

Communication Skills, Report Writing, and Courtroom Testimony for Forensic Analysts

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Communication Skills, Report Writing, and Courtroom Testimony for Forensic Analysts

Communication Results for Forensic Analysts

This course provides information in the three lessons.

Communication Skills. Learn to choose the ideal modality for message delivery considering the purpose, location, and audience; effectively present technical information verbally; organize thoughts and create an extended outline before writing; and organize papers using bullet points.

Report Writing. Learn requirements for an STR (Short Tandem Repeats) DNA report and guidelines for writing a good STR DNA report.

Courtroom Testimony. Become familiar with courtroom structure and personnel within the court; basic courtroom procedures and protocols; rules of evidence, discovery, and admissibility; general qualifications to testify as an expert witness; appropriate demeanor and attire; how to present technical testimony and evidence; the ethical considerations when presenting DNA-related testimony and the impact of providing faulty or erroneous evidence; and basic techniques for handling hostile attorneys.



Introduction



This module challenges the analyst to evaluate use of verbal and written methods of communication. Effective presentation skills for all occasions are outlined, as well as guidelines to create and manage written messages.

Objectives

Upon successful completion of this unit of instruction, the student shall be able to do the following:

- Choose the ideal modality for message delivery considering the purpose, location, and audience
- Describe how to effectively present technical information verbally
- Organize thoughts before writing
- Create an extended outline for writing
- Organize papers using bullet points, and considering flow and style



Communication Basics



We learn from our earliest experiences with caregivers and significant others that our ability to communicate effectively is essential to our survival. Over time most of us find ways of speaking, gesturing, writing, and acting to make our wants and needs in particular situations known. Differentiating the ways we communicate to diverse audiences such as customers, family, coworkers, and friends is a natural part of this development. However, most of us are unaware of these distinctions and often describe our communication styles in personality terms, such as shy or outgoing and introverted or extraverted. While these characteristics may clearly influence the content and delivery of messages, especially during interpersonal interactions, they fail to capture the essence of communication effectiveness and the dynamic nature of our abilities over the long run. Additionally, the importance of communication to our private happiness and public success fails to receive the necessary attention.

Unfortunately our formal educations, especially within professional fields, tend to concentrate our attention on the communication of complex facts without regard to the target audience. As a result, managers, scientists, physicians, engineers, and others fail to craft their intended messages so that they appeal to readers or listeners. We believe that most people are unwilling or unable to process communications that seem packed with filler, and we are probably right. However, another perspective is lack of interest, which may be caused by our failure to excite them or to build relationships during professional communications, as we often do in our personal connections. The following text reviews the necessary compatibility and potential synergies across verbal and written methods. The topics entitled "Verbal Communication" and "Written Communications" explicitly consider the need to captivate your audience, whether it is a single individual or thousands of colleagues.

Communication Synergies



Verbal skills usually develop early in life as our parents and other family members coax us to smile, speak, or behave in certain ways. Patterns of speech, intonations and inflections, and facial expressions are learned during these as well as other interactions and become innate parts of our communication repertoire. We typically use more informal dialogic styles when speaking with family and friends, and we select more formal directed language during professional communications. Our written skills develop somewhat later, and many of us become acquainted with the alphabet, words, phrases, and paragraphs during our school years. Frequently, emphasis is placed on the logical flow of ideas and the creation of compelling arguments, especially as our assignments progress from primary grades through our college or professional educations. What we often fail to recognize is that the most effective way of communicating ideas to any audience includes a combination of both verbal and written methods.

The concept of synergy is best used to describe the joint use of verbal and written methods, suggesting that their blending multiplies effectiveness. We learn difficult information more quickly from repetition. Repeated exposures also create a familiarity that is more likely to result in acceptance of controversial material. Processing complex ideas during a conversation with a professional colleague or at a formal meeting has the disadvantage of control by another party who may or may not communicate ideas at a rate consistent with our assimilation abilities. However, the credibility of verbal messages is enhanced greatly by the delivery and self-presentation of talented communicators. Written messages often are self-paced, meaning the receiver can decide how fast or how slow to peruse the information. Yet the social influence inherent in verbal presentations is lacking, relying instead on more fact-based sources of credibility. In the end, the strengths of one method compensate for the weaknesses of the other.

Communication Impact



Synergies are greater than most of us imagine. The primary reason is that verbal and written communications are much more differentiated than we often realize. For example, we may be able to influence the knowledge base or opinions of the same person or group through multiple contacts. The initial exposure may be an e-mail message that introduces our points of view. The next contact might involve a lengthy phone conversation where differences of opinion are worked out and expectations are expressed. A formal letter of agreement that outlines the responsibilities of both parties could follow this discussion. An occasional videoconference may occur during the intervening months before a report is delivered for inspection. The final connection might include an interactive presentation using multiple spokespersons, assorted visual aids, and PowerPoint slides.

Verbal Communication



While each aspect of the different verbal communication methods has unique characteristics, there are several general attributes of effective presentations that are common to all. For instance, positive body language is a necessary ingredient for developing relationships with any audience. Solid eye contact, enthusiastic hand gestures, smiling on a regular basis, and nodding one's head occasionally suggest confidence in and enthusiasm for the message communicated. Many presenters make the mistake of turning their backs to an audience so that they can look directly at their slides or other visual materials. This posture seems natural (and protective) but creates distance between the speaker and receiver(s). A much better approach is the "weather reporter" model, which involves standing along side the material of interest, bringing attention to the relevant portion, and facing your audience as you address the issue.

Our use of voice and movement are just as important as body language and may operate in a complementary fashion. Speakers with monotone voices devoid of inflection who stand rigidly in one place for long periods

cause their audiences to daydream regardless of the topic. The volume and intonation of our voices should change regularly and strategically to emphasize certain points, create and reduce tension, and stimulate and inform our audience. Movement works in a similar fashion. As we move from one physical space to another, audience members must un-focus and refocus their eyes as well as change the positions of their heads and (sometimes) their bodies. While these physical acts are rather minor compared to more strenuous movements, they do serve to create a minor but heightened state of arousal. Of course, constant movement is distracting and speakers need to be aware of this anxious habit.

Another important aspect of effective presentations is the proper use of supporting materials. In our technological age, presenters have access to a vast repertoire of sounds and images in the form of music, video clips, still photography, graphics, and sound bites that can be used individually or in combination. Unfortunately, many speakers fail to manage them properly for maximum effect. Instead of their dramatic revelation at just the right moment, presenters may provide visual and verbal stimuli haphazardly, often without any direct acknowledgement. Additionally, their display may serve primarily to keep the speaker informed of the current topic rather than meet the informational needs of the audience. Best practices suggest that presenters select materials that are complementary to their interpersonal styles, supportive of their major points-of-view, revealed at the right moments, and reinforcing of their verbal messages.

A final set of considerations includes flow and timing. Flow refers to the order in which points are presented, the ease with which transitions are experienced, and the ability to open and close talks so that audience impact is maximized. Some speakers like to start with a bang and end softly, while others like to build the anticipation and end on a high note. In my experience, it is best to set the stage with compelling discussion in the beginning and change the tempo throughout your presentation to maintain interest. Timing, the second interrelated issue, plays a role in that information should be divulged when the audience is prepared to accept it. Thus, difficult-to-comprehend material should be described after the proper background is presented, and controversial material should be revealed once trust has been established with the audience. On a minor note, presentations should begin and end as scheduled to avoid audience unease.

Presenting Technical Information



The presentation of scientific information to laypeople requires real finesse. At one extreme, speakers try to impress (or ignore) their audience through the use of discipline-specific jargon, mathematical formulas, and a pace of discussion that only experts at universities or specialized conferences could follow. The other end of the spectrum involves "dumbing-down" the material or moving so slowly that anyone paying attention would comprehend your message, often leaving many participants bored or feeling patronized. The middle ground, a favored style of many university professors, is to communicate at a level near or slightly above the mean capability of the audience, hoping to avoid losing the interest of higher-end recipients while challenging lower-end receivers to keep up. None of these strategies is particularly effective, especially if the larger goal is to motivate the audience to leave the presentation informed and/or persuaded.

