To convey limitations in a straightforward manner means the FSP should be proactive in providing the information during direct examination instead of waiting for a question concerning limitations to be asked on cross examination.

6.5.6. Described any significant quality incident(s) related to the case in a way that is understandable and addresses the impact of the incident(s) on the results

6.6. The FSSP shall document and retain the results of testimony evaluation and any follow-up action for at least the length of time the case file is retained or the individual is employed with the laboratory, whichever is longer.

6.7. The FSSP shall document and discuss the testimony review with the FSP offering expert testimony.

6.8. The FSSP should evaluate testimony for consistency and trends between FSPs, highlighting testimony strengths and identifying challenge areas for additional focus.

6.9. The FSSP shall have a policy describing the action that will be taken if the evaluation reveals any criteria in 6.4 or 6.5 were not satisfied.

6.9.1. The degree of action taken should be proportional to the severity of the nonconformance and its potential impact on the criminal justice system, the integrity of the FSSP, or both.

6.9.2. Testimony to an inaccurate weight, failure to convey appropriate scientific limitations regarding results, or any other testimony that is factually incorrect or could be misleading (whether intentional or not) triggers proactive legal disclosure obligations.

6.9.3. Additional training can be an appropriate corrective action when an FSP uses language that is accurate, but could be perceived by a layperson as overly technical.

6.9.4. FSSPs should err on the side of disclosure if there is any question regarding whether the testimony could have been misleading.

7. Trial Preparation

7.1. A pre-trial conference with the subpoenaing attorney is strongly recommended.

7.1.1. If requested, predicate questions can be provided for the purpose of conveying scientific concepts clearly and not for the purpose of advocacy.

7.2. A pretrial conference with the non-subpoenaing attorney is held upon request.

7.2.1. If a copy of the predicate questions are requested, direct the non-subpoenaing attorney to the subpoenaing attorney for a copy of the questions.

7.3. Review the case file prior to the trial or any conferences, including items such as: reports, data upon which the results rely, quality assurance logs, standard operating procedures utilized, specific legal rules and statutory provisions applicable to case, etc.

7.3.1. Be cognizant of any changes to procedure or legal statutes that could have been updated since the case was analyzed so as to not misspeak regarding scheduling of substances or statutory thresholds.

7.4. Maintain and make available a current curriculum vitae.

7.5. A list of complicated terms can be provided to the court reporter (*e.g.* spelling out GC-MS, FTIR, etc.).

8. General Testimony

8.1. The FSSP describes, in writing, any expectations for professional attire.

8.2. FSPs offering expert testimony in the analysis of seized drugs:

8.2.1. Maintain neutrality in verbal and non-verbal communication.

8.2.2. Communicate clearly throughout testimony.

8.2.3. Testify in a straightforward and objective manner and avoid phrasing testimony in an ambiguous, biased or misleading way.

8.2.4. Present testimony in a manner that accurately and fairly conveys the significance of the results, avoiding unexplained or undefined technical terms.

8.2.4.1. Be able to explain technical concepts to laypeople. Analogies or drawings can be used for illustrative purposes, but should be carefully selected so as to not oversimplify to a point that could mislead the trier of fact.

8.2.5. Understand the difference between testimony the witness can give as an expert versus testimony that the same witness can give as a lay witness.

8.2.6. Listen to the entire question before replying and only answer the question posed, unless doing so would mislead the trier of fact.
8.2.6.1. If the answer is not known, respond accordingly.
8.2.6.2. If the question is not understood, request clarification or rephrasing of the question.
8.2.6.3. Attempt to qualify responses while testifying when asked a question with the requirement that a simple "yes" or "no" answer be given, if answering "yes" or "no" would be misleading to the judge or the jury.
8.2.7. Request permission from the judge to refer to case notes if the FSP cannot recall the answer to a question.
8.2.8. When the court orders an appearance without sufficient time to prepare, the FSP should make clear they will need to reference their case file.
8.2.9. Attempt eye contact with all parties, including the judge and jury, during direct and cross examination.
8.2.9.1. Direct responses to questions toward the judge or jury.
8.2.10. Be cognizant of demeanor and mannerisms while testifying (*e.g.*, hair twirling, body language, chair twisting, making eye contact, hand movements, and use of filler words).

