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Evidence Retention Policies in U.S. Law Enforcement Agencies: Implications for Unsolved Cases and Postconviction DNA Testing

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Abstract

The use of forensic evidence in the criminal justice system has grown appreciably in the United States. Yet policies that dictate how state and local agencies maintain and store forensic evidence have not kept pace. This study examined the prevalence of evidence retention policies, as well as storage locations and tracking systems, in a nationally representative sample of state and local law enforcement agencies. Less than half of U.S. police departments have a policy for preserving biological evidence from convicted offenders. Among agencies having a policy, the responsibility for retaining evidence was most commonly placed with the investigating law enforcement agency. Implications of these findings and policy directions are discussed.

Keywords

forensic science, law enforcement, forensic evidence, postconviction testing, evidence retention, storage capacity

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The forensic sciences play an important role in investigating unsolved crimes, convicting the guilty, and exonerating the innocent. Yet the lack of uniform practices for storing, maintaining, and tracking forensic evidence can impede the use of forensic evidence for these purposes (National Research Council, 2009). The effectiveness of forensic evidence cannot be maximized unless more standardized procedures are implemented that assure greater consistency in the access to and application of forensic evidence across jurisdictions.

Among the forensic disciplines, DNA in particular has emerged as a highly valuable tool for helping establish guilt as well as exonerating the innocent. Biological evidence can link a crime (or a series of crimes) to a particular suspect or victim, a process which can greatly benefit new investigations and the prosecution of "cold cases." Forensic evidence, mainly DNA, can also serve an important function during the postconviction process. There are currently no statistics available on the number of cases in which analysis or reanalysis of DNA evidence (or other forensic evidence) confirmed the original conviction on appeal. However, as testing of forensic evidence has grown for investigations and prosecutions, so too has its use grown in the postconviction process.

National attention and state legislation on postconviction DNA testing has been driven in large part by the role of DNA in exonerations including the dissemination of personal experiences of exonerations in the popular media (Connors, Lundregan, Miller, & McEwan, 1996; Gross, Jacoby, Matheson, Montgomery, & Patil, 2005; Junkin, 2004). More than 70 Innocence Project Programs have been established nationally since 1992 when the first one was created at Cardozo Law School in New York, leading to the review and investigation of tens of thousands of postconviction investigations. As of the date of this writing, a total of 254 individuals have been exonerated through postconviction DNA testing, including 17 who had been sentenced to death (The Innocence Project, 2010). One roadblock for these exonerations is the ability to perform postconviction DNA testing; if the forensic evidence cannot be located or is no longer available, postconviction testing is impossible. For example, the Cardozo Law School's *Innocence Project* closed 233 client cases without a resolution between 2004 and 2008. Among these cases, 22% were closed because evidence had been lost or destroyed (personal communication with *Innocence Project* staff on April 16, 2009).

While exonerations and convictions upheld on appeal are important indicators of "criterion validity" for the adjudicative process, the use of forensic evidence for new criminal investigations is also of critical importance. This issue has been framed as a balance between due process and victim rights, and studies have shown that there are sizable numbers of unsolved cases with unanalyzed forensic evidence (Pratt, Gaffney, Lovrich, & Johnson, 2006; Strom & Hickman, 2010). For example, according to a national sample of state and local police departments, over a 5-year period, an estimated 14% of all unsolved homicides (an estimated 3,975 cases), 18% of all unsolved rapes (an estimated 27,595 cases), and 23% of all unsolved property offenses (an estimated 5,126,719 cases) contained forensic evidence that had not been submitted to a forensic crime laboratory for analysis (Strom et al., 2009; Strom & Hickman, 2010). Approximately 40% of the unanalyzed homicide and rape cases were reported to have contained DNA evidence and 26% were reported to have contained latent print evidence.

Across the primary criminal justice actors, forensic laboratories appear to be the best prepared in terms of having formal policies and procedures in place for retaining and storing biological evidence. Prior national surveys of DNA crime laboratories sponsored by the Bureau of Justice Statistics (BJS) have shown that a majority of state and local crime laboratories have policies regarding evidence retention and storage (Steadman, 2000, 2002). In 2001, 85% of laboratories reported storing DNA samples in case there was a need to reanalyze the evidence in the future, and 78% had a written policy pertaining to sample disposition, many of which were reported to specify what form of DNA was stored, for how long, and what evidence was returned or destroyed (Steadman, 2002).

