

# Coordinating NIBIN and Forensic Science Laboratory Efforts

## Introduction

Since the inception of the NIBIN<sup>1</sup> Program there has been a close connection between the technology associated with the Program and forensic science laboratories. Early on, much if not all of the technology was placed into forensic science laboratories with little guidance on how it would be used. Rather, there was simply an expectation regarding frequency of use. Based on a recent report<sup>2</sup> it is quite apparent that this simplified approach did not lead to a successful Program. Rather, it appears that it has fallen far short of its potential.

This document has three primary purposes. The first is to highlight the cost to society of firearm-related injuries. This is not only in terms of lives of adults and children and the standard of living with regard to neighborhood safety, but also the economic cost. The second is to discuss a bit of history to help set the framework for the needed change that has to come in terms of philosophy. The third is to identify details of the new approach so that there can be a more effective coordination between NIBIN and forensic science laboratory efforts. Weaved throughout the document will be an acknowledgment of common concerns such as accreditation guidelines and supposed restrictions.

## Cost of Firearm Related Crime

In 2010, firearms were used in 11,078 homicides, accounting for 68% of all homicides for that year.<sup>3</sup> Over the period of 2005-2010, there was a daily average of 33 firearm-related homicides per day.<sup>4</sup> Firearms were used in 41% of robberies and 20% of aggravated assaults.<sup>5</sup>

Estimated nationwide societal costs<sup>6</sup> of firearm-related injuries is in excess of \$174 billion with \$71.5 billion of that directly related to homicides or assaults, \$7.84 billion of that

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<sup>1</sup> NIBIN is the acronym for the National Integrated Ballistics Information Network, a program that is managed by the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) NIBIN Branch.

<sup>2</sup> *Opening the Black Box of NIBIN: A Process and Outcome Evaluation of the use of NIBIN and its Effects on Criminal Investigations, Final Report*. NIJ, October, 2013.

<sup>3</sup> <http://smartgunlaws.org/gun-deaths-and-injuries-statistics>

<sup>4</sup> Ibid.

<sup>5</sup> <http://readersupportednews.org/news-section2/320-80/15141-the-economic-cost-of-gun-violence>

<sup>6</sup> Costs include work loss, medical care, mental health, emergency transport, police, criminal justice, insurance claim processing, employer cost and quality of life.

being governmental costs.<sup>7</sup> In Chicago alone, costs have been estimated at \$1.1 billion for 2010 with Houston at \$752 million and Philadelphia at \$736 million.<sup>8</sup>

A recent study<sup>9</sup> calculated various governmental savings that could be realized involving eight cities across the United States with varying reductions in violent crime. A summary of that data is in the following table.

City	Reduction	Direct Cost Savings – Government	Direct Cost Savings - Victims	Savings in Intangible Costs to Victims	Total Government Costs Saved per Resident
Boston	10%	\$5,000,000	\$7,000,000	\$73,000,000	\$145
	25%	\$12,000,000	\$18,000,000	\$180,000,000	\$360
	A 10% reduction would increase housing value by \$4.4 billion.				
Chicago	10%	\$24,000,000	\$43,000,000	\$420,000,000	\$187
	25%	\$59,000,000	\$107,000,000	\$1,000,000,000	\$470
	A 10% reduction would increase housing value by \$2.2 billion.				
Dallas	10%	\$7,000,000	\$15,000,000	\$140,000,000	\$138
	25%	\$19,000,000	\$36,000,000	\$360,000,000	\$450
	A 10% reduction would increase housing value by \$2.4 billion.				
Houston	10%	\$17,000,000	\$27,000,000	\$265,000,000	\$150
	25%	\$43,000,000	\$67,000,000	\$660,000,000	\$370
	No report on housing value impact was reported.				
Jacksonville	10%	\$4,000,000	\$8,000,000	\$80,000,000	\$122
	25%	\$12,000,000	\$20,000,000	\$200,000,000	\$305
	A 10% reduction would increase housing value by \$600 million.				
Milwaukee	10%	\$5,000,000	\$9,000,000	\$90,000,000	\$190
	25%	\$12,000,000	\$23,000,000	\$225,000,000	\$470
	A 10% reduction would increase housing value by \$800 million.				
Philadelphia	10%	\$17,000,000	\$30,000,000	\$300,000,000	\$240
	25%	\$43,000,000	\$75,000,000	\$742,000,000	\$595
	A 10% reduction would increase housing value by \$3.2 billion.				
Seattle	10%	\$2,000,000	\$2,000,000	\$22,000,000	\$50
	25%	\$6,000,000	\$5,000,000	\$54,000,000	\$123
	A 10% reduction would increase housing value by \$2.9 billion.				

