

## Standards and Guidelines

# Scientific Working Group on Bloodstain Pattern Analysis: Guidelines for a Quality Assurance Program in Bloodstain Pattern Analysis

## Scientific Working Group on Bloodstain Pattern Analysis (SWGSTAIN)

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## Objective

The intent of this document is to provide bloodstain pattern analysts general guidance for the establishment of a quality assurance program in bloodstain pattern analysis (BPA) to ensure the reliability of all BPA work product. SWGSTAIN expects to develop additional documents to provide further guidance in select topic areas addressed in this summary treatise.

## Introduction

The Scientific Working Group on Bloodstain Pattern Analysis (SWGSTAIN) comprises BPA experts from North America, Europe, New Zealand, and Australia. SWGSTAIN provides a professional forum in which practitioners in BPA and related fields can discuss and evaluate methods, techniques, protocols, quality assurance, education, and research. SWGSTAIN's ultimate goal is to use these professional exchanges to address substantive and operational issues within the field of BPA and to work to build consensus-based, or "best practice," guidelines for the enhancement of the discipline of BPA.

## Statement of Purpose

The following are guidelines for an effective quality assurance program as it relates to BPA.

## Definitions

As used by SWGSTAIN, the following terms convey the meanings specified:

*Must*—Done without exception

*Should*—Expected to be done

*Recommended*—Appropriate but not mandatory

## Quality Assurance Program

The agency must establish and maintain a documented quality system that is appropriate to BPA. The quality manual should address, but is not limited to:

1. Goals and objectives.
2. Personnel and qualifications.
3. Standard operating procedures.
4. Case files.
5. Assessments.
6. Corrective action.
7. Safety.
8. Facilities.
9. Evidence control.
10. Equipment and reagents.
11. Validation.
12. Audits.
13. References.

## **1. Goals and Objectives**

The agency should address the goals and objectives of the quality assurance plan for the BPA program.

## **2. Personnel and Qualifications**

The agency must have written specifications defining the minimum education, training, and experience required of an individual in order to perform BPA (see SWGSTAIN education and training documents).

## **3. Standard Operating Procedures**

The agency must have written and approved standard operating procedures (SOPs) regarding BPA. Items that should be included are:

- 3.1.** Title.
- 3.2.** Scope.
- 3.3.** Equipment, materials, and reagents.
- 3.4.** Procedures.
- 3.5.** Report generation, review, and approval.
- 3.6.** Calculations.

3.7. Limitations.

3.8. Safety.

3.9. References.

3.10. SOP approval.

## **4. Case Files**

The agency must have written procedures for the content and maintenance of BPA case files.

## **5. Assessments**

The agency should have in place a documented program of ongoing skill assessment of the bloodstain pattern analyst.

5.1. It is recommended that each bloodstain pattern analyst participate in case reanalysis or proficiency testing annually.

5.2. It is recommended that the agency have a documented program that annually assesses the testimony of each bloodstain pattern analyst.

## **6. Corrective Action**

The agency should establish written procedures to be followed for corrective actions addressing such issues as administrative, analytical, interpretive, or skill-assessment errors.

## **7. Safety**

The agency should maintain a documented health and safety program. This should include health and safety practices consistent with standards for the occupational exposure to bloodborne pathogens and occupational exposure to hazardous chemicals used in BPA.

## **8. Facilities**

The agency must have a documented program that ensures that the facility is secure from unauthorized access and maintained in a condition that minimizes the risk of contamination of evidence.

## **9. Evidence Control**

The agency must have a documented evidence control system to ensure the integrity of physical evidence.

## **10. Equipment and Reagents**

10.1. The agency should have a documented program to monitor the maintenance and calibration of equipment and/or instrumentation that affect(s) the accuracy and validity of the BPA.

**10.2.** The agency should have in place documented procedures for testing the reagents used in casework to ensure their functionality.

## **11. Validation**

The agency should have written procedures that require that all new techniques be validated prior to their use in BPA applications.

## **12. Audits**

The agency must have in place a documented program for the periodic review of BPA case files.

## **13. References**

It is recommended that the agency list and maintain all reference material relating to the development of the quality assurance program.

## **Glossary**

*Agency*—Any entity—such as an individual, a law enforcement department, a private company, or a government or private laboratory—that provides BPA as one of its functions.

*Assessment*—A method used to evaluate an individual's knowledge, skills, and abilities in BPA.

*Case reanalysis*—The reexamination, by another bloodstain pattern analyst, of all data and conclusions generated in a bloodstain pattern case.