The 2002 National Forensic DNA Study sponsored by the National Institute of Justice (NIJ) was the first effort to understand backlogs within both law enforcement agencies and crime laboratories (Lovrich et al., 2004; Pratt et al., 2006). The study's findings documented sizeable evidence backlogs including unsolved biological cases that had not been submitted to a laboratory for analysis. While the study did not address retention policies for postconviction cases, it did find that 61% of U.S. police agencies reported having insufficient storage capacity for the retention of DNA evidence.

Prottas and Noble (2007) investigated evidence retention policies as part of a larger study of the use of DNA evidence by local prosecutors' offices. A survey questionnaire was administered to a sample of 253 local prosecutors' offices. Only a third of the responding offices indicated they had a formal written policy regarding postconviction evidence retention, and 44% did not know if they had such a policy. However, these results must be considered in the context of what Prottas and Noble termed the "complex organizational responsibility" (p. 314) for evidence storage: 41% of the prosecutors' offices indicated that multiple agencies shared responsibility for postconviction preservation of evidence; 35% indicated that a police or sheriff's department had the responsibility; and 19% indicated that the crime lab had the responsibility.

These data highlight the local variation that presently characterizes evidence retention in the United States. The preservation of evidence in a particular jurisdiction may be mandated for a period of time by statute, policy, or practice, yet subsequent preservation or destruction is typically left to the discretion of courts, prosecutors, or police (Jones, 2005). Many of the recent innocence protection statutes, while well-intentioned, lack "teeth" when it comes to preserving evidence. Although these statutes may facilitate a prisoner's request for reanalysis of biological evidence, some do not actually impose a duty on the government's part to protect evidence, or they impose a duty that only takes effect once in receipt of the prisoner's petition (Jones, 2005). However, as of 2005, the innocence protection statutes in 19 states, the District of Columbia, and the Federal Innocence Protection statute explicitly require biological evidence from criminal cases to be preserved until the prisoner is released from confinement (Jones, 2005). In addition, there are several local jurisdictions that have succeeded in developing meaningful evidence retention policies; one such example is in Ramsey County, Minnesota, where a uniform evidence retention policy was developed by the prosecutor's office in consultation with several local police departments (Levenson, Amoroso, Gaertner, Williams, & Little, 2008).

The situation related to forensic evidence storage policies has implications for the justice process; if evidence is not retained, forensic testing for investigations, prosecutions, and for the postconviction appeals process cannot occur. It is therefore critical to know the nature and extent of policies regarding evidence retention and storage in criminal justice agencies. Evidence retention policies are not only essential for forensic laboratories but also important for state and local police departments that are often responsible for the long-term storage and maintenance of forensic evidence for both solved and unsolved cases.

The purpose of this article is to provide findings concerning evidence retention policies in state and local law enforcement agencies. Results are presented for not only the presence of evidence policies across U.S. police agencies but also the sources of those policies, evidence storage locations, and the availability of systems for tracking evidence. In the sections that follow, we discuss our methods, results, and the policy implications of our findings.

Method

This study employed a nationally representative sample survey of state and local law enforcement agencies (Strom et al., 2009). The primary goal of the survey was to examine forensic evidence processing within U.S. law enforcement agencies, and an important secondary goal of the study was to describe agency policies for processing, submitting, and retaining forensic evidence. The survey questionnaire was developed with input from a panel of experts in the fields of forensics and law enforcement. The initial questionnaire was based on the instrument used in the 2002 National Forensic DNA Study (Lovrich et al., 2004; Pratt et al., 2006), and augmented to reflect a broader range of forensic evidence. The questionnaire was pretested with six agencies from across the country, including state and municipal police departments, and county sheriffs' offices.

Specific research questions bearing on evidence retention included the following:

Research Question 1: To what extent do law enforcement agencies have policies regarding the preservation of biological evidence that was secured in the investigation of an offense if the defendant was found guilty?
Research Question 2: What is the underlying authority for the policy?
Research Question 3: Who has responsibility for evidence preservation?
Research Question 4: Where is evidence stored?
Research Question 5: To what extent do agencies have information systems in place that are capable of tracking forensic evidence?