Costs are such that it is incumbent upon law enforcement to seek ways to improve their strategy with respect to reducing violent crime, specifically, firearm-related violent crime, in their cities. As technology expands there is increasing opportunity to do just that.

<sup>7</sup> Miller, T. Children’s Safety Network Economics and Data Analysis Resource center, at Pacific Institute for Research and Evaluation, December 2012.

<sup>8</sup> <http://readersupportednews.org/news-section2/320-80/15141-the-economic-cost-of-gun-violence>

<sup>9</sup> Shapiro, R. and Hassett, K. *The Economic Benefits of Reducing Violent Crime*. Center for American Progress, June 2012. Many other benefits are sited in this report that would greatly impact quality of living for residents.

## History

Early on, firearm examiners within crime labs would keep an open case file of Polaroid photographs of cartridge cases and, sometimes, bullets. Depending on the sophistication of the classification system (drawing upon the fingerprint systems in use at the time) these photographs would be searched as new cases were examined to see if there might be a potential link between the new case and an older case.

It was always known that as firearms were confiscated there could be a potential link between that recovered firearm and a case in the open case file. However, there was insufficient means for the routine shooting of firearms and comparison to that open case file. As a result, submission of firearms was limited to those that investigative information indicated might be related to a particular case.

Computer-based databases then began to emerge, notably for fingerprints. Laboratories and agencies now had a means by which they could replace the manual file present in so many locations and not only be able to automate searches but do so on a regional basis. In California, DrugFire technology, managed by the FBI, was deployed which allowed firearm examiners to import digitized images into the database and have the ability to compare those images with previously collected images at that site and locally by other sites. However, this comparison was not automated and, in short, an examiner was paging through sets of digital images much like would be done with Polaroid photographs.

At about the same time as DrugFire was being deployed the Integrated Ballistics Identification System (IBIS) was also being introduced. At first IBIS focused on the imaging and automatic regional searching of bullets. They added the cartridge case capability as there was an effort nationwide to focus on one of the two technologies because they were incompatible with one another. Due to IBIS being able to capture bullets and cartridge cases as well as having an automated search and correlation capability, it was decided to forego further deployment of the DrugFire technology and replace it with IBIS technology.

IBIS, managed by ATF, was deployed en masse. Requirements included having a firearm examiner available (for confirmations) so its deployment was generally restricted to forensic science laboratories. There were some activity expectations that were established such as the number of entries that would be made per month. Apart from that, there was no direction given as to how it should be used and each site was free to manage it as they saw fit.

As a result, IBIS technology was generally (and simply) used as a substitute for the more manual open case file of Polaroid photographs. As cases were requested and examined, cartridge cases and bullets would be imaged and entered into NIBIN. The technology would perform an automated correlation and return a list of potential exhibits that might be associated with that case. Examiners would then review the list and digital images to determine if there were any

potential candidates which would then be confirmed microscopically by a trained firearm examiner before releasing the presence of a link.

Before long, several things led to an increasing frustration with NIBIN. The first was that it took additional time to do the acquisitions and later correlation reviews. Combine this with a relatively low success rate and a seeming indifference from investigators when confirmed hit information was communicated, questions as to the “point of NIBIN” were being raised.

A second reason was raised primarily by former users of DrugFire. Part of the challenge was the infancy of the IBIS algorithm for automated correlations which was not as effective as examiners preferred. Therefore, they would review images far beyond the top ten candidates. The side-lit images of DrugFire were typical of what examiners observed in casework and were much easier to review than the ring-lit images produced by IBIS. So, the reasoning was, “If we have to review all the images anyway, DrugFire was much easier and better.”

A third reason was the seeming lack of commitment of parent agencies. The time being spent using NIBIN was causing further delays in other firearm-related casework and even generating more work due to confirming hits that may or may not be helpful. As a result, NIBIN really never developed a high priority and resources were rarely dedicated to it.