An alternative approach requires a better understanding of the capabilities and motivations of the audience prior to the development of presentation materials. If their scientific training is at or near the level of

presenters, the persuasiveness of messages may be dependent upon the depth and sophistication of the material provided. However, if the audience lacks the appropriate scientific background but nonetheless is educated and has experience with technical rigor, their expectations may include a very detailed and complicated discussion with some additional explanation using more common vernacular. For naive audiences with little scientific background or general academic experience, the limited use of technical information combined with stimulating visual experiences may represent the most effective combination. Regardless, an assessment of their motivation to attend, learn, and be persuaded should impact these decisions.

Presenting to Audiences

The size and diversity of an audience are added considerations for presenters. For some communicators, the larger the audience the more motivated they become and the better they perform. However, for most individuals such audiences are disconcerting because of problems creating a sustained rapport. When a mass of people reaches a certain size, they often seem to blend into an ambiguous whole where their individual identities disappear. The lighting is usually dimmed and then focused on presenters, creating further distance between them and the collective. The sound of one's own voice as well as the associated visual stimuli are dramatically magnified and tend to drown out competing noises. Diverse audiences, whether they are large or of moderate size, pose different challenges due to their ethnic, religious, cultural, language, or other differences between themselves and presenters.



The anonymity experienced by some presenters can be remedied with a change in perception and the use of recommendations from the last section. Audiences have personalities and frequent changes in mood. Presenters need to be in tune with their joint body language and modify the use of voice, movement, and visual material accordingly. One tactic is to pick out distinct individuals from different locations to make sustained eye contact with so that the entire audience feels your presence and attention over time. Using intonations, gestures, and facial expressions commonly applied in more intimate settings may facilitate the creation of positive relationships. Diverse groups have a perceptual and cultural distance from presenters, and their reactions may be difficult to discern. Thus, presenters are instructed to modify their styles and materials to match the needs of the audience in order to improve communication effectiveness.

Relationship Building

Our conversations at work have the benefit of mirroring the ways in which we communicate naturally throughout our lives. The good news is that many of the characteristics that have made us effective in personal relationships carry over to these exchanges. Our physical attributes, dress and deportment, and listening skills that attract family and friends transfer easily to interactions with coworkers, supervisors, and clients. Unfortunately, their transferability is not necessarily one-to-one, leading to difficulties that may have been avoided with some self-reflection. Consider the woman who refers to everyone as "honey" or "darling." While these monikers may be appropriate for her children, her subordinates may find them condescending or too familiar. Furthermore, the male coworker who enjoys ribald jokes with his friends during a poker game would cross the line by sending mass e-mails containing them to his employees.



One way of avoiding these problems is to categorize all relationships according to their primary function. The simplest method is a two-group system based on the extent to which relationships are largely altruistic and defined by intrinsic qualities or largely performance-oriented and defined by output expectations. The former category is epitomized by our most cherished roles, such as father, daughter, and best friend. The latter category is made up mostly of employment situations where we are required to meet certain goals and objectives. Of course, even these extremes are not pure forms in that we often must do things to please our loved ones, and close acquaintances may arise at work. Regardless, we may be best served by saving informalities in greetings, expressions, and physicality for those persons who occupy our private sphere of influence and use more restraint in language, demeanor, and deportment in public setting.

Written Communications

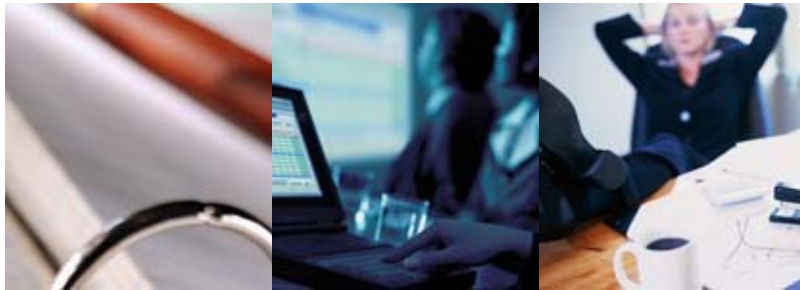


Good communicators are rarely at a loss for words. However, even the most gifted has an innate preference for speaking or writing. Regardless of your proclivities, organizing your thinking before putting "pen to paper" requires considerably more time and effort than arranging your thoughts for a speaking engagement covering the same material. This belief makes sense if you consider that most people spend significantly more time talking than they do writing reports. Further, our conversations typically align more closely with our thoughts, which occur nearly constantly. The informal phrasing and expressions commonly used while speaking are deemed inappropriate for writing, demanding the use of exceptional language. Finally, most professionals (other than writers) believe that writing is a means to an end rather than a skill to be developed and perfected over time. As a result, we only engage in technical writing when necessary.

Nevertheless, there are some general guidelines that may help organize your thoughts. The first is to begin with the takeaway—what is it that you want your audience to remember when they finish your report? If the list is longer than three broad items, you will need to pare them down to a manageable number. Additionally, be wary of setting your sights on specific postures or radical changes of opinion. Neither is likely unless your audience is highly motivated or easily influenced. Instead, boil your material down to its essence that can be articulated in a few short phrases that are effortlessly remembered. If you seek a modification of beliefs, concentrate on having them question the veracity of their positions, resulting in partial movement in the direction of interest. Finally, look for an opening discussion that captures their attention and causes them to want more, and select closing arguments that reinforce your primary opinions.

Creating an Extended Outline

The extended outline is a favorite of many introductory writing teachers. It requires authors to examine the logic of their arguments and to think through the details of their focal ideas. Such outlines necessitate consideration of the relative importance of the various components of papers and how each portion relates to the others.



The best starting point is to take the opening and closing determined during the previous step and put the takeaway somewhere in the middle. Starting at the beginning, authors might list supporting information in the order in which it should be presented until the major thesis is revealed. Make sure that each item builds on the earlier material and that it supports the content to follow. Once the takeaway is properly determined, the remainder of the text can be used to address possible objections, to provide additional supporting material in the form of examples, and/or to discuss unique and valuable applications.

Turning thoughts into prose

Once the outline is complete, the next stage involves taking the ideas embedded within this structure and turning them into headings, subheadings, and text. Typically, the headings flow easily from the outline, which is most likely a listing of general themes. The difficult part is using these few words to generate coherent sentences and paragraphs that properly present your information and major theses. As noted earlier, the dilemma is translating thoughts into words in a fashion (written) that is different from the way we usually articulate what is on our minds. This process is akin to speaking in a foreign language where an individual must take an idea that arises in a native language, translate it into a second or third language, and present it verbally using the right pronunciations. With time and practice our abilities improve, but we rarely reach the point where technical reports flow with an ease consistent with our desires.

A way of avoiding this dilemma is to use the proverbial "bullet points" that are somewhere between individual words and text. Their judicious use within a well-written paper can draw attention to important items, but their overuse may lead to burnout by readers who have a hard time ferreting out what is important within these endless lists. A better approach is to rely more heavily on cogent paragraphs to capture and transmit meaning. A good starting place is to take every subheading and write one or a series of short paragraphs that contain all the supporting material and position statements you would like to convey about that topical area. Write as the ideas come naturally, recognizing that their translation into "proper" grammar and structure can occur at a later stage. Make sure that each paragraph has a clear yet interrelated beginning and ending, with its unique contribution accurately portrayed and highlighted in the text.

Flow and Style



The issue of flow of material poses difficulties for many writers of technical information. One problem is we tend to think that each topic is separate and apart from the whole, concentrating our efforts on communicating each item individually. This problem is exacerbated by the use of multiple authors who are experts on various portions but have no concept of the other issues. The simplest resolution to this difficulty may be to have one author or an outside editor work on the connections among sections of the document. Smooth transitions between major headings often summarize what has been said and set the stage for the information to come. To the extent possible, creating some excitement and anticipation that causes readers to want to continue reading is optimal. Remember the articles and books (including fiction) that best captured your attention. For the most part, these pieces were stimulating, comprehensible, and compelling.