The sampling frame consisted of all state and local law enforcement agencies in the BJS 2004 Census of State and Local Law Enforcement Agencies (Reaves, 2007). The 2004 Census represents nearly 18,000 state and local law enforcement agencies with the equivalent of at least one full-time officer operating in

the United States. The sampling frame was first stratified by agency type (state police, municipal departments, and sheriffs' offices). Information provided by BJS also was used to remove sheriffs' offices that did not have a law enforcement investigative function (this decision removed sheriffs' offices that provided security for jails and courts but did not investigate crimes as part of their regular functions). The second stratum partitioned the sampling frame based on agency size (defined as full-time sworn personnel or full-time equivalents). Agencies with 100 or more sworn officers were selected with certainty. For other size categories, an equal probability sample was selected within each stratum combination of agency type and agency size. A total of 3,153 agencies were selected. Appendix A provides the final stratified sampling frame and the number of agencies selected from each stratum. Note that 59 agencies were deemed ineligible (due to mergers with other agencies, not having responsibility for investigating crimes, or not being the lead agency for investigating criminal cases in their jurisdiction), resulting in a final sample of 3,094 agencies.

Data collection was conducted between August and December, 2008, using three modes: (a) Web response, (b) hardcopy return, and (c) computer-assisted telephone interview (CATI). A total of 2,250 agencies responded to the survey, yielding an overall survey response rate of 73% (Appendix B). The lowest response rates were among agencies having less than 25 officers (65%) and among state agencies (63%). Response rates were highest among agencies having 50 to 100 officers (77%) or 100 or more officers (76%) as well as among municipal police departments (75%).

To reduce potential bias due to nonresponding agencies, the design weights for responding agencies were adjusted within cells indexed by variables that were predictive of response status, such as the sample stratification variables. The sample design weights for responding agencies were adjusted upward to compensate for those agencies that did not respond. These weights were computed using generalized exponential models (GEM) software (Folsom & Singh, 2000). Imputations were performed using a weighted sequential hot-deck procedure developed by Iannacchione (1982), which selects a donor from a receptor pool using the sampling weights of donors and probability minimal replacement sequential sampling (Chromy, 1979).

These weighting and imputation procedures enabled valid statistical inferences from the 2,250 participating agencies to the entire population of state and local law enforcement agencies in the United States. In general, each agency carried the weight of six other agencies that were not selected for the study. Estimation for specific analysis domains or subgroups was obtained by partitioning the weighted estimates by domains such as agency type, agency size, and census region. To produce the estimates, the most recent edition of SUDAAN (RTI International, Research Triangle Park, NC) was used because it computes weighted statistics and variance estimates for cluster-correlated data.

Table 1. Percent of Agencies With Evidence Retention Policies for Biological Evidence

	Biological evidence retention if defendant found guilty?		
Agency size	Yes	No	Unsure
All sizes	46.2%	38.0%	15.9%
100 or more	72.2	18.0	9.8
50 to 99	61.8	24.9	13.3
25 to 49	55.6	28.7	15.7
Less than 25	39.9	43.3	16.8

Results

Law Enforcement Policies for Retaining Biological Evidence

Law enforcement respondents were asked if their agency had a policy regarding the preservation of biological evidence that was secured in the investigation of an offense if the defendant was found guilty. Overall, less than half of all respondents (46%) reported having a policy in place that met these criteria, about one third (38%) reported that they did not have such a policy, and nearly 16% indicated they were unsure whether their agency had such a policy (Table 1). The presence of a formal policy for retaining biological evidence in postconviction cases varied considerably by agency size. Seventy-two percent of the largest police departments (100 or more sworn officers) reported having a policy in place for preserving biological evidence in postconviction cases compared to 40% of departments with 25 or fewer sworn officers.

Among those agencies with an evidence retention policy, 51% reported that the policy was governed by state statute, and 43% reported that evidence was retained due to agency policy (Table 2). An additional 5% of agencies reported that the policy was in place due to a legal decision.