However, if we were to examine these issues in light of the aforementioned NIJ report, we would quickly see that, apart from the second reason (which has been improved upon), the issues were not a result of the technology or the Program but rather the manner in which the Program was being implemented. The lack of a substantive number of links is directly tied to the lack of comprehensive data collection. Comprehensive data collection could not be performed because there were insufficient examiners to deal with the requested shootings let alone all firearm-related incidents. This is a process issue, not a technology issue.

The seeming indifference of investigators was because, generally, they were given the information far too long after the incident dates to be of much value anymore. The NIJ report indicates a precipitous drop in value after one week lapsed time between incident and notification. This is an issue of timeliness which, like comprehensive data collection, is a process issue not a technology issue.

There are some significant ramifications to society and societal costs with this generalized, historical approach. As a hypothetical example, refer to Figure 1.



Figure 1: Depiction of a series of shootings

In Figure 1, a homicide occurs in which there is no suspect. NIBIN is performed after the complete firearm examination is completed and comes back with no potential leads. Two weeks later there is a drive-by shooting with no victims. Due to the nature of the shooting, it receives a low priority and because of the manner in which NIBIN is being used, may not even get entered into NIBIN, or, if it does, it could be months later. Four weeks after the drive-by shooting, a second homicide occurs with a suspect. The case is examined and entered into NIBIN and a link is developed to the first homicide. The laboratory celebrates because an unsolved homicide has now been solved and this is seen as a success.

However, what if the drive-by shooting (or any other shooting for that matter) was committed by the same individual using the same firearm and there were witnesses in the drive-by shooting that could have identified the shooter? Is it possible that had the drive-by shooting been given priority because of comprehensive data collection it (and the suspect) would have been linked to homicide 1 before homicide 2 even occurred? The answer to that question is yes. As NIBIN has been traditionally used in many forensic science laboratories it can be quite effective as an open case file in helping link and solve suspect-less homicides. The unfortunate reality is that had it been used to its full potential, some of those homicides it is so good at linking may not have even occurred. Therefore, in a very real sense, our approach is not helping to reduce violent firearm-related crime as effectively as it could which helps to keep societal costs high which, in turn, continue to plague communities with fewer resources to fight crime.

In short, NIBIN was not as successful as it could have been primarily because of the manner in which it was implemented and used, e.g., on the back end of firearm-related casework as an electronic open case file used to help solve homicides that had already occurred. The full potential of NIBIN is realized only when it is placed on the front-end of firearm related casework

to provide timely, actionable intelligence to investigators that will aid them in removing active shooters off the streets before they can shoot again.

The remaining portion of this document will identify details of that new approach while taking into consideration concerns such as accreditation issues and the report released by the National Academy of Sciences, *Strengthening Forensic Science: A Path Forward*.<sup>10</sup> The former has often been cited as a reason why certain changes cannot be made to protocols while the latter has been cited for increased separation of law enforcement and forensic science laboratories due to issues of bias.

### **Shooting Investigation – A New Approach**

Although not a novel approach in forensic science laboratories, the idea of placing database activity on the front-end of casework to allow for the development of investigative information as quickly as possible has found resistance when an application to firearm-related casework has been discussed. There are a variety of reasons for this including processing of firearm-related evidence for DNA or latent prints, the restrictions of ASCLD/LAB-ISO or FQS accreditation, and potential bias issues when integrating law enforcement and forensic science laboratory efforts. While recognized as potential obstacles, they are not insurmountable and it is possible to place NIBIN on the front-end of firearm-related casework such that timely and actionable intelligence is being provided to investigators while not compromising the integrity of the evidence or scientific analyses.

In general, the approach is to process firearm-related evidence through NIBIN as quickly as possible prior to any significant activity on the part of a firearm examiner. The primary reason is that comprehensive data collection and timeliness are nearly impossible to achieve with NIBIN on the back-end of all firearm-related casework due to processes and procedures, not to mention ASCLD/LAB-ISO or FQS requirements and restrictions that come into play during the course of a full firearm-related examination. Considering that timeliness and comprehensive data collection are two of the four keys to a successful NIBIN Program it is critical to optimize both. This can only be done by putting NIBIN on the front-end of most firearm-related casework.

For example, see the following diagram that depicts the evidentiary flow of a typical non-injury shooting within a city. It involves the recovery, submission, and examination of 10 fired cartridge cases.<sup>11</sup> This is assuming no processing for DNA or latent prints which would only delay things further.

