3A. Forensic Science Reports

Introduction

Forensic science service providers (FSSPs) are responsible for ensuring their reports are understandable. This is necessary because people with varying levels of topic knowledge asking different questions may read the reports near the time they are produced or many years later. Reports are not standardized, but they often share common elements based on accreditation requirements. Understanding the types of reports and categories that may be provided can increase the recipient's comprehension of the report.

Communication

If the effectiveness of preparing the report (encoding) is maximized, then the effort that the report recipient must make in interpreting (decoding) the report can be minimized, thereby reducing the risk of misunderstanding by recipients (figure 1).

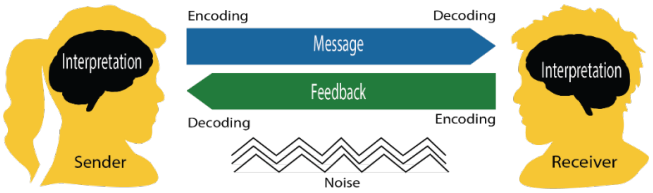

Figure 1. Encoding/Decoding Information Flow

Putting a Report Together

There are accreditation requirements related to the reporting of results. "Result" is a broad, encompassing word that includes the observations, data, and calculations from examining an item (i.e., testing, calibration, inspection), the interpretation of the same, and any opinion that is reported.[1] ISO /IEC (International Organization for Standardization/International Electrotechnical Commission) 17025 General requirements for the competence of testing and calibration laboratories, clause 7.8.1.2 provides the overarching expectation:

> "The results shall be provided accurately, clearly, unambiguously, and objectively, usually in a report (e.g., a test report or a calibration certificate or report of sampling) and shall include all the information agreed with the customer and necessary for the interpretation of the results and all information required by the method used."

ISO/IEC 17020 Conformity assessment — Requirements for the operation of various types of bodies performing inspection, clause 7.4.4 similarly mentions correctness, accuracy, and clarity.

Report Elements

Having required elements supports accurate, clear, unambiguous, and objective reporting of results. Both ISO/IEC 17025 (figure 2) and ISO/IEC 17020, which serve as the basis for accreditation of FSSPs, contain required report elements when providing results.

Figure 2. ISO/IEC 17025 report elements:

- Title
- Name & address of FSSP
- Location where work was performed
- Customer contact information
- Unique identification of the report
- Dates of receipt of item, performance of work, report issuance
- Description and identification of the item
- Identification of results provided by external providers
- Information on sampling performed
- Method used as well as additions to, deviations, or exclusion from the method
- Results
- Identification of who authorized the report

An important caveat to note: ISO/IEC 17025 allows for an agreement with the customer to issue a simplified report that will not include all required elements. ISO/IEC 17020 has several of these as optional report elements. Therefore, the elements included in a report from an accredited FSSP can vary by discipline within an organization or between FSSPs.

In addition to these required report elements, there are also requirements for reporting interpretations and opinions. An accrediting body may specify other requirements related to reporting for their customers, or a documentary standard can be published that adds detail to these more general report elements. ANSI/ASB 053 Standard Report Content in Forensic Toxicology, a standard on the Organization of Scientific Area Committees (OSAC) for Forensic Science Registry, and the FBI Quality Assurance Standards for Forensic DNA Testing Laboratories are examples of documentary standards.

Both the National Commission on Forensic Science in recommendations and views documents and the National Academy of Sciences address report content. The NAS supports "complete and thorough" reports but acknowledges that there are limits to the amount of detail reports can reasonably provide. FSSPs have the challenge of determining how much information to include in a report. If something is not clear or

Footnote:

1. OSAC Preferred Terms, Organization of Scientific Area Committees for Forensic Sciences. (2022). Retrieved from https://www.nist.gov/system/files/documents/2021/12/14/OSAC%20Preferred%20Terms_December%202021.pdf

not included, report recipients can request and review supporting records (i.e., chain-of-custody, observations, data, calculations, interpretation), commonly referred to as the case record or case file. The FSSP may or may not include all the contents of the case record with the report. If not provided, the National Commission on Forensic Science recommends the report state that it does not contain all the documentation associated with the work performed.

Report Wording

The terminology used in forensic science often differs from that used in other sectors. Differences in definitions of the same term can also occur between forensic science disciplines. Both the National Academy of Sciences and the National Commission on Forensic Science recommended that the forensic science community establish standard terminology to be used in reporting.

Using standardized wording to report results within an FSSP is becoming more common with the increased use of laboratory information management systems to generate reports. Acknowledging that common terminology and report wording does reduce the risk of misunderstanding, applicable documentary standards are being developed, with many posted on the OSAC Registry. Implementing these voluntary standards is occurring, but until that is universal, terminology and report wording may or may not be standardized between forensic science practitioners (FSPs) within and between FSSPs.

Types and Categories of Reports

Reports can be provided in either oral or written format. The different options within each format are known as channels of communication. One written channel is referred to as a report, but the same content can be provided using other channels as well. The chosen channel can impact the interpretation of the message positively or negatively. Some channels are more prone to "noise" that can interfere with the communication process and influence how people understand the message (figure 3).

Oral	Written
Channels: Phone call, voicemail message, in-person conversation	Channels: Report, memo, email, text message

Figure 3. Oral vs Written Channels

Depending on the work performed by an FSSP, a single item for examination could have multiple reports issued. The FSSP can choose to provide a separate report for each examination performed on the item, or they can choose to group all examinations within a discipline into a single report. Multiple disciplines may also examine the item, thereby generating multiple reports. After the initial reporting of an examination result, these additional types of reports may be issued (figure 4):

Report Type	Purpose
Supplemental Report	To report on additional work
Amended Report	To change a report
Withdrawn Report	To be replaced by a new report

Figure 4. Report Type and Purpose

At times, reports of results are broken into categories that are used to describe the purpose of the report (figure 5):

Report Category	Purpose
Intelligence Report	Provides information to link cases, events, and situations to help design strategies.
Investigative Report	Sometimes referred to as a preliminary or interim progress report, with the intent to assist further inquiry, interview, or strategy.
Technical Report	Reports observations, data, calculations, and interpretations that may or may not include an opinion.
Evaluative Report	Includes an opinion. This opinion is the evaluation of two specified competing propositions.

Figure 5. Report Category and Purpose

Key Takeaways

1. The elements included in a report can vary between disciplines of an FSSP and between FSSPs.
2. Terminology may not be standardized; therefore, it is important to understand how an individual FSSP uses a term.
3. There may be multiple reports (types or categories) for an item selected for examination.
4. Supporting records that serve as the basis of the report may or may not be provided; the receiver of a report may need to request these from the FSSP.

Related Primers

Accreditation and Certification

Documentary Standards

Learn More

FSSPs do not make reports publicly available but may provide examples when requested. Reviewing the format(s) used will aid in understanding and reduce the risk of misunderstanding the information provided.

Part of NIST SP 1500-28
https://doi.org/10.6028/NIST.SP.1500-28