Technical writing may seem the antithesis of style, but that does not mean readers ask less of your documents. Stylistic considerations include many of the issues mentioned previously and require writers or editors to consider clarity of major points, flow within and among key sections and topics, and readability to lay audiences. Flowery language and verbosity are inappropriate, but too terse a presentation may leave readers wanting. A larger problem is reliance upon scientific idioms that are well known within the professional domain but are off-putting to persons who do not share the same academic background. Thus, the individual who works on flow can also edit the manuscript for a common and consistent use of language that is appropriate to your audience. A much-used tactic to support this process is to have people outside the boundaries of the profession read the material and give additional feedback about clarity, flow, and readability.

Closing Remarks



Providing scientific opinions in courts of law requires many of the same verbal and written tactics described above with few modifications. For example, the content and format of the report is determined by the Quality Assurance Standards and laboratory procedures, which may require you to write in a manner that is not best for communicating your points of view. You may also be attempting to communicate in an environment that severely limits your ability to control your presentation. For example, you may be asked to respond to complex questions with either a "yes" or "no" response. Likewise, while judicious use of visual material can

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reinforce messages and serve to breakup the monotony of scientific jargon, you must be aware that the court may not allow it.

Additionally, you may be required to communicate under a range of circumstances. Typically these are preliminary communications, depositions, court testimony, and the written report. For example, the first interaction in forensic biology DNA cases generally occurs during preliminary communication with investigators and prosecutors. These communications are principally verbal and may seem informal. Be aware that the person you are talking to will selectively hear your comments and record them subjectively without qualification. In many jurisdictions, the next communication may be in the context of depositions. The deposition is a written record of your verbal statements and another instance when you will have to deal with contrasting requirements for effective verbal and written communications. Direct and cross examination during court testimony are entirely verbal, but you have no control over the questions and frequently have limited control over how you can express your responses. Thus, apart from the formatting restraints of the Quality Assurance Standards and laboratory procedures, the written report is the only communication method that is entirely under your control.

Continuous improvement over time

Much like getting to Carnegie Hall in New York City, the only way to improve communication skills is through practice. However, the quality of our practice makes a significant difference. Each of the previous sections provides advice on how to become a better speaker or writer. For verbal presentations, communicators are urged to know the background, interest level, diversity, and size of their audience before preparing talks. The use of visual materials should be designed to complement major points rather than direct attention away from presenters. Body language, gestures, and movement help engage and sustain your audience, along with the appropriate use of voice intonations and inflections. Written documents typically ask more of communicators but technical writing need not be bland or boring. Writers also must consider audience traits as well as the logic of their presentations and the clarity and compelling nature of their prose.

One option for charting your improvement is through the use of a communications log. Using this device, communicators maintain a written diary of each and every time they present their ideas verbally or in writing to their professional colleagues. The log is best kept in an electronic form or spreadsheet. While people differ in the columns they prefer, examples include day, date, time of the day (to see if your performance varies by time), intended audience (to see if you are better with small or large/professional or lay audiences), length of presentation (to see if you fade in the long run or just hit your stride), type of presentation (to see if verbal or written forms differ), self-perceptions (to see if you believe things went well or poorly), others-perceptions (to see if the audience agrees), and lessons learned (to see what you can do differently or the same next time). Remember that growth in your abilities only occurs through some form of reflection!

Introduction

This module discusses how to report results for STR (Short Tandem Repeats) DNA typing. DNA reports must be written according to Standard 11 in the Quality Assurance Standard for Forensic DNA Testing Laboratories.



[View the QAS on the FBI's website.](#)

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According to Standard 11.1.2 a DNA report has to include the following:

- Case identifiers
- Description of evidence examined
- Description of methodologies
- Loci tested
- Results and/or conclusions
- An interpretative statement
- Date issued
- Disposition of evidence
- Signature and individual title, or equivalent identification of the person accepting responsibility for the content of the report

A conventional serology report may either be sent out before a DNA report, or in conjunction with a DNA report.

Laboratories accredited by FQS- I or ASCLD/LAB must adhere to the reporting requirements of their accreditation program. This module focuses on the QAS requirements.

Objectives

Upon successful completion of this unit of instruction, the student shall demonstrate the following:

- Know what is required for an STR (Short Tandem Repeats) DNA report
- Have guidelines for writing a good STR DNA report

DNA Report Contents

The DNA report is an official document supported by the case file. Every DNA report must meet the following requirements:

DNA Report Requirements

Requirement	Details
Include a case identifier	A unique identifying system used by the laboratory to distinguish cases and/or reports
Describe all the evidence examined	Many laboratories also note evidence that was received but not examined
Include a description of methodology and loci tested	For example: DNA was extracted, quantified, and amplified by the polymerase chain reaction (PCR). The following loci were examined: D3S1358, vWA, FGA, D8S1179, D21S11, D18S51, D5S818, D13S317, D7S820, D16S539, TH01, TPOX, CSF1PO, and the gender marker Amelogenin.
Include results and/or conclusions	Results are generally the allele calls . Conclusions are generally inclusive, exclusive, or inconclusive statements based on the data.
Incorporate an interpretative statement (quantitative/qualitative)	For example, a statistical statement
Include the date issued	Based on laboratory's procedure for generating reports
Identify the disposition of all evidence	May have to decide whether sub-items should be considered as evidence

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Be signed by the DNA analyst responsible for the content (or otherwise identify the analyst)	Signature and title or equivalent identification
Be maintained by the laboratory	All records must be maintained in accordance with laboratory policies and local/agency requirements
Be subject to technical and administrative review before issue	Explained in detail below

[View a sample lab report.](#)



[View standards and audit documents on the CODIS website.](#)

Reports provide information about evidence samples. The way a report deals with test results will vary depending on the nature of the sample.

All samples can be divided into four categories:

1. Known standards — samples that are known to come from a certain individual, such as blood, hair, buccal, bone, or teeth
2. Intimate samples — those obtained from a person's body; for example, vaginal swabs, breast swabs, thigh swabs
3. Personal items — those that immediately belong to the person, such as clothing worn during the crime
4. Crime scene samples

Sometimes a known standard can not be obtained from the individual, and a personal item can be used as a secondary or alternative sample. Examples of this type of evidence include hair brush, toothbrush, or razor and other evidence assumed to belong to the victim.

In intimate samples, the donor's profile is expected to be present. Additional profiles may be probative and can be compared to other known standards.

Crime scene samples can produce single source or mixed profiles and reporting will vary depending on complexity.

Guidelines for Screening

Laboratories have different ways of reporting similar results. The guidelines presented on the following pages are representative of typical phrases used in reports. The following tables are designed to be used for reference. The analyst should follow their laboratory's specific report-writing guidelines.

Below is a list of sample statements for reporting screening tests. The following pages will guide you through the different statements.

- Blood
- Semen & Cellular Material

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- Saliva
- Feces & Urine
- Hair
- Other Samples—Known
- Other Reportable Outcomes

Blood

Reporting Guidelines - Blood

Test

Positive Kastle-Meyer (KM) or Hemastix® (or other preliminary color test(s))*

Positive KM or Hemastix®

AND

Positive Takayama (Hemochromogen) [1]

Positive KM or Hemastix®

AND

Positive Takayama (Hemochromogen)

AND

Species testing (human antiserum) or ABACard HemaTrace® Test

Positive KM or Hemastix®

AND

Positive Takayama (Hemochromogen)

AND

Negative Species testing (human antiserum)

or ABACard HemaTrace® Test

Positive KM or Hemastix®

AND

Negative Takayama (Hemochromogen)

Negative Visual

Negative KM or Hemastix®

Reporting

- Blood was indicated on ____.
- Analysis of ____ gave presumptive chemical indications for the presence of blood.