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<sup>10</sup> National Research Council. *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: The National Academies Press, 2009.

<sup>11</sup> It will be important to keep in mind that most forensic science laboratories already have firearm case backlogs just involving homicides and aggravated assaults so that they don't even process such shootings.

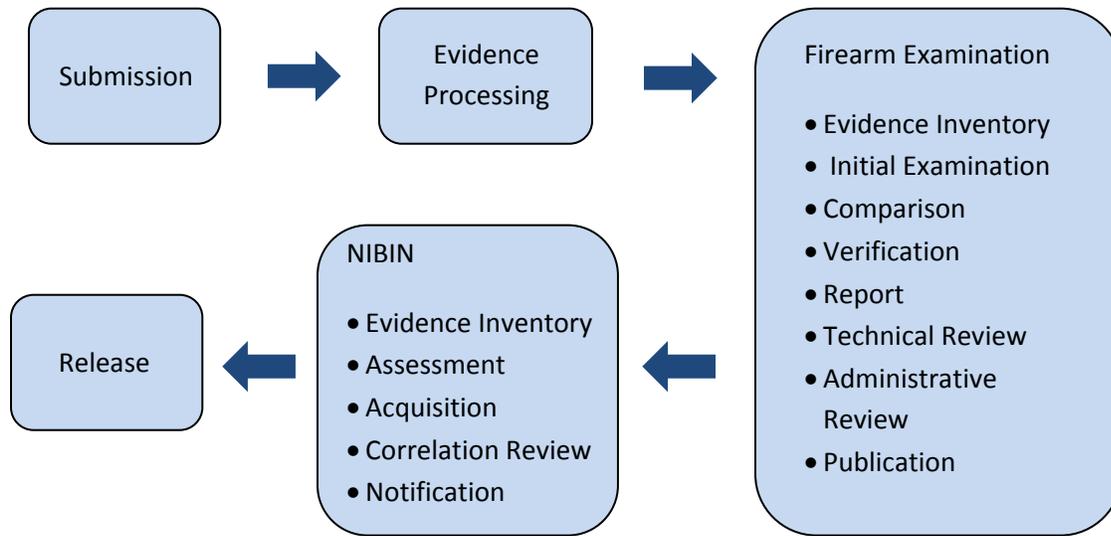


Figure 2: Evidentiary flow of typical non-injury shooting in a forensic science laboratory

Comprehensive data collection demands that all firearm-related evidence within a caliber range be entered into NIBIN. If all firearm-related evidence was subjected to the typical flow, it would create a logjam at the firearm examiner that would have a significant negative impact on timeliness. Not only that, but while all firearm-related evidence is important for NIBIN to be a success, not all of it is necessary for further investigation because not all of it will provide an actionable investigative lead. Therefore, in this typical approach, a significant amount of work is being performed on 80-85% of the evidence that may never be needed at a later time. Of course, if we were to restrict evidence submission so as to not create a logjam it would take away from comprehensive data collection. In essence, it would give us what we have now – a lethargic NIBIN Program which has not and will not reach its full potential.

The recommended approach is to move NIBIN to the front-end of firearm-related casework and allow the NIBIN results to guide further work by a firearm examiner. While theoretically it could be done for all firearm-related casework, it would not necessarily be wise to do so. At the same time, for those cases that would be the exception to the recommended approach, modifications can be made within that general flow to allow for timely NIBIN work to be accomplished.

It should be pointed out that there is nothing inherent in ASCLD/LAB-ISO or FQS accreditation guidelines that would prevent a laboratory to implementing such an approach. This is important because apart from establishing certain minimum standards that protect the integrity of the evidence and help to ensure reliability of results, ASCLD/LAB-ISO or FQS is there to verify that a laboratory is following the policies and procedures that they themselves have set in

place. Therefore, the biggest obstacle is not actually ASCLD/LAB-ISO or FQS but rather a laboratory that does not want to modify its policies and procedures that would still allow it to meet the minimum standards while at the same time facilitating a more effective NIBIN operation. In fact, there are areas in which ASCLD/LAB has been proactive in allowing for a more streamlined approach to forensic databases in general and NIBIN in particular.<sup>12</sup> However, many laboratories have not recognized this and continue to write policies and procedures much more restrictive for themselves than ASCLD/LAB-ISO is requiring.