Small police departments with fewer than 25 sworn officers were more likely to report that their evidence retention policies were based on an agency-specific policy (50%) rather than a state statute (41%). In contrast, police agencies with 25 or more sworn officers were more likely to have evidence retention policies in place due to state statutes. Legal decisions were most likely to affect evidence retention police in the largest department. About 1 in 10 police departments (11%) with 100 more sworn officers reported that their evidence policy was in place due to a legal decision.

Finally, agencies with an evidence retention policy for biological evidence were asked who was responsible for retaining the evidence in these cases (multiple entities could have responsibility). Table 3 demonstrates that the responsibility for retaining this evidence most commonly was placed on the investigating law enforcement agency (80%), followed by the crime laboratory (21%). The court system (8%) and the

Table 2. Governing Authority for Biological Evidence Retention Policies

	What governs the biological evidence retention policy?			
Agency size	State statute	Local ordinance	Legal decision	Agency policy
All sizes	51.4%	0.8%	5.2%	42.7%
100 or more	58.1	0.6	10.5	30.8
50 to 99	63.5	0.5	7.6	28.5
25 to 49	60.9	0.2	6.0	32.9
Less than 25	45.1	1.0	3.7	50.2

Table 3. Responsibility for Retaining Biological Evidence

	Who is responsible for retaining biological evidence?				
Agency size	Investigating agency	Crime laboratory	Court system	Prosecutor's office	Other
All sizes	80.2%	20.9%	7.6%	7.5%	2.3%
100 or more	87.8	26.9	19.2	12.1	5.3
50 to 99	83.6	27.1	15.5	9.5	4.9
25 to 49	87.5	23.8	13.3	11.8	2.2
Less than 25	77.0	18.5	3.5	5.5	1.5

prosecuting attorney's office (8%) were less frequently identified as having any responsibility for retention of biological evidence in postconviction cases.

All agencies, regardless of size, were most likely to report that the investigating law enforcement agency was responsible for retaining forensic evidence. Larger agencies with 100 or more sworn officers reported that the crime laboratory (27%), court system (19%), and prosecuting attorney (12%) had some responsibility in retaining evidence postconviction. In comparison, the smallest agencies (those fewer than 25 sworn officers) were the least likely to report that the court system (4%) or prosecuting attorney's office (6%) had any role in retaining forensic evidence after a conviction.

Evidence Storage Locations

Findings from the survey demonstrate that the vast majority of law enforcement agencies (92%) utilize an on-site storage area for unanalyzed evidence (Table 4). These areas could be used both for solved and unsolved cases that contain forensic evidence that has not been sent to a crime laboratory for analysis. About 21% of agencies reported

Table 4. Storage locations for unanalyzed evidence

	Where is unanalyzed evidence stored?			
Agency size	On-site storage area	Crime laboratory	Off-site storage area	Other
All sizes	92.0%	20.7%	7.9%	3.3%
100 or more	88.9	21.4	22.2	4.4
50 to 99	95.3	13.0	11.9	1.8
25 to 49	96.0	11.6	9.4	1.1
Less than 25	91.1	9.3	5.9	3.8

using a crime laboratory's facilities for storing unanalyzed evidence. An additional 8% of agencies reported using an off-site storage location (other than the crime laboratory for storage), while 3% reported using an "other" type of location for evidence storage.

The largest police departments (more than 100 officers sworn) were the most likely to utilize off-site storage areas or other agencies to store unanalyzed evidence. Similar to smaller departments, the largest agencies also were most likely to use on-site facilities (89%); however these departments also used crime laboratories (21%) and off-site locations (22%) more frequently for storing unanalyzed forensic evidence.

Law Enforcement Information Systems

Results from the survey show that nearly 6 in 10 law enforcement agencies (58%) reported having an information system in place that was capable of tracking forensic evidence inventory (Table 5). Whether a department had a computerized system capable of tracking forensic evidence was in large part affected by agency size. About 75% of agencies with more than 100 sworn officers reported having such a system; as did 70% of agencies with 50 to 100 sworn officers and 68% of agencies with 25 to 50 officers. Only 33% of the smallest police departments (fewer than 25 sworn) reported having such an information system in place.