9. Qualifications – Voir Dire

9.1. FSPs offering expert testimony in the analysis of seized drugs shall accurately represent and not embellish their:
9.1.1. Qualifications, education, training, experience, and areas of expertise,
9.1.1.1. Experience includes employment history and prior testimony experience.
9.1.2. Professional affiliation(s) and membership(s),
9.1.3. Personal certification(s),
9.1.4. Proficiency testing participation and results, and
9.1.5. FSSP accreditation, including accurate information regarding limitations of accreditation.
9.1.5.1. When discussing accreditation, FSPs should be clear that laboratory accreditation provides a framework for quality but it does not guarantee scientific accuracy or reliability.

10. Technical Testimony

10.1. When asked applicable questions during testimony, FSPs explain the following in an understandable way:
10.1.1. The FSSP standard operating procedures. For example:
- Chain of custody,
- Evidence handling,
- Sample preparation,
- Technical and administrative review processes, and
- Any deviation from standard operating procedures, including the rationale and process for implementing the deviation and any potential impact on analytical results,

10.1.2. The analytical scheme used during the testing process, including:
- The theoretical basis for the use of a particular analytical scheme used in reaching a result, and
- Any limitations of the analytical scheme applicable to the statute of the jurisdiction.

10.1.3. Any sampling plan(s) employed during the analysis

10.1.4. The specific instrument(s), technique(s), method(s), and any quality control measures used during analysis,

10.1.5. Calibration, maintenance, and performance verification of the equipment used,

10.1.6. Traceability of reagents, reference materials, glassware, spectral libraries,

10.1.7. Verification of reference materials and reagents,

10.1.8. Method validations and verifications,

10.1.9. Any quality incidents related to the case, including the root cause analysis, corrective actions (if any) and the potential impact of the issue(s) on the analytical results,

10.1.10. Measurement uncertainty,

10.1.11. Error rates (false positives and false negatives),

10.1.12. If applicable, analog structural similarity, isomers, including limitations, and

10.1.13. The results and opinions that are reported.

10.2. FSPs offering expert testimony regarding the analysis of seized drugs shall not:

10.2.1. Testify beyond their expertise, unless required to do so by a judge, at which time they need to clearly state the limitations of their expertise,

10.2.2. Make overstatements that exceed the limitations of the applicable method or analytical scheme,

10.2.3. Testify on direct or redirect concerning case-specific results or opinions not contained in the report(s) issued in the case, unless in fair response to issues raised on cross-examination,

10.2.4. Testify concerning results or opinions that are beyond the limits of the FSSPs protocols including documented deviations,

10.2.5. Withhold information during testimony or wait to disclose limitations of analysis or results until cross-examination,

10.2.6. Use language that suggests a method, analytical scheme or individual expert is infallible,

10.2.7. Respond to questions posed using the following language:

10.2.7.1. Assert that general forensic chemistry or seized drug examinations are infallible, 100% accurate, or have a zero error rate;

10.2.7.2. Provide a result or opinion that includes a statistic or numerical degree of probability except when based on relevant and appropriate data;

10.2.7.3. Cite the number of general forensic chemistry or seized drug examinations performed in the FSP's career as a direct measure for the accuracy of a proffered conclusion; or

10.2.7.4. Use the expressions 'reasonable degree of scientific certainty,' 'reasonable scientific certainty,' or similar assertions of reasonable certainty in testimony unless required to do so by a judge or applicable law.

10.2.8. Change a result or opinion during testimony without issuing a supplemental report, except where the change is occasioned by new information presented during testimony and not previously known by the expert.

11. Keywords

11.1. Testimony; Seized Drugs; Expert testimony; Testimony Evaluation