

Deadline for Submission of Comments: 9/24/2018

Document Title: ASB Std 031, Standards for a Bloodstain Pattern Analyst's Training Program

Note: a specific Proposed Resolution must accompany each comment or it cannot be considered.

#	Comment	Comments	Proposed Resolution	Final Resolution
40	E	Add a definition for mentor		Accept: new definition added 3.2.9
26	T	No guidance on terms not defined.	Add: For those terms not defined herein, the "OSAC Preferred" definition listed in the OSAC Forensic Science Lexicon shall apply.	Reject: No missing terms were identified and proposed.
27	T	No definition for proficiency test	Proficiency test - A known result test administered at regular intervals used to evaluate the on-going capability and performance of analysts in BPA. In open tests the analysts are aware they are being tested, in blind tests they are not.	Reject: Term not used in the document. Term will be defined in Quality Assurance document.
28	T	No definition for technical review	Technical review - Review of all examination records and test reports to ensure the validity of scientific results and conclusions.	Accept: New definition added 3.2.12
37	T	Define a proficiency test since it is a part of maintaining training and competency.	Proficiency: At least a yearly assessment of the analyst's ability to correctly perform and interpret bloodstain pattern analysis after being qualified to perform casework.	Accept: See 3.2.10
29	E	revise current wording regarding bachelors degree coursework	revise to: ...institution which should include coursework in the natural sciences.	Accept with modification: sentence was revised to include biology, physics, fluid dynamics, and trigonometry.
30	T	An equivalency statement of experience for education should be identified for those active practitioners who have previously completed training, mentorship, competency testing and are regularly proficiency tested in Bloodstain Pattern Analysis.	4.1.2 Prior completion of a BPA training and mentorship program consistent with Section 4.2.1 and Sections 6.1 through 6.4 as well as five years of active case-work experience as a qualified Bloodstain Pattern Analyst shall be recognized as equivalent to the required education in Section 4.1.	Reject: See clarification note under 4.1.
32	T	Change wording of this requirement to make it a stronger and better for the BPA community.	The candidate <u>shall</u> have a science degree from an accredited institution.	Accept with modification: Footnote added "Section 4.1 will change from "should" to "shall" five (5) years after the original publication date for this standard."
33	T	Education requirements shall include a Bachelor of Science degree in a natural or applied science. Too many police and non-scientists are involved in this discipline providing less than standard interpretation and testimony. If this discipline is going to be respected and have a "path forward" raising the education requirements from dropping out of high school, becoming a police officer or parking attendant to having a BS in science where the scientific method is ingrained, higher mathematics is understood, and having an open, inquisitive mind are maintained. There will be howls from those without science degrees, but we are looking to the future not remaining static. Too many take a one week class then hang a shingle as a BPA expert.	Change requirement to science degree: The candidate shall have a Bachelor of Science degree from an accredited institution in a natural or applied science, shall include at least a one-week course in bloodstain pattern analysis, and at least one week of additional training exploring different substrates, environmental factors, and physics/fluid dynamic conditions.	Reject with modification: CB decided on the following text: "The candidate should have a Bachelor's degree and shall have coursework in trigonometry and science related coursework and laboratory work in biology, physics, and chemistry from an accredited institution."
42	T	The committee has failed to recognize education through real world training and experience. Instead, the committee has declared "The candidate should have a Bachelor's degree from an accredited institution and should include science related coursework." While I agree with an educational background, that background is not necessarily exclusive of experience - in any form. No value has been given to the experience of the candidate. The IAI currently requires experience AND training within the discipline prior to examination. Formal education does not eliminate error. The legal world is filled with malpractice lawyers, medical and legal. I realize the committee has indicated the candidate "should have" rather than shall have. The passage of such a qualification will immediately diminish the value of each current qualified analyst who does not possess a Bachelor's degree.	I offer a resolution in which the candidate's formal education is balanced with the candidate's experience in order to qualify for examination. If the candidate truly possesses the knowledge and skills to pass the examination, the candidate should be certified, irrespective of a college diploma. Official examinations can be created and/or modified, if necessary, to ensure a thorough knowledge and skill is demonstrated. I agree with continuing education. If the goal of a Bachelor's degree is to reduce or eliminate error, I offer a resolution of peer review be encouraged to reduce error.	Reject: It does not mesh with the current certification process. The current certification process requires 3 years of experience prior to taking a test.