Discussion and Conclusions

Law enforcement agencies vary widely in terms of their policies for retaining forensic evidence, especially in cases where a defendant has been convicted of a crime. Developing policies that provide clear guidelines for the preservation and documentation of biological evidence by law enforcement agencies are a major area of need. In addition to the need to retain evidence for unsolved crimes, there have also been an increasing number of states passing statutes that require the indefinite storage

Table 5. Computerized Systems Capable of Tracking Forensic Evidence

	Does the agency have a computerized system capable of tracking forensic evidence inventory?	
Agency size	Yes	No
All sizes	57.9%	42.1%
100 or more	75.3	24.7
50 to 99	70.2	29.8
25 to 49	67.5	32.5
Less than 25	32.7	67.3

of forensic evidence used in crime convictions (although as mentioned previously, some of these statutes vary in the degree to which they impose a duty on the government to actually preserve evidence; see Jones, 2005).

Prior surveys of DNA laboratories have found that state and local forensic laboratories often have policies regarding evidence retention and storage (Steadman 2000, 2002). Based on a survey of DNA crime laboratories conducted in 2001, nearly 9 out of 10 DNA labs reported storing DNA samples in case there was a need to reanalyze the evidence and approximately 8 out of 10 laboratories had a written policy pertaining to sample disposition including how long DNA was stored and what evidence was returned or destroyed (Steadman, 2002). While these findings are encouraging, according to law enforcement respondents that participated in the current study, state and local police departments—not forensic laboratories—are most often responsible for forensic evidence storage (see Table 3).

This study sought to develop new information about the prevalence of evidence retention policies in state and local police departments. The NIJ-funded study of evidence processing in law enforcement agencies (Strom et al., 2009; Strom & Hickman, 2010) asked whether agencies had a policy regarding the preservation of biological evidence that was secured in the investigation of an offense if the defendant was found guilty. Findings showed that less than half (46%) of state and local law enforcement agencies in the United States had an evidence retention policy for postconviction cases, and of these agencies, half reported the policy was governed by a state statute. When agencies had such a policy, the responsibility for storing evidence was most commonly placed on state and local law enforcement, with most agencies storing the evidence on-site. As noted by Badeaux (2010), who examined DNA evidence retention policies in Texas, there can often be confusion about which agencies are responsible for maintaining the preservation of evidence in particular jurisdictions and state laws may not clearly define these responsibilities. For instance, in their survey of local prosecutors, Protas and Noble (2007) found that storing biological evidence was most commonly a responsibility jointly shared

between prosecutors and law enforcement (41%), followed by the responsibility of law enforcement (35%) or the crime laboratory (19%).

Another key finding concerned the lack of information systems available for tracking forensic evidence. Overall, about 6 in 10 police departments reported having such a capability, which ranged from 75% of the largest departments to only 33% of the smallest departments. Furthermore, a "knowledge gap" among some law enforcement personnel regarding the investigative utility of forensic evidence, limited resources available for testing, and policies that prioritize testing for cases with a known suspect, suggest that evidence retention in state and local law enforcement agencies is a major concern for the justice process (Strom et al., 2009; Strom & Hickman, 2010).

The implications of these findings are considerable. Perhaps the most important implication is the demonstration that, as a whole, U.S. police departments are lacking in terms of forensic evidence retention policies for postconviction cases. This need is especially apparent for smaller departments. Yet, even among the largest departments (i.e., those with 100 or more sworn officers), only three out of four reported having a formal policy in place for retaining biological evidence in postconviction cases. The lack of formal evidence policies within police departments is especially concerning given that a number of state legislatures have passed laws concerning evidence preservation. Almost all states have DNA access statutes in state law (apparently, only Massachusetts and Oklahoma do not), but only a little more than half the states have enacted legislation requiring preservation of evidence when a defendant is convicted, and the categories of crime, timeframes, and triggering mechanisms vary widely (Innocence Project, 2010; DNA Initiative, http://www.dna.gov/state_profiles, 2010). In sum, in many instances, the state laws that provide criminal defendants with access to biological evidence postconviction often are not aligned with actual policies in local jurisdictions to retain and track this evidence should it be needed for analysis.

