

# International Association for Identification

## 180 Day Study Final Report



International Association for Identification  
2535 Pilot Knob Road, Suite 117  
Mendota Heights, MN 55120-1120  
Phone: (651) 681-8566  
Fax: (651) 681-8443  
E-Mail: [iaisecty@theiai.org](mailto:iaisecty@theiai.org)

## ***Introduction***

The International Association for Identification (IAI) was named by the Senate Appropriations Committee as one of four forensic science organizations tasked to evaluate and return recommendations regarding the state of forensic disciplines beyond DNA. The text of the language is as follows:

Improving Forensic Capabilities - The National Institute of Justice [NIJ], in conjunction with its own Office of Science & Technology, the American Society of Crime Lab Directors, the American Academy of Forensic Sciences, the International Association for Identification, and the National Association of Medical Examiners, is directed to develop a plan which will address the needs of the crime lab and medical examiner community beyond the "DNA Initiative" and report back to the Committees on Appropriations no later than 180 days from the date of enactment of this Act. The report should address the following: (1) manpower and equipment needs, (2) continuing education policies, (3) professionalism and accreditation standards, and (4) the level of collaboration needed between Federal forensic science labs and State/local forensic science Labs for the administration of justice.

The named organizations decided to divide the evaluation task into various disciplines with the IAI reviewing and making recommendations for (1) patterned evidence disciplines such as fingerprints, footwear/tiretracks (2) crime scene investigation, (3) bloodstain pattern analysis and digital evidence.

In order to glean a grass roots perspective of these issues, the IAI developed the attached survey that was sent to approximately 180 people around the country. Recipients included officers, board members, committee chairs, certification board chairs, and IAI division secretaries throughout the country. In order to obtain the largest number of responses, the division secretaries were asked to distribute the survey to their respective IAI division members.

Approximately 85 surveys were returned. The issues brought forward in this report reflect the data reported in the surveys as well as the thoughts and comments of the IAI committee members Michael Campbell, Captain of Police, Milwaukee, WI Police Department; Jan Johnson, IAI President and supervisor of the Crime Scene Unit, Escambia County Sheriff's Department, Pensacola, FL and Joseph Polski, Chief Operations Officer, International Association for Identification and former Commander, St. Paul Police Department, St. Paul, MN.

This report will take the study items in order and include a final section on recommendations.

## ***Manpower and Equipment Needs***

### ***Fingerprint Identification***

By far the most thought provoking issue revealed by the survey is that approximately 66% of fingerprint identification analysis is not done in a crime laboratory setting. Most fingerprint work is performed by units with titles ranging from Crime Scene Unit, Identification Division or Unit, Forensic Unit, Fingerprint Unit etc. Many fingerprint examiners in these types of units are sworn law enforcement officers. The average staff size is 9.1 with the largest at 51 and the smallest 1. Many of the personnel in these units testify to latent fingerprint identifications. Common needs were for personnel, computer equipment and training.

There are a large number of latent fingerprint cases backlogged; significantly the largest backlogs are in the largest agencies. In the largest 12 organizations, backlogs range from several hundred

to 1,000 cases. The average backlog time in these large agencies is an astounding 166 days with total backlogs in these agencies of 5,147. Agencies do their best to prioritize serious crimes against person before property crimes but that is often not effective. Many of the agencies that record no backlog process few cases. Six of these large organizations are service centers for a number of law enforcement agencies so their backlog reflects back on their customer agencies. It is very clear this latent print backlog allows offenders to remain at large while the unworked cases sit in evidence storage.

Fingerprint identification is one of the few forensic sciences that can positively identify individuals, convicting criminals and exonerating the innocent. It is one of the most valuable and yet underutilized forensic disciplines and ranks at least equal in forensic importance with DNA. It should be noted that fingerprints are one of the most frequently found types of evidence at a wide variety of crime scenes ranging from homicide, assault, rape, and other crimes against persons as well as property crimes such as theft, robbery, drugs, auto theft and just about any other type of crime.