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43	T	<p>This particular OSAC & ASB were tasked with developing educational and training standards for bloodstain pattern analysis. While it has drafted several training standards it has produced the equivalent of essentially nothing with respect to education. The so-called educational requirements standard 4.1 reads "The candidate should have a Bachelor's degree from an accredited institution and should include science related coursework." The English could not be clearer - there simply is no educational requirement. There are two aspects of the clause that need to be addressed. The use of the first "should" eliminates any educational requirement whatsoever. If we somehow ignore the first "should" and evaluate the remainder of the sentence, we are still provided with no educational standard. Is any bachelor's degree satisfactory with some science related coursework? Not even a high school diploma is required by the "educational requirements." It would be more straightforward to state "there are no educational requirements" and then make recommendations on what is preferable. Section 4.2.4 seems to require the trainee to be able to describe and understand the scientific method and principles related to bloodstain pattern analysis. If they have not been taught this at the university level are they are going to learn this in workshops? Are they also going to be taught the necessity for possessing a healthy dose of scientific skepticism? Who is going to teach them this - the workshop instructor? The mentor? Who is the mentor - someone else who does not possess a science degree? Development of a scientist, or one who is capable of using the scientific method, is a long gradual process that is comprised of years of hierarchical study as a science student and continues through employment as a scientist. It is facilitated through a series of lectures and laboratory exercises and validated through numerous examinations. Critical reasoning, and the ability to successfully recognize balderdash takes years to master under the tutelage of someone who already possesses a science degree in a natural science, forensic science or criminalistics. Too many non-scientists are responsible for essentially pseduoscience being admitted into court resulting in wrongful convictions. For sure, scientists also can make serious mistakes but the possession of a real science degree (not just any diploma) tends to lessen the occurrence of major blunders. It is a sad commentary that the SWG, the OSAC and now the ASB have not been able to develop a reasonable educational requirement after all these years. This stems from a lack of appreciation for the complexity of physical evidence at crime scenes coupled with too many non-scientists on the various committees.</p>	<p>Recommend grandfathering of the existing analysts (assuming they have achieved the necessary training as described in the draft standard) and then in four years require all new analysts to obtain a Bachelor of Science in a natural science, forensic science or criminalistics coupled with the workshop style training, mentoring, etc.</p>	<p>Accept with modification: see footnote #2.</p>
54	T	<p>Educational requirements: Stating that the candidate "should" have a bachelor's degree is not a definitive enough requirement. A bachelor's in science is the absolute minimum that should be mandatory for a bloodstain pattern analyst to analyze crime scenes and testify in court. Training sessions outside of any degree granting program in the natural sciences are inadequate and do not provide enough of a basis in the natural sciences and the scientific method.</p>	<p>A bachelor's degree in the natural sciences or in forensic science from a FEPAC accredited program is mandatory.</p>	<p>Reject: The proposed degree is too limiting and stringent to require.</p>
55	T	<p>How do you justify this rather minimal and vague requirement for scientific education, given the problems with poorly educated bloodstain pattern analysts?</p>	<p>Require more scientific education; make requirements clearer, e.g., a degree in science, rather than an unspecified amount of "science related coursework."</p>	<p>Accept with Modification: See revised 4.1 and footnote #2.</p>
21	E	<p>Trainig records / file requirements must adhere to ISO standards</p>	<p>Training records / files must adhere to ISO 17025 requirements. (if BPA will be accredited)</p>	<p>Reject: Not all laboratories are ISO accredited, or ISO accredited to ISO 17025. However, the statement was modified.</p>
2	T	<p>Length of mentorship</p>	<p>specify</p>	<p>Accept with Modification: See definition for trainer in section 3, revised section 6.1 and added section 4.2.1.</p>
22	E	<p>A minimum case work and mentorship period should be established for all BPA trainees. Some States, County's may obtain 5 cases quiker than others, why a minimum of a year mentorship program is suggested, will allow all to fulfill in requirement, with the minimum case work.</p>	<p>Complete a minimum of 5 cases with mentor; Mentorship program not less than one year.</p>	<p>Accept with Modification: See definition for trainer in section 3, revised section 6.1 and added section 4.2.1.</p>
41	E	<p>Add an annual reading requirement</p>		<p>Accept with Modification: Added paragraph in 7.3.</p>
3	E	<p>Should with shall</p>	<p>rep;ace as noted</p>	<p>Reject: It is inappropriate to require analysts to belong to a professional association.</p>

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38	E	It is a sad day when a natural/forensic science degree is not needed for a forensic science discipline. Given the comments of both the NAS and PCAST report, it is difficult to imagine that they were ignored. It is simply incomprehensible that a discipline that requires the knowledge of such things such as fluid dynamics would consider a practitioner qualified through training courses. In addition, the critical thinking skills inherent in the scientific method and are necessary in such a subjective discipline cannot be appreciated by those who have not formally been educated in science. This is really a sad day and sets forensic science up for even more scrutiny and distrust of not only from the media but the legal and scientific communities as well.	Requirement of a minimum of a Bachelor degree in a natural or forensic science.	Accept with Modification: Section 4.1 has been revised.
