Standards for a Bloodstain Pattern Analyst's Training Program

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Abstract:
A bloodstain pattern analyst training program is necessary to ensure the competency and quality of the work product. This document provides minimum pre-training educational requirements for an individual currently in, or entering into, a bloodstain pattern analyst training program and the minimum training requirements that a trainee shall successfully complete prior to practicing as a bloodstain pattern analyst (BPA).

Foreword

A bloodstain pattern analyst training program is necessary to ensure the competency and quality of the work product. This document is being put forth by the Bloodstain Pattern Analysis Subcommittee (BPA) to provide guidance to agencies providing bloodstain pattern analysis services for the establishment and maintenance of such a program. The BPA expects to develop additional documents to provide further guidance in select topic areas addressed in this summary treatise.

This document originated as a product of the Scientific Working Group on Bloodstain Pattern Analysis (SWGSTAIN)[1]

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[1] "Scientific Working Group on Bloodstain Pattern Analysis: Scientific Working Group on Bloodstain Pattern Analysis: Educational Model for Introductory Bloodstain Pattern Analysis Training", SWGSTAIN.org

Table of Contents

1. Scope

This document provides minimum pre-training educational requirements for an individual currently in, or entering into, a bloodstain pattern analyst training program and the minimum training requirements that a trainee must successfully complete prior to practicing as a bloodstain pattern analyst (BPA).

2. Definitions and Terms

2.1 Terms - The following terms are meant to convey the meanings specified:

Shall – Done without exception.

Should – Expected to be done *(unless otherwise documented for non-compliance).*

Recommended – Appropriate, but not mandatory.

2.2 Definitions

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

Recognize - The trainee will be able to recall subject matter through the use of notes or lecture materials. These topics may be tested through written or oral examinations.

Describe - The trainee shall be able to accurately express the subject matter clearly and effectively through written and/or oral examinations.

Demonstrate - The trainee shall be able to accurately express the subject matter clearly and effectively through practical exercise, in addition to written or oral examinations.

Active practitioner - An analyst actively involved in providing bloodstain pattern training and/or BPA casework and/or performing technical reviews of BPA casework.

Bloodstain pattern analyst - An individual who has successfully completed the prescribed course of study.

Bloodstain pattern analysis trainee - An individual who is actively working toward meeting the requirements as described in the *Organization of Scientific Area Committees on Bloodstain Pattern Analysis Guidelines for the Minimum Educational and Training Requirements for Bloodstain Pattern Analysts*.

Competency test - A method used to demonstrate successful completion of a BPA trainee's course of study. The competency test(s) may be administered incrementally and/or cumulatively.

3. Goals and Objectives

The Organization of Scientific Area Committees (OSAC) recognizes and has developed a training model for BPA training. The following is a minimum recommended framework of training provided to the students by the instructor.

4. Personnel and Qualifications

4.1 Educational Requirements

4.1.1 The candidate should have a Bachelor's degree from an accredited institution and shall include science related coursework.

4.2 Minimum Training Requirements

At the completion of training, the bloodstain pattern analyst trainee shall be able to:

4.2.1 Understand the health and safety issues associated with BPA including:

4.2.1.1 Bloodborne pathogens and other health hazards.

4.2.1.2 Biohazard safety equipment and procedures.

4.2.1.3 Chemical safety hazards, procedures for protection, and remediation of chemical hazards.

4.2.1.4 Recognize the history of BPA.

4.2.1.5 Describe the scientific methods and principles relating to BPA.

4.2.1.6 Scientific Method and its application relating to BPA including:

4.2.1.6.1 Problem identification.
4.2.1.6.2 Data collection.
4.2.1.6.3 Hypothesis formation.
4.2.1.6.4 Data evaluation.
4.2.1.6.5 Hypothesis evaluation.
4.2.1.6.6 Theory/conclusions.

4.2.2 Describe the various principles and factors relating to or affecting BPA, including:

4.2.2.1 Blood components and related human anatomy and physiology.

4.2.2.2 Effects of target surface characteristics on the resulting bloodstain patterns.

4.2.2.3 The effect of environmental factors on the formation and/or drying time of bloodstain patterns, including:

4.2.2.3.1 Air flow.
4.2.2.3.2 Humidity.
4.2.2.3.3 Temperature.
4.2.2.3.4 Substrate characteristics.
4.2.2.3.5 Animal/insect activity.