Of particular concern is the lack of IAI certified fingerprint examiners to fill many vacant positions across the country. Related to quality issues below, agencies increasingly seek certified latent examiners as opposed to examiners without that certification. IAI latent print certification is the only certification available to all qualified examiners. Although the need is increasing, the number of certified examiners remains flat. To address this issue, the IAI is exploring the notion of recognizing latent fingerprint competency at an entry level, then building on experience to reach the traditional certified examiner level.

Fingerprint units need computer equipment for such things as AFIS and better networking and connectivity to state and regional systems for those who have AFIS systems. It should be noted that roughly half of the fingerprint units have AFIS capability although many of those that do not are very small agencies. Nonetheless, many agencies with a relatively large number of fingerprint cases do not have an AFIS capability.

There was a great need for better IAFIS training and equipment. It is clear that IAFIS, the FBI's large capacity fingerprint computer is underutilized for latent fingerprint identifications, particularly at the local level. Only 17 of 85 agencies routinely search unknown latent fingerprints through IAFIS and most state agencies do not do that as a matter of routine. It is clear there is a great need for the FBI to provide more information and expand its program to install Universal Latent Workstations (ULW) in local agencies. The capacity of IAFIS with respect to latent fingerprint searches is very, very underutilized. Survey returns indicate strong interest on the part of local agencies in obtaining this capability but a lack of support for such equipment and training at the state and federal levels. Several respondents cited bureaucratic entanglements at the state level as a major obstacle to IAFIS acquisition.

State and local agencies typically accept cases from their agencies or states and juggle priorities to ensure that more serious cases, typically crimes against persons are expedited and crimes against property come last. In addition, due to a variety of factors, usually personnel and equipment, cases that must be prepared for trial are given priority over non-suspect cases. Obviously that leaves less time available to take advantage of the real capabilities of forensic science, that of identifying the unknown suspect.

Basic research to establish the scientific underpinnings of fingerprint identification is needed. While no one believes fingerprint identification does not work, there have been numerous troubling articles written by legal scholars as well as scientists who call into question the validity

of fingerprint identification, particularly as it applies to partial latent fingerprints. The time has come for a carefully directed research program to put these issues to rest.

Several years ago the IAI put forth the following position statement respecting research:

(1) The official position of the IAI and SWGFAST is as follows:  
“There is no scientific basis for requiring that a minimum number of corresponding friction ridge details be present in two impressions in order to effect individualization”.  
A suggested research project would entail an empirical examination of the data that supports or refutes that position statement. This examination would take into account the results of the existing literature research identified in topic two below, along with significant input from latent print practitioner designees of the International Association for Identification. This research project should not be limited to “Level II” detail but should be inclusive of all available friction ridge area detail information.

(2) Compilation and Analysis of past empirical research projects resulting in scientific publication on topics which pertain to biological uniqueness of friction ridge areas of the fingers, palms and soles of the feet. This project would include a review and study of scientific research generated from all available worldwide sources to include, but not limited to, the medical, genetic, forensic and statistical research communities.

The purpose of this project would be to fully compile the previously generated empirical data pertaining to friction ridge area uniqueness and to analyze it in such a manner as to determine if there already exists sufficient corroboration to support the hypothesis of individuality using “Level II” friction ridge area information.

If indeed this research project were able to determine that sufficient corroboration already exists, then the IAI would request that the results of this research be made available to practitioners of the science in a manner deemed consistent with the position and reporting methods of the scientific community. If this research finds the general empirical data lacking, then develop recommendations for additional research to include the areas of concentration and methodology.

A strong recommendation of this study is that research as outlined in part 1 and 2 above be initiated.