In general, a front-end NIBIN approach might look like the following diagrams depicting evidentiary flow, offering separate flows for more routine firearm-related evidence in Figure 3a and firearm-related evidence associated with homicides and aggravated assaults in Figure 3b.

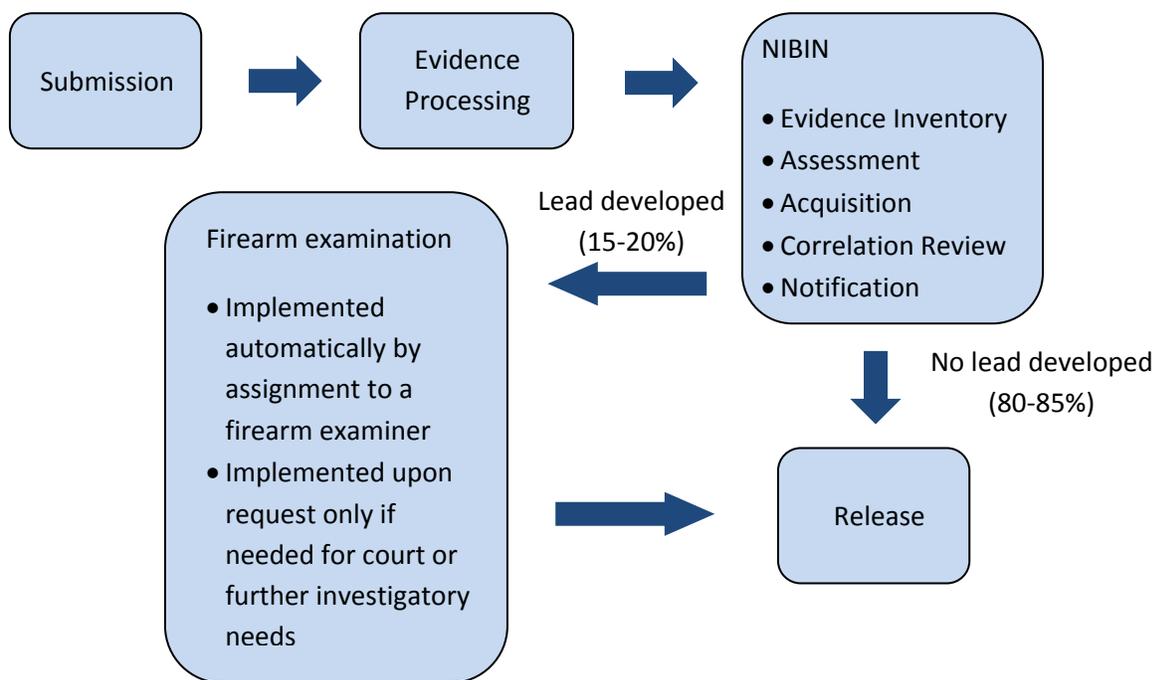


Figure 3a: Proposed evidentiary flow of routine firearm-related evidence in a forensic science laboratory

<sup>12</sup> One example is that reports need not be issued on negative database inquiry results if that exhibit will be searched regularly as a part of the database management which does happen each time a new exhibit is entered matching the class characteristics of the previous exhibit(s). Another example is that firearms submitted for NIBIN entry only, need not be packaged or in a sealed condition. (However, if a laboratory policy states that all evidence received into the laboratory will be submitted in sealed condition, this requirement of the laboratory exceeds that minimum standard set by ASCLD/LAB-ISO and will essentially trump that minimum standard.)