This study also suggests that the size of the law enforcement agency affects evidence retention policies. That is, larger agencies (serving larger populations) are more likely to have policies for retaining biological evidence and more likely to have information systems in place for tracking forensic evidence inventory. Yet smaller agencies still have a sizeable proportion of cases containing forensic evidence, particularly with regard to rape and property crime cases (Strom & Hickman, 2010). How much this affects unsolved and postconviction cases is unknown without additional study. Future studies should investigate evidence retention policies for state and local law enforcement agencies for unsolved cases and all forensic evidence including latent prints, trace evidence, and firearms and toolmarks, not just DNA. The findings also highlight the need for greater uniformity in evidence retention policies including improved procedures within mid- to small-sized police departments. While individually small departments generally handle relatively few serious crimes, collectively these departments represent a large percentage of all police departments in the United States and with the exception of homicide a relatively sizable percentage of violent crimes (Reaves, 2007).

Furthermore, the findings demonstrate the importance of storage capacity for forensic evidence within the greater context of evidence processing and analysis. Proper evidence storage procedures can help maintain the integrity of evidence as well as its availability for investigations and judicial proceedings. Storage locations are used for evidence that has not been analyzed by crime laboratories (including both solved and unsolved cases), as well as for evidence that has been submitted and analyzed by the laboratory, but is then returned to the agency. Failures in evidence storage can negatively affect the condition of forensic evidence, as can discarding or not being able to locate critical evidence. These problems pertain to not having sufficient storage space and to the lack of tracking systems and processes in place for determining when forensic evidence can be discarded and when it should be retained.

Law enforcement information systems should be enhanced so that they can systematically track and monitor forensic evidence associated with criminal cases. Among these agencies that did report having a system with these capabilities, it is not known whether those systems are integrated with more centralized police records management systems. This could include the ability to determine what evidence has been tested (or not tested) in a case, an inventory to the evidence in storage, how long the evidence in a case has been in storage, and the status of cases for which forensic evidence was collected. In some instances, larger police agencies (including large county agencies and state police agencies) reported significant difficulty providing forensic backlog data regarding open rape and property cases because this information was not maintained in a centralized system.

Finally, a related concern is the quality of communication between the three principal actors in the processing of forensic evidence: police, prosecutors, and crime laboratories. Effective communication and coordination among these three entities is paramount in determining what is to be retained (or perhaps more important, what is to be destroyed), by whom, and for how long. Given increases in the volume of the forensic workload, integrated information systems will play a critical role in this regard.

Policy Implications

If forensic evidence is not properly stored, maintained, and tracked, it becomes a less effective tool in solving crimes, upholding convictions, and exonerating the innocent. We must develop greater uniformity at both the state and national level in how evidence is stored and tracked. In the absence of such uniformity, the justice system goals of equal access for victims and offenders cannot be achieved. A simple fact can be agreed on by all: if evidence is not preserved there can be no future analysis to support or refute a conviction.

For example, the number of individuals who have been exonerated by postconviction DNA testing continues to grow, as does the number of states with statutes allowing postconviction testing and requiring preservation of evidence. Most of these laws

are specific to DNA testing but inclusion of other forensic evidence should be sought. Moreover, it is imperative that once state statutes are established, there must be adequate agency funding to allow crime laboratories and law enforcement to quickly and efficiently address their policies and procedures to support the statutes. The primary federal mechanism for effecting such change is the withholding of federal funds for noncompliant jurisdictions. However there must also be a commitment at the federal and state levels to continued funding to maintain evidence retention and tracking systems and capacity once established.

King and Maguire (2009) recently outlined some potential outcome-based performance indicators for organizations that process physical evidence. These indicators were organized within three general domains: crime scene processing and evidence storage; analyzing evidence; and information dissemination, usage, and utility. Notably among the first two domains were the "ability to properly store and secure evidence (prevent alteration, destruction, or theft of evidence while stored)" and the "ability to dispose of/destroy physical evidence when appropriate" (King & Maguire, 2009, p. 165). The extent of both of these evidence retention factors within law enforcement agencies requires further research. Auditing assessments based on these types of indicators could then be tied to agency accreditation, eligibility for state and or Federal funding, and other mechanisms for encouraging consistency both within and across jurisdictions.