8	E	Extract : 4.2.5 Describe the various principles and factors relating to or affecting BPA, including the following. 4.2.6 Describe the principles of physics (particularly fluid dynamics) relating to BPA, including: 4.2.8 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:" The principles are dealt with in different paragraphs, rather under one paragraph discussion the principles.	Suggestion : Principles of bloodstain pattern analysis discussed under one paragraph with sub paragraphs. Extract from Codes of Practice and Conduct, FSR-C-102, paragraph "e" : Suggested phrasing : Bloodstain pattern principles and their application to BPA: i. blood composition and related human anatomy and physiology; ii. injury and wounding, and their relationship to bloodstain pattern formation; iii. the effects of surface characteristics on the resulting bloodstain patterns; iv. the effect of environmental factors on the formation and/or drying time of bloodstain patterns; v. the characteristics of blood dynamics, including drop formation, oscillation, droplet flight paths, accompanying drops and secondary spatter. Mathematical methods in BPA: i. methods for the measurement of individual bloodstains; ii. trigonometric methods for impact spatter origin determination. calculating an area of origin of blood spatter: i. string method; ii. tangent method; iii. directional analysis. Searching, chemical testing, and enhancement techniques for bloodstains and potential impact on BPA and other evidence types.	Reject: The document is a general standard for an agency to design/create and implement a training program. At this time the CB does not feel the level of specificity is necessary.
25	T	Can this be clarified to indicate it's applicable to new trainees or trainees just recently entering a training program?	Clarify that the mentorship requirement is for new or very recent trainees not far along in the training program.	Accept with Modification: See revised 6.1 and 4.1 note.
4	E	In section 4.2.1 it makes reference to "... requirements in 5.2.2 through 5.2.21" however there is no sub-sections under section 5	I am wondering if this might be a typing error as there are subsections 4.2.2 through 4.2.21 in the document.	Accept
1	E	5.2.2-5.2.21 with 4.2.2-4.2.21	replace as noted	Accept
5	T	Paragraphs are mentioned : 5.2.2 through 5.2.21, not part of paragraph 5 Training Files	Should read 4.2.2 through 4.2.21	Accept
24	E	refers to sections 5.2.2 through 5.2.21	Should refer to sections 4.2.2 - 4.2.21 instead.	Accept
31	E	Typos in this section identifying non-existent sub-sections of section 5.	Change "5.2.2 through 5.2.21" to "4.2.2 through 4.2.21."	Accept
34	E	You list requirements that are non-existent based on your document!	Replace the 5.2.2 and 5.2.2.1 with the appropriate numbers	Accept
44	E	"requirements in 5.2.2 through 5.2.21"	change to "requirements in 4.2.2 through 4.2.21"	Accept
49	T	"Demonstrate an understanding ..." Understanding is not defined in Section 3.	change to "demonstrate the effects of ..."	Accept with modification, see Comment # 46

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46	T	"Understand ..." not defined in Section 3	While "Describe" and "Demonstrate" are well defined in section 3 - Terms and Definitions - there is no definition for the term "Understand." I would suggest that either a definition of "understand" be developed or change this term to "demonstrate and/or describe" as required. The meaning of "understand" is ambiguous (see Chapter 2 in Wiggins, G. & McTighr, J. (2005). <i>Understanding by design. Published by Association for Supervision and Curriculum Development, Alexandria, VA, for a discussion on "Understanding"</i>).	Accept with modifications: Modify all occurrences of "Understand" to "Recognize and describe"
6	E	BPA trainees must have knowledge in the history of BPA, foundation of BPA.	Demonstrate knowledge in the history of BPA	Accept with modification: "Recognize" changed to "Describe"
35	T	What is meant by "recognize the history"? Try using active words that the BPA candidate would have to perform such as "describe," "explain," "communicate," or "recite."	Change wording to reflect an action - it doesn't matter which action word...	Accept with modification: "Recognize" changed to "Describe"
7	E	Extract : "4.2.4 Describe and understand the application of the scientific method and principles relating to BPA including the following:"	Suggesting : separate scientific method and principles relating to BPA. Principles discussed at 4.2.5	Reject: No need to separate, all items should be taught simultaneously.