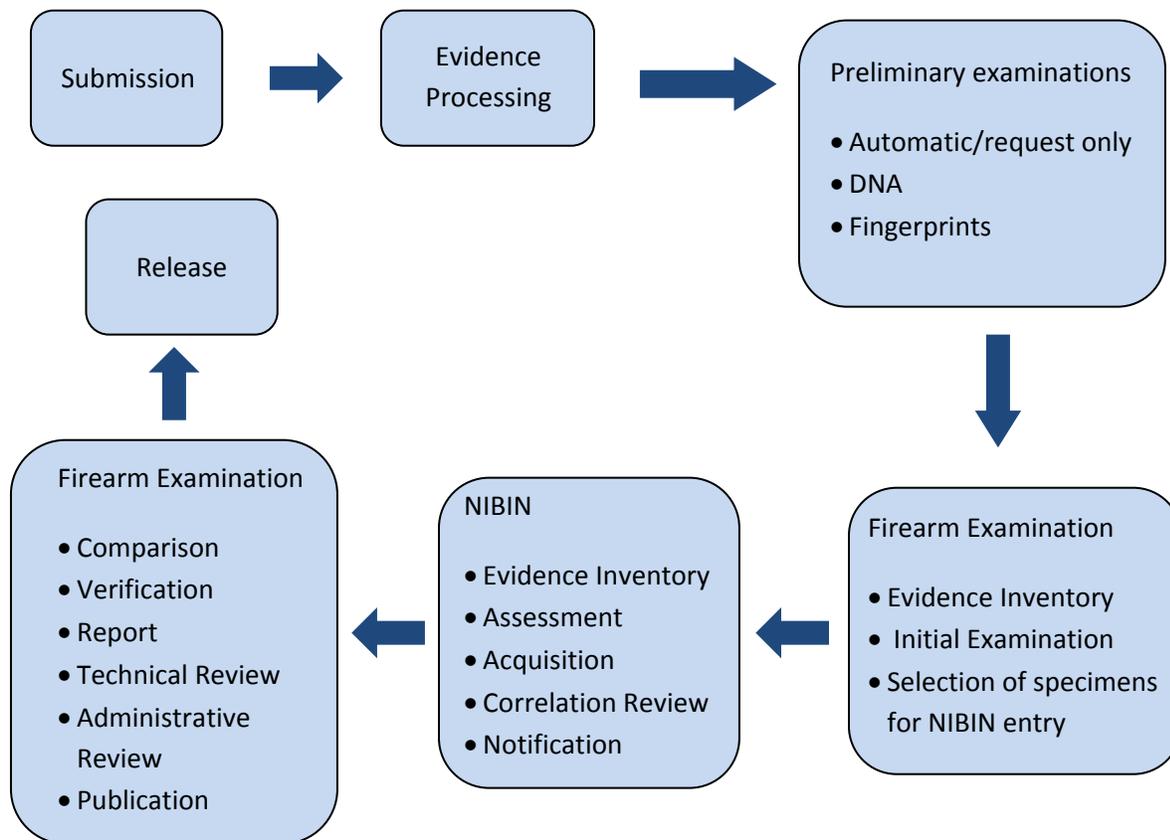


Figure 3b: Proposed evidentiary flow of firearm-related evidence associated with a homicide or aggravated assault in a forensic science laboratory

There are several differences between the two diagrams; the most obvious of which will be the lack of preliminary examinations such as DNA and fingerprint processing for routine firearm-related evidence. While there is nothing prohibiting such work, it can create a chokepoint in those sections of the laboratory much like a firearm examination would in the traditional evidentiary flow depicted in Figure 2. Therefore, a laboratory will have to balance the value of potentially recovering usable DNA or prints with the case backlog it will generate in those areas, and the subsequent negative impact on timely actionable NIBIN intelligence that would otherwise be achieved were these processes not required.

For recovered fired, cartridge case evidence from crime scenes, studies have demonstrated that the likelihood of obtaining usable latent prints is less than 1/2%.<sup>13,14</sup> The results are not any more promising for obtaining usable DNA profiles off fired cartridge cases

<sup>13</sup> Husdon, D. Walk in Wednesday. Presentation provided at AFTE Training Seminar. Study performed in 2002 resulting in a policy change in 2003 regarding routine fingerprint processing for fired cartridge cases,

<sup>14</sup> Maldonado, B. Study on Developing Latent Fingerprints on Firearm Evidence. *Journal of Forensic Identification* 62(5): 425-429.

with the exception of bloody partial print impressions.<sup>15,16</sup> Combine this with the fact that there is a relatively strong likelihood that a particular case may not proceed beyond NIBIN, the cost-return ratio would not be worth the added examinations for routine NIBIN submissions. An argument such as, “Well, if it comes back as a NIBIN hit then the other work may be needed and the opportunity to do it is now lost,” is inherently flawed. The reason is because under the old processes, this evidence would never have even been put into NIBIN, or, if it had, it would have been done so late as to be of little to no value. For routinely recovered firearms, recommended preservation procedures have included not using ammunition magazines or submitted ammunition, preserving those for fingerprint processing along with routine swabbing for DNA preserving for analysis later if needed.