### *Footwear/Tiretrack*

Footwear impression, barefoot impressions<sup>1</sup> and tire impression evidence have and continue to be a much underutilized form of evidence and therefore a drastically overlooked resource for identification, particularly in the United States. Most countries in Europe and especially the Royal Canadian Mounted Police (RCMP) in Canada have a more serious and aggressive approach to this evidence and, based on their published studies, recover this evidence from between 30 and 40% of the crime scenes. In the United States, although no formal study has been made, it is the consensus of most that the recovery rate is 5 % or less. One of the reasons is lack of an aggressive attitude about the detection and recovery of this evidence. Virtually no in-depth training in the recovery of this evidence is provided to crime scene techs and to basic police officer training classes to form an appreciation and understanding of this evidence and the proper manner in which to locate preserve and recover it. In those cases where impressions are located and recovered from a crime scene, the quality of the recovery is more often than not, inferior,

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<sup>1</sup> Barefoot impressions that do not retain ridge detail and therefore can only be examined based on their size and shape features and are examined by footwear impression examiners.

resulting in a loss of part of that evidence. Resources to recover this evidence, such as electrostatic lifters, lifting films and ample supplies of casting materials, are often absent or present in insufficient quantities. In those instances where that evidence is recovered, it is typically examined by examiners whose primary training and experience is in other forensic disciplines, such as fingerprints, tool marks, etc., and who often are not provided sufficient additional training and resources to do their job. The overall effect of these facts is the underutilization of this very important and demonstrable evidence that is capable of proving a person was present at a crime scene. Further, because this discipline in the United States is normally not treated as a separate discipline, the result has been that resources for training and research have been minimal to none in most departments.

Needs identified for this discipline include general funding for research<sup>2</sup> and training, specific funding for a web-based footwear database<sup>3</sup> (perhaps managed by the FBI) so that individual police departments could access this information and search crime scene impressions to determine the brand of footwear, and perhaps funding to initiate a scientific working group<sup>4</sup> for those conducting examinations of footwear, tire and barefoot impression evidence, is greatly needed and would help significantly.

### *Crime Scene Investigation*

As expected, most crime scene processing is done by sworn law enforcement officers rather than specialized crime scene investigation units or evidence technicians. Size of the population served and number of cases has a correlation to the use of sworn vs. civilian crime scene processing although even in many large jurisdictions processing is done by sworn officers.

The overwhelming need in the area of crime scene processing is almost evenly divided between more personnel and better equipment and training with many agencies giving equal weight to both needs. Television shows such as CSI provide a very high visibility to the technology involved in crime scene processing and evidence evaluation. Not surprisingly there is a high expectation from the judiciary as well as detectives or other investigators, that this type of equipment and analysis ought to be available everywhere. We all know that's not possible but equipment such as digital cameras are still beyond the reach of many agencies. Laser survey/mapping equipment for diagramming crime scenes is another type of high tech tool not readily affordable by most agencies but in common use in survey and measurement work. Alternate light sources are another common item requested but not affordable by many agencies. We will reserve a discussion of training to the following section.

Almost every respondent cited Homeland Security and Weapons of Mass Destruction as significant concerns for crime scene investigation personnel. Comments like "...we will be the canaries..." were indicative of the lack of equipment and training for crime scene personnel in the area of terrorism incidents.

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<sup>2</sup> University research grants have been virtually non-existent. Yet court challenges to any evidence often cite the absence of research or independent, i.e. non-forensic, studies.

<sup>3</sup> The FBI recently attempted to do this, but due to either lack of funding or increased workload, has abandoned this effort. Linking a shoe print at a crime scene early on in the investigation, i.e. via a web-based search system that could be used by all police departments, would provide the greatest chance of this information assisting in the identification of a potential suspect and the seizure of that person's footwear. Search requests of the FBI through normal channels can take weeks.

<sup>4</sup> Almost all forensic disciplines now have a scientific working group. Without the support of the FBI and the funding to support the necessary meetings of the group members, this is not possible.

### *Bloodstain Pattern Evidence*

Bloodstain pattern evidence analysis is a forensic discipline generally performed by highly trained laboratory specialists employed by state crime laboratories or large law enforcement agencies with crime laboratory and crime scene capabilities. There are however, many bloodstain practitioners in the private sector working for the defense and prosecution.