- Blood was identified on ____.

- Blood was identified on ____, and human antigen (or hemoglobin) activity was detected.
- Analysis of ____ gave presumptive chemical indications for the presence of blood. Analysis of ____ indicates the presence of human proteins.

- Blood was identified on ____, however no human antigen (or hemoglobin) activity was detected.
- Analysis of ____ gave presumptive chemical indications for the presence of blood. Analysis of ____ failed to indicate the presence of human proteins.

- Preliminary tests indicated blood on _____, but further tests could not confirm the identity of blood.

- No stains consistent with blood were observed on ____.

- No blood was detected on ____.
- Analysis of ____ failed to give presumptive chemical indications for the presence of blood.

**There are numerous preliminary color tests that can be used in forensic testing methods. The most common are noted; however, other preliminary color tests could be reported similarly.*

[1] Learn more about the Takayama test in the Laboratory Orientation and Testing of Body Fluids and Tissues for Forensic Analysts pdf file.

Semen & Cellular Material

Reporting Guidelines - Semen & Cellular Material

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Test	Reporting
Positive Acid Phosphatase (AP)* or other preliminary color test	<ul style="list-style-type: none"> • Analysis of (Exhibit__) gave presumptive chemical indications for the presence of acid phosphatase, a component of semen.
Positive AP AND Positive Microscopic (sperm)	<ul style="list-style-type: none"> • Spermatozoa were identified on _____. • Microscopic examination of __ demonstrated the presence of spermatozoa.
Positive AP AND Negative Microscopic (sperm) AND Positive P30	<ul style="list-style-type: none"> • Semen was identified on _____. Further characterization may be possible using y-chromosome specific marker DNA analysis. Please contact the Forensic Biology section for a list of laboratories that conduct this analysis. • Microscopic examination of __ failed to demonstrate the presence of spermatozoa. Analysis of __ demonstrated the presence of semen.
Positive AP AND Negative Microscopic (sperm) AND Negative P30 Negative AP	<ul style="list-style-type: none"> • No semen was identified on _____.
Negative Visual/Alternate Light Source (ALS)	<ul style="list-style-type: none"> • No semen was detected on _____. • Analysis of__ failed to demonstrate the presence of semen.
Postive (nucleated) Microscopic (cellular material)	<ul style="list-style-type: none"> • No stains consistent with semen were observed on _____.
Positive (no confirmation of nucleus) Microscopic (cellular material)	<ul style="list-style-type: none"> • Nucleated cellular material was detected on _____.
Negative Microscopic (cellular material)	<ul style="list-style-type: none"> • Cellular material was detected on_____ .
Unevaluated Microscopic (cellular material)	<ul style="list-style-type: none"> • No cellular material was detected on _____. • Swabs were collected from _____ and were preserved and retained in laboratory frozen storage.

**There are numerous preliminary color tests that can be used in forensic testing methods. The most common are noted; however, other preliminary color tests could be reported similarly.*

Saliva

Reporting Guidelines - Saliva

Test	Results	Reporting
Amylase Diffusion	Positive result (i.e. clearing) for amylase is equal/larger than the 1:100 dilution	<ul style="list-style-type: none"> • Elevated levels of amylase were detected on _____, which indicates the presence of saliva.
Quantitative		
Amylase Diffusion		

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Quantitative	Positive result (i.e. clearing) is between the 1:100 dilution and the 1:500 dilution	<ul style="list-style-type: none"> • Amylase was detected on _____. Amylase activity at this level has been observed in saliva as well as other biological fluids.
Amylase Diffusion	Positive result (i.e. clearing) is less than the 1:500 dilution	<ul style="list-style-type: none"> • Low levels of amylase were detected on _____. Amylase activity at this level is inconclusive for the presence of saliva.
Quantitative		
Amylase Diffusion	Positive (i.e. clearing)	<ul style="list-style-type: none"> • Analysis of __ gave chemical indications for the presence of amylase, a component of saliva.
Non-Quantitative		
Amylase Diffusion	Negative-no amylase activity is observed	<ul style="list-style-type: none"> • Amylase, a constituent of saliva, was not detected on _____. • Analysis of __ failed to give chemical indications for the presence of amylase, a component of saliva.
Quantitative or Non-Quantitative		

Feces & Urine

Reporting Guidelines - Feces & Urine

Test

Positive Visual/Microscopic

AND

Positive Urobilinogen Test

Negative Visual/Microscopic

AND

Negative Urobilinogen Test

Negative Visual/Microscopic

Positive Urea Test (Litmus Paper or Bromothymol Blue Method)

AND

Positive Creatinine Test

If one test is positive and the other is negative:

Urea Test (Litmus Paper or Bromothymol Blue Method)

AND

Creatinine Test

Negative Urea Test (Litmus Paper or Bromothymol Blue Method)

AND

Negative Creatinine Test

Negative Visual

Reporting

- Microscopic and/or chemical tests indicate the presence of fecal material on _____.
- No fecal material was detected on _____.
- No stains consistent with fecal material were observed on ____.
- Chemical testing of _____ indicated the presence of urine.
- Chemical testing of _____ for the presence of urine was inconclusive.
- No urine was detected on _____.
- No stains consistent with urine were observed on ____.

Communication Skills, Report Writing, and Courtroom Testimony for Forensic Analysts

Hair

Reporting Guidelines - Hair

Test	Results	Reporting
Microscopic	Human hair with root with tissue observed	<ul style="list-style-type: none"> • Microscopic examination determined the hair(s) to be of human origin and indicated the presence of tissue. Further characterization may be possible using nuclear DNA analysis.
Microscopic	Human hair which may have tissue present	<ul style="list-style-type: none"> • Microscopic examination determined the hair(s) to be of human origin and indicated the possible presence of tissue. Further characterization may be possible using nuclear DNA analysis.
Microscopic	Human hair with root but no visible tissue	<ul style="list-style-type: none"> • Microscopic examination determined the hair(s) to be of human origin with a root present. Further characterization may be possible using nuclear DNA analysis.
Microscopic	Human hair with no root, but hair is sufficient in length (>1 cm)	<ul style="list-style-type: none"> • Microscopic examination determined the hair(s) to be of human origin and insufficient for nuclear DNA analysis. Further characterization may be possible using mitochondrial DNA. Please contact the Forensic Biology section for a list of laboratories that conduct this analysis.
Microscopic	Human hair with no root, but hair is insufficient in length for further testing.	<ul style="list-style-type: none"> • Microscopic examination determined the hair(s) to be of human origin and insufficient for nuclear DNA analysis. No further analysis is possible.
Microscopic	Non-Human hair	<ul style="list-style-type: none"> • Microscopic examination determined the hair(s) to be of non-human origin.
Microscopic (root material only)	Alternate Reporting if already determined to be human	<ul style="list-style-type: none"> • Hair from __ was suitable/not suitable for DNA analysis.

Other Samples - Known

Reporting Guidelines - Other Samples - Known

Test	Reporting
Preservation of liquid blood samples preserved on a stain card	<ul style="list-style-type: none"> • A portion of blood from the tube marked _____ was preserved and retained in laboratory frozen storage. • A blood stain card was prepared from _____.
Preservation of dried buccal swabs	

Communication Skills, Report Writing, and Courtroom Testimony for Forensic Analysts

- The buccal swab(s)/comb marked _____ was/were preserved and retained in laboratory frozen storage.

Other Reportable Outcomes

Reporting Guidelines - Other Reportable Outcomes

Test	Results	Reporting
Preservation	All	<ul style="list-style-type: none"> • Samples were retained from ___ for DNA testing.
No testing conducted	All	<ul style="list-style-type: none"> • No preliminary serological tests were performed on _____ due to the limited/potentially limited amount of sample observed.
Insufficient sample	All	<ul style="list-style-type: none"> • There is insufficient sample for further analysis.
Unsuitable sample (molded, etc)	All	<ul style="list-style-type: none"> • Item(s) _____ is/are unsuitable for analysis.