The second major difference is the recognition that it might be wiser in homicide and aggravated assault cases to have a firearm examiner have an initial look at the evidence and then provide specific specimens to the NIBIN technician for acquisition and correlation review. The reason is that it is highly more likely that these cases will be going to court. Notice though that a complete examination is not required, nor is it recommended, before NIBIN work can commence. The reason of course is timeliness.

Moving forward, three specific issues should be discussed. The first is quality assurance and quality control. The second is how a laboratory would move in the direction of putting NIBIN on the front-end of firearm-related casework as described. The third will be the closer integration of investigatory needs with forensic science laboratory processes and the potential for bias as discussed in the aforementioned NAS report.

#### 1. Quality assurance and quality control

The purpose of this new front-end approach is to provide timely, actionable intelligence that is reliable. Well-trained technicians can screen and triage cartridge case evidence based on class characteristics such that, unless two different firearms were involved that share similar class characteristics, it is likely that almost every firearm involved in a particular shooting will be represented by a selected cartridge case acquired into NIBIN. While not guaranteed, the chance that a firearm involved in a scene won't be represented by a selected cartridge case is offset by the greater comprehensive data collection and increased timeliness that is gained with a technician doing triage and entry.

Confirmation of a suspected lead developed during correlation review is not required prior to publishing that lead, provided that the notification specifies that it is only an investigative lead that has not been confirmed. However, there has to be a sufficiently high standard for calling a potential candidate for comparison (PCC) such that when it is received, the

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<sup>15</sup> Spear, T. *et al.* Fingerprints and DNA on Cartridges and Cartridge Cases: How Likely? A report on a project of the California Criminalistics Institute and the California Bureau of Forensic Services Latent Print Unit.

<sup>16</sup> Richards, D. DNA from Casings – Brown Bag Presentation, Phoenix Police Department, 2014.

investigator has a good indication that the lead is indeed reliable. There are several ways to accomplish this.

- a.) Confirm every PCC microscopically using streamlined procedures that would not require a review and comparison of all evidence, just the exhibits in question. Depending on evidence location, this could prove an obstacle to timeliness.<sup>17</sup>
- b) When a technician wishes to declare a PCC, another trained technician or firearm examiner would have to agree to the on-screen assessment. If agreed, then a notification can be published. If there is not an agreement, it can either be designated as a non-lead, have a third person view it, or, simply, call the evidence back for a microscopic comparison and confirmation prior to issuing the notification.

At no time should notifications be issued that indicate or imply that a comparison was performed when none was performed or that a PCC is anything but an unconfirmed investigatory lead. Examples of wording can include the following:

- a) For a case involving multiple cartridge cases that were triaged:

Of the ten fired cartridge cases that were submitted, Items 1 and 6 were selected for entry into the Integrated Ballistics Identification System (IBIS) and a correlation with the local database was performed. No potential candidates for comparison (PCC) were developed. Digitized images will remain in the database and will be automatically correlated as future exhibits are entered and correlated.

- b) For a developed PCC that was not confirmed:

Item 1 was selected for entry into the Integrated Ballistics Identification System (IBIS) and a correlation with the local database was performed. A potential candidate for comparison (PCC) was developed with Item #, acquired under case # associated with AGENCY NAME. This is an investigatory lead only and was not confirmed. If confirmation is needed, submit the evidence to the forensic science laboratory and request a comparative firearm examination be performed.

## 2. Accomplishing a shift in direction

Review the ASCLD/LAB-ISO or FQS guidelines with respect to forensic databases in general and NIBIN in particular. Understand the distinction between reports and notifications, specifically the requirements of reports. Moving from a “report” to a “notification” can mean the saving of a significant amount of time and energy when it need not necessarily need to be expended. Also review and understand the distinction between evidence and reference

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<sup>17</sup> A potential solution to this is by maintaining casts of cartridge cases placed into NIBIN as a reference, open case file in the laboratory.

specimens. Although considered “evidence” by many laboratories, test fired cartridge cases and bullets can just as correctly be designated as “reference specimens,” arguing that the firearm itself is the evidence. These are not just semantics but rather, legitimate distinctions that are recognized to be appropriate when dealing with certain types of evidence under certain circumstances.