There is an ever-growing need and increasing demand for more training and trained personnel in this area to assist in crime scene reconstruction. This type of evidence is often destroyed at the scene, poorly documented, or goes unrecognized as to its potential as evidence due to lack of knowledge and training by the initial investigators and crime scene personnel. In violent crimes bloodstain patterns are often created at the scene of a crime, on the victim or on the suspect, and may yield valuable information. This evidence must be retained in the scene documentation in order to determine the events which may have occurred. The value of such reconstruction in the investigative process and subsequent courtroom presentation cannot be overstated.

With regards to training goals, a change in emphasis has been made toward establishing standards, procedures, and educational requirements for the certified bloodstain pattern practitioners. The overall goal is to provide uniformity in bloodstain pattern analysis, to include terminology, training, education, casework examination, courtroom testimony, and research within the discipline. A defined basic entry level into this discipline is needed, with a process of continuing education and training until the bloodstain pattern examiner reaches the level of the certified practitioner. Certification in bloodstain pattern evidence can be obtained through the International Association for Identification as a Certified Bloodstain Pattern Examiner.

There is very little backlog of cases requiring the forensic examination of bloodstains due in large part to the relatively few cases where this type of evidence is collected. However, such analyses are dependent on good crime scene documentation, collection of relevant evidence such as blood swabs, “mapping” of bloodstain patterns with scales, 90 degree photography, and other ancillary documentation. Without proper bloodstain pattern training of crime scene personnel in the recognition and documentation of bloodstain patterns at crime scenes, even the most experienced bloodstain pattern practitioner cannot provide a useful analysis.

### *Digital Evidence*

Over the past few years, the field of digital evidence has grown substantially and so have the attendant needs of this new discipline. So much so in fact that ASCLD-LAB now accredits the discipline of digital evidence, a field that includes Forensic Imaging, Forensic Video Analysis and Digital Evidence in the sense of analyzing computer files and other digital data from computer systems. Because the field is divided generally into the above categories and there is not universal agreement on a division of duties between those groups, data to support the needs of these groups is sketchy.

Most of the data (40 surveys) collected for this study included only the specialties of digital imaging, video analysis and a smattering of information about voice and acoustical analysis. The IAI will continue to gather data from the digital evidence/computer section of this discipline and hopefully, have that for the Summit Meeting in May.

Because the equipment needed to perform imaging and video analyses is very expensive, it is no surprise that one of the greatest needs of those working in this field is for funding to purchase the equipment needed to complete those analyses. Training is again raised as a very important issue, especially so because the equipment used is very complex and requires a good deal of training in order to gain proficiency.

### ***Continuing Education Policies***

As previously noted, of the 85 respondents to our questionnaire, only a couple did not list training as a major need. Technology has advanced all aspects of forensic science to a level unheard of only a few years ago but training has not kept pace with those advances. Most often cited was the lack of funding for training. Exacerbating the problem is that most respondents to the questionnaire (56 out of 85) are not part of crime labs but rather a unit within a law enforcement agency. In that organizational model, training dollars most often go to the law enforcement side of the house with support units left lacking.

Several agencies lamented the FBI's decision to withdraw from training in forensic science. That training was highly rated, and for many agencies, one of the few places where training could be obtained at little cost to the agency. (In the past, the FBI would provide training at virtually no out of pocket cost to the agency. The training was done at Quantico and the FBI covered airfare, lodging, meals etc. The FBI no longer offers that program.)

As noted in the fingerprint section above, there is a well-recognized shortage of certified latent fingerprint examiners. The lack of training opportunities contributes significantly to this shortage. Issues raised by Daubert challenges require a more robust background in the scientific aspects relating to fingerprint embryology, permanence, population genetics and other academic aspects of fingerprint identification in addition to the required practical experience in order to be qualified and become certified.