Guidelines for DNA Analysis

Below is a list of sample statements for reporting DNA analysis. The following pages will guide you through these different statements:

- Introductory Statement
- Single Source
- Mixed Source
- Partial DNA Profile
- Paternity
- Miscellaneous
- Disposition of Evidence

Introductory Statement

Reporting Guidelines - Introductory Statement

Results	Reporting
ProfilerPlus™/Cofiler	<ul style="list-style-type: none"> • Human DNA was isolated from _____. The DNA was characterized using the Polymerase Chain Reaction (PCR) at amelogenin and the Short Tandem Repeat (STR) loci: D3S1358, vWA, FGA, D8S1179, D21S11, D18S51, D5S818, D13S317, D7S820, D16S539, TH01, TPOX and CSF1PO. • DNA was extracted, quantified, and then amplified by the polymerase chain reaction (PCR). The following loci were examined: D3S1358, vWA, FGA, D8S1179, D21S11, D18S51, D5S818, D13S317, D7S820, D16S539, TH01, TPOX, CSF1PO, and the gender marker Amelogenin

PowerPlex® 16

- Human DNA was isolated from _____. The DNA was characterized using the Polymerase Chain Reaction (PCR) at amelogenin and the Short Tandem Repeat (STR) loci: D3S1358, TH01, D21S11, D18S51, Penta E, D5S818, D13S317, D7S820, D16S539, CSF1PO, Penta D, vWA,

D8S1179, TPOX, FGA.

- DNA was extracted, quantified, and amplified by the polymerase chain reaction (PCR). The following loci were examined: D3S1358, TH01, D21S11, D18S51, Penta E, D5S818, D13S317, D7S820, D16S539, CSF1PO, Penta D, vWA, D8S1179, TPOX, FGA, and the gender marker Amelogenin.

Identifiler®

- Human DNA was isolated from _____. The DNA was characterized using the Polymerase Chain Reaction (PCR) at amelogenin and the Short Tandem Repeat (STR) loci: CSF1PO, D3S1358, D5S818, D7S820, D8S1179, D13S317, D16S539, D18S51, D21S11, FGA, TH01, TPOX, vWA, D2S1338, D19S433.
- DNA was extracted, quantified, and then amplified by the polymerase chain reaction (PCR). The following loci were examined: CSF1PO, D3S1358, D5S818, D7S820, D8S1179, D13S317, D16S539, D18S51, D21S11, FGA, TH01, TPOX, vWA, D2S1338, D19S433, and the gender marker Amelogenin.

Single Source

Reporting Guidelines - Single Source

Results

Reporting

Match

OR

Random Match

OR

Probability Statement (generally only given on probative samples)

- The DNA profile from ____ matches the DNA profile from ____ at all 14 loci (*or list appropriate number*). The approximate incidence of this profile is 1 in ____ Caucasians, 1 in ____ African Americans, and 1 in ____ Southwestern Hispanics (*or use appropriate population groups*).
- The DNA profile from ____ matches the DNA profile from ____ at all 14 loci (*or list appropriate number*). The frequency of occurrence for this DNA profile in an unrelated individual is 1 in ____ for Caucasians, 1 in ____ for African Americans, and 1 in ____ for Hispanics. (*or use appropriate population groups*).
- The DNA profile obtained from ____ matches the DNA profile obtained from _____. The probability of selecting an unrelated individual at random having the same DNA profile is approximately 1 in x in the Caucasian population, 1 in x in the African-American population, and 1 in x in the Hispanic population. (*or use appropriate population groups*).

Example of a Unique Statement

Questioned sample does not match any known samples

Note: Statement regarding NDIS will only be included for samples meeting the standards for inclusion/uploading.

Note: Depending on circumstances the database may be national

- To a reasonable degree of scientific certainty, ____ is the source of the DNA obtained from _____.
- The DNA profile from ____ does not match the DNA profile from _____. This profile will be searched against the DNA profiles in the National DNA Index System (NDIS) and any matches will be reported.
- A full DNA profile was obtained from ____, which gives indications of originating from a male/female individual. The DNA profile from (Exhibit____) has been entered into a database and will be periodically searched against the Convicted Offender Database and _____ the Casework Indexes.
- ____ is excluded as having contributed to _____.

(NDIS) or local (SDIS or LDIS)

- The DNA profile obtained from ___ does not match the DNA profile obtained from ___; therefore, ___ is excluded as the source of the DNA from ___.

Mixed Source

Reporting Guidelines - Mixed Samples

Results

Reporting

Major or Inferred component can be determined, and matches a known sample (and is probative) **Major/Inferred Component**

Random Match Probability Statement (generally only given on probative samples)

- A mixed DNA profile was obtained from ____. The major (or inferred) component of this mixed DNA profile matches ____. The approximate incidence of this major (or inferred) component of this profile is 1 in ____ Caucasians, 1 in ____ African Americans, and 1 in ____ Southwestern Hispanics (*or use appropriate population groups*).
- A mixed DNA profile from at least ____ sources was obtained from ____. Assuming only ____ donors, the major (or inferred) component of this mixed DNA profile matches ____. The approximate incidence of this major (or inferred) component of this profile is 1 in ____ Caucasians, 1 in ____ African Americans, and 1 in ____ Southwestern Hispanics (*or use appropriate population groups*).
- A mixture was observed on ____ that is consistent with originating from two or more individuals. A major DNA component can be determined.

Minor (or other) Component

- ____ cannot be excluded as the minor (or other) component of the mixed DNA profile
- No conclusions can be drawn as to the source(s) of the weaker alleles (or other contributors).
- No conclusions were drawn as to the source(s) of the weaker alleles (or other contributors).

Major, minor, or inferred component can be determined that does not match any known samples (and is probative)

Note: Statement regarding NDIS will only be included for samples meeting the standards for inclusion/uploading.

- A mixed DNA profile was obtained from ____. The major (or inferred) component of this mixed DNA profile is from an unidentified source. This major (or inferred) component will be searched against the DNA profiles in the National DNA Index System (NDIS) and any matches will be reported.
- A mixed DNA profile from at least ____ sources was obtained from ____. Assuming only ____ donors, the major (or inferred) component of this mixed DNA profile is from an unidentified source. This major (or inferred) component will be searched against the DNA profiles in the National DNA Index System (NDIS) and any matches will be reported.
- A mixture was observed on ____ that is consistent with originating from two or more individuals. A major DNA component can be determined.

Minor (or other) Component

- ____ cannot be excluded as the minor (or other) component of the mixed DNA profile.
- No conclusions can be drawn as to the source(s) of the weaker alleles (or other contributors).

- No conclusions were drawn as to the source(s) of the weaker alleles (or other contributors).

Major, minor, or inferred component can NOT be determined

Likelihood ratio example (assuming 2 donors)

-OR-

- A mixed DNA profile from at least two sources was obtained from _____. Assuming only two sources, this profile is consistent with the combined DNA profiles from source 1 and source 2.

The minor component is of probative value

I have therefore considered two possibilities:

Likelihood Ratio (note that this calculation can be changed to accommodate mixtures of more than two persons)

- The DNA is a mixture of source 1 and source 2.
- The DNA is a mixture of source 1 and an unidentified source.
- The mixed DNA profile from _____ in the Caucasian population is x times more likely to be obtained if it is a mixture of source 1 and source 2 than if it is a mixture of source 1 and an unidentified source. For the African American population the number is x and for the Southwestern Hispanic population it is x. (*or use appropriate population groups*).

Combined Probability of Inclusion

Combined Probability of Exclusion

Combined probability of inclusion example

- A mixture was observed on _____ that is consistent with originating from two or _____ more individuals. _____ cannot be excluded as a possible donor to the DNA profile obtained. The Combined Probability of Inclusion (CPI), or the expected frequency of individuals who could contribute to a portion of the mixture, is approximately 1 in _____ for Caucasians, 1 in _____ for African Americans, and 1 in _____ for Hispanics. (*or use appropriate population groups*).