Meet with other stakeholders to discuss the various options and obstacles available. Such stakeholders should include laboratory personnel, quality assurance managers, investigators and prosecuting attorneys. In this way, all are involved in the decision-making process as to what will be done and not done depending on the type of case that is being processed. In addition, they may have ideas or offer potential ways in which certain processes can be streamlined.<sup>18</sup>

It really is not possible to provide a standard set of policies and procedures to move NIBIN to the front-end of firearm-related casework for every laboratory. This is because of:

- The nature in which so many policies and procedures are tied into one another in many laboratories
- The number of different ways a laboratory can approach moving NIBIN to the front-end
- The laboratory specific details included in their own policies and procedures

Rather, what can be provided (and has been in this document) are a foundation and framework from which laboratory specific procedures can be written and then checked against existing policies and procedures to ensure there are no internal conflicts. These should then be submitted to ASCLD/LAB-ISO or FQS for their review and approval as needed. Keep in mind the two main factors for ASCLD/LAB-ISO and FQS are:

- a.) Are the minimum standards met?
- b.) Is the laboratory doing what their policies and procedures say they are doing?

The reader is encouraged to review the appendices which provide examples of streamlined procedures that have been successfully implemented. In addition there is a statement with respect to issues concerning backlogged evidence and firearms and the priority with which the backlog should be treated.

### 3. Potential for bias by integrating investigatory needs with forensic laboratory practices

A primary concern of the aforementioned NAS report was that if a forensic science laboratory was too closely integrated with the investigation side of the equation, there could be a greater potential for bias thereby impacting the reliability of examination results. This concern was heightened for those disciplines involving subjective determinations of identity, such as

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<sup>18</sup> See, *Moving Toward a More Effective NIBIN*, available from the NIBIN Branch.

firearm and tool mark comparisons and fingerprint comparisons. While that potential remains an unknown, it was considered to be of a sufficient enough concern to recommend the segregation of law enforcement agencies from forensic science laboratories.<sup>19</sup>

It has to be understood that NIBIN is an investigative tool. Therefore, whether it is part of a forensic science laboratory or not, the full potential of NIBIN will not be realized unless it is treated as a tool to aid in active investigations as opposed to an open case file on the back end of casework. Sufficient safeguards can be built in and established with the laboratory protocols that can help to minimize any potential for bias. The fact is that bias can never be completely eliminated even with the segregation of investigative efforts from forensic science laboratory efforts. However, with training and appropriate development of protocols and standards, the potential for bias can be minimized.

## **Conclusions**

The cost of violent crime, specifically firearm-related crime is high in terms of lives, money, quality of life and the economic potential for cities. Considering the cost, it would seem essential that every effort that can be made to stem and reduce violent crime is made. NIBIN has a great potential to do just that for firearm-related violent crime.

Due in large part to the manner in which it was implemented, NIBIN has not been able to achieve its potential as a regional, investigative tool that could be used to identify, target and prosecute shooters and their sources of crimes guns; getting active shooters off the streets before they can shoot again. As a result, its impact on societal costs due to violent firearm-related crime has been minimal. Its success has been scattered and because of that, disenchantment for NIBIN has grown.

Steps can be taken by NIBIN sites to help facilitate comprehensive data collection and timeliness for firearm-related evidence, two keys critical to a successful NIBIN Program. In general, this means moving NIBIN to the front-end of firearm-related casework instead of having it at the back-end. Furthermore, this can be done even in light of oft-cited potential obstacles such as ASCLD/LAB-ISO or FQS accreditation and segregation of investigative efforts from forensic science laboratory efforts. It will require a change in mindset and a willingness to critically review established processes and procedures (and the reasons for them), making sometimes hard decisions so that processes better suited to using NIBIN as an investigatory tool can be developed and implemented. In this way, the potential for NIBIN can be better realized.

There is a heavy cost to society in terms of impacted lives, monetary expenditures that could be diverted elsewhere, and quality of living due to firearm-related crime. Proper utilization

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<sup>19</sup> This is the model used by the District of Columbia in the establishment of a forensic science laboratory separate from the District of Columbia Metro Police and the city of Houston in moving the forensic science laboratory out from under the authority of the police department to a different department in the city government.

of NIBIN can help to reduce that cost. Given the manner in which law enforcement agencies and forensic science laboratories have been entrusted by the public to help ensure a safer society, we have an ethical and fiduciary responsibility to be as effective as we can given the resources we have available. This would include approaching shooting investigations in new and different ways, coordinating NIBIN and forensic science laboratory efforts to help facilitate the identification, targeting and prosecution of shooters and their sources of crime guns.