It is important to note that almost every agency noted a lack of training and equipment for any kind of terrorist incident, WMD or mass casualty incidents. There is a great lack of information, training and resources at the local level for these types of incidents. This issue is not confined to small, rural agencies but reported by many large agencies, some serving over a million people.

Interestingly, Homeland Security aid that has trickled down to local agencies has gone to units such as bomb squads, swat teams, communications systems etc. As a practical matter, many potential WMD incidents such as anthrax contamination would likely be handled by an evidence technician or crime lab responder. Several anecdotal incidents show that crime scene personnel have been sent to suspected anthrax or other suspicious incidents as "first responders" with nothing more than a dust/mist mask and told to do whatever was necessary. In one incident, a suspected anthrax letter was brought to a crime lab and placed in a hallway as there was no safe place in the lab to put the evidence. To say that points up a complete lack of training, equipment and information begs the issue.

### ***Professionalism and Accreditation Standards***

There is a great deal of concern about competency and quality systems in the forensics community. Several accreditation programs are available to crime laboratories but, of course, not all labs are accredited. Far from it. ASCLD-LAB which defines a crime lab, at a minimum, as having a single person practicing one of the forensic disciplines, estimates around 2,000 laboratories in this country. 251 laboratories are currently accredited by ASCLD-LAB but only

one of those is not a traditional laboratory employing bench scientists with at least a four year degree. ASCLD by contrast estimates the number of labs at around 400 but the definition of a “lab” varies between the two organizations. That leaves a great number of other types of forensic entities not accredited and likely without any measurable quality system. There is a need for those other entities, particularly those operating within law enforcement agencies and state bureaus to become more aware of quality systems including accreditation and certification of practitioners. Many recent horror stories involving misidentifications or shoddy laboratory work stem from non-accredited laboratories.

In a crime laboratory environment quality systems such as proficiency testing, accreditation etc. are a way of life. However we are quite certain outside that laboratory environment there is less appreciation for quality systems and how best to apply those systems to the types of units that operate in a non-laboratory setting. Fertile ground exists for organizations like the IAI and the accrediting organizations to make these units aware of such quality systems.

Individual competency accepted and understood within the individual forensic discipline is an area that must also be addressed. As one of the survey respondents noted, officers are required to have a certification to operate equipment to detect alcohol impaired drivers and to operate radar equipment. It seems incongruous that those who practice in the forensic disciplines are not required to have any certification or other evidence of competency. With DNA as a notable exception, there is no universal requirement to ensure examiner competency. We recognize that some federal laboratories sponsor their own in-house certification programs available and applicable only to their personnel but that does not solve the larger problem. A movement toward mandatory certification over a period of time will go a long way to ensuring quality results from forensic examinations. An added benefit of certification is the mandatory training required to obtain and maintain certification. Typically forensic science certification programs require a minimum of 48 hours of continuing competency activities over a five year period. We have seen a successful example of this in the area of DNA and believe this model will be beneficial to other forensic science disciplines as well.

***Level of collaboration needed between Federal forensic science labs and State/local forensic science Labs for the administration of justice***

There is a great deal of difference between the missions of most federal agencies and that of state and local forensic service providers. Most federal labs operate within the Justice Department or DHS. Their funding is obtained directly from Congress and most federal agencies have fairly powerful spokespersons for their organizations. In addition, unlike state and local labs that do forensic casework for many, many agencies, the overwhelming amount of work done by the federal labs is done for their own agency. It is also interesting to note that because the source of many of the federal funding programs available to state and local labs are channeled through the Department of Justice, those federal labs are in direct competition with state and local labs for any federal funding.

In years past, the federal labs played a larger part in serving the needs of state and local agencies. At one time the FBI’s laboratory accepted cases from all state and local agencies although the turnaround time was quite long. Today that service is almost non-existent with the exception of mitochondrial DNA analyses and perhaps extremely high profile, heinous crimes. DEA, ATF, the Postal Inspection Service Lab and other federal labs operate almost exclusively for their respective agency.