Combined probability of exclusion example

- A mixture was observed on _____ that is consistent with originating from two or _____ more individuals. _____ cannot be excluded as a possible donor to the DNA profile obtained. The combined probability of exclusion (CPE) calculated for this mixture estimates that over 99.99% of individuals in the Caucasian, African-American, and Southeast Hispanic populations can be excluded as contributors. (*or use appropriate population groups*).

Major, minor, or inferred component can NOT be determined

Likelihood ratio example (assuming 2 donors)

-OR-

- A mixed DNA profile from at least two sources was obtained from _____. Assuming only two sources, this profile is consistent with the combined DNA profiles from source 1 and source 2.

The minor component is of probative value

- I have therefore considered two possibilities
- The DNA is a mixture of source 1 and an unidentified source.
- The DNA is a mixture of two unidentified sources.
- The mixed DNA profile from _____ in the Caucasian population is x times more likely to be obtained if it is a mixture of source 1 and an unidentified source than if it is a mixture of two unidentified sources. For the African American population the number is x and for the Southwestern Hispanic population it is x. (*or use appropriate population groups*).

One of the contributors is unidentified.

Combined probability of inclusion example

- A mixture was observed on __ that is consistent with originating from two or more individuals. __ cannot be excluded as a possible donor to the DNA profile obtained. The Combined Probability of Inclusion (CPI), or the expected frequency of individuals who could contribute to a portion of the mixture, is approximately 1 in __ for Caucasians, 1 in __ for African Americans, and 1 in __ for Hispanics. (*or use appropriate population groups*).

Combined probability of exclusion example

- A mixture was observed on __ that is consistent with originating from two or more individuals. __ cannot be excluded as a possible donor to the DNA profile obtained. The combined probability of exclusion (CPE) calculated for this mixture estimates that over 99.99% of individuals in the Caucasian, African-American, and Southeast Hispanic populations can be excluded as contributors. (*or use appropriate population groups*).

Complex Mixture (exhibiting probable allelic dropout, degradation, and/or preferential amplification)—The analyst may not be able to make conclusions as to the individuals that can be potentially included/excluded.

- Mixed DNA results were obtained from __. Due to the nature of this mixture, no conclusions were drawn.
- Partial DNA results were obtained from __. Due to the nature of this mixture, no conclusions were drawn.

Partial DNA Profile

Reporting Guidelines - Partial DNA Profile

Results

Reporting

Partial DNA Profile (exhibiting probable allelic dropout, degradation, and/or preferential amplification)—The analyst may not be able to make conclusions as to the individual(s) that can be potentially included/excluded.

- Partial DNA results were obtained from __. Due to the nature of this mixture, no conclusions were drawn
- A minimal DNA profile was obtained from __ that is not suitable for comparison to any known standards. No conclusion can be made from this profile.

Partial DNA Profile that can be interpreted.

- The DNA profile from __ matches the DNA profile from __ at D3S1358, vWA, , D8S1179, D21S11, D18S51, D5S818, D13S317, D7S820, D16S539, TH01, and TPOX. Results at FGA and CSF1PO were inconclusive. The approximate incidence of this profile is 1 in __ Caucasians, 1 in __ African Americans, and 1 in __ Southwestern Hispanics (*or use appropriate population groups*).

Note that this can be applied single source and mixture cases where interpretation can be done at some, but not all, loci.

Paternity

Reporting Guidelines - Paternity

Results

Reporting

Inclusions

- The DNA profile from __ (child) is consistent with having come from an offspring of __ (mother) and __ (father/alleged father).

I have therefore considered two possibilities:

- ___ (child) is an offspring of ___ (mother) and ___ (father/alleged father).
- ___ (child) is an offspring of ___ (mother) and an unidentified male.
- The DNA profile from ___ (child) in the Caucasian population is x times more likely to be obtained if he/she is an offspring of ___ (mother) and ___ (father/alleged father) than if he/she is an offspring of ___ (mother) and an unidentified male. For the African American population the number is x and for the Southwestern Hispanic population it is x. (*or use appropriate population groups*).

Miscellaneous

Reporting Guidelines - Miscellaneous

Results

Reporting

Additional Allelic Activity/Signal

OR

Activity that doesn't meet reporting guidelines (i.e. under the threshold)

No testing performed

No DNA profile obtained

Inconclusive Results

- The DNA results from ___ indicate possible additional allelic activity/signal that does not meet the reporting guidelines and therefore in not reported in the data table.
- No DNA testing was performed on ___.
- No DNA profile was obtained from ___.
- The DNA results from ___ were inconclusive at all loci tested.
- A DNA profile was obtained from __ that consists of Amelogenin only and gives indications of originating from a male/female individual.
- The potential source of the DNA in ___ could not be determined because the DNA was of insufficient quality or quantity.

Disposition of Evidence

Reporting Guidelines - Disposition of Evidence

Reporting

- The evidence will be retained in the laboratory. (The time limit for retention is based on the laws of each state; this time can be added to this statement).
- The evidence has been returned to the contributor.

Courtroom Testimony Introduction



DNA analysis is the most rigorously tested and documented forensic science today and sets the standards by which all other forensic disciplines are compared. Its discriminatory capability and reliability is unmatched by any other forensic science discipline. Yet, when presented in court, judges, attorneys and analysts alike struggle to understand or effectively present the technology. Prosecutors and defense attorneys with large caseloads and severe time constraints wrestle to comprehend even the basic concepts. Prosecution and defense bars spend countless dollars attending training seminars on "how to handle" DNA evidence. The extensive and well-documented research of DNA science, and the standards which have been applied to forensic DNA laboratories, has resulted in limiting the available attacks against it in court. The remaining attacks generally originate from identification/collection, contamination, and statistical analysis. Many of the issues giving rise to such challenges are well beyond the scope or control of the analysts. Those that are within their control have their roots in documentation and presentation.

Effective courtroom testimony is a critical component of the analysts' duties. The ability to communicate effectively an understanding of the science, technology, and tests involved with a particular case to non-scientist is essential. Maintaining objectivity, professionalism, and scientific integrity is absolutely necessary and will avoid many of the pitfalls that analysts may otherwise face.

Objectives

Upon successful completion of this unit of instruction, the student shall be able to do the following:

- Be familiar with the courtroom structure and personnel within the court
- Be aware of basic courtroom procedures and protocols
- Possess a basic understanding of the rules of evidence, discovery, and admissibility
- Be aware of the general qualifications necessary before being allowed to testify as an expert witness
- Be familiar with the appropriate demeanor and attire while providing testimony
- Be familiar with the settings and how to present technical testimony & evidence
- Be cognizant of the ethical considerations when presenting DNA related testimony and the impact of providing faulty or erroneous evidence
- Possess basic techniques for handling hostile attorneys

Important Notice:

The laws, rules of evidence, and rules of procedure may vary from Court to Court and State to State. The analyst should always check with an attorney (normally the prosecuting attorney) before giving testimony to be aware of the particular law and rules applicable in the jurisdiction. The content of this module is not intended, nor should it be construed, as legal advice.