47	T	"Describe and understand..." Understand is not defined in Section 3	change to "Describe the application..."	Accept with modification, see Comment # 46
36	E	Colon after the word "following"	Change to "following:"	Reject. Items below are complete sentences.
45	E	Punctuation of a period at the end of sentence should be a colon?	change punctuation to colon.	Reject. Items below are complete sentences.
9	E	BPA trainees needs to understand trauma to the human body related to sharp and blunt force trauma. Basic knowledge will also assist with understanding coroners / pathologist reports and reference to medical terms. Official training should be a requirement.	Basic course (40 hours) in sharp and blunt force trauma	Reject. More appropriate for crime scene reconstruction vs. BPA.
10	T	BPA trainees need basic knowledge in experimentation and research in categories listed under 4.2.5.3	Perform and record keeping of experimentation / research in related fields under 4.2.5.3	Accept with modification. Change made to new Section 4.2.5 "...scientific method, to the development of experiments and record keeping, and the principles relating..."
11	E	BPA trainees who doesn't have a degree in science. Needs to receive basic training in physics related to BPA. Official training should be a requirement. Lay the foundation for science in BPA.	Basic (40 hours) physics course related to fluid dynamics OR Physics and Maths course (40 hours) related to BPA	Accept with modifications: see modifications to Section 4.1.
48	T	"Demonstrate an understanding ..." Understanding is not defined in Section 3.	change to "demonstrate and describe the mathematical ..."	Accept with modification, see Comment # 46
12	E	4.2.9 Describe the physical characteristics of bloodstain patterns (size, shape, distribution, appearance, and location) relating to the mechanism by which they were created. 4.2.11 Demonstrate the ability to identify and classify bloodstain patterns. Some Bloodstain pattern analysts make errors with the identification and classification of bloodstains by using the pattern match technique	Suggestion : Combine two paragraphs. Demonstrate the following abilities related to bloodstain classification, identification and mechanisms (size, shape, distribution, appearance, and location) : Using physical characteristics of bloodstains identification and classification and ; identify viable mechanisms by which they were created.	Reject with modification. 4.2.9 (now 4.2.10) modified to "Recognize and describe" instead of "Describe"
56	T	The intent of "ability to move or reposition" is unclear to the reader.	re-phrase to clarify	Accept: modified to "d) effect of fabric movement during interaction with blood."
39	E	Suggest to include "and explain characteristics that support the conclusions"		Reject with modification. Section revised for clarification: "Recognize and describe how to classify bloodstain patterns."
50	T	"Understand ..." Understand is not defined in Section 3.	change to "Describe clotting as it ..."	Accept with modification, see Comment # 46
13	E	BPA trainees must understand the value of DNA analysis associated with BPA and ownership/donor of bloodstains, emphasis to whom does the blood belong to.	Demonstrate an understanding in representative sampling of crime scene bloodstains documented, include in paragraph 4 above.	Accept with modification " and other forms of analyses." added to the end of 4.2.15 and new section 4.2.16 added "4.2.14.2.16 Recognize and describe the value of other forensic analyses available to BPA."