The FBI Laboratory has perhaps the largest forensic research budget of any forensic science agency and conducts research to benefit state and local laboratories and service providers. The FBI has taken steps in recent years to obtain input from state and local agencies with respect to that research but additional steps could be taken to better connect the state and local agencies with that research agenda.

The questionnaire results show a distinct need for more and better information, networking and technology in order to extend the use of IAFIS to many more local agencies. The current need of using dial up modems is outdated and should be addressed in cooperation between the FBI's technical staff and technical staff at the local level. Many agencies desire the capability to remote latent searches into IAFIS through the Universal Latent Workstation (ULW) but do not have the technical ability or knowledge of how to do that. Another major stumbling block to better utilization of IAFIS is the fact that latent fingerprints must be reacquired and recoded for entry into a ULW for ultimate transmission to IAFIS. That effectively doubles the workload for the local examiner. Badly needed is interoperability between state and local AFIS systems and the FBI's IAFIS. Simply put, there needs to be a "enter once, search many" capability for latent fingerprints.

A matter of great interest to the fingerprint community and one that is a federal/local/state issue is the US VISIT Program's use of two finger identification systems versus ten finger systems. All national and international AFIS systems are built around the almost universal standard of ten prints. There is a critical need to be able to interface US VIST applicants with the data contained in the FBI's IAFIS system as well as the attendant networking with NCIC. That cannot happen if a new system continues to be built around two prints. The IAI is strongly on record as supporting the use of ten prints for US VISIT screening purposes. We are very pleased with recent DOJ/NIJ initiatives to conduct research into the development of a fast ten print live-scan device to be used in airports or other points of entry as an input device to IAFIS. We are grateful for the opportunity to be included in that effort and will provide whatever input is helpful to the process.

Last but certainly not least is the recommendation that a forensic science commission be created at the federal level. That commission would be tasked to undertake a comprehensive review of the role of forensic science in the criminal justice system, cost/benefit analysis of the value of forensic science to the administration of justice, needs of forensic science providers and policy issues with respect to forensic science.

***Recommendations:***

***Policy:***

1. Attempt to determine the forensic service providers outside crime laboratories, i.e. units within police, sheriff's departments and state organizations. It is clear these organizations perform a great deal of analysis and need to be identified.
2. Raise level of awareness of state and federal assistance and programs to the organizations in #1.
3. Explore ways to provide state and local forensic service providers with more training
4. FBI should increase the number of Universal Latent Workstations (ULF's) to the state and particularly the local levels

5. There should be a concerted effort at the federal level (perhaps congressional action) to require interoperability between AFIS systems of different manufacture; there should be an “*enter once, search many*” capability and philosophy. This interoperability must address not only a seamless exchange of fingerprint data between state/state/local basis but that same seamless interoperability must be developed between the all state and local systems and the latent search capability of the FBI’s IAFIS system.
6. Basic research into the scientific underpinnings of impression evidence, especially fingerprint evidence should be undertaken.
7. The FBI is encouraged to consider reactivating their forensic science training programs.
8. The federal government must strengthen the support given to crime labs and other crime scene/disaster scene first responders with respect to terrorism or other events that might result in mass casualties; that support must be reflected in training, equipment and involvement alongside other first responder agencies
9. Mandatory accreditation of organizations and certification of practitioners should be explored.
10. NIJ should continue its role in developing a fast live scan to be used as an input device for fingerprints taken as part of the US VISIT program. Ten prints rather than two are universally desired for this program for the reasons noted above.
11. Create a Forensic Science Commission to review the issues outlined above.

### ***Funding Issues***

1. Coverdell type funding must be sustained or increased. That funding will support the variety of needs within crime laboratories and other forensic service providers. Specific needs are outlined above and include such items as AFIS systems, alternate light sources (ALS), vehicles, training, accreditation and certification, photo and digital imaging equipment etc.
2. It is apparent, even though not covered in this study, that DNA is an extremely valuable forensic tool and support for DNA efforts must also be part of an overall funding strategy.