Criminal Proceedings

Communication Skills, Report Writing, and Courtroom Testimony for Forensic Analysts

Generally, there are four types of courts within the criminal justice system:

1. Grand jury (not a true "court" type, but a proceeding where witnesses testify)
2. Trial courts
3. Appellate courts
4. Supreme courts

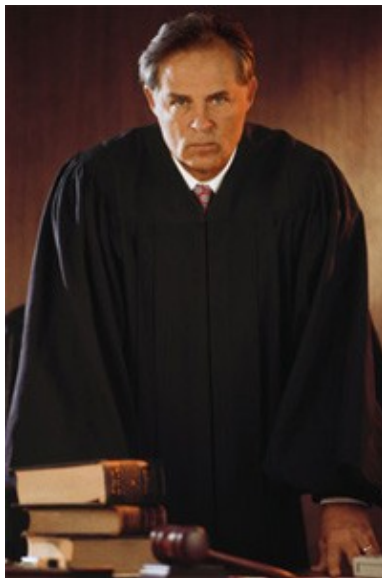


There may be times when analysts are called to testify in grand jury and trial court proceedings. The grand jury is a panel of citizens subpoenaed as any other jury for the particular purpose of hearing evidence presented by the prosecuting attorney's office only. Grand jurors may be permitted to ask questions of witnesses who are invited to testify before the grand jury. There is normally no defendant or defense counsel present during these proceedings. States which do not use grand juries rely instead upon preliminary hearings. A preliminary hearing is held in order to determine whether there is probable cause to hold the defendant for trial. A few states use both the grand jury mechanism and a preliminary hearing. The preliminary hearing will have many of the same characteristics as a criminal trial. The defendant may be present, and the prosecution may present witnesses and will offer evidence in support of the complaint. The defendant will be afforded the right to testify and may also call witnesses.⁰¹

Analysts will spend most of their testimony time in the trial court, where they may encounter one of two types of proceedings: the "motion hearing" or the "trial." A motion proceeding is normally comprised of the judge, court personnel, prosecuting attorney, defense attorney, and defendant. The trial is comprised of the same individuals as the motion hearing with a jury being present.

Analysts are not normally called to testify at appellate or supreme court hearings.

Courtroom Personnel and Parties



The courtroom can be an intimidating place. The prosecutor or defense attorney should be able to help the analyst in this area. Being familiar with who's who in the courtroom and their functions can ease apprehension. Court proceedings are normally staffed with the following:

- **Judge** (or Magistrate depending on jurisdiction)

Presides over the trial/hearing and holds ultimate authority over the proceedings that take place.

- **Court Deputy or Bailiff**

Provides security to the courtroom. Bailiffs ensure order in the courtroom, announce the judge's entry into the courtroom, call witnesses, and prevent the escape of the accused. Additionally, this individual supervises the jury when it is sequestered and controls public and media access to the jury.⁰¹

- **Court Clerk**

The Court Clerk provides administrative aid to the court during all proceedings. They are normally responsible for handling and securing any evidence that is presented during the proceedings.

- **Court Reporter**

Also called a court stenographer or court recorder, the court reporter's role is to create a record of all that occurs during trial. This includes verbal comments made in the courtroom, testimony, objections, rulings of the judge, judge's instructions to the jury, arguments made by the attorneys, etc.

The following are self-explanatory:

- **Prosecutor** (also known as State Attorney, District Attorney, or Solicitor General)
- **Defense Counsel**
- **Defendant**
- **Jury**

The size of the jury will depend on a number of factors. Exclusive of alternate jurors, there are three general jury size compositions: none, six, or twelve.

Where there are no jurors (in the trial phase), the judge acts as the jury. This is also referred to as a "bench trial."

States can determine the size of criminal trial juries. Most states use juries composed of 12 persons and usually one or two alternates. Some states allow for juries fewer than twelve, but generally no less than six.

Legal Issues

Discovery



Discovery is the process where the prosecuting attorney provides defense counsel with an opportunity to view, copy, or test the evidence in the government's possession. The discovery process is governed by state statutes, rules of procedure, and case law. The discovery process includes certain materials that are in the possession of its experts. The process is not automatic and the scope of disclosure of discovery materials varies from state to state and court to court. The discovery process is not unilateral and does impose responsibilities upon the defense to disclose certain information to the prosecution.

Evidence & Admissibility

In general, admissibility is the legal concept that determines what evidence, both testimonial and physical, will be admitted by the court and the jury will be permitted to hear. Admissibility is determined by statute, rules of evidence, and case law. This particular aspect of admissibility relates solely to the admissibility of the science or subject matter at issue and not to the qualifications of the individual.

With respect to scientific evidence, three distinct "tests" or "standards" have evolved. They have become known by the case names from which they originated. The "Frye" test originally involved testing from a polygraph type of instrument. The "Frye" test was also referred to as the "general acceptance" standard since it required the methods and techniques to be generally acceptable within the relevant scientific community.

Subsequent to the "Frye" test was a case that resulted in a new standard being established by the courts. "Daubert" shifted the determining factor of admissibility away from the "general acceptance" of the relevant scientific community to the "gatekeeper" concept. Under "Daubert" the presiding judge would act as the "gatekeeper" and determine whether or not the proposed evidence was relevant, applicable to the case and would be helpful to the jury.

Other "hybrid" states have either adopted legislation or rules of evidence that modify or alter in some way either the "Frye" or "Daubert" standards. The number of states that uses either the Frye or the Daubert standard fluctuates over time. 02

Opinion Testimony

Generally, unless an express exception exists, opinion testimony is not admissible in court. Expert witnesses may, if qualified and recognized by the court, give their opinion. The proponent of the evidence must establish the qualifications of the expert witness from whom they will seek opinion evidence in court.

Expert Witness Qualifications

In more sequential terms, what transpires is that the analyst is called to the stand. The attorney who called this individual then proceeds with a line of questions designed to establish the qualifications (education, training, knowledge, skill, etc) that are sufficient for the court to accept them as an expert in their particular field. The attorney, at the conclusion of his qualifying questions then "proffers the witness" as an expert in the field. Prior to the court ruling, the judge will inquire whether the opposing counsel wishes to make an inquiry of the witness, which is known as "*voir dire*." This provides the opposing counsel an opportunity to challenge the qualifications and preclude the analyst from being accepted by the court as an expert.



The online version of this course contains a multimedia [or downloadable] file of an attorney proffering an analyst as an expert witness. Visit this URL to view the file: <http://beta.communicating.dna.devis.com/m03/01/c/>. You must have a user name and password to view the online course.

If the court does not recognize the analyst as an expert in the particular field, then the analyst will not be permitted to give any opinion testimony. On the other hand, where an analyst is recognized by the court as an expert in a particular field, the analyst will be permitted to give opinion testimony evidence.

Attorneys (both prosecution and defense) may attempt a tactic where, after being recognized as an expert in a particular field, they attempt to elicit opinion testimony outside the range of their particular expertise. All attempts to solicit an opinion outside the scope of an analyst's expertise should be responded to with "I am unable to render an opinion in that field as I am not qualified as an expert in that particular area."

Witnesses must ensure that their *curriculum vitae* (CV) is accurate, complete, and free of any errors or omissions. Analysts should not underestimate opposing counsel checking into the background and representations of the witness on the CV.

Giving Testimony

Sequestration

This procedural process excludes witnesses from hearing each other's testimony and from discussing their testimony with anyone else. Failures to adhere to this process have ranged from dismissal of the charges to reprimands and exclusion of the evidence.



Establish Criteria

Direct Examination

Cross Examination

The Process of Giving Testimony

It is helpful to understand the process by which testimony is presented. The attorney who has called the witness is said to be the "proponent" of the evidence. The burden is upon this proponent to establish certain criteria before the witness is recognized as an expert and able to render an opinion in court. After being

accepted and recognized as an expert with the particular discipline, the proponent proceeds with his or her questions first under what is known as "direct examination." Direct examination is governed by certain rules that prohibit leading questions from being asked. "Leading questions" are usually more narrative in construction and suggest the desired response. The more frequent objections that are made during direct examination are "leading" and "non-responsive" or "narrative." These generally have little impact on the substance of the information. Witnesses should not permit themselves to become distracted or agitated at these interruptions.

Following direct examination, the opposing counsel is afforded an opportunity to "cross-examine" the witness. Although these questions are permitted to be leading, they are limited to the scope (or confines) of the direct examination subjects covered. The judge may grant wide latitude of the actual scope during cross-examination with the hopes of shortening the expert's time on the witness stand.

Upon completion of the cross-examination, the proponent attorney may or may not ask further questions during "redirect" examination. The line of questions during this phase should be within the confines of the cross-examination and not go into any new areas. The primary purpose of this phase is to permit the proponent to "rehabilitate" or clarify responses given during cross-examination.