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63		<p>As members of the AAFS American Standards Board Consensus Body dealing with bloodstain pattern interpretation, we are charged with the responsibility of raising and establishing standards. Presumably we are all in agreement with this goal. On some level we all want the same thing. We also recognize that there are problems and well publicized criticisms that need to be addressed. As part of this effort we need to establish a meaningful educational standard. The proposed standard that we are voting on is absolutely meaningless. It is tantamount to having no standard at all. This is quite evident in a careful reading of the convoluted wording, seemingly designed for obfuscation. Ralph Ristenbatt has pointed out how meaningless it is in his comment accompanying his vote.</p> <p>I was first introduced to BPA when I was working at the Ventura County Sheriff's Laboratory in 1961. I had only been working in the lab for a little over a year when the lab got a new director, and as a consequence, I got my first mentor in bloodstain patterns. One year later I began my formal study of criminalistics with Dr. Paul L. Kirk at the University of California, Berkeley. During the last few years of my doctoral study, I consulted on cases for Dr. Kirk on an ad hoc basis in his off-campus laboratory. I had what was effectively a long apprenticeship building on what I had absorbed in Ventura. During the later part of this period I became aware of Herbert MacDonell. He was communicating with Dr. Kirk and sending a case study or two for apparent approval. I think this was probably around 1968. Dr. Kirk shared some of the correspondence with me. I met with him regularly, because in the period from 1964 to 1968, I served first as this teaching assistant and then ultimately as his teaching fellow at Berkeley. I did not take on BPA cases on my own until after I finished my doctorate and started teaching at John Jay College, City University of New York in 1969. Although I began consulting on cases soon after moving to New York, my first testimony in a BPA case did not take place until 1974 or 1975.</p> <p>It was in the early 1970s that Herbert MacDonell began offering 40 hour courses in BPA. At first, I thought these were pretty innocuous and served a useful purpose. I told my students at the time that there was a need for increased awareness on the part of investigators with respect to the value of bloodstain patterns and crime scenes. It wasn't until a few years later that I began encountering experts that were the products of these courses in my consulting practice. It was truly shocking to see the naïve and erroneous testimony offered. It is my understanding that in excess of 1,500 students passed through these courses over the years. Incredibly, Herbert MacDonell's 40 hour course model is today's terms and has dominated BPA training ever since. In my view the dominance of this flawed model has had seriously adverse consequences as discussed below.</p> <p>In my opinion most of the problems we see currently with the plethora of serious errors with interpretation and testimony in the area of bloodstain pattern interpretation can be laid at the feet of the history with the 40 hour courses and their proliferation. I have identified three major pernicious consequences stemming from these in the current landscape as follows:</p> <p>Pernicious Consequence #1: Early on, the 40 hour courses gave attendees false confidence that they had become experts in the area as a result of attending. This created a large number of instant experts. I don't know of any attendees or students that failed to pass such a course. What might have been effective as a consciousness raising awareness experience relative to the value of blood trace configurations at crime scenes cannot have produced qualified experts. Attendance in these courses bred such false confidence among some of the attendees that some hung out a shingle and, incredibly, began offering courses of their own.</p> <p>Pernicious Consequence #2: The courses have created the indelible impression that blood trace configuration interpretation is a standalone activity rather than its more appropriate role as being one tool among many, even more powerful ones, in the armamentarium of scientific crime scene investigators. There are both theoretical and practical reasons why the investigation of blood trace configurations must be seamlessly integrated with the overall crime scene investigation.</p> <p>Pernicious Consequence #3: The courses had no criteria for admission. Many, or perhaps most, attendees had not completed any university course work let alone earned four-year undergraduate or graduate science degrees. The acceptance and proliferation of the 40 hour courses then led to the formation of a professional association (the IABPA) where the principal entry requirement for admission was the completion of a 40 hour course irrespective of the applicant's education. This further cemented the naïve, erroneous and destructive conceptualization of bloodstain pattern interpretation as being a standalone specialty or activity that did not require scientific expertise.</p> <p>Crime scene reconstruction, including BPA, is a very scientifically challenging task. A scientific education is essential. However, it is clear that this cannot be accomplished overnight. And a grossly insufficient number of individuals with the desired educational background combined with the crime scene experience exist. This should not deter us from planning for the future by setting standards now. It is clear that some form of grandfathering will be necessary in the interim.</p> <p>As noted above the current proposed educational standard being voted on for approval is absolutely meaningless. At a time when our field is under attack, this is truly a gargantuan embarrassment. Hopefully, with the above effort it is clear why I am voting against it.</p>		Resolution accepted by CB based on modifications to 4.1.
