D14 Forensic Reports: Addressing the Challenge of Clarity

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Participants attending this presentation will learn potential strategies to be employed when designing forensic biology laboratory reports. The focus is to ensure that data being presented in a report to clients are both scientifically accurate and understandable to the layperson.

A continuing and significant challenge to forensic scientists is the effective and clear communication of complex scientific findings to lay people in reports and through testimony, while stressing limitations. While challenging, it is arguably the single most important function of a forensic scientist.

During the mid 1990s a judicial inquiry into the wrongful conviction of Guy Paul Morin (The Kaufman report) was initiated. A lack of clarity of scientific findings and a misunderstanding of the potential significance of scientific evidence contributed in part to the miscarriage of justice.

Amongst the Commission's various recommendations, several dealt specifically with the issue of clarity in scientific communications (whether they be reports, case conferences, or testimony).

Recommendation 6: Forensic opinions to be acted upon only when in writing.

Recommendation 7: Written policy for forensic reports. CFS to establish a policy that reports must contain the conclusions drawn from the forensic testing and the ***limitations*** (emphasis added) to be placed upon those conclusions.

Recommendation 8: The use of appropriate forensic language. CFS to establish a policy for the use of certain uniform language, which is not potentially misleading and enhances understanding.

Recommendation 9: Specific language to be avoided by forensic sci- entists. CFS employees should be instructed to avoid demonstrably mis- leading language e.g., the term "consistent with."

Recommendation 10: Specific language to be adopted. Certain language enhances understanding and more clearly reflects the limitations upon scientific findings.

As part of its strategy to implement the recommendations, the CFS struck a cross-organizational committee of staff and managers to propose and review a variety of options. Part of this process involved canvassing stakeholder opinion from crown attorneys, defense counsel, police, coroners, and others, through the administration of focus groups.

Using the information gathered, along with the collective input from the management and staff (numbering approximately 175), a revised report writing policy was drafted. The policy standardizes the format of reports that originate from any one of a number of different disciplines within the laboratory, and requires that discipline-specific general infor- mation sheets accompany them.

The standard format of all CFS reports includes the following: i) a Purpose Statement, ii) a Results section, iii) a Conclusion section, iv) a Notes and Remarks section containing information on technical assis- tance, sample consumption, and reference to other CFS reports, v) a Continuity section containing details of item receipt and disposition, as well as vi) an Attribution Statement.

The information sheets, written at a basic level for the benefit of stakeholders, are formatted in a standard manner throughout the laboratory and include for each discipline: i) a brief introduction, ii) an overview of the process for examination including a description of the various tests used, as well as limitations of the tests, and iii) a glossary of scientific terms that may appear in the report. The example provided below is from the information sheet for blood.

This presentation describes the process undertaken to deal with this complex issue. A sample report from the Biology Section of the CFS involving results of body fluid examinations and STR DNA analysis will be included, accompanied by the appropriate information sheets.

The development of reporting formats and guidelines is an ever- evolving process that must be continually reviewed in the context of each laboratory's requirements. It is felt that the author's approach to the problem has been comprehensive while reflecting the needs of clients.

Exemplar Information Sheet for Blood

Introduction: Blood is a liquid that circulates through the body, transporting oxygen and nutrients and removing waste products. Blood consists of a liquid called plasma in which blood cells are suspended. Hemoglobin is a component of blood.

Examination For the Presence of Blood: Items are visually examined for any staining that may contain blood. Stains are tested using the Kastle-Meyer test. Stains may also be tested to identify the species from which they originated.

Tests For the Presence of Blood:

Visual Examination—May involve using a stereomicroscope (a magnifying tool) and enhanced light sources.

Kastle-Meyer Test—A 3-stage chemical test that gives a pink colour reaction in the presence of

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hemoglobin, a substance specific to blood. This can be performed as a rub or direct test.

ABAcard® HemaTrace® Test—Tests used to determine the species / family of origin of a body fluid or tissue.

Crossed-over Electrophoresis—These tests use commercially pre- pared reagents that bind specifically to substances in a given species or family, allowing for their visual detection.

Limitations:

1. The sensitivity of the Kastle-Meyer testing is such that a positive result may still be obtained in the absence of visible staining.
2. Although false positive Kastle-Meyer reactions are sometimes obtained with other substances, such as certain fresh plants, as applied at the CFS this test is specific for blood.
3. The ABACardâ HemaTraceâ test is specific to human (higher primate) blood. False negative results are possible when dealing with severely degraded samples. False positive results have been observed when ferret blood is tested.
4. The species/families that can be identified using crossed-over electrophoresis are human (higher primate), dog (domestic dog, wolf, coyote), cat (domestic cat, cougar), cow, pig, horse, donkey, mouse/rat, deer/moose, sheep/goat, chicken, guinea pig, rabbit, and fish.

Glossary:

Direct Test —Involves applying the Kastle-Meyer chemicals directly to a sub-sample from the area in question.

Rub Test—Involves rubbing the area in question with paper and applying the chemicals to the paper.

Report Writing, Clarity, Limitations

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