Moving forward, state and local jurisdictions must work to create standardized and efficient systems for maintaining and tracking forensic evidence. In some instances, it may not be clearly established which agency within a jurisdictions is ultimately responsible for maintaining, tracking, and also destroying biological evidence (see Badeaux, 2010). Most important, there has not been a common cross-organizational practice emerging within the criminal justice system to address evidence retention issues. Since both law enforcement and prosecutors in many jurisdictions still have a need to create such policies for evidence preservation and postconviction testing, it is hopeful that they can work together to devise a structured, systematic, and efficient approach, which may be facilitated through further research to document practices and trends within these offices. Evidence retention policies that have been established in forensic laboratories, especially concerning postconviction testing and unsolved crimes, should be used as a foundation for establishing similar evidence retention policies in law enforcement agencies. Moreover, the evidence retention policy should involve cross-agency agreements between representatives from law enforcement, forensic laboratories, and prosecutor officers, as well as defense representatives to ensure the retention policy is effective, understood, and supported by all stakeholders.

Building on the forensic readiness framework for digital evidence proposed by Rowlingson (2004), to the extent possible, such a framework should be established cooperatively across law enforcement, laboratories, and prosecutors to maximize the potential to use forensic evidence in the future while minimizing the cost of retention. Costs for forensic readiness include periodic updates to policy,

improvements in training, systematic evidence gathering and secure storage, evidence retention preparation, legal advice, and developing a contingency plan when breaches in policy occur. The foremost issue in understanding the need for forensic readiness is risk assessment. A theoretical, stepwise approach to implementing forensic readiness in an evidence retention policy for law enforcement agencies may include

1. Defining the legal, forensic, and criminal justice scenarios that require evidence retention in jurisdictions;
2. Identifying available sources and types of forensic evidence that are the "best evidence" for long-term, secure evidence retention and determining ways to minimize the amount of evidence retained for cases (e.g., saving blood samples on FTA cards for DNA instead of blood vacutainers);
3. Establishing evidence retention requirements for secure storage;
4. Establishing a capability to securely gather legally admissible evidence;
5. Establishing a policy for storage/handling of evidence, which includes an electronic information system;
6. Ensuring that monitoring is targeted to detect and deter inconsistencies and breaches in the evidence retention policy or loss of evidence;
7. Identifying circumstances requiring escalation to full investigations in which forensic evidence should be tested/retested;
8. Training staff on evidence collection (i.e., how to choose the best evidence and how to limit the amount of evidence collected) as well as on evidence retention awareness, the law, and their responsibility in the policy;
9. Documenting corrective action and the impact of evidence retention breaches, and;
10. Ensuring legal review to facilitate action in response to evidence retention policy modification and updates (Rowlingson, 2004).

While these steps are offered as guidelines for stakeholders to consider and address, they can serve as a comprehensive mechanism toward establishing a more uniform system for forensic evidence retention policies in the United States criminal justice system.

As the collection, analysis, and application of forensic science in the criminal justice system has increased, the capabilities and procedures within police departments must work to keep pace. Evidence storage procedures can help maintain the integrity of evidence as well as its availability for investigations and judicial proceedings. Failures in evidence storage can negatively affect the condition of forensic evidence, as can discarding or not being able to locate critical evidence. These problems pertain to insufficient storage space and to the lack of tracking systems and processes in place for determining when forensic evidence can be discarded and when it should be

Appendix A

Sampling Frame and Sample Sizes

Agency type	Less than 25 officers		25 to 49 officers		50 to 99 officers		100 or more officers		Total	
	N	*n*	*N*	*n*	*N*	*n*	*N*	*n*	*N*	*n*
All agencies	11,386	731	2,135	753	1,124	689	980	980	15,625	3,153
Municipal police	9,649	376	1,556	391	807	372	600	600	12,612	1,739
Sheriffs' offices	1,737	355	579	362	317	317	331	331	2,964	1,365
State agencies	0	0	0	0	0	0	49	49	49	49

Appendix B

Response Rates by Type and Size of Agency

	Number responding	Response rate
Overall	2,250	72.7
Type of agency		
Municipal police departments	1,294	75.1
County sheriffs' offices	929	70.0
State police agencies	27	62.8
Agency size		
100 or more officers	735	76.3
50 to 99 officers	524	76.9
25 to 49 officers	536	71.9
Less than 25 officers	455	64.5

retained. Ultimately, effective due process for crime victims and persons convicted of crimes is impeded without greater uniformity in evidence storage policies across all U.S. police departments.

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