64		<p>"4.1 Educational Requirements: The candidate should have a Bachelor's degree from an accredited institution and should include science related coursework."</p> <p>This "requirement," the minimum educational bar, is woefully inadequate; rather, it is nonexistent. To be clear, there is no requirement, only suggestions. A high school drop-out would be qualified to undertake the training process as would a junior high school student. While these examples may seem outrageously exaggerated, the fact remains that there are no educational "requirements" set forth in this document. Anyone, anywhere, in any situation, meets this "requirement."</p> <p>This runs counter to the suggestions in the NRC report and will do nothing to quell the continual attacks in the media and elsewhere regarding the lack of scientific underpinnings and dearth of science in this area. If this is the best this group can offer, what have we accomplished?</p> <p>To think that a person can be trained to be a scientist in a matter of weeks or months solely through training workshops is naïve. While it may not be readily apparent to some, there is a stark distinction between training and education. Rigorous tertiary educational programs are designed to graduate scientists; training is designed to produce technicians.</p> <p>Thus, moving forward, the minimum educational requirement for all new analysts must be a four-year degree (BS/BA) in a natural science or a four-year degree in criminalistics/forensic science from a FEPAC-accredited program; nothing less should be accepted. Additionally, I would argue that we should consider advocating for additional graduate education with a research component as the minimum requirement (again, in a natural science program or crim/forensic science from a FEPAC-accredited program).</p> <p>This group has been mandated with settings standards and requirements. With regard to setting an educational bar, we have failed. We must do better.</p>		Resolution accepted by CB based on modifications to 4.1.
65		We need to look at the educational requirements again.		

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66		<p>When this was discussed in the BPA OSAC, I reluctantly voted to approve this although I was philosophically aligned with Peter DeForest and Ralph Ristenbatt for many of the same reasons they have both eloquently stated in their comments. During our discussions on this issue, I informally recommended a multipronged approach to address the difficulties of making such a substantive change to our discipline with no real educational standard.
</p> <p>I proposed that the educational standard be a choice of:
</p> <p>1. A BS degree in a natural science
</p> <p>2. A BS or BA degree in another major with substantive science coursework (what course and how many credits to be decided)
</p> <p>3. Successful completion of coursework (topics/hours/modes to be decided)*
</p> <p>*This choice would be the option for those already practicing BPA with the commitment to continue their work without returning to college. By deciding what subjects and topics needed to be covered (and to what depth), we would be creating a framework for a training program that agencies/individuals could offer to others in a laboratory or investigative unit. This would not be a watered down 40-hour experience, but rather a comprehensive, examination and practical based training program that would demonstrate knowledge roughly equivalent to the coursework present in option B above. Ideally, this program would be led by someone qualifying under choice 1 or 2 above.
</p> <p>As part of standard option 3, we would offer a window of several years for the successful completion of all the material with the understanding that those who would be willing to enter into a training program might not immediately be able to do so.
</p> <p>Because this idea never gained much momentum, the concept is admittedly light on details. However, I believe it has the potential to satisfy those of us who insist on a rigorous scientific education and those of us who realize that there are many qualified and competent analysts who chose different paths to our discipline.
</p> <p>It is vital that we take control of the narrative for our discipline. By mandating true scientific education (with several different options), we can rid ourselves of those who should not be engaged in this type of analysis and demonstrate our commitment to objective interpretation of bloodstains.
</p> <p>It should be clear to us that any meaningful standard will exclude some in our field. Our goal should not be to craft a standard that includes all current practitioners, but rather to develop a standard that demonstrates our belief in the importance of the science at the foundation of our discipline. If we do not, this omission will forever be our weakness and will undermine our very important role.</p>		<p>Resolution accepted by CB based on modifications to 4.1.</p>