Finally, the opposing counsel may or may not be permitted to have a line of "recross-examination" questions. Theoretically, the field of the questions should be continually narrowing with each succession. In real life, the field and number of "redirects" and "recrosses" will ultimately be determined by the judge.

The online version of this course contains a multimedia [or downloadable] file that is an example of cross-examination. Visit this URL to view the file: <http://beta.communicating.dna.devis.com/m03/01/d/>. You must have a user name and password to view the online course.

Objections

Law and Order and other courtroom dramas on television have created the stereotyped image of the lawyer who stands up and yells, "objection Your Honor!" The court then "sustains" or "overrules" the objection and testimony resumes. If the court "sustains" the objection, the witness must not answer the question that was posed. In contrast, the "overruled" objection allows an answer to be given. Although it may not seem to be the case, there are rules and limits that govern objections.

Pretrial Preparation

Communication Skills, Report Writing, and Courtroom Testimony for Forensic Analysts

The failure to prepare adequately for courtroom testimony can lead to disaster. Pretrial preparation begins upon receipt of the case. Ensuring that complete, accurate, and legible case file notes are documented will dramatically reduce the amount of pretrial preparation required and, most likely, the amount of time that the witness will remain on the stand.

Prior to giving any testimony the analyst should thoroughly review the entire case file along with any source or reference material contained in the case. The analyst should be prepared to answer questions about their laboratory standard operating procedure, proficiency testing, accreditation, and literature in the field that directly relates to the testing performed in the instant case.

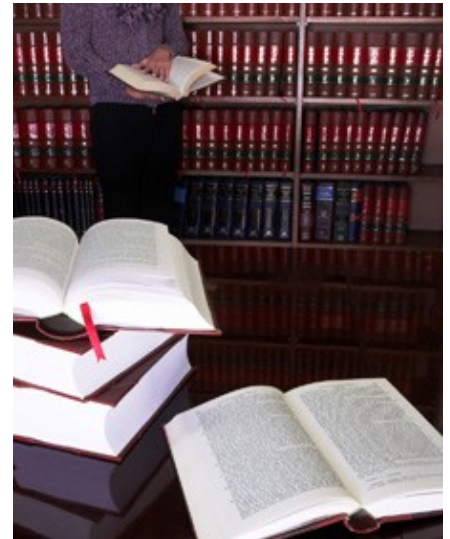
Given the large body of literature in the DNA field, it would be impractical to know of every article, study, or text that deals with DNA.

When confronted with an unfamiliar piece of scientific literature, one possible and not unreasonable response could be "I am not certain about the piece that you are referring to. However, if you have a copy, I would be happy to take a look at it." Special note should be made that the response did nothing more than offer to look at the piece. It did not indicate that you could adequately digest and apply the substance to any further questions.

Additionally, the analyst should schedule a time to meet with the attorney and review the case file and test results. Do not expect the attorney to be fully versed in your field of expertise or know what questions he or she should ask. Likewise, you should assist the attorney in the preparation of any exhibits or demonstrative aides that you expect to use. This entails creating graphical presentations, ensuring the content is accurate. If using electronic methods such as Power Point, slides, videos, jpg, etc., you should practice and be prepared to use the media during trial. Witnesses must also be prepared for the worst case scenario during trial. For example, the witness should always have a back-up method ready for use in the event of an unexpected technical problem.

The online version of this course contains a multimedia [or downloadable] file about meeting with attorneys before a trial. Visit this URL to view the file: <http://beta.communicating.dna.devis.com/m03/02/>. You must have a user name and password to view the online course.

Appearance



Communication Skills, Report Writing, and Courtroom Testimony for Forensic Analysts

The manner in which analysts dress and carry themselves in the courtroom will speak volumes about them, their agency, professionalism, quality of work, and self-confidence. Appearing too casual or sloppily dressed can be seen as a weakness in these areas as well as infer a level of disrespect to the proceedings. Likewise, overdoing it can be received as arrogant and condescending. Either extreme is distracting and can easily be used to support or undermine the quality of an analyst's work. Appearance should also be understood to include gait, posture, and eye contact.

Courtrooms are traditional and conservative environments and not necessarily the best place to exhibit the most current fashion trends or styles. Witnesses should not wear excessive or gaudy jewelry or accessories. The miniskirt, extra wide (or narrow) tie, nose or lip piercings, and multiple ear piercings are better left at home.

Unless mandated by agency policy, use of any uniform as court attire is normally discouraged. A business suit is more appropriate. A suit lends itself to objectivity and is a convention normally associated with professionals. Defense counsel can easily project the witness in uniform as nothing more than an extension of the law enforcement agency and thus the results are predictable and not objective.

Demeanor

Professionalism, competency, objectivity, and integrity: these are the concepts that should come to mind when considering the appropriate demeanor to exhibit in court proceedings. Maintaining the integrity of the individual as well as the science involved is critical. "Yes, sir," "no, sir," "yes, Your Honor," "no, Your Honor," and the like are entirely appropriate.

Handling the Aggressive Attorney



Circumstances will certainly arise that will tempt the analyst to enter into a debate or confrontation with the attorney. There are more effective methods to deal with attorneys who create such circumstances. It is important to remember that the attorney may be doing nothing more than intentionally trying to confuse or agitate the analyst during their testimony. The strategy has less to do with the substance of the testimony and more to do with demeanor and presentation to the jury.

Do

- Remain professional and composed.
- Remain objective.
- Use volume and tone to deflect hostility.
- Explain answers, if necessary.

Don't

- Become agitated or argumentative.
- Permit the attorney to put words into your mouth.
- Become personally invested in the case or its outcome.

Presentation Skills



Presentation skills are difficult for an analyst to master. The ability to balance the highly technical field of expertise while ensuring the jury comprehends the content is not as easy as one would initially think. It is easy for the testimony to become overly technical and scientific, well beyond the grasp of the jury's ability to understand. Conversely, it is equally easy to oversimplify the subject matter and become condescending or insulting to the jury. Witnesses should remember to enunciate clearly and loudly enough to be heard by the jury. Always check with the attorney to get an idea of the jury composition and education level. Remember that the most precise, technically correct, and jargon-laden statement doesn't mean anything if the jury doesn't understand it correctly. The analyst should double check any materials that they expect to use in their presentation for accuracy and clarity.

The online version of this course contains a multimedia [or downloadable] file about the challenges of communicating as an expert witness. Visit this URL to view the file: <http://beta.communicating.dna.devis.com/m03/05/>. You must have a user name and password to view the online course.

Conclusions

The ability to communicate effectively in court can be difficult and intimidating, yet it is a critical aspect of the analyst's responsibilities. Of equal importance is remaining objective and professional during the process of giving testimony. Properly preparing for court is an obligation that will result not only in the analyst's ability to give accurate testimony, but will also deflect the efforts of an aggressive attorney. Professionalism, competency, objectivity, and integrity are the landmark components to effective courtroom testimony. Shortcomings in any of these components may lead to potential ammunition for attack by attorneys.

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Greg has extensive jury trial experience involving forensic evidence and has provided courtroom testimony instruction to law enforcement agencies, laboratory personnel, and attorneys in the use of scientific evidence. He is a member of the American Academy of Forensic Sciences (AAFS) and associate member of the International Homicide Investigators Association (IHIA) and International Association of Chiefs of Police (IACP). Greg is the AAFS 2007 Program Chair of the Jurisprudence Section Program.



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2. Charlotte-Mecklenburg, NC Police Department Crime Laboratory. 2005. DNA standard operating procedures.
3. Federal Bureau of Investigation. FBI Laboratory's Combined DNA Index System (CODIS).
<http://www.fbi.gov/hq/lab/codis/index1.htm>

Online Links

- [Quality Assurance Standards](http://www.fbi.gov/hq/lab/codis/forensic.htm)
<http://www.fbi.gov/hq/lab/codis/forensic.htm>

- Standards and Audit Documents for CODIS
<http://www.fbi.gov/hq/lab/codis/index1.htm>



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