4.2.3 Describe the principles of physics (particularly fluid dynamics) relating to BPA, including:

4.2.3.1 Newton's Laws of Motion.
4.2.3.2 Surface tension.
4.2.3.3 Viscosity.
4.2.3.4 Gravity.
4.2.3.5 Air resistance.
4.2.3.6 Velocity.

4.2.4 Describe the characteristics of blood in motion including:

4.2.4.1 Drop formation.
4.2.4.2 Oscillation.
4.2.4.3 Flight paths.
4.2.4.4 Accompanying drop.
4.2.4.5 Wave castoff.
4.2.4.6 Distribution of blood drops.
4.2.4.7 Kinetic energy.

4.2.5 Demonstrate an understanding of the mathematical principles that relate to BPA, to include knowledge of the methods used to measure bloodstains and bloodstain patterns, including:

4.2.5.1 Methods for the measurement of individual bloodstains.
4.2.5.2 Trigonometric functions as they relate to BPA.
4.2.5.3 Methods of area of origin estimation.

4.2.6 Describe the physical appearance of bloodstain patterns (size, shape, distribution, and location) relating to the mechanism by which they were created

4.2.7 Demonstrate an understanding of the target effects of textiles and clothing on bloodstain pattern formation including:

           4.2.7.1 Composition/construction.
           4.2.7.2 Treatment.
           4.2.7.3 Condition.
           4.2.7.4 Ability to move or reposition.

4.2.8   Demonstrate the ability to identify and classify bloodstain patterns

4.2.9   Understand clotting as it relates to BPA.

4.2.10 Demonstrate acceptable documentation methods of bloodstain pattern evidence, including but not limited to:

           4.2.10.1   Photography.
           4.2.10.2   Sketching.
           4.2.10.3   Note taking.

4.2.11 Describe the methods for the preservation and collection   of bloodstain pattern evidence that allow for future examination(s).

4.2.12 Describe bloodletting injuries, locations, and potential patterns produced by such injuries.

4.2.13 Demonstrate an understanding of chemical testing and enhancement techniques relating to bloodstains.

4.2.14 Describe the limitations of BPA.

4.2.15 Demonstrate the reconstruction of a bloodletting event(s).

4.2.16 Demonstrate the ability to accurately and effectively communicate findings, conclusions, and opinions by written and/or verbal methods.

4.2.17 Describe an understanding of "cognitive bias" including:

           4.2.17.1 Contextual Bias.
           4.2.17.2 Confirmation Bias.
           4.2.17.3 Motivational Bias.
           4.2.17.4 Expectation Bias.
           4.2.17.5 Minimizing Bias.

4.2.18 Demonstrate an understanding of "uncertainty" as it relates to BPA.

5. Case Files

Successful completion of each phase of the aforementioned training, mentorship program, and

competency testing must be documented and the documentation must be maintained.

6. Assessments

6.1 Mentorship

6.1.1 During the course of training, the BPA trainee and mentor shall document and participate in a mentorship program. This mentorship includes, but is not limited to, the evaluation of the required objectives, the study of completed casework, supervised BPA scene and laboratory work, and the observation of expert testimony.

6.1.2 A mentor shall be an analyst actively practicing in the field of BPA (training, casework, and/or technical reviews) and have a minimum of three years of casework experience as a bloodstain pattern analyst.

6.1.3 A mentor should have fulfilled all previously stated requirements for a bloodstain pattern analyst.

6.1.4 A BPA trainee shall participate in and successfully complete a competency test prior to performing independent analysis and rendering expert opinion. Competency testing may be administered incrementally and/or cumulatively to allow the trainee to conduct some of the analyses independently. (For example, a mentor may allow the trainee to complete a competency test in the area of photography and then allow the trainee to photograph a scene independently.)

7. Continuing Training

7.1 Continuing Training Requirements for a Bloodstain Pattern Analyst

7.1.1 A minimum of eight hours of training related to BPA should be completed annually. This may include, but is not limited to, attending professional conferences, seminars, webinars, and/or workshops.

7.1.2 Successful completion of continuing training shall be documented and the documentation shall be maintained.

7.1.3 It is recommended that one belong to a professional organization(